

SWEET'S ARCHITECTURAL CATALOGUES



VOLUME C

Blatchly

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Minwax Co., Inc. A254
Ruberoid Co. B2059
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Cable Ventilators, see Ventilators, Attic—
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Kloes, F. J., Inc. B2822

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Headley Emulsified Products Co. A204
Hetzel Roofing Products Co. B2247
Horn, A. C., Co. A207
Hydroseal Waterproofing Co. A206
Minwax Co., Inc. A254
Mitchell-Rand Dampproofing Corp. A262
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Sullivan Co. A271
Toch Brothers A272
Truscon Laboratories A284
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Penetrite A206
Swlco A271
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Century Machine Co. C4365
Read Machinery Co., Inc. C4370

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Caldwell Mfg. Co. C3503
Graves, Frank, Sash, Door & Mill Co. C3508
Pullman Mfg. Co., Inc. C3506
Unit C3506

Balusters, Balustrades, Art Marble

Chicago Art Marble Co. B2985

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Klein, Henry, & Co., Inc. B2829
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Reinforcing Devices

Barn Equipment

Fiske, J. W., Iron Works B1981
James Mfg. Co. B1730
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Floor Accessories Co., Inc. B3168
Specifications B3168

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Havemeyer A312

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Corbin, P. & F. C3609
Detroit Show Case Co. C3971
Imperial Brass Mfg. Co. C3499
Russell & Erwin Mfg. Co. C3697
Sargent & Co. C3777
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Russwin C3697

Reinforcing

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Combined with Electrical Distribution System, Metal

Conduco-Base Co. D5848
Knapp Bros. Mfg. Co. B2390
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Conduco Base A1340; A1410; D5848
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Specifications B2390

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Atlantic Gypsum Products Co. B2426
Berger Mfg. Co. B2384
Concrete Engineering Co. A310
Concrete Steel Co. A312
Conver Steel & Wire Co., Inc. B2386
Knapp Bros. Mfg. Co. B2390
Milcor Steel Co. B2400
Penn Metal Co. B2410
Richisto Metal Trim. Co. B2411
Truscon Steel Co. B2414
United States Gypsum Co. B2443
Wheeling Corrugating Co. B2419
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Ceco A310
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and Insulation Combination; Plaster
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Pump and Blow-off

Wade Iron Sanitary Mfg. Co. C4758
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Basket Racks

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Basters

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Bathroom Accessories

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See Chromium Plating

Electric Heaters or Radiators

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tric

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room

Holders—Paper Towel

A. P. W. Paper Co. D5092
Equipment & Supply Co., Inc. D5094
Northern Paper Mills. D5097
Palmer Products, Inc. D5096
See also page D5110
De Luxe D5096
Economy D5096
Jantzen D5094
Onliwon D5092

Holders—Soap, Tumbler, Tooth Brush,

Sponges, etc.

Autoyre Co. D5093
Eustis, J. P., Mfg. Co. D5012
Fairfacts Co., Inc. D5021
Hoegger, Inc. D5042
Miami Cabinet Co. D5061
Mosaic Tile Co. B3089
Parker, Charles, Co. D5067
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B3135; D5979
Aetco B3067
Art-Tile B3089
Biltin D5021
Brasscrafters D5012
Maid-En-White D5093
Rex D5093
Specifications D5021

Holders—Toilet Paper

A. P. W. Paper Co. D5092
Autoyre Co. D5093
Corbin, P. & F. C3609
Eustis, J. P., Mfg. Co. D5012
Fairfacts Co., Inc. D5021
Hoegger, Inc. D5042
Miami Cabinet Co. D5061
Morgan Paper Co. Div., United States
Envelope Co. D5095
Mosaic Tile Co. B3089
Northern Paper Mills. D5097
Palmer Products, Inc. D5096
Parker, Charles, Co. D5067
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B3135; D5110; D5979
Aetco B3067
Bi-Fold D5095
Biltin D5021
Brasscrafters D5012
De Luxe D5096
Economy D5096
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Maid-En-White D5093
Morganfold D5095
Onliwon D5092
Rex D5093
Springfield Oval D5095
Unity D5095
Specifications D5021

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See Mirrors

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Autoyre Co. D5093
Eustis, J. P., Mfg. Co. D5012
Fairfacts Co., Inc. D5021
Hoegger, Inc. D5042
Miami Cabinet Co. D5061
Mosaic Tile Co. B3089
Parker, Charles, Co. D5067
Biltin D5021
Brasscrafters D5012
Maid-En-White D5093
Rex D5093

Seats or Stools

Fairfacts Co., Inc. D5021
Biltin D5021

Shelves

Autoyre Co. D5093
Chicago Art Marble Co. B2985
Eustis, J. P., Mfg. Co. D5012
Fairfacts Co., Inc. D5021
Hoegger, Inc. D5042
Miami Cabinet Co. D5061
Mosaic Tile Co. B3089
Parker, Charles, Co. D5067
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Brasscrafters D5012
Maid-En-White D5093
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Specifications D5021

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Autoyre Co. D5093
Hoegger, Inc. D5042
Mosaic Tile Co. B3089
Maid-En-White D5093
Rex D5093

Towel Bars, Grab Rails, etc.

Autoyre Co. D5093
Eustis, J. P., Mfg. Co. D5012
Fairfacts Co., Inc. D5021
Hoegger, Inc. D5042
Miami Cabinet Co. D5061

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Parker, Charles, Co.	D5067
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Aetco	B3067
Biltin	D5021
Brasscrafters	D5012
Maid-En-White	D5093
Rex	D5093
Specifications	D5021

Towel Baskets

Autoyre Co.	D5093
Eustis, J. P., Mfg. Co.	D5012
Miami Cabinet Co.	D5061
Parker, Charles, Co.	D5067
Brasscrafters	D5012
Maid-En-White	D5093
Rex	D5093

Bathroom Accessory Section D5007

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Hydrotherapeutic Shower

Crane Co.	D4922
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Infant

Crane Co.	D4922
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Bradley Washfountain Co.	D4978
Crane Co.	D4922
Hays Mfg. Co.	D4960
Hoffmann & Billings Mfg. Co.	D4946
Scovill Mfg. Co.	D4950
Speakman Co.	D4954
Mixometer	D4954
Niedecken	D4946
Nuart	D4960

Shower or Needle, Glass Shields for

See Doors, Shower Stall—Glass; Shields, Bathtub—for Showers

Shower or Needle—Stalls for

See Stalls, Shower Bath

Bathtub Fittings

Bashlin Co.	D4956
Crane Co.	D4922
Hays Mfg. Co.	D4960
Hoffmann & Billings Mfg. Co.	D4946
Scovill Mfg. Co.	D4950
Speakman Co.	D4954
Accesso	D4922
Deshler	D4954
Dupont	D4954
Haysco	D4960
Mova	D4960
Niedecken	D4946
Willard	D4954

Bathtub Hangers

Lucke, William B.	D4964
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Bathtub Shields for Showers

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Bathtubs

Crane Co.	D4922
Corwith	D4922
Linova	D4922
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Electric Storage Battery Co.	D5810
Exide	D5810

Battery Sets

Stanley & Patterson	D6174
Patterson	D6174

Beads

Base

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Corner, Metal

Atlantic Gypsum Products Co.	B2426
Berger Mfg. Co.	B2384
Concrete Engineering Co.	A310
Concrete Steel Co.	A312
Conver Steel & Wire Co., Inc.	B2386
Knapp Bros. Mfg. Co.	B2390
Milcor Steel Co.	B2400
Penn Metal Co.	B2410
Richsto Metal Trim Co.	B2411
Truscon Steel Co.	B2414
United States Gypsum Co.	B2443
Wheeling Corrugating Co.	R2419
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Berloy	B2384
Ceco	A310
Havemeyer	A312
Ideal	R2390
Old Style	R2400
Penco	B2410
Perfection	B2390
Rockwall	B2426

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Wrapping, see Caging, Wire—Beam and Girder

Beams

See Joists

Bedford Stone

See Limestone

Beds

Closet—Portable

Concealed Bed Corp.	C4292
Midwest Concealed Bed Corp.	C4296
Murphy Door Bed Co.	C4298
Seng Co.	C4304
"White" Door Bed Co.	C4306
Aristocrat	C4304
Duofold	C4304
Holmes	C4292
Warwick	C4306
Specifications	C4292

Disappearing or Built-in

Concealed Bed Corp.	C4292
Midwest Concealed Bed Corp.	C4296
Murphy Door Bed Co.	C4298
Seng Co.	C4304
"White" Door Bed Co.	C4306
Aristocrat	C4304
Colonial	C4306
Duofold	C4304
Holmes	C4292
In-A-Door	C4298
Piv-A-Door	C4292
Warwick	C4306
Specifications	C4292; C4306

Bell

Ringers, see Transformers, Miniature; Lighting and Power Systems, Electric, Low Voltage Signaling, etc.
Traps, see Drains, Floor, Yard, etc.

Bells

(Including: Church, Tower, Clock, Fire Alarm, School, Peal, etc.)
Deagan, J. C., Inc. C4594
McShane Bell Foundry Co. C4593
Menely Bell Co. C4596
Menely & Co. (Inc.) C4597

Bells and Buzzers, Electric

Auth Electrical Specialty Co., Inc.	D6052
Connecticut Telephone & Electric Corp.	D6069
Edwards and Co., Inc.	D6116
Holtzer-Cabot Electric Co.	D6122
Schwarze Electric Co.	D6115
Signal Engineering & Mfg. Co.	D6166
Standard Electric Time Co.	D6203
Stanley & Patterson	D6174
Cyclone	D6115
Eclipse	D6174
Faraday	D6174
PR.	D6174

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Garden

See Furniture, Garden

Greenhouse and Conservatory

See Greenhouses and Conservatories

Steel, Factory

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Bends, Pipe

Grinnel Co., Inc.	D5268
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Bends and Extensions, Water Closet

See Closets, Water, Bends and Fittings for

Billiard Tables

Brunswick-Balke-Collender Co.	C4582
Wagner, H., & Adler Co.	C4553

Binding Bars—Floor and Cove Base

See Bars, Binding—Floor and Cove Base

Bins

Storage, Steel, see Shelving, Steel
Storage, Steel Plate, see Steel Plate Construction
Wine or Bottle Storage, see Bottle Racks; Wine Racks

Bins or Bunkers, Coal

See pages A1180; C4761; D5145

Bird

Baths, see Furniture, Garden
Cages, see Fencing, Wire or Woven Wire

Blackboard

Chalk Rail Dust Cover and Eraser

Dudfield Mfg. Co.	C4273
Knapp Bros. Mfg. Co.	B2390

Chalk Rails

Beckley-Cardy Co.	C4261
Dudfield Mfg. Co.	C4273
Knapp Bros. Mfg. Co.	B2390
Masters Steel Frame Co.	C4276
Richsto Metal Trim Co.	B2411
Weber Costello Co.	C4270
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Specifications	C4276

Cloth

New York Silicate Book Slate Co.	C4266
Lapilinum	C4266

Display Racks

Hoffman, Andrew, Mfg. Co.	C4274
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Frames

Masters Steel Frame Co.	C4276
Specifications	C4276

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Joining Strips

Beckley-Cardy Co.	C4261
Weber Costello Co.	C4270
Simplex	C4261

Mouldings

Beckley-Cardy Co.	C4261
Dudfield Mfg. Co.	C4273
Masters Steel Frame Co.	C4276
Richsto Metal Trim Co.	B2411
Rowles, E. W. A., Co.	C4267
Weber Costello Co.	C4270
Specifications	C4267; C4276

Slatting—Liquid

New York Silicate Book Slate Co.	C4266
Nystrom, A. J., & Co.	C4275
Rowles, E. W. A., Co.	C4267
Valleyco Co., Inc.	C4272
Black Diamond	C4266
Duplex	C4261
Nyco	C4275
Simplex	C4261
Specifications	C4259; C4267; C4276

Tack Strips

Armstrong Cork Co.	C4259
Beckley-Cardy Co.	C4261
Masters Steel Frame Co.	C4276

Blackboards

Composition

Beckley-Cardy Co.	C4261
New York Silicate Book Slate Co.	C4266
Rowles, E. W. A., Co.	C4267
Valleyco Co., Inc.	C4272
Weber Costello Co.	C4270
Cinobestos	C4272
Cinoboard	C4272
Cinoplate	C4272
Duroplate	C4267
Enduracore	C4267
Old Reliable Hyloplate	C4270
Permaroc	C4267
Slatebestos	C4261
Slaterock	C4261
Slatoplate	C4261
Sterling Lifelong	C4270
Specifications	C4261; C4267; C4270

Glass

New York Silicate Book Slate Co.	C4266
Seloc	C4266

Portable Revolving

New York Silicate Book Slate Co.	C4266
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Slate

Knickerbocker Slate Corp.	B2179
Natural Slate Blackboard Co.	C4264
Pyramid	C4264
Specifications	C4264

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Seat Brackets, see Brackets, Stadium Seat

Bleachers, Movable

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Watt Mfg. Co., Inc.	C4558

Blinds

Awning

Swedish Venetian Blind Co.	B2812
Wilson, J. G., Corp.	B2820

Lightproof

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Rolling, Outside

Swedish Venetian Blind Co.	B2812
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Venetian

Postwick-Goodell Co.	B2798
Burlington Venetian Blind Co.	B2800
Columbia Mills, Inc.	B2802
Kane Mfg. Co.	B2806
Swedish Venetian Blind Co.	B2812
Warren Shade Co.	B2809
Watson Mfg. Co.	B2814
Western Venetian Blind Co.	B2816
Wilson, J. G., Corp.	B2820
Yardley Screen & Weatherstrip Co.	B2821
Diffusallite	B2820
Efficiency	B2798
Victoria	B2798
Specifications	B2802

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Simon Ventilighter Co., Inc.	B2810
Ventilighter	B2810

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Chain

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National Building Units Corp.	A745
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Hollow Glass

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Hollow Tile

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Insulating

Carey, Philip, Co.D5276
Johns-ManvilleD5278
Kearney & Mattison Co.D5284
Mineral Felt Insulating Co.D5275
National Nalgrip Co., Inc.A410
AmberD5284
Asbestos-SpongeD5278
CarocelD5276
KorkeneA410
PyrofeltD5275
Sil-o-CelD5278
SuperexD5278
Super-FireD5278
SpecificationsD5276; D5278

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Nailing Concrete

See Nailing Concrete

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Asphalt Block Pavement Co.B3230
Hastings Pavement Co.B3231
EightfourB3231

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FletcherlightA541

Paving, Rubber

Wright Rubber Products Co.B3268

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See Tile, Roof

Wood, Flooring and Paving—Built-up

Carter Bloxonend Flooring Co.B3232

Wood, Flooring and Paving—Creosoted or Treated

Carter Bloxonend Flooring Co.B3232
Jennison-Wright Co.B3234
Southern Wood Preserving Co.B3233
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BloxonendB3232
Creo-pineB3233
KreoliteB3234
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Wood, Flooring and Paving—Natural

Carter Bloxonend Flooring Co.B3232
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BloxonendB3232
KreoliteB3234
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Hasbrouck Flooring Co.B3246

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Draft, for Buckwheat Burners

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Organ

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Positive Pressure

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General Electric Co.D5813

Pressure or Volume

American Blower Corp.D5720
Bayley Blower Co.D5721
Buffalo Forge Co.D5722
Ilg Electric Ventilating Co.D5730
Sturtevant, B. F. Co.D5734
United States Blower and Heater Corp.D5733
Wing, L. J., Mfg. Co.D5736
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PlexiformD5721
SilexD5722
SiroccoD5720

Turbo

General Electric Co.D5813
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Dryers

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Machines

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JuniorA104
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Paper and Cloth

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Pease, The C. F., Co.A104

Washers

Pease, The C. F., Co.A104

Bluestone

Ambastone Co.B3197
American Blue Stone Co.A619
AmbatiteB3197
Genesee ValleyA619
SpecificationsA619

Boards

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Bulletin

Akins Products Inc.C4247
Armstrong Cork Co.C4259
Beckley-Cardy Co.C4261
Matthews, Jas. H., & Co.C4254
Mundet, L., & Son, Inc.C4260
New York Silicate Book Slate Co.C4266
Rowles, E. W. A., Co.C4267
Tablet & Ticket Co.C4256
United Cork Cos.C4457
Valleyco Co., Inc.C4272
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Advance Directory Co.C4246
Akins Products Inc.C4247
Liberty Mfg. Co.C4253
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Celotex Co.B2570

Wall

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Feed Water Treatments

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Feeders

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Low Water Protection Feeder

Webster, Warren, & Co.D5695

Low Water Protection Switch

McDonnell & Miller.D5274

Panels

Marsh, Jas. P., & Co.D5601
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SpecificationsD5601

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Custodis, Alphons, Chimney Construction Co.D5143
Heinicke, H. R., Inc.D5144
Rust Engineering Co.D5145
Summerhays, Wm., Sons Corp.D5148
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Bass Foundry & Machine Co.D5150
Brownell Co.D5151
Combination Boiler Co.D5154
Keeler, E. Co.D5157
Kewanee Boiler Corp.D5160
Oil City Boiler Works.D5170
Spencer Heater Co., Div. of Lycoming Mfg. Co.D5194
Titusville Iron Works Co.D5196
Wicks Boiler Co.D5198
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Lansdale-CraigD5156
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Thatcher Co.D5191
BasmorD5213
Gas-EraD5214
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Kewanee Boiler Corp.D5160
Titusville Iron Works Co.D5170
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Heating—Magazine Feed

Molby Boiler Co.D5178
Spencer Heater Co., Div. of Lycoming Mfg. Co.D5194

Heating—Oil Fired

Wood, Gar, Engineering Co.D5216
Gar-WoodD5216

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Burnham Boiler Corp.D5152
Central Radiator Co.D5156
Molby Boiler Co.D5178
Richardson & Boynton Co.D5172
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See Sound Deadening Systems

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Lockstrip Mfg. Corp. B3177
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Asphalt Block Pavement Co.	B3230
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Duraflex Co.	B3212
Flintkote Co.	A202
Grauer, Albert, & Co.	B3215
Hachmeister-Lind Co.	B3205
Insulite Chemical Co.	B3219
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Moulding, Thos., Floor Co.	B3220
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Duraflex-A	B3212
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Grauer, Albert, & Co.	B3215
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Artstone Products, Inc.	B2482
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Halicom	B3205
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Zenitherm Co., Inc.	B3007
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Stedman Rubber Flooring Co.	B3261
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Sheldon, F. C., Slate Co.	B2185
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Vendor Slate Co.	B2187
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Williams, J. W., Slate Co.	B2182
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Amarene	B3197
Ambatile	B3197
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Carter Bloxonend Flooring Co.	B3232
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Bloxonend	B3232
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Port Orford Cedar Products Co.	B2264
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Wood—Imported Cabinet Woods

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Wood-Mosaic Co., Inc.	B3249
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Indiana Quartered Oak Co.	B2262
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Wood—Mahogany

Wood-Mosaic Co., Inc.	B3249
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Cromar Co.	B3244
Oak Flooring Mfrs.' Assn. of the United States	B3238
Ritter, W. M., Lumber Co.	B3247
Rose, D. M., & Co.	B3248
Wood-Mosaic Co., Inc.	B3249
Appalachian	B3247
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Cellized Oak Flooring, Inc.	B3241
Hasbrouck Flooring Co.	B3246
Wood-Mosaic Co., Inc.	B3249
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Hasbrouck Flooring Co.	B3246
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Wing-Scruplex	D5736

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Chicago Art Marble Co.	B2985
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Motor Wheel Corp.	C4806
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International Nickel Co., Inc.A118; A1568; C4287; C4318; C4378; C4444; C4501; D4969

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Carey, Philip, Co.	B2079
Certain-teed Products Corp.	B2092
General Building Products Corp.	B2424
Johns-Manville	B2096
Richardson Roofing Co. Div. of The Flintkote Co.	B2035
Ruberoid Co.	B2059
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ATP	B2029
Cumferi	B2424
Feltes	B2079
Fiberock	B2079
Flintkote	B2035
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Chase Brass & Copper Co., Inc.	B2142
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National Lead Co.	B2157
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Apollo Steel Co.	B2139
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Apollo	B2139
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Youngstown Sheet & Tube Co.	C4680
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Mosler Safe Co.	C4631
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Diebold Safe & Lock Co.	C4604
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Mosler Safe Co.	C4631
Schwab Safe Co.	C4616
York Safe and Lock Co.	C4630

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Bank Vault Inspection Co.	C4640
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Payson Mfg. Co. A1309
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Chamberlain Metal Weather Strip Co., Inc. B2716
Cincinnati Fly Screen Co. B2724
Crittall Casement Window Co. A777
Detroit Steel Products Co. A843
Haskell & Hatch Co. C3541
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Specifications B2784

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Specifications B2788

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du Pont de Nemours, E. I., & Co., Inc. B2787
Hartshorn, Stewart, Co. B2790
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Damasko B2788
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No-Lite B2792
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Radiant B2792
Scotch Hollands B2793
Sunlite B2792
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Specifications. B2788; B2790; B2792

Window—Fabric

Columbia Mills, Inc. B2788
Hartshorn, Stewart, Co. B2790
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Columbia Mills, Inc. B2788
Hartshorn, Stewart, Co. B2790
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Specifications	B2104; B2107; B2108

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Johns-Manville	A406
<i>Big-Seven</i>	B2126
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Aluminum

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American Brass Co.	A1528; B2138
Chase Brass & Copper Co., Inc.	B2142
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<i>Armco</i>	B2136
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Iron, Copper, Alloyed, Galvanized—Flat, Corrugated, Beaded, etc.

Apollo Steel Co.	B2139
Newport Rolling Mill Co., Inc.	B2162
<i>Apollo</i>	B2139
<i>Gohi</i>	B2162

Lead

National Lead Co.	B2157
<i>Hoyt</i>	B2157

Lead Covered

Revere Copper and Brass Inc.	B2173
Wheeling Metal & Mfg. Co.	B2166
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International Nickel Co., Inc.	A1568; C4287; C4318; C4378; C4444; C4501; D4969
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Nickel Copper Alloy (Monel Metal)

International Nickel Co., Inc.	A1568; C4287; C4318; C4378; C4444; C4501; C4969
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Steel, Asbestos Covered—Flat, Corrugated, Beaded

Robertson, H. H., Co.	A416; B1814
<i>RPM</i>	A416; B1814

Sheet Metal—Cont.

Steel, Copper Alloyed—Flat, Corrugated, Beaded, etc.

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Republic Steel Corp.	B2163
Youngstown Sheet & Tube Co.	C4680
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<i>Apollo</i>	B2139
<i>Cop-R-Loy</i>	C4671
<i>Toncan</i>	B2163
<i>Youngstown Copperoid</i>	C4680

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Lyon, Conklin & Co., Inc.	B2152
Youngstown Sheet & Tube Co.	C4680
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<i>Lyonore Metal</i>	B2152

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Florist's

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See Refrigerator Shelving

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Babcock-Davis Corp.	C4482
Jamestown Metal Equipment Co.	C4225
Lupton's, David, Sons Co.	A1045
Market Forge Co.	C4484
Penn Metal Co. of Penna.	C4238
Victor Products Corp.	C4492
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<i>Maforco</i>	C4484
<i>Penco</i>	C4238

Steel—Library

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Steel—Roller

Art Metal Construction Co.	C4199
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Shields

Bathtub—For Showers

Ketcham, G. M., Mfg. Corp.	D4937
Lehman Sprayshield Co.	D4938
Peerless Shower Door Co., Inc.	D4940
S. M. Shower Door Co.	D4941
<i>Niagara</i>	D4940
Specifications	D4940

Expansion

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Radiator

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Register

See Register Shields

Shingles

Asbestos

Ambler Asbestos Shingle & Sheathing Co.	B2111
Carey, Philip, Co.	B2124
Eternit	B2126
Johns-Manville	B2117
Mohawk Asbestos Shingles, Inc.	B2113
Ruberoid Co.	B2132
<i>Careystone</i>	B2124
<i>Colonial</i>	B2111
<i>Duoface</i>	B2111
<i>J-M</i>	B2117
<i>Mohawkstone</i>	B2113
Specifications	B2111; B2113; B2124; B2126

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Asphalt

Bird & Son, inc.	B2134
Carey, Philip, Co.	B2124
Certain-teed Products Corp.	B2128
Garrett, C. S., & Son Corp.	B2495
Johns-Manville	B2117
Ruberoid Co.	B2132
<i>Beaver</i>	B2128
<i>Garrettite</i>	B2495
<i>Giant</i>	B2134
<i>J-M</i>	B2117
<i>Neposet</i>	B2134
<i>Speedlay</i>	B2128
<i>Super Twin</i>	B2134
<i>Universal</i>	B2128
<i>Vulcanite</i>	B2128

Cement

See Tile, Roofing, Concrete

Metal

Aluminum Co. of America.	B2135
Chase Brass & Copper Co., Inc.	B2142
Milcor Steel Co.	B2230
Wheeling Metal & Mfg. Co.	B2166
See also pages.	A1466; B2162
<i>Alcoa</i>	B2135
<i>Leadclad</i>	B2166
<i>Top-Down</i>	B2135
Specifications	B2135

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Slate

See Slate, Roofing

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Wood—Hand Split

(See also Shakes)

Creo-Dipt Co., Inc.	B2100
Elhide Co.	B2104
James Lumber Co.	B2107
Weatherbest Stained Shingle Co., Inc.	B2108
<i>Blue Jay</i>	B2107
Specifications	B2104; B2107; B2108

Wood—Sawed, Natural or Colored

Cabot, Samuel, Inc.	B2098
Creo-Dipt Co., Inc.	B2100
Duracolor Corp.	B2099
Edham Co., Inc.	B2106
Weatherbest Stained Shingle Co., Inc.	B2108
See also page.	B2104
<i>Anteaks</i>	B2098
<i>Kolored</i>	B2106

Shoe

Racks and Cabinets

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Hoegger, Inc.	B3902
Knap & Vogt Mfg. Co.	C3900

Shine Cabinets

See Cabinets, Shoe Shine

Shoes

Leader

Canton Foundry & Machine Co.	B1739
Chase Brass & Copper Co., Inc.	B2142
Creswell, Samuel J., Iron Works.	B1732
Fiske, J. W., Iron Works.	B1981
Follansbee Brothers Co.	B2144
Stewart, O. S., Co.	B2164
Wheeling Metal & Mfg. Co.	B2166
<i>Leadclad</i>	B2166
<i>Universal</i>	B1739

Shores, Adjustable

Concrete Engineering Co.	A310
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Meyer

Show Windows, Disappearing

Allen-Drew Co., Div. of Babcock-Davis Corp.	A1508
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Shower Bath

Doors, see Doors, Shower Stall
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Partitions, see Partitions, Toilet, Shower or Urinal
Shields, see Shields, Bathtub—for Showers
Stalls, see Stalls, Shower Bath; Partitions, Toilet, Shower or Urinal

Shuffle Boards

Wagner, H., & Adler Co.	C4553
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Shutter Holders

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Shutters

Automatic

See Louvers, Automatic

Light-proof

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Rolling

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Sheet Steel

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Tin Clad

See Doors, Tin Clad

Ventilating

American Sheet Metal Works.	B1855
<i>Hoal's</i>	B1855

Siamese Hose Connections

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Allen, W. D., Mfg. Co.....C4870
Elkhart Brass Mfg. Co.....C4876
Jiffy Fire Hose Rack Co.....C4882
Phister Mfg. Co.....C4890
Simmons, John, Co.....C4886
Wirt & Knox Mfg. Co.....C4888
Specifications.....C4870; C4882; C4886

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Bridges, see Bridges, Sidewalk
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Gratings, see Gratings, Sidewalk, Area, etc.
Lights, see Lights, Vault and Sidewalk

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Metal, see Ceilings, Metal

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Asbestos, see Lumber, Asbestos; Sheathing, Asbestos
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Lumber, see Lumber
Sheet Metal, see Sheet Metal
Wood, see Specific Kind of Lumber

Signal Systems

Bank Alarm

American District Telegraph Co.....C4638
Auth Electrical Specialty Co., Inc.....D6052
See also page.....D6174
Phonetalarm.....C4638

Carriage Calling

Kliegl Bros.C4590

Electric

Auth Electrical Specialty Co., Inc.....D6052
Autocall Co.....D6064
Bryant Electric Co.....D6068
Connecticut Telephone & Electric Corp.D6069
Edwards and Co., Inc.....D6116
Holtzer-Cabot Electric Co.....D6122
Signal Engineering & Mfg. Co.....D6166
Standard Electric Time Co.....D6203
Stanley & Patterson.....D6174
See also pages.....D5832; D6187
Telecall.....D6069
Specifications.....D6069; D6122; D6166; D6187

Elevator

Auth Electrical Specialty Co., Inc.....D6052
Elevator Supplies Co., Inc.....D6264
Grant Elevator Equipment Corp.....D6253
Norton-Blair-Douglass, Inc.....D6254
Randall Control & Hydrometric Corp.....D6255
Richards-Wilcox Mfg. Co.....D6256
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ES.....D6264
Fadelite.....D6264
Locdrop.....D6264
N-B-D.....D6254
R-W.....D6256

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Elevator Supplies Co., Inc.....D6264
See also page.....D6254

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Hospital

Auth Electrical Specialty Co., Inc.....D6052
Autocall Co.....D6064
Bryant Electric Co.....D6068
Connecticut Telephone & Electric Corp.D6069
Edwards and Co., Inc.....D6116
Holtzer-Cabot Electric Co.....D6122
Signal Engineering & Mfg. Co.....D6166
Standard Electric Time Co.....D6203
Stanley & Patterson.....D6174
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Telecall.....D6069
Specifications.....D6069; D6122

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Steam or Air Whistle

Signal Engineering & Mfg. Co.....D6166

Tank Alarm

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Telephone Calling Systems

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Illuminated, Electric—Exterior

Flexlume Corp.....D6046
National Theatre Supply Co.....C4592

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Akins Products Inc.....C4247
Davenport-Taylor Mfg. Co.....D6045
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Day-Brite Reflector Co.....D5893
Flexlume Corp.....D6046
Garden City Plating & Mfg. Co.....D5899
Kliegl Bros.C4590
National Theatre Supply Co.....C4592
Price Brothers, Inc.....D6047
Tablet & Ticket Co.....C4256
Wheeler Reflector Co.....D5963
See also pages.....A1538; A1572; C4253
Dayanite.....D6047
Duffuselite.....D6047
Edgebrite.....D6047
Edgeglow.....C4253
Edge-lite.....D6045
Garcy.....D5899
Letr-Lite.....C4256
Metalase.....D6047
Reflectorlite.....C4247

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Badger Wire & Iron Works.....B2010
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National Building Units Corp.....A745

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Silverware Burnishing Machines

See Burnishing Machines, Silverware

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Boosey, Norman, Mfg. Co.....C4716

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Blickman, S., Inc.....D4965
International Nickel Co.....D4969
Trageser, John, Steam Copper Works, D4972
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C4818; 4820

Laboratory—Acid Resistant

Alberene Stone Co.....C4291
Duriron Co., Inc.....C4684
General Ceramics Co.....C4683
Knight, Maurice A.....C4692
U. S. Stoneware Co.....C4695

Laundry Tray Combination

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Porcelain—Kitchen, Pantry, Slop, etc.

Ebinger, D. A., Sanitary Mfg. Co.....D4968

Ebco.....D4968

Porcelain Enameled—Kitchen, Pantry, Slop, etc.

Crane Co.....D4922
General Porcelain Enameling & Mfg. Co.....D4970
Veribrite.....D4970

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Blickman, S., Inc.....D4965
International Nickel Co.....D4969
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Zahner Mfg. Co.....D4974
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Alberene Stone Co.....B2901

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New York Sewage Disposal Co.....C4706
Nustone Products Corp.....C4704
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Artwall Waterall Co.....C4160
Berry Brothers, Inc.....C4053
Building Chemicals Corp.....A190
Craftex Co.....C4161
du Pont de Nemours, E. I., & Co., Inc.C4086
Glidden Co.....C4079
Muralo Co., Inc.....C4165
Pittsburgh Plate Glass Co.....C4105
Pratt & Lambert, Inc.....C4114
Readon Co.....C4168
Seidlitz Paint & Varnish Co.....C4147
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Delitone.....C4053
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American 3 Way-Luxfer Prism Co.....B1766
Bruner, P. M., Granitoid Co.....B1769
Grauer, Albert, & Co.....B1770
National Vault Light Co.....B1742
Richards, J. Merrill.....B1772
Richards & Kelly Mfg. Co.....B1773
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3-Way.....B1766
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Puttyless

American Skylight Co.....B1778
Blaski Mfg. Co.....B1782
Drouvé, G., Co.....B1785
Flynn, T. J., Metal Works.....B1794
General Sheet Metal Works.....B1795
Howie Co., Inc.....B1802
Milcor Steel Co.....B2230
National Ventilating Co.....B1804
Nonpareil Skylight Co.....B1803
Richards, Glendon A., Co.....B1812
Robertson, H. H., Co.....B1814
Saint Paul Corrugating Co.....B1811
Vallas, Lionel.....B1822
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Drou-Ve-Lite.....B1785
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Grant Pulley and Hardware Co..... C3505
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Palmer Products, Inc..... D5105
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Bobrick Mfg. Corp..... D5102
Gerson-Stewart Corp..... D5103
West Disinfecting Co..... D5017
Softasilk..... D5103
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Bobrick Mfg. Corp..... D5102
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Gerson-Stewart Corp..... D5103
Imperial Brass Mfg. Co..... D5104
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U. S. Sanitary Specialties Corp..... D5110
West Disinfecting Co..... D5107
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Bryant Electric Co..... D5867
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Hubbell, Harvey, Inc..... D5880
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Permutit Co..... C4775
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Reflector & Illuminating Co..... D5964
Projectolite..... D5890
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Spreaders, Form

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System Supervisory Service

American District Telegraph Co..... D6180
Edwards and Co., Inc..... D6116
Use Co..... D6179
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A. D. T..... D6180
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Grinnell Co., Inc..... C4880

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Systems—Automatic, Fire—Pumps for

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Squash Courts

Thompson Mfg. Co..... B1962

Wagner, H., & Adler Co..... C4553

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James Mfg. Co..... B1730
Louden Machinery Co..... B1731
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Vent—Cast Iron Pipe, see Pipe, Cast Iron
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Day-Brite Reflector Co..... D5893
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Pittsburgh Reflector Co.....D5913
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Rigging

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National Theatre Supply Co.....C4592

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Chamberlin Metal Weather Strip Co., Inc.....B2692
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Architectural Tile Co.....B3071
Associated Tile Mfrs.....B3064
Batchelder-Wilson Co.....B3074
Calco Tile Mfg. Corp.....B3073
Cambridge-Wheatley Co.....B3076
Flint Faience & Tile Co.....B3081
Jackson, Wm. H., Co.....C4560
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Barry & Staines Linoleum, Inc.	B3290
Congoleum-Nairn Inc.	B3294
Hasbrouck Flooring Co.	B3246
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<i>Gold Seal</i>	B3294
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<i>Sealex</i>	B3294
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Clay Products Co., Inc. of Indiana ..	A670
Heath Cube Service	A732
Maurer, Henry, & Son	A731
National Fireproofing Corp.	A677
Raritan Hollow Tile Corp.	A736
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<i>Insul-Glas</i>	A670
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Clay Products Co., Inc. of Indiana ..	A670
Kraftile Co.	A734
National Fireproofing Corp.	A677
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<i>Insul-Glas</i>	A670
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Bannon, P. Pipe Co.	A669
Clay Products Co., Inc. of Indiana ..	A670
Ketcham, O. W.	A666
Maurer, Henry, & Son	A731
National Fireproofing Corp.	A677
Raritan Hollow Tile Corp.	A736
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Structural Glass Corp.	B1774
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National Floor Tile Co., Inc.	B3162
<i>Adamantile</i>	B3162
<i>Artile</i>	B3162
<i>Diamantile</i>	B3162

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American Abrasive Metals Co.	B1889
Associated Tile Mfrs.	B3064
Batchelder-Wilson Co.	B3074
Chicago Art Marble Co.	B2985
Luxor Tile Co.	B3160
Mosaic Tile Co.	B3089
National Floor Tile Co., Inc.	B3162
Norton Co.	B3114
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Acme Brick Co.	B3066
American Encaustic Tiling Co., Ltd.	B3067
Associated Tile Mfrs.	B3064
Batchelder-Wilson Co.	B3074
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Hanley Co.	B3083
Hood, B. Miffin, Brick Co.	B3085
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Murray Tile Co.	B3109
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Federal Cement Tile Co.	A403
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Asbestos

Ambler Asbestos Shingle & Sheathing Co.	B2111
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Clay or Terra Cotta

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Klein & Kavanagh	B2160
Ludowici-Celadon Co.	B2193
Murray Tile Co.	B2232
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Federal Cement Tile Co.	A403
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Milcor Steel Co.	B2230
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Columbian Enameling & Stamping Co. B2192

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Tile, Rubber—Floor

American Tile & Rubber Co.	B3252
Goodyear Tire & Rubber Co., Inc.	B3253
Hood Rubber Products Co., Inc.	B3255
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Nustone Products Corp.	C4704
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Williams, J. W., Slate Co. B2182
Penrhyn Stone

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Tile, Terrazzo

Marblethite Co.B3182

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Asbestos Limited, Inc.B3158
Certain-teed Products Corp.B2568
Johns-ManvilleB3155
Standard Wall Covering Co., Inc.B3166
National Gypsum Co.B2641
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Bar-Ray Products, Inc.B2645
Bar-RayB2645

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Locks and Equipment—Pay

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Paper

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Partitions

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Knowles Mushroom Ventilator Co.	D5802
Mueller, L. J., Furnace Co.	D5792
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<i>Berryuax</i>	C4053
<i>Car-Na-Var</i>	B3318
<i>Colorwax</i>	A242
<i>Dycrome</i>	A242
<i>Lignophol</i>	A268
<i>Pyra-Cote</i>	B3320
<i>Rubber-Var</i>	B3318
<i>17th Century</i>	C4105
<i>Sulco</i>	A271
<i>Vesta-Gloss</i>	B3320
Specifications	A254; A268; B3317; C4086; C4094; C4117

Liquid

(See also Polish, Liquid)
Butcher Polish Co.....B3317

Waxing Machines, Floor

See Polishers, Floor; Floor, Finishing, Waxing, Cleaning and Polishing Machines

Weatherstrips

Door Guide, Combination

See Guides and Weatherstrips Combined—Sliding Door

Metal, for Double Hung Windows, Casements and Doors

<i>Accurate Metal Weather Strip Co.</i>	B2686
<i>Athey Cloth Lined Weatherstrip Co.</i>	B2690
<i>Ceco Weatherstrip & Screen Products, Div. of Concrete Engineering Co., Inc.</i>	B2691
<i>Chamberlin Metal Weather Strip Co., Inc.</i>	B2692
<i>Diamond Metal Weather Strip Co.</i>	B2694
<i>Higgin Mfg. Co.</i>	B2695
<i>Invincible Weather Guard Co., Inc.</i>	B2696
<i>Kane Mfg. Co.</i>	B2698
<i>Macklanburg-Duncan Co.</i>	B2704
<i>Monarch Metal Weatherstrip Corp.</i>	B2700
<i>National Metal Products Co.</i>	B2705
<i>Niagara Metal Weather Strip Co.</i>	B2706
<i>Reese Metal Weather Strip Co.</i>	B2708
<i>Sager Metal Weatherstrip Co.</i>	B2712
<i>Zero Weather Stripping Co., Inc.</i>	B2771
See also pages.....A1371; B2714	
<i>Adjusto-Seal</i>	B2708
<i>All-Metal</i>	B2695
<i>Columbia</i>	B2705
<i>Flexo-Seal</i>	B2708
<i>In-Dor-Seal</i>	B2692
<i>Leakproof</i>	B2712
<i>Numetal</i>	B2704
<i>Sill-Dor-Seal</i>	B2692
Specifications	B2696; B2712

Threshold Combination

See Thresholds and Saddles, Weatherstrip Combination

Weatherfans

<i>Fiske, J. W., Iron Works.</i>	B1981
<i>Jones, Harold K.</i>	B2255
<i>Pole and Tube Works, Inc.</i>	A1620
<i>Snow, W. A., Iron Works, Inc.</i>	B1960
See also page.....A1592	

Welders, Electric Arc

<i>Burke Electric Co.</i>	D5804
<i>General Electric Co.</i>	D5813
<i>Lincoln Electric Co.</i>	B1703
<i>Westinghouse Electric & Mfg. Co.</i>	D5806
<i>FlexArc</i>	D5806
<i>Stable-Arc</i>	B1703

White Lead

<i>Eagle-Picher Lead Co.</i>	C4090
<i>National Lead Co.</i>	C4102
<i>Sherwin-Williams Co.</i>	C4117
<i>Dutch Boy</i>	C4102
<i>ODP</i>	C4117
<i>Zilo</i>	C4117
Specifications	C4090; C4102

White Zinc

See Zinc Oxide

Wickets, Bank Grille

See Grilles, Bank

Window Cleaners' Safety Devices

<i>Ackman Window Safety Devices, Inc.</i>	C3493
<i>American Window Safety Device Co.</i>	C3494
<i>Buck, Ainsworth, Inc.</i>	C3496
<i>Dickey, R. J., & Sons, Inc.</i>	C3498
<i>Imperial Brass Mfg. Co.</i>	C3499
<i>Royal Window Safety Device Co.</i>	C3500
<i>Whitner 2-Rope Safety Co.</i>	C3501
<i>Everfast</i>	C3498
<i>Whitner</i>	C3496
<i>Whitner-Chicago</i>	C3501
Specifications.....C3493; C3496; C3498; C3499	

Window and Door Equipment

Section	B2685
Window Section	A753

Windows

Aluminum

<i>Campbell Casement Window Corp.</i>	A999
<i>Campbell Industrial Window Co., Inc.</i>	A1002
<i>General Bronze Corp.</i>	A981
<i>Jackson, Wm. H., Co.</i>	A1011
<i>Lupton's David, Sons Co.</i>	A1045
<i>Michel & Pfeffer Iron Works.</i>	A1180
<i>Newman Mfg. Co.</i>	A1212
<i>Ariston</i>	A1180
<i>Polachek</i>	A981
Specifications	A1180

Art Glass

<i>Ravenna Mosaics, Inc.</i>	C3940
<i>Spiers, Richard N., & Sons.</i>	C3941
See also page.....C4192	

Balanced—Pivoted

<i>International Casement Co., Inc.</i>	A1006
<i>Austral</i>	A1006
Specifications	A1006

Balanced—Pivoted—Fixtures for

<i>Austral Window Co.</i>	C3514
Specifications	C3514

Basement

<i>Adams Co.</i>	A761
<i>Bayley, William, Co.</i>	A762
<i>Bliss Steel Products Corp.</i>	A776
<i>Campbell Casement Window Corp.</i>	A999
<i>Detroit Steel Products Co.</i>	A843
<i>Kewanee Mfg. Co.</i>	A1024
<i>Lupton's, David, Sons Co.</i>	A1045
<i>Michel & Pfeffer Iron Works.</i>	A1180
<i>Milcor Steel Co.</i>	A1208
<i>Philadelphia Supplies Co., Inc.</i>	A1209
<i>Solid Section Steel Window Industry.</i>	A754
<i>Taylor Steel Products Co.</i>	A1280
<i>Truscon Steel Co.</i>	A1284
<i>Vento Steel Sash Co.</i>	A1298
See also pages.....A774; A1002; B1758; B2388	
<i>Ariston</i>	A1180
<i>Boca</i>	A774
<i>Deissler</i>	A1209
<i>Fenestra</i>	A843
<i>Mostlite</i>	A776
<i>Security</i>	A1045; A1280
<i>Taylor-Des Moines</i>	A1280
Specifications.....A843; A1180; A1284	

Basement—Wood Frames

See Frames, Window, Wood

Bronze

(For Hollow Metal, see Windows, Hollow Metal; for Metal Covered, see Windows, Metal Covered; see also Ornamental Metal Work)

<i>Campbell Casement Window Corp.</i>	A999
<i>Campbell Metal Window Corp.</i>	A1004
<i>Crittall Casement Window Co.</i>	A777
<i>General Bronze Corp.</i>	A981
<i>Hope, Henry, & Sons.</i>	A997
<i>International Casement Co., Inc.</i>	A1006
<i>Jackson, Wm. H., Co.</i>	A1011
<i>Kawneer Co.</i>	A1012
<i>Michaels Art Bronze Co., Inc.</i>	A1169
<i>Michel & Pfeffer Iron Works.</i>	A1180
<i>Newman Mfg. Co.</i>	A1212
<i>Penn Brass & Bronze Works.</i>	A1584
<i>Richey, Browne & Donald, Inc.</i>	A1226
<i>Voigtman Metal Window Corp.</i>	A1304
See also pages.....A1554; A1566	
<i>Ariston</i>	A1180
<i>Browne</i>	A1226
<i>Polachek</i>	A981
<i>Sealair</i>	A1012
<i>Universal</i>	A777
Specifications.....A777; A1012; A1180	

Windows—Cont.

Bronze, Ornamental

See Ornamental Metal Work

Casement

Adams Co.	A761
Bayley, William, Co.	A762
Campbell Casement Window Corp.	A999
Crittall Casement Window Co.	A777
Detroit Steel Products Co.	A843
General Bronze Corp.	A981
Hope, Henry, & Sons.	A997
International Casement Co., Inc.	A1006
Jackson, Wm. H., Co.	A1011
Kawneer Co.	A1012
Lea, W. C.	A1014
Lundell-Eckberg Mfg. Co., Inc.	A1025
Lupton's, David, Sons Co.	A1045
Michaels Art Bronze Co., Inc.	A1169
Michel & Pfeffer Iron Works.	A1180
Newman Mfg. Co.	A1212
Richy, Brown & Donald, Inc.	A1226
Souls Steel Co.	A1229
Stevens, F. W., & Son, Inc.	B2296
Thorn, J. S., Co.	A1277
Truscon Steel Co.	A1284
See also pages.	A774; A1002; A1170; A1302; A1542; A1548; A1554; B2300
Ariston	A1180
Boca	A774
Browne	A1226
Cotswold	A1006
Fencraft	A843
Fenestra	A843
Fenmark	A843
Fenwrought	A843
Lemco	A1025
Norman	A777
Polachek	A981
Sealair	A1012
Stanwin	A777
Universal	A777
Specifications.	A777; A843; A1006; A1012; A1014; A1045; A1180; A1229; A1284

Casement, Hardware for

See Hardware, Casement Window

Casement, Sliding—Fixtures for

See Hardware, Casement Window—Swinging and Sliding Combined

Coal

See Chutes, Coal, Cellar Window

Cold Storage or Refrigerator

Jamison Cold Storage Door Co.	C4450
Stevenson	C4450

Continuous

Bayley, William, Co.	A762
Bliss Steel Products Corp.	A776
Bogert & Carrough Co.	A774
Campbell Industrial Window Co., Inc.	A1002
Crittall Casement Window Co.	A843
Detroit Steel Sash Co.	A847
Federal Steel Sash Co.	A1045
Lupton's, David, Sons Co.	A1045
Mesker Bros. Iron Co.	A1170
Michel & Pfeffer Iron Works.	A1180
Newman Mfg. Co.	A1212
Robertson, H. H., Co.	B1814
Ryerson, Joseph T., & Son, Inc.	A328
Solid Section Steel Window Industry.	A754
Souls Steel Co.	A1229
Thorn, J. S., Co.	A1282
Truscon Steel Co.	A1284
Vento Steel Sash Co.	A1298
See also pages.	A1014; A1302
Ariston	A1180
Bayley-Springfield	A762
Boca	A774
Cruciform	A1170
Fenestra	A843
Specifications.	A843; A947; A1045; A1170; A1180; A1229; A1284

Counterbalanced

Detroit Steel Products Co.	A843
Truscon Steel Co.	A1284
Voigtman Metal Window Corp.	A1304
See also page.	A1282
Fenestra	A843
Specifications	A843; A1284

Detention

Detroit Steel Products Co.	A843
Lupton's, David, Sons Co.	A1045
Souls Steel Co.	A1229
Fenestra	A843

Double Glazing

See Windows, Single or Double Glazing

Double Hung

See Windows, Hollow Metal; Windows, Metal Covered; Windows, Steel; Windows, Bronze

Double Hung—Pivoted

See Windows, Reversible, Double Hung

French

See Windows, Casement; Doors, Casement

Hollow Metal

Milcor Steel Co.	A1208
Pomeroy, S. H., Co., Inc.	A1224
Vallas, Lionel	A1228
Voigtman & Co.	A1302
Voigtman Metal Window Corp.	A1304
Willis Mfg. Co.	A1306
See also pages.	A1170; A1354; A1396; A1466
Mecco	A1466

(Continued in Next Column)

Windows—Cont.

Hollow Metal—Cont.

(Continued from Previous Column)

Superior	A1224
Specifications	A1224; A1306

Metal Covered

Empire Fireproof Door Co.	A1350
New York Kalamein Co.	A1386
Phillip Mfg. Co.	A1394
See also pages.	A1338; A1354; A1396; A1404; B1802
Integro	A1350
Specifications	A1338

Monitor

See Windows, Continuous

Nickel

Newman Mfg. Co.	A1212
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Nickel Copper Alloy

General Bronze Corp.	A981
Polachek	A981

Ornamental

See Ornamental Metal Work

Pantry, Revolving

See page	A1424
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Pivoted

Bayley, William, Co.	A762
Bliss Steel Products Corp.	A776
Bogert & Carrough Co.	A774
Campbell Industrial Window Co., Inc.	A1002
Detroit Steel Products Co.	A843
Federal Steel Sash Co.	A947
Lupton's, David, Sons Co.	A1045
Mesker Bros. Iron Co.	A1170
Michel & Pfeffer Iron Works.	A1180
Newman Mfg. Co.	A1212
Ryerson, Joseph T., & Son, Inc.	A328
Solid Section Steel Window Industry.	A754
Souls Steel Co.	A1229
Taylor Steel Products Co.	A1280
Thorn, J. S., Co.	A1282
Truscon Steel Co.	A1284
Vento Steel Sash Co.	A1298
See also pages.	A761; A1302
Ajax	A1280
Ariston	A1180
Bayley-Springfield	A762
Boca	A774
Cruciform	A1170
Fenestra	A843
Specifications.	A774; A843; A947; A1045; A1170; A1180; A1229; A1284

Projected Architectural

Bayley, William, Co.	A762
Bliss Steel Products Corp.	A776
Bogert & Carrough Co.	A774
Campbell Industrial Window Co., Inc.	A1002
Crittall Casement Window Co.	A777
Detroit Steel Products Co.	A843
Federal Steel Sash Co.	A947
Lundell-Eckberg Mfg. Co., Inc.	A1025
Lupton's, David, Sons Co.	A1045
Michel & Pfeffer Iron Works.	A1180
Ryerson, Joseph T., & Son, Inc.	A328
Solid Section Steel Window Industry.	A754
Souls Steel Co.	A1229
Thorn, J. S., Co.	A1282
Truscon Steel Co.	A1284
See also pages.	A761; A1014; A1170
Ariston	A1180
Bayley-Springfield	A762
Boca	A774
Cruciform	A1170
Donovan	A1284
Fenestra	A843
Fenmark	A843
Lemco	A1025
Manifold	A776
Specifications	A774; A777; A843; A947; A1045; A1180; A1229; A1284

Projected, Commercial

Bayley, William, Co.	A762
Bliss Steel Products Corp.	A776
Bogert & Carrough Co.	A774
Campbell Industrial Window Co., Inc.	A1002
Detroit Steel Products Co.	A843
Federal Steel Sash Co.	A947
Lundell-Eckberg Mfg. Co., Inc.	A1025
Lupton's, David, Sons Co.	A1045
Mesker Bros. Iron Co.	A1170
Michel & Pfeffer Iron Works.	A1180
Solid Section Steel Window Industry.	A754
Souls Steel Co.	A1229
Thorn, J. S., Co.	A1282
Truscon Steel Co.	A1284
Vento Steel Sash Co.	A1298
See also pages.	A761; A1014
Ariston	A1180
Bayley-Springfield	A762
Boca	A774
Cruciform	A1170
Fenestra	A843
Fenmark	A843
Lemco	A1025
Manifold	A776
Specifications	A774; A843; A947; A1045; A1170; A1180; A1229; A1284

Reversible, Double Hung, Fixtures for

Gates Reversible Window Co.	C3516
Reed Roller Bit Co.	C3515
Williams Pivot Sash Co.	C3520
Awco	C3515
Specifications	C3520

Windows—Cont.

Reversible, Plank Frame, Fixtures for

Austral Window Co.	C3514
Gates Reversible Window Co.	C3516
Williams Pivot Sash Co.	C3520
Specifications	C3514; C3520

Reversible, Side or Vertical Pivoted—

Fixtures for

(See also Pivots, Sash)	
Williams Pivot Sash Co.	C3520
Specifications	C3520

Reversible Sliding Pivot

See Windows, Projected

Single or Double Glazing

Bayley, William, Co.	A762
Philadelphia Supplies Co., Inc.	A1209
Robertson, H. H., Co.	B1814
Bayley-Springfield	A762
Deissler	A1209

Steel

(See also Specified Type of Window)

Adams Co.	A761
Bayley, William, Co.	A762
Bliss Steel Products Corp.	A776
Bogert & Carrough Co.	A774
Campbell Casement Window Corp.	A999
Campbell Industrial Window Co., Inc.	A1002
Campbell Metal Window Corp.	A1004
Concrete Steel Co.	A312
Crittall Casement Window Co.	A777
Detroit Steel Products Co.	A843
Federal Steel Sash Co.	A947
General Bronze Corp.	A981
Hope, Henry, & Sons.	A997
International Casement Co., Inc.	A1006
Kewanee Mfg. Co.	A1024
Lea, W. C.	A1014
Lundell-Eckberg Mfg. Co., Inc.	A1025
Lupton's, David, Sons Co.	A1045
Mesker Bros. Iron Co.	A1170
Michel & Pfeffer Iron Works.	A1180
Milcor Steel Co.	A1208
Philadelphia Supplies Co., Inc.	A1209
Pomeroy, S. H., Co., Inc.	A1224
Richy, Brown & Donald, Inc.	A1226
Robertson, H. H., Co.	B1814
Ryerson, Joseph T., & Son, Inc.	A328
Solid Section Steel Window Industry.	A754
Souls Steel Co.	A1229
Taylor Steel Products Co.	A1280
Thorn, J. S., Co.	A1282
Truscon Steel Co.	A1284
Vento Steel Sash Co.	A1298
Voigtman & Co.	A1302
Voigtman Metal Window Corp.	A1304
Willis Mfg. Co.	A1306
See also pages.	A344; A1566; B1804; B2388
Ajax	A1280
Ariston	A1180
Bayley-Springfield	A762
Boca	A774
Browne	A1226
Deissler	A1209
Fenestra	A843
Fenmark	A843
Lemco	A1025
Norman	A777
Paramount	A1306
Polachek	A981
Stanwin	A777
Universal	A777
Specifications.	A774; A777; A843; A1006; A1014; A1045; A1180; A1229; A1284

Steel—Inserts for

See Inserts, Steel Window

Store Front

See Specific Type of Window; Store Front Construction

Underwriters

See Specific Type of Window

Ventilating—Sleeping Porch, etc.

Aiolite Co.	B2294
Window-Wall	B2294
Specifications	B2294

Wood

Curtis Cos. Service Bureau	B2306
Stevens, F. W., & Son, Inc.	B2296
Williamsport Planing Mill Co.	B2322
See also pages.	B2300; B2348; C3472

Wrought Iron

Mesker Bros. Iron Co.	A1170
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X-Ray Proof

Bar-Ray Products, Inc.	B2645
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Wine Racks

Soellner, Herman, Inc.	C4357
Honeycomb	C4357

Wire

Beam Caging

See Caging, Wire

Cloth

Chase Brass & Copper Co., Inc.	B2780
Conklin, T. E., Brass & Copper Co., Inc.	C4660
Jones, L. E., Wire & Iron Works.	B2016
See also page.	A1592
Specifications	B2780

Concrete Reinforcement

See Concrete Reinforcement, Wire Mesh

Wire—Cont.

Copper, Silicon, Manganese Alloys

American Brass Co.....A114
EverdurA114

Enclosures

See Partitions, Open Mesh; Fencing, Wire or Woven Wire

Fencing

See Fencing, Wire or Woven Wire

Lath

See Metal Lath, Wire

Lath and Insulation Combination

See Metal Lath and Insulation Combination

Nickel

International Nickel Co., Inc..A118; A1568;
C4287; C4318; C4378; C4444;
C4501; D4969

Nickel Copper Alloy (Monel Metal)

International Nickel Co., Inc..A118; A1568;
C4287; C4318; C4378; C4444;
C4501; D4969

Partitions

See Partitions, Open Mesh

Rope

See Rope, Wire

Signs

See Signs, Wire

Snow Guards

See Guards, Snow

Work

Acorn Wire and Iron Works.....B2006
Badger Wire & Iron Works.....B2010
Cincinnati Iron Fence Co.....B1984
Cyclone Fence Co.....B1986
Jones, L. E., Wire & Iron Works...B2016
Logan Co.....A1571
Stewart Iron Works Co., Inc.....B1992
Taylor & Dean.....B2017
Western Wire & Iron Works, Inc...B2024
Woven Wire Work Div. of National
Assn. of Ornamental Iron, Bronze
and Wire Mfrs.....B2000
See also pages.....A317; A1541; A1592;
A1579; A1582; A1598; B1978; B1981;
B2142
J. & L.....A317
AssociationB2000

Woven

See Metal Fabric

Wire and Cables, Electric

Bare

American Steel & Wire Co.....D5856

Brewery, Packing House and Canvasite Cord

American Steel & Wire Co.....D5856
See also page.....D5864
AmericoreD5856

Cambric Covered—Annunciator, Bell, Telephone, etc.

American Steel & Wire Co.....D5856
Crescent Insulated Wire & Cable Co..D5864

Elevator Control

American Steel & Wire Co.....D5856
See also page.....D5864

Flexible, Non-metallic Armored

National Electric Products Corp....D5852
Triangle Conduit Co., Inc.....D5854
See also page.....D5853
K. G. W.....D5852
TriexD5854
WireflexD5853

Wire and Cables, Electric—Cont.

Flexible, Steel Armored

American Steel & Wire Co.....D5856
Crescent Insulated Wire & Cable Co..D5864
General Electric Co.....D5874
National Electric Products Corp....D5852
Triangle Conduit Co., Inc.....D5854
ArmorloktD5856
FlexsteelD5852
G-ED5874
OvalflexD5852

Lamp and Portable Cord

American Steel & Wire Co.....D5856
General Electric Co.....D5874
See also page.....D5864
AmcordD5856
AmericoreD5856
DeltabestonD5874
G-E FlexD5874

Lead Incased

Crescent Insulated Wire & Cable Co..D5864
General Electric Co.....D5874
Triangle Conduit Co., Inc.....D5854
G-ED5874

Rubber Covered—Interior Light and Power Wiring

American Steel & Wire Co.....D5856
Crescent Insulated Wire & Cable Co..D5864
General Electric Co.....D5874
Triangle Conduit Co., Inc.....D5854
AmericoreD5856
AmeriteD5856
AmparakD5856
G-ED5874
ImperialD5864

Rubber Covered—Telephone

American Steel & Wire Co.....D5856
See also page.....D5864

Theater or Stage Cable

American Steel & Wire Co.....D5856
See also page.....D5864
AmericoreD5856

Underground, Lead Incased

American Steel & Wire Co.....D5856

Weatherproof and Slow Burning

American Steel & Wire Co.....D5856
RelianceD5856

Wiring Devices

Bryant Electric Co.....D5867
Economy Fuse & Mfg. Co.....D5847
General Electric Co.....D5874
Hart Mfg. Co.....D5837
Hubbell, Harvey, Inc.....D5880
Stanley & Patterson.....D6174
See also pages.....D5828; D5832;
D5892; D6015
Diamond H.....D5837
G-ED5874

Wiring Devices, Radio

See Radio Wiring Devices

Wood

Blocks, Flooring and Paving

See Blocks, Wood—Flooring and Paving

Cabinet Work

See Cabinet Work

Carving

Klise Mfg. Co.....B2351
See also page.....B2370

Door Frames

See Trim, Wood

Dyes

See Stains, Wood

Wood—Cont.

Finishes

See Varnish; Enamel; Paint; Stains; Lacquers, etc.

Fire Retardant

See Lumber, Fire Retardant

Graining and Cutting

Superior Cleaning and Waterproofing
Co.A291

Lath

Arkansas Soft Pine Bureau.....B2258
Wood Lath Bureau, Inc.....B2425
See also page.....B2260
AssociationsB2425
SpecificationsB2258; B2425

Mantels

See Mantels

Work

See Cabinet Work—Wood; Trim, Wood

Wool, Mineral or Rock

Johns-ManvilleB2512; D5278
Mineral Felt Insulating Co.....D5275
Union Fibre Sales Co.....B2506
United States Mineral Wool Co.....B2526
MinfeltD5275
Rock CorkD5278
SpecificationsB2512; B2526; D5278

Woven Metal Fabric

See Metal Fabric

Wrapping, Beam

See Caging Wire—Beam and Girder

Wrought Iron Work

See Ornamental Work

X

X-Ray

Darkroom Equipment

Buck X-Ograph Co.....C4286

Doors

See Doors, X-Ray Proof

Intercepting Compounds

(See also Paint, X-Ray Proof)
Horn, A. C., Co.....A207
Toch BrothersA272
Bar-XA207
R.I.W.A272

Paint

See Paint, X-Ray Proof

Proofing

(See also specific products)
Bar-Ray Products, Inc.....B2645
Bar-RayB2645

Z

Zeolite Water Softeners

See Softeners, Water

Zinc

Oxide

New Jersey Zinc Co.....C4113

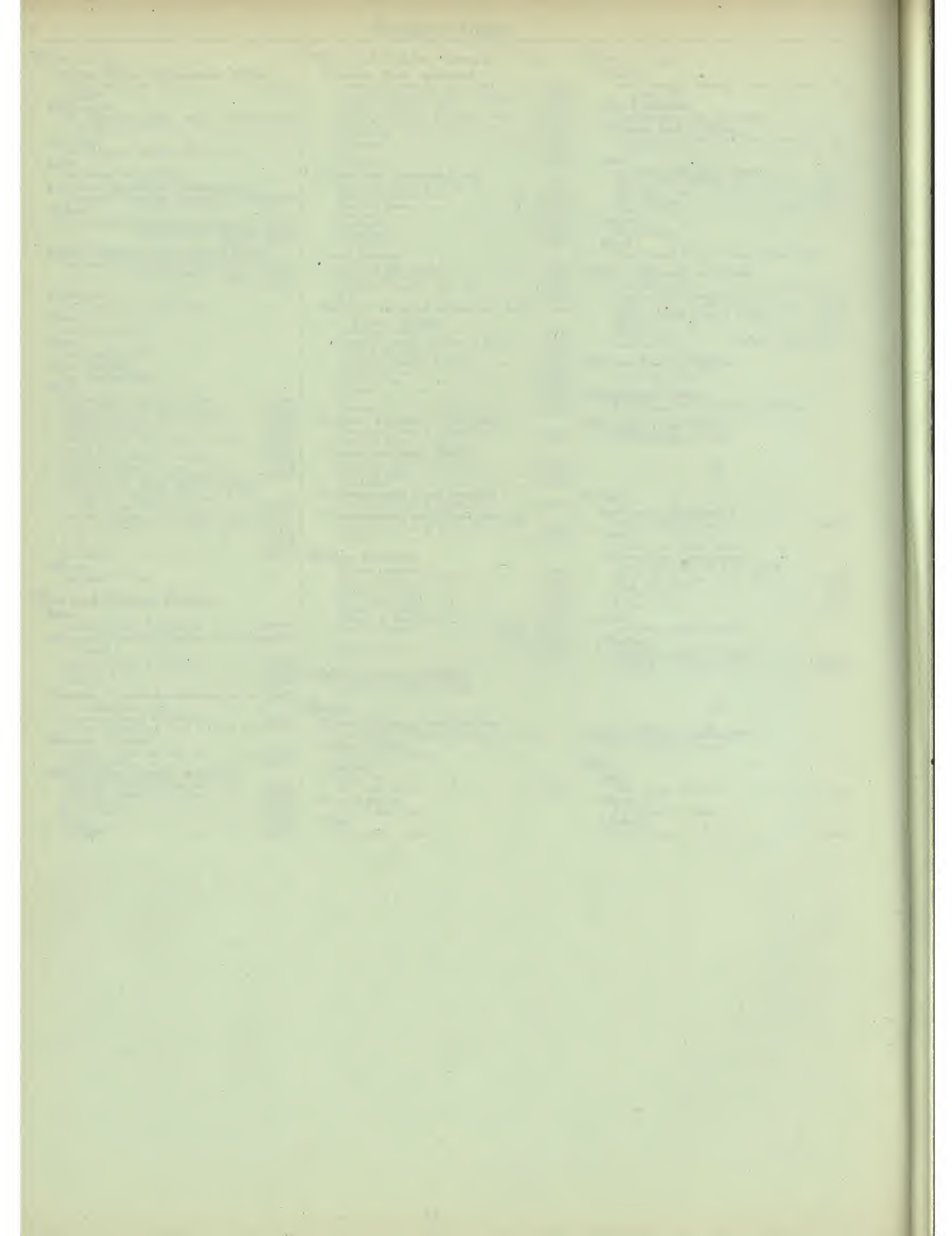
Shingles

See Shingles, Metal

Sulphide

New Jersey Zinc Co.....C4113





Hardware

Item	Quantity	Price	Total
1/2" x 4" x 8" Lumber	100	0.15	15.00
2" x 4" x 8" Lumber	50	0.25	12.50
4" x 4" x 8" Lumber	25	0.40	10.00
6" x 6" x 8" Lumber	10	0.60	6.00
8" x 8" x 8" Lumber	5	0.80	4.00
10" x 10" x 8" Lumber	2	1.00	2.00
12" x 12" x 8" Lumber	1	1.20	1.20
14" x 14" x 8" Lumber	1	1.40	1.40
16" x 16" x 8" Lumber	1	1.60	1.60
18" x 18" x 8" Lumber	1	1.80	1.80
20" x 20" x 8" Lumber	1	2.00	2.00
22" x 22" x 8" Lumber	1	2.20	2.20
24" x 24" x 8" Lumber	1	2.40	2.40
26" x 26" x 8" Lumber	1	2.60	2.60
28" x 28" x 8" Lumber	1	2.80	2.80
30" x 30" x 8" Lumber	1	3.00	3.00
32" x 32" x 8" Lumber	1	3.20	3.20
34" x 34" x 8" Lumber	1	3.40	3.40
36" x 36" x 8" Lumber	1	3.60	3.60
38" x 38" x 8" Lumber	1	3.80	3.80
40" x 40" x 8" Lumber	1	4.00	4.00
42" x 42" x 8" Lumber	1	4.20	4.20
44" x 44" x 8" Lumber	1	4.40	4.40
46" x 46" x 8" Lumber	1	4.60	4.60
48" x 48" x 8" Lumber	1	4.80	4.80
50" x 50" x 8" Lumber	1	5.00	5.00
52" x 52" x 8" Lumber	1	5.20	5.20
54" x 54" x 8" Lumber	1	5.40	5.40
56" x 56" x 8" Lumber	1	5.60	5.60
58" x 58" x 8" Lumber	1	5.80	5.80
60" x 60" x 8" Lumber	1	6.00	6.00
62" x 62" x 8" Lumber	1	6.20	6.20
64" x 64" x 8" Lumber	1	6.40	6.40
66" x 66" x 8" Lumber	1	6.60	6.60
68" x 68" x 8" Lumber	1	6.80	6.80
70" x 70" x 8" Lumber	1	7.00	7.00
72" x 72" x 8" Lumber	1	7.20	7.20
74" x 74" x 8" Lumber	1	7.40	7.40
76" x 76" x 8" Lumber	1	7.60	7.60
78" x 78" x 8" Lumber	1	7.80	7.80
80" x 80" x 8" Lumber	1	8.00	8.00
82" x 82" x 8" Lumber	1	8.20	8.20
84" x 84" x 8" Lumber	1	8.40	8.40
86" x 86" x 8" Lumber	1	8.60	8.60
88" x 88" x 8" Lumber	1	8.80	8.80
90" x 90" x 8" Lumber	1	9.00	9.00
92" x 92" x 8" Lumber	1	9.20	9.20
94" x 94" x 8" Lumber	1	9.40	9.40
96" x 96" x 8" Lumber	1	9.60	9.60
98" x 98" x 8" Lumber	1	9.80	9.80
100" x 100" x 8" Lumber	1	10.00	10.00
102" x 102" x 8" Lumber	1	10.20	10.20
104" x 104" x 8" Lumber	1	10.40	10.40
106" x 106" x 8" Lumber	1	10.60	10.60
108" x 108" x 8" Lumber	1	10.80	10.80
110" x 110" x 8" Lumber	1	11.00	11.00
112" x 112" x 8" Lumber	1	11.20	11.20
114" x 114" x 8" Lumber	1	11.40	11.40
116" x 116" x 8" Lumber	1	11.60	11.60
118" x 118" x 8" Lumber	1	11.80	11.80
120" x 120" x 8" Lumber	1	12.00	12.00
122" x 122" x 8" Lumber	1	12.20	12.20
124" x 124" x 8" Lumber	1	12.40	12.40
126" x 126" x 8" Lumber	1	12.60	12.60
128" x 128" x 8" Lumber	1	12.80	12.80
130" x 130" x 8" Lumber	1	13.00	13.00
132" x 132" x 8" Lumber	1	13.20	13.20
134" x 134" x 8" Lumber	1	13.40	13.40
136" x 136" x 8" Lumber	1	13.60	13.60
138" x 138" x 8" Lumber	1	13.80	13.80
140" x 140" x 8" Lumber	1	14.00	14.00
142" x 142" x 8" Lumber	1	14.20	14.20
144" x 144" x 8" Lumber	1	14.40	14.40
146" x 146" x 8" Lumber	1	14.60	14.60
148" x 148" x 8" Lumber	1	14.80	14.80
150" x 150" x 8" Lumber	1	15.00	15.00
152" x 152" x 8" Lumber	1	15.20	15.20
154" x 154" x 8" Lumber	1	15.40	15.40
156" x 156" x 8" Lumber	1	15.60	15.60
158" x 158" x 8" Lumber	1	15.80	15.80
160" x 160" x 8" Lumber	1	16.00	16.00
162" x 162" x 8" Lumber	1	16.20	16.20
164" x 164" x 8" Lumber	1	16.40	16.40
166" x 166" x 8" Lumber	1	16.60	16.60
168" x 168" x 8" Lumber	1	16.80	16.80
170" x 170" x 8" Lumber	1	17.00	17.00
172" x 172" x 8" Lumber	1	17.20	17.20
174" x 174" x 8" Lumber	1	17.40	17.40
176" x 176" x 8" Lumber	1	17.60	17.60
178" x 178" x 8" Lumber	1	17.80	17.80
180" x 180" x 8" Lumber	1	18.00	18.00
182" x 182" x 8" Lumber	1	18.20	18.20
184" x 184" x 8" Lumber	1	18.40	18.40
186" x 186" x 8" Lumber	1	18.60	18.60
188" x 188" x 8" Lumber	1	18.80	18.80
190" x 190" x 8" Lumber	1	19.00	19.00
192" x 192" x 8" Lumber	1	19.20	19.20
194" x 194" x 8" Lumber	1	19.40	19.40
196" x 196" x 8" Lumber	1	19.60	19.60
198" x 198" x 8" Lumber	1	19.80	19.80
200" x 200" x 8" Lumber	1	20.00	20.00
202" x 202" x 8" Lumber	1	20.20	20.20
204" x 204" x 8" Lumber	1	20.40	20.40
206" x 206" x 8" Lumber	1	20.60	20.60
208" x 208" x 8" Lumber	1	20.80	20.80
210" x 210" x 8" Lumber	1	21.00	21.00
212" x 212" x 8" Lumber	1	21.20	21.20
214" x 214" x 8" Lumber	1	21.40	21.40
216" x 216" x 8" Lumber	1	21.60	21.60
218" x 218" x 8" Lumber	1	21.80	21.80
220" x 220" x 8" Lumber	1	22.00	22.00
222" x 222" x 8" Lumber	1	22.20	22.20
224" x 224" x 8" Lumber	1	22.40	22.40
226" x 226" x 8" Lumber	1	22.60	22.60
228" x 228" x 8" Lumber	1	22.80	22.80
230" x 230" x 8" Lumber	1	23.00	23.00
232" x 232" x 8" Lumber	1	23.20	23.20
234" x 234" x 8" Lumber	1	23.40	23.40
236" x 236" x 8" Lumber	1	23.60	23.60
238" x 238" x 8" Lumber	1	23.80	23.80
240" x 240" x 8" Lumber	1	24.00	24.00
242" x 242" x 8" Lumber	1	24.20	24.20
244" x 244" x 8" Lumber	1	24.40	24.40
246" x 246" x 8" Lumber	1	24.60	24.60
248" x 248" x 8" Lumber	1	24.80	24.80
250" x 250" x 8" Lumber	1	25.00	25.00
252" x 252" x 8" Lumber	1	25.20	25.20
254" x 254" x 8" Lumber	1	25.40	25.40
256" x 256" x 8" Lumber	1	25.60	25.60
258" x 258" x 8" Lumber	1	25.80	25.80
260" x 260" x 8" Lumber	1	26.00	26.00
262" x 262" x 8" Lumber	1	26.20	26.20
264" x 264" x 8" Lumber	1	26.40	26.40
266" x 266" x 8" Lumber	1	26.60	26.60
268" x 268" x 8" Lumber	1	26.80	26.80
270" x 270" x 8" Lumber	1	27.00	27.00
272" x 272" x 8" Lumber	1	27.20	27.20
274" x 274" x 8" Lumber	1	27.40	27.40
276" x 276" x 8" Lumber	1	27.60	27.60
278" x 278" x 8" Lumber	1	27.80	27.80
280" x 280" x 8" Lumber	1	28.00	28.00
282" x 282" x 8" Lumber	1	28.20	28.20
284" x 284" x 8" Lumber	1	28.40	28.40
286" x 286" x 8" Lumber	1	28.60	28.60
288" x 288" x 8" Lumber	1	28.80	28.80
290" x 290" x 8" Lumber	1	29.00	29.00
292" x 292" x 8" Lumber	1	29.20	29.20
294" x 294" x 8" Lumber	1	29.40	29.40
296" x 296" x 8" Lumber	1	29.60	29.60
298" x 298" x 8" Lumber	1	29.80	29.80
300" x 300" x 8" Lumber	1	30.00	30.00
302" x 302" x 8" Lumber	1	30.20	30.20
304" x 304" x 8" Lumber	1	30.40	30.40
306" x 306" x 8" Lumber	1	30.60	30.60
308" x 308" x 8" Lumber	1	30.80	30.80
310" x 310" x 8" Lumber	1	31.00	31.00
312" x 312" x 8" Lumber	1	31.20	31.20
314" x 314" x 8" Lumber	1	31.40	31.40
316" x 316" x 8" Lumber	1	31.60	31.60
318" x 318" x 8" Lumber	1	31.80	31.80
320" x 320" x 8" Lumber	1	32.00	32.00
322" x 322" x 8" Lumber	1	32.20	32.20
324" x 324" x 8" Lumber	1	32.40	32.40
326" x 326" x 8" Lumber	1	32.60	32.60
328" x 328" x 8" Lumber	1	32.80	32.80
330" x 330" x 8" Lumber	1	33.00	33.00
332" x 332" x 8" Lumber	1	33.20	33.20
334" x 334" x 8" Lumber	1	33.40	33.40
336" x 336" x 8" Lumber	1	33.60	33.60
338" x 338" x 8" Lumber	1	33.80	33.80
340" x 340" x 8" Lumber	1	34.00	34.00
342" x 342" x 8" Lumber	1	34.20	34.20
344" x 344" x 8" Lumber	1	34.40	34.40
346" x 346" x 8" Lumber	1	34.60	34.60
348" x 348" x 8" Lumber	1	34.80	34.80
350" x 350" x 8" Lumber	1	35.00	35.00
352" x 352" x 8" Lumber	1	35.20	35.20
354" x 354" x 8" Lumber	1	35.40	35.40
356" x 356" x 8" Lumber	1	35.60	35.60
358" x 358" x 8" Lumber	1	35.80	35.80
360" x 360" x 8" Lumber	1	36.00	36.00
362" x 362" x 8" Lumber	1	36.20	36.20
364" x 364" x 8" Lumber	1	36.40	36.40
366" x 366" x 8" Lumber	1	36.60	36.60
368" x 368" x 8" Lumber	1	36.80	36.80
370" x 370" x 8" Lumber	1	37.00	37.00
372" x 372" x 8" Lumber	1	37.20	37.20
374" x 374" x 8" Lumber	1	37.40	37.40
376" x 376" x 8" Lumber	1	37.60	37.60
378" x 378" x 8" Lumber	1	37.80	37.80
380" x 380" x 8" Lumber	1	38.00	38.00
382" x 382" x 8" Lumber	1	38.20	38.20
384" x 384" x 8" Lumber	1	38.40	38.40
386" x 386" x 8" Lumber	1	38.60	38.60
388" x 388" x 8" Lumber	1	38.80	38.80
390" x 390" x 8" Lumber	1	39.00	39.00
392" x 392" x 8" Lumber	1	39.20	39.20
394" x 394" x 8" Lumber	1	39.40	39.40
396" x 396" x 8" Lumber	1	39.60	39.60
398" x 398" x 8" Lumber	1	39.80	39.80
400" x 400" x 8" Lumber	1	40.00	40.00
402" x 402" x 8" Lumber	1	40.20	40.20
404" x 404" x 8" Lumber	1	40.40	40.40
406" x 406" x 8" Lumber	1	40.60	40.60
408" x 408" x 8" Lumber	1	40.80	40.80
410" x 410" x 8" Lumber	1	41.00	41.00
412" x 412" x 8" Lumber	1	41.20	41.20
414" x 414" x 8" Lumber	1	41.40	41.40
416" x 416" x 8" Lumber	1	41.60	41.60
418" x 418" x 8" Lumber	1	41.80	41.80
420" x 420" x 8" Lumber	1	42.00	42.00
422" x 422" x 8" Lumber	1	42.20	42.20
424" x 424" x 8" Lumber	1	42.40	42.40
426" x 426" x 8" Lumber	1	42.60	42.60
428" x 428" x 8" Lumber	1	42.80	42.80
430" x 430" x 8" Lumber	1	43.00	43.00
432" x 432" x 8" Lumber	1	43.20	43.20
434" x 434" x 8" Lumber	1	43.40	43.40
436" x 436" x 8" Lumber	1	43.60	43.60
438" x 438" x 8" Lumber	1	43.80	43.80
440" x 440" x 8" Lumber	1	44.00	44.00
442" x 442" x 8" Lumber	1	44.20	44.20
444" x 444" x 8" Lumber	1	44.40	44.40
446" x 446" x 8" Lumber	1	44.60	44.60
448" x 448" x 8" Lumber	1	44.80	44.80
450" x 450" x 8" Lumber	1	45.00	45.00
452" x 452" x 8" Lumber	1	45.20	45.20
454" x 454" x 8" Lumber	1	45.40	45.40
456" x 456" x 8" Lumber	1	45.60	45.60
458" x 458" x 8" Lumber	1	45.80	45.80
460" x 460" x 8" Lumber	1	46.00	46.00
462" x 462" x 8" Lumber	1	46.20	46.20
464" x 464" x 8" Lumber	1	46.40	46.40
466" x 466" x 8" Lumber	1	46.60	46.60
468" x 468" x 8" Lumber	1	46.80	46.80
470" x 470" x 8" Lumber			



HARDWARE

Ackman Window Safety Devices, Inc.....	C3493	Knappe & Vogt Mfg. Co.....	C3900-3901
Allith-Prouty Co.	C3402-3413	Majestic Co.	C3478-3479
American Chain Co., Inc.....	C3509	McCabe Hanger Mfg. Co.....	C3419-3434
American Window Safety Device Co.....	C3494-3495	McKee Door Co.....	C3471
Andersen Foundry Co., Div. of Andersen Frame Corp.	C3502	Milwaukee Stamping Co.—	
Austral Window Co.....	C3514	Garment Carrier Equipment.....	C3903
Barber-Colman Co.	C3484	Spring Hinges, etc.....	C3601-3603
Bommer Spring Hinge Co.—		Modern Wardrobe Inc.....	C3904
Door Checks and Closers.....	C3606-3607	Monarch Mfg. Co.....	C3518-3519
Spring Hinges	C3588-3597	Norton Door Closer Co., Div. of the Yale & Towne Mfg. Co.....	C3559-3563
Buck, Ainsworth, Inc.....	C3496-3497	Norton Lasier Co.....	C3564
Caldwell Mfg. Co.....	C3503	Overhead Door Corp.....	C3435-3442
Canton Foundry & Machine Co.....	C3492	Parker-Regan Corp.	C3546-3549
Casement Hardware Co.....	C3524-3529	Pullman Mfg. Co., Inc.....	C3506-3507
Chain Products Co.....	C3510	Reading Hardware Corp.....	C3882-3887
Chicago Spring Hinge Co.....	C3598-3600	Reed Roller Bit Co.....	C3515
Cleveland Lock Works.....	C3504	Richards-Wilcox Mfg. Co.....	C3443-3470
Coburn Trolley Track Mfg. Co.....	C3416-3418	Rixson, Oscar C., Co.....	C3565-3587
Columbus Rolling Door Corp.....	C3414-3415	Royal Window Safety Device Co.....	C3500
Condor Co.	C3558	Russell & Erwin Mfg. Co.....	C3697-3776
Copper and Brass Research Assn.....	C3695	Ryan, E. T., Iron Works Inc.....	C3555
Corbin, P. & F.....	C3609-3694	Samson Cordage Works.....	C3511
Dickey, R. J., & Sons, Inc.....	C3498	Sargent & Co.....	C3777-3880
Extension Garment Hanger Co., Inc.....	C3897	Schlage Lock Co.....	C3888-3891
Farley & Loetscher Mfg. Co.....	C3472-3473	Schoelkopf Mfg. Co.....	C3485
Frantz Mfg. Co.....	C3474-3475	Shelby Spring Hinge Co.....	C3604-3605
Garden City Plating & Mfg. Co.....	C3898-3899	Silver Lake Co.....	C3512
Gates Reversible Window Co.....	C3516-3517	Smith & Egge Mfg. Co.....	C3513
Glynn-Johnson Corp.	C3556-3557	Soss Mfg. Co., Inc.....	C3608
Grant Pulley and Hardware Co.....	C3505	Thomas Mfg. Co., Inc.....	C3905
Graves, Frank, Sash, Door & Mill Co.....	C3508	Topping Mfg. Co.....	C3480-3483
Hagstrom Mfg. Co.....	C3530-3532	United Specialties Mfg. Co. Ltd.....	C3552-3554
Haskell & Hatch Co.....	C3541-3545	Vonnegut Hardware Co.....	C3892-3896
Hoegger, Inc.	C3902	Whitner 2-Rope Safety Co.....	C3501
Hoffman, Andrew, Mfg. Co.....	C3533-3540	Williams Pivot Sash Co.....	C3520-3521
Imperial Brass Mfg. Co.....	C3499	Wonder Window Co.....	C3522-3523
Irving, W., Forge, Inc.....	C3696	Yoder-Morris Co.	C3486-3491
Keil, Francis, & Son, Inc.....	C3881	Zimmerman, G. F. S., Co., Inc.....	C3550-3551
Kinnear Mfg. Co.....	C3476-3477		

ALLITH-PROUTY COMPANY

Manufacturers of Garage, Airport and Fire Door Hardware

DANVILLE, ILL.

Products

OVERHEAD CARRIERS.
DOOR HANGERS and HINGES.
GARAGE and AIRPORT DOOR HARDWARE.
INDUSTRIAL and FIRE DOOR HARDWARE.



TRADE-MARK

Also manufacturers of:
Rolling Ladders.
Pitching Shoes and Stakes.
Certified Malleable Iron Castings.

For Allith Stadium Seat Brackets, see Manufacturers' Index

AIRPORT DOOR HARDWARE

Straight Sliding Doors on Bottom Rollers

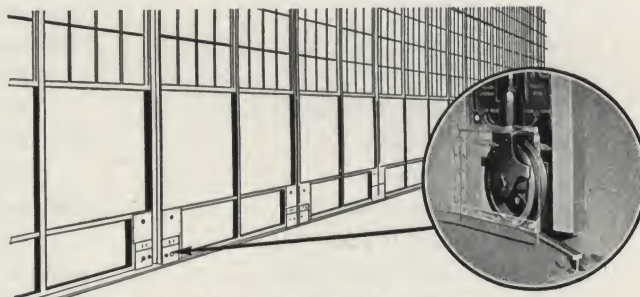
Straight sliding rollers on bottom rail are preferable

Round-a-Corner Doors Carried on Bottom Rail

The ideal arrangement for large openings; doors



Typical Installation of No. 7090 Roller



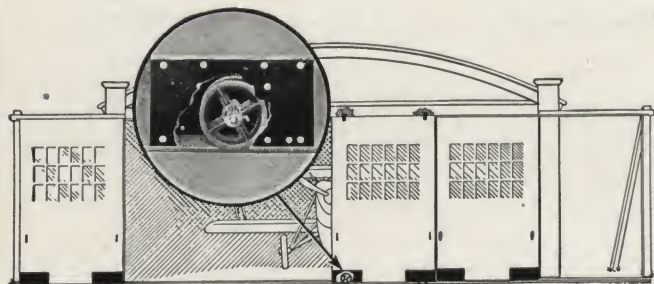
Typical Installation of No. 7092 Roller

for extremely large and heavy doors especially where they are over ten feet in width. These doors are carried on industrial rail embedded in concrete to give rigid support. Vertical adjustment is provided to insure weather tight closing. Doors carried on this equipment slide straight back from the center of the opening past the sides of the building, allowing a clear opening. The track may be laid on single or parallel runs. The tops of the doors are guided by rollers between the guides incorporated in the overhead construction. These guides extend past the sides of the building to some form of support provided. In some designs the front piers are of a size to permit stacking door in a pocket within the pier.

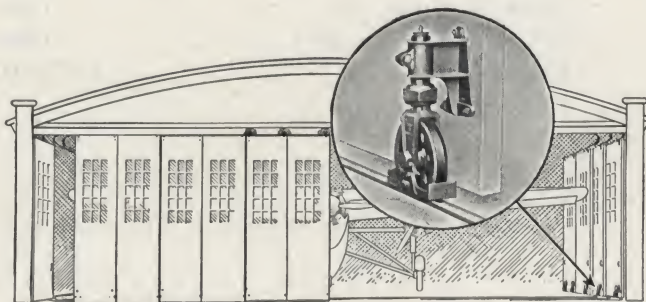


All our bottom rollers are equipped with genuine Timken bearings. Note big rugged axle shaft

inside out of the wind and weather, when open. When they are in closed position they are under the roof and inside of the walls proper. In operating they are simply pushed around the corner on a curved track and stand along the sidewall. The roller frames for these doors are designed to permit adjustment after installation, for lining up of doors and to take care of unevenness of the track. This feature insures weather tight closing. The wheels rotate on Timken bearings and are machine turned to insure concentric treads. The pivot shafts are in Timken bearings to insure free turning as well as to forestall the possibility of the wheels climbing the rails of the curve. All bearings are equipped with Alemite fittings for easy lubrication.



Typical Installation of No. 7050 Roller



Typical Installation of No. 7062 Roller

Airport Door Roller Details

Rollers No. 7090 (without wheel lock) and 7090 W. L. (with wheel lock) are identical in size and the following Details are correct for both.

When wheel lock roller is used provision should be made in the spacing of track centers to allow at least $\frac{1}{2}$ in. more space in order to clear the foot trip.

On straight sliding door installations it is customary to use multi-parallel tracks, in which case each door is then equipped with one roller with the wheel lock (7090 W. L.) and one roller without wheel lock (7090).

Top rollers No. 7076 or 7077 shown on the following page are recommended for use with these bottom rollers.

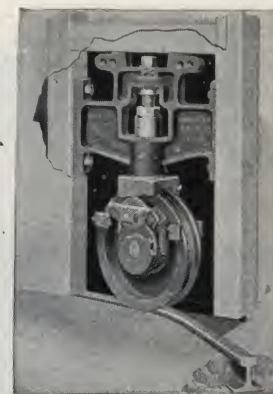
Rollers No. 7092 (without wheel lock) and 7092 W. L. (with wheel lock) are identical in size, and the following Details are correct for both.

For installations with doors rolling round the corner—the placement of floor tracks, curves and top guides calls for special layout data in order to provide proper clearances of all door edges regardless of position and travel. Allith has this data in blue print and will gladly furnish information to interested architects and engineers, or will work out any special problem where door handling is under consideration.

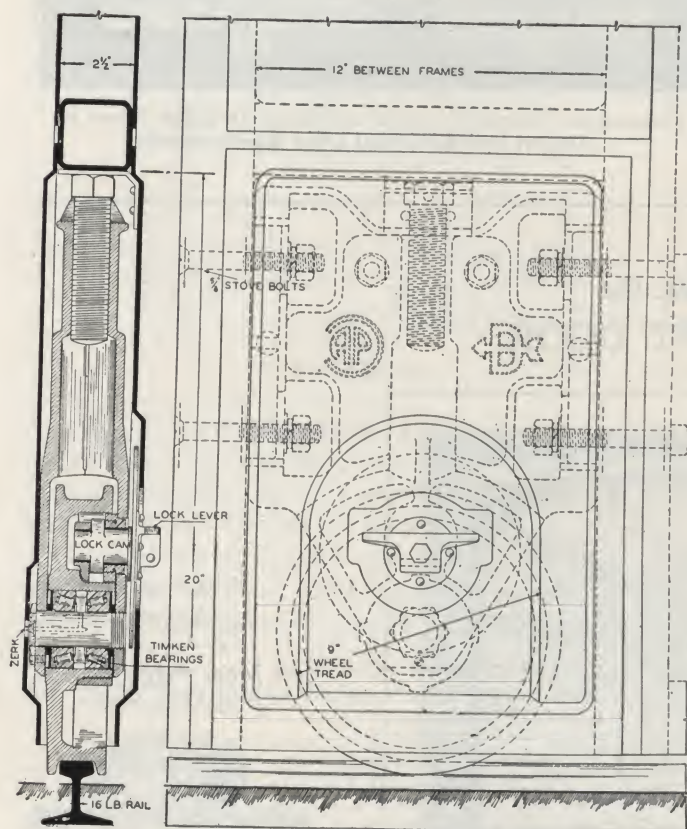
Weathering plates for complete weathertightness around mortise in which bottom rollers are bolted are considered by Allith of as much importance as the rolling action of the wheels. We do not use rubber or fabric than can deteriorate. Allith weathering plates are of embossed steel and secured to door or roller in such a way as to prevent any pinching, binding or interference in the action of the door rollers.



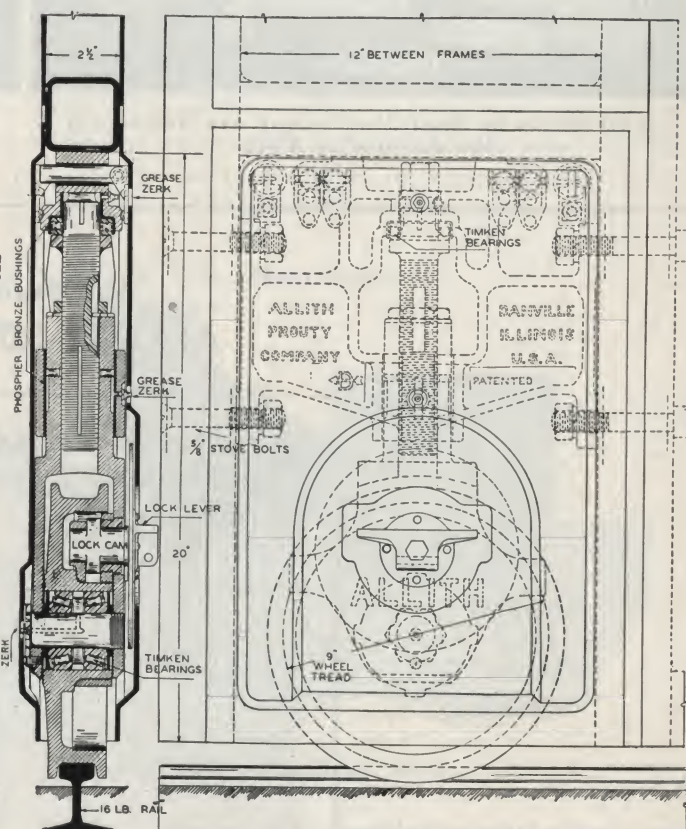
7090WL



7092WL



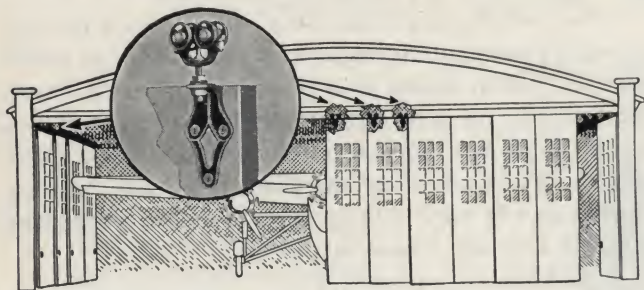
Details for No. 7090WL Bottom Roller



Details for No. 7092WL Bottom Roller

Top Hung Round-a-Corner Type

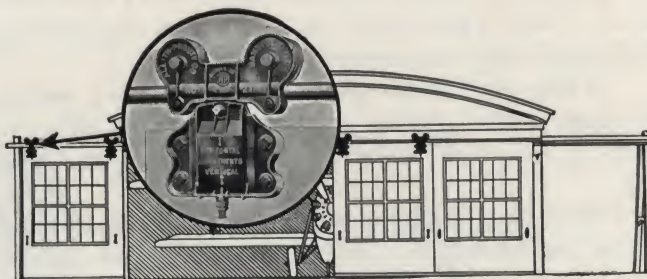
Where the doors are not too heavy for supporting from the overhead construction, it is oftentimes most economical to use top hung doors.



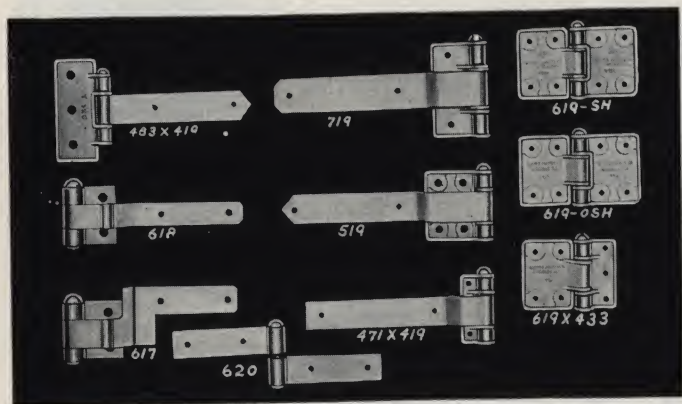
Door arrangement featured above provides means for rolling doors around the corner, out of the way, along sidewalls. A passage door is hinged to each jamb to swing independent of doors on hangers. Three tracks are shown, as this arrangement keeps doors stacked ahead of roof truss. Where there is no truss interference, a single run of track down each sidewall is recommended.

Top Hung Straight Sliding Type

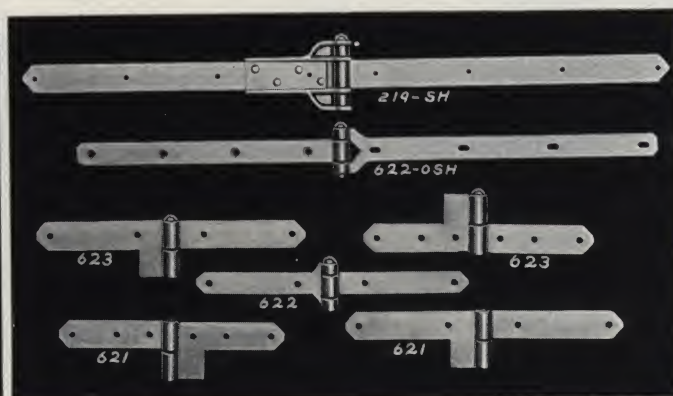
A simple and most practical way of fitting hangar doors when space will permit the track beyond the sides of the building.



When considering this straight sliding—top hung method—it is necessary to use doors of a weight that will not place a strain on the overhead construction and for this reason, openings having a width of more than 50 ft. per opening should be equipped with the bottom roller equipment.



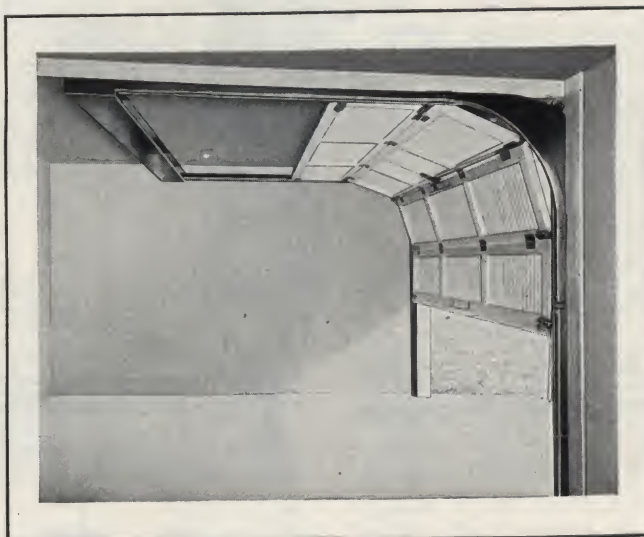
Special Hinges for Most Any Purpose Are Offered and Manufactured by Allith



Illustrations Feature Some of the Generally Used Types for Airport and Industrial Door Requirements

Announcing the ALLITH LIFT DOOR

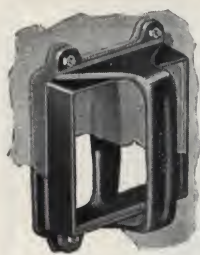
Requires
only
6 inches
headroom



Finer in
appearance
Most rugged
in construction

Complete Details on Request

No. 1306 Flush Door Pull



No. 1306
Flush Door Pull

Made of two parts of certified malleable iron. The flush or mortised side is set into the steel plate of the door while the raised pull is bolted to the opposite side. These pulls are large and sturdy so full strain may be applied without danger of bending. Two flush pulls may be used together on doors with plates on each side.

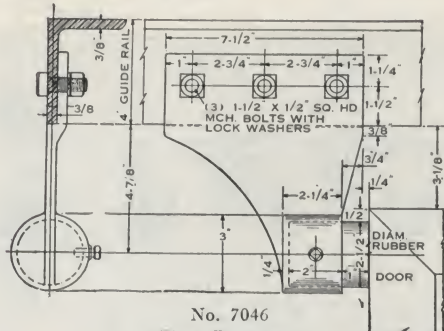
No. 2239 Cremone Bolt

This bolt is especially designed for very high doors. It is used on the swing door next to the jamb. The guides are provided with adjustments allowing the doors to swing well under the header. Flush handle is set in the plate on the outside of the door. All cast parts are made of certified malleable iron and the rods are made of the highest grade steel. Vibration will not cause the bolt to change from locked to unlocked position or vice versa.



No. 2239
Cremone Bolt

No. 7046 Top Bumper

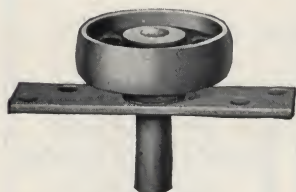


No. 7046
Top Bumper

Top Bumpers for direct attachment to overhead guides are most suitable for use in preventing doors from rolling past their proper position in closing. Also highly desirable at back of pocket space.

Ample bearing surface on angle enables Allith Top Bumpers to withstand more than the usual abuse without causing damage to the doors.

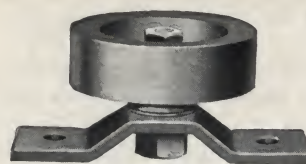
No. 7076 Top Guide Roller for Tubular Doors



No. 7076
Top Guide Roller

Malleable wheels are made in diameters varying from 3 to 8 in. as specified; equipped with graphite bronze self-lubricating bearings. Axle shafts are 1 in. in diameter. Specify size of tubing to be used.

No. 7077 Top Guide Roller for Channel Iron Doors



No. 7077
Top Guide Roller

Malleable wheels are made in diameters varying from 3 to 8 in. as specified; equipped with graphite bronze self-lubricating bearings. Axle shafts are 1 in. in diameter. Specify width of channel used.

Note: With all of these top guide rollers allow at least $\frac{1}{4}$ in. clearance on each side of wheel. Thus the diameter of wheel will be $\frac{1}{2}$ in. less than spacing between top guides.

No. 7164 Top Guide Roller

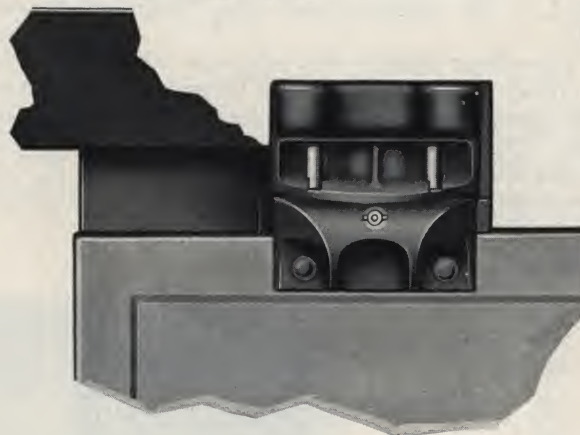


No. 7164
Top Guide Roller

Allith Guide Rollers for straight sliding doors and single angle guide are of the swivel type to produce free movement even though angle may be somewhat distorted.

Made in sizes and types for either channel or tube doors and for all usual door thicknesses.

No. 7135 Top Guide Roller



• No. 7135
Top Guide Roller

Guide Rollers for round-the-corner doors and single angle guide must incorporate proper weathering. The weathering wing on No. 7135 is so designed as to travel freely on curves and to assure perfect weathering when doors are in closed position.

FOLDING SLIDING GARAGE DOOR HARDWARE "TEN-EIGHTY"

This hardware is designed for folding sliding doors, allowing the doors to fold back at any angle up to 180°, and for use on openings from 6 to 18 ft. wide, depending upon the number of doors used. Single tracks are required for 3, 4, 5 or 6 doors.

With these outfits, doors are hinged together and hung to the jambs and are supported at the upper outer corner by a ball bearing swivel hanger, sliding in a trolley track. This arrangement prevents sagging of doors, and permits the use of all or part of the opening at one time.

Space required between the inside wall and car when doors swing open or shut is governed by the width of one door only. When closed, doors fit against the stops in the same manner as a house door, making the opening weatherproof.

This equipment may be applied to the outside of an opening, though protection for the doors when open should be arranged for.

No. 60-X track with adjustable brackets is regularly furnished with No. 1080 equipment. The hangers are of malleable iron construction with vertical and horizontal adjustment, roller bearing metal wheels and ball bearing swivel.

See page following for details.

No. 1081 similar to above but of heavier construction.

No. 71-X track with heavy adjustable brackets and hangers is furnished for medium weight doors. Specify No. 1081 equipment.

See page following for details.

No. 67-X track with heavy adjustable brackets and hangers is furnished for extra heavy doors. Specify No. 1082 equipment.

See page following for details.

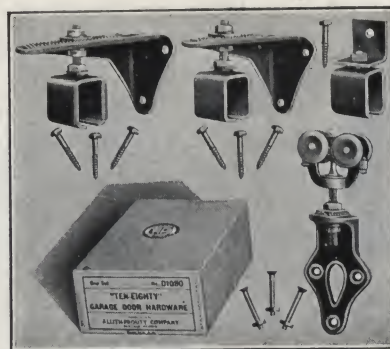
Three-door Outfit Type "3D"—For openings 6 to 9 ft. wide. Two doors hinged together and attached to one jamb, while the third or passage door is hinged to the opposite jamb. Type 3D1 slides and folds all three doors to one jamb.

Four-door Outfit—For openings 8 to 12 ft. wide. Made in two combinations as follows:

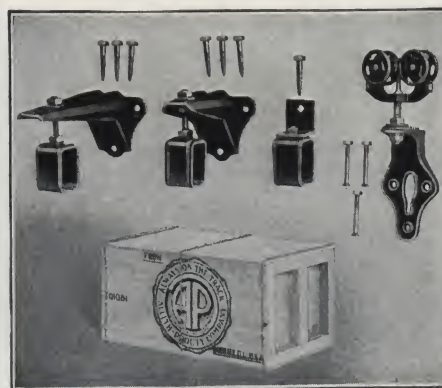
Two doors hinged to each jamb, or three doors hinged to one jamb and one door hinged to opposite jamb.

Five-door Outfit—For openings 10 to 15 ft. wide. Two doors hinged together and hinged to one jamb and three doors hinged together and hinged to opposite jamb.

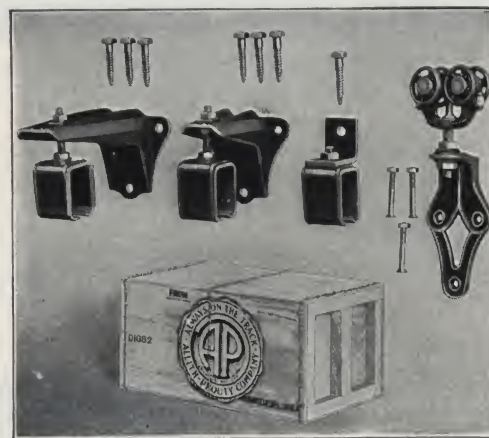
Six-door Outfit—For openings 12 to 18 ft. wide. Three doors hinged to one jamb and three doors hinged to opposite jamb.



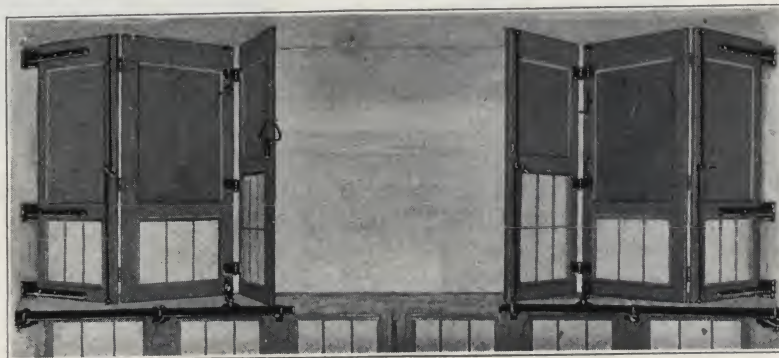
No. 1080 Folding Sliding Garage Door Hardware Set



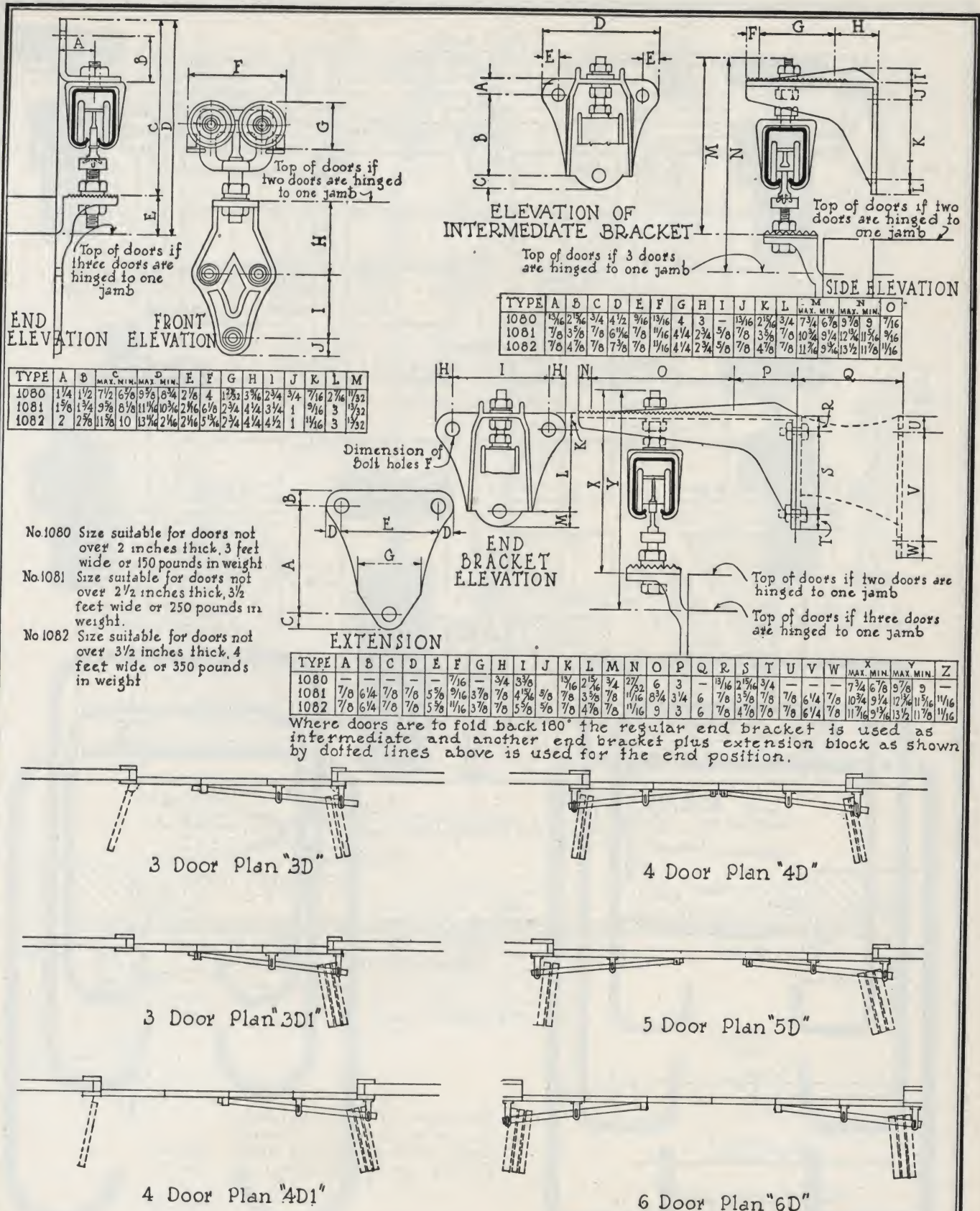
No. 1081 Folding Sliding Garage Door Hardware Set



No. 1082 Folding Sliding Garage Door Hardware Set



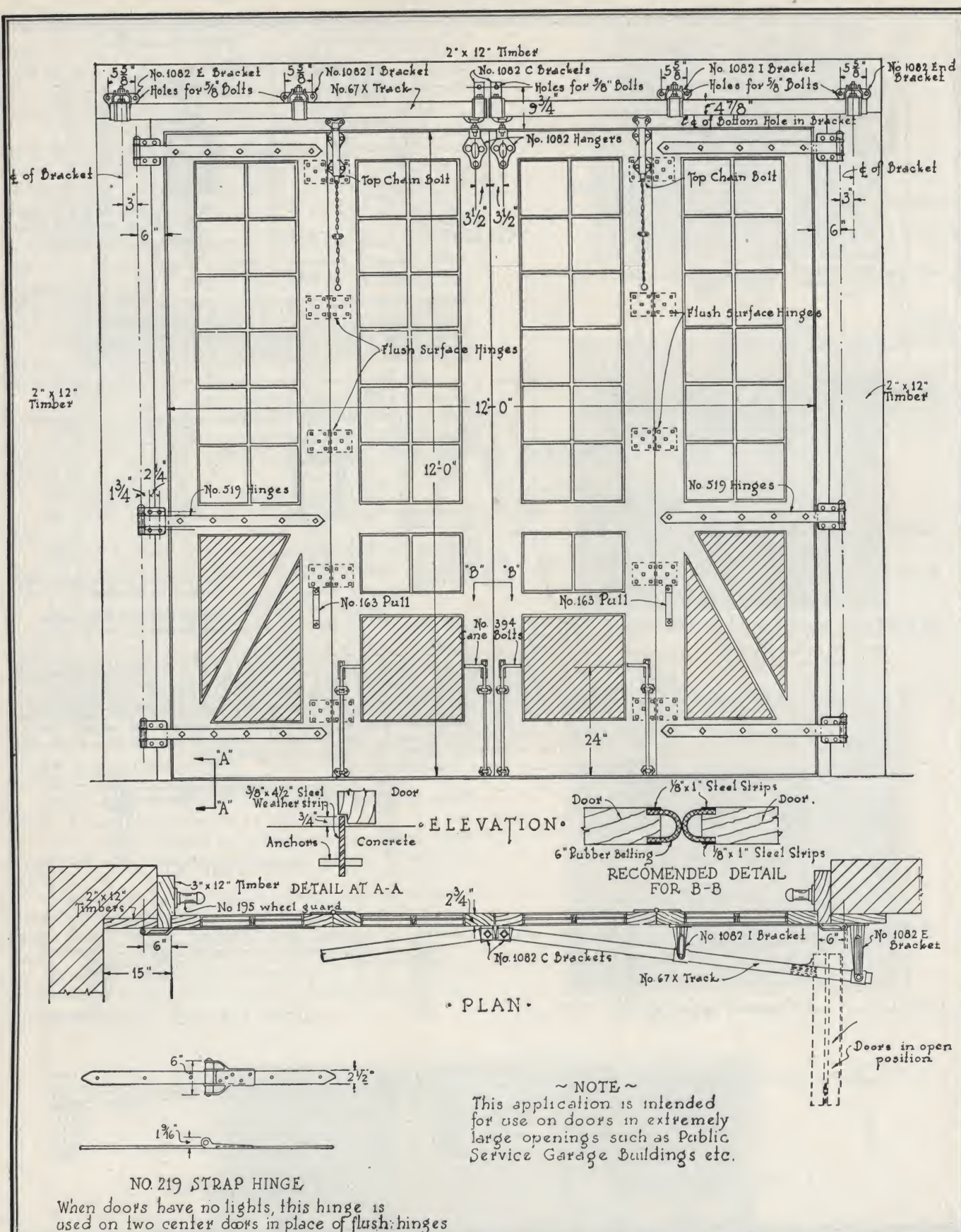
Typical Six-door Installation

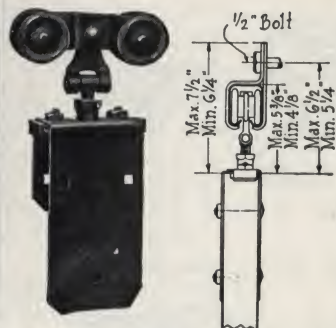


DRAWN BY
SWEETS CATALOGUE
SERVICE INC.

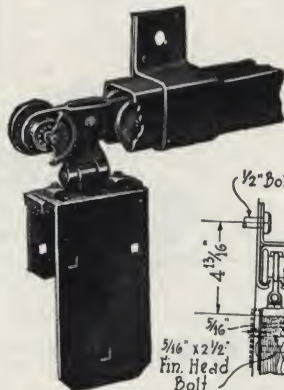
DETAILS OF TYPE 1080, 1081 AND 1082
GARAGE DOOR HANGERS ...

NOT DRAWN
TO SCALE
DATE AUG 25
DRWG
1

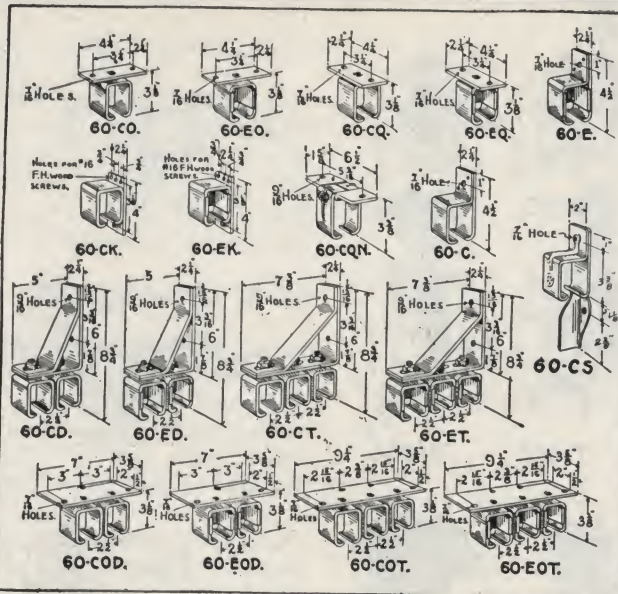




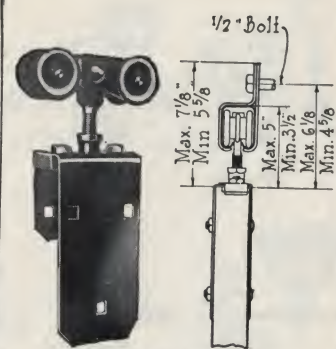
No. 63 HANGER
Capacity 400 pound



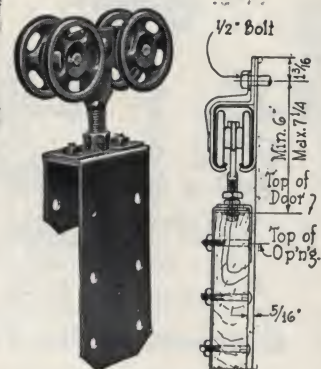
No. 61 HANGER
Capacity 500 pounds



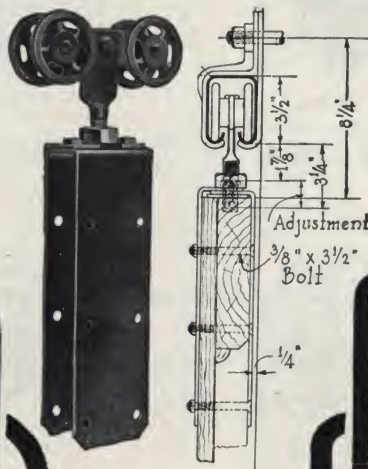
BRACKETS FOR No. 60 X TROLLEY TRACK



No. 66 HANGER
Capacity 400 pounds

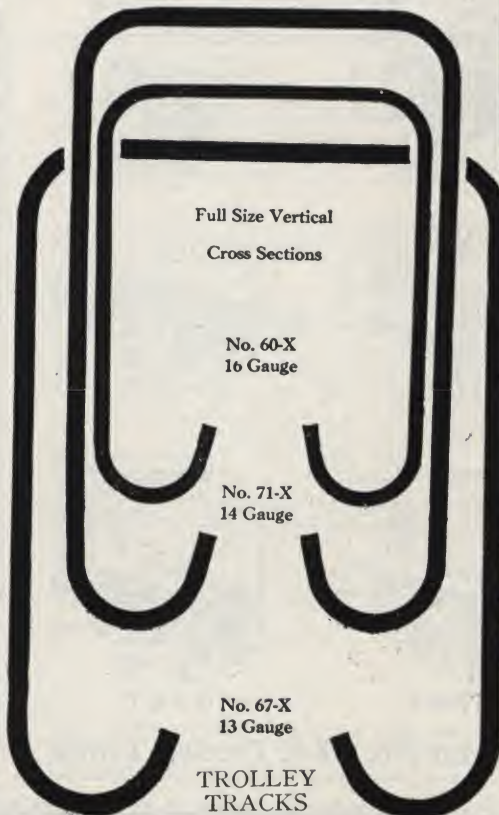


No. 72 HANGER
Capacity 700 pounds

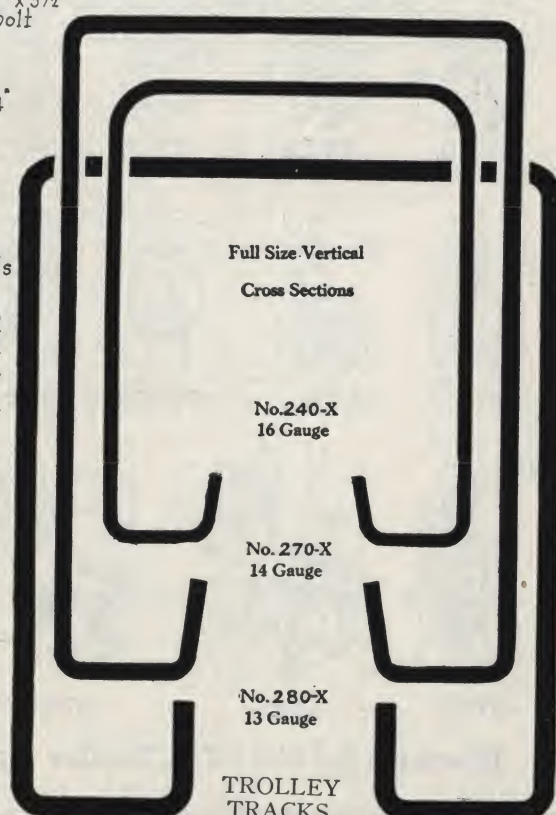


No. 68 HANGER
Capacity 1000 pounds

All hangers and brackets illustrated and described for Nos. 60-X, 71-X and 67-X round trough trolley tracks can also be furnished in similar types for Nos. 240-X, 270-X and 280-X square trough trolley tracks.



TROLLEY TRACKS

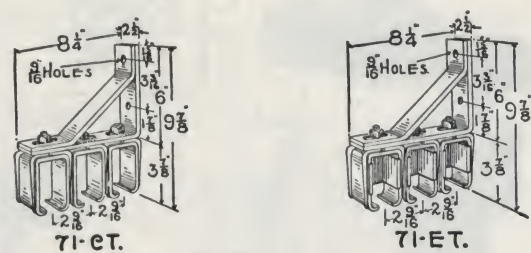
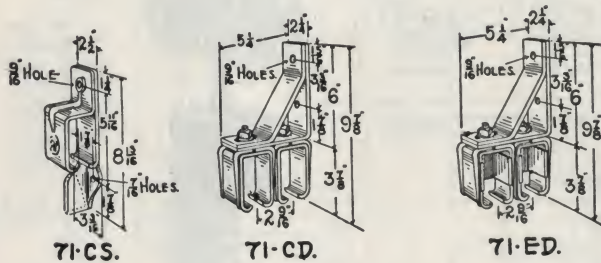
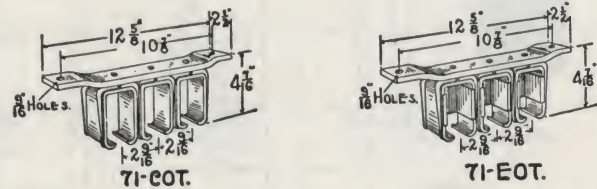
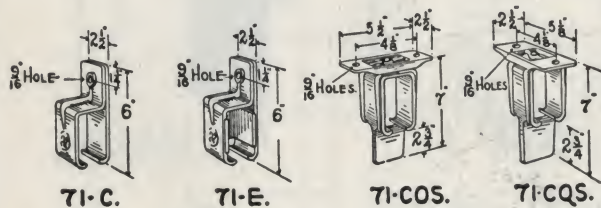
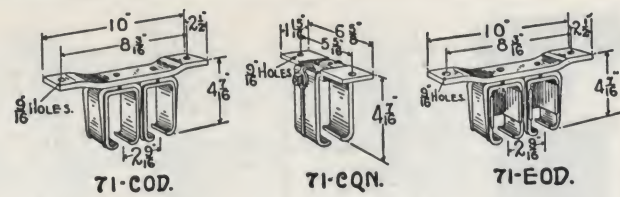
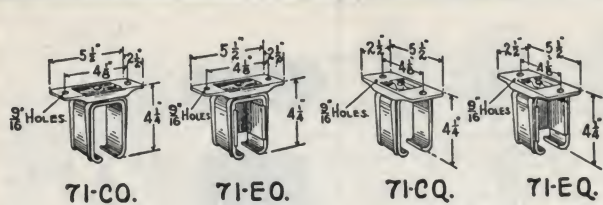


TROLLEY TRACKS

DRAWN BY
SWEETS CATALOGUE
SERVICE, INC.

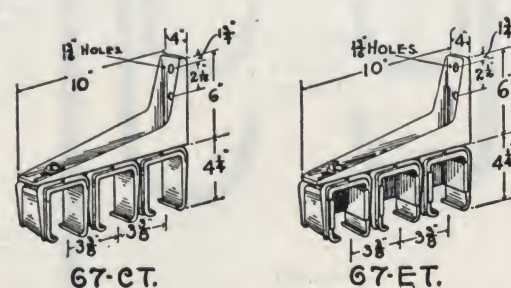
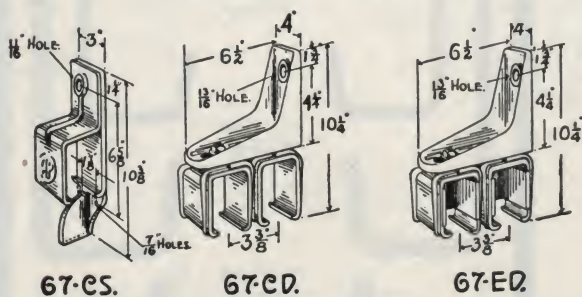
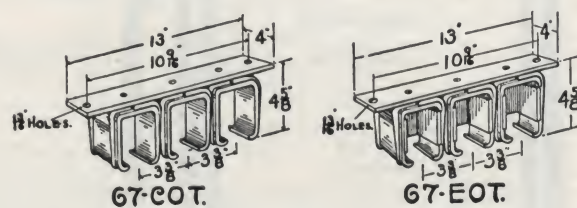
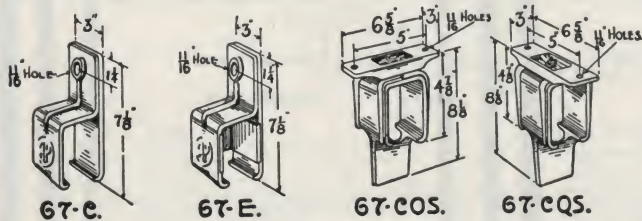
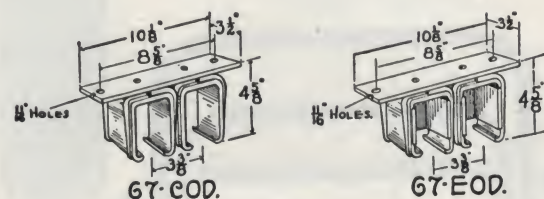
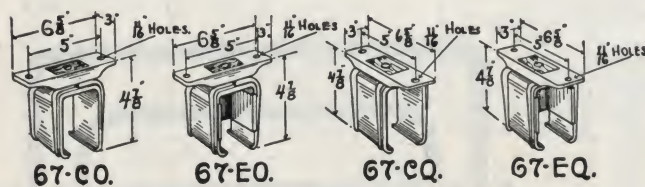
DETAILS OF HANGERS TRACKS & BRACKETS

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DATE AUG 25 1933



Brackets for No. 71-X Trolley Track

Brackets for No. 71-X Trolley Track



Brackets for No. 67-X Trolley Track

Brackets for No. 67-X Trolley Track

DRAWN BY
ALLITH-PROUTY
COMPANY

DETAILS OF TRACK BRACKETS

NOT DRAWN TO SCALE
DATE AUG. 25

4

Accordion Door Hangers

Hangers have certified malleable iron frames; roller bearing wheels, ball bearing swivels, anti-friction guide rollers, and vertical adjustments.

General Directions—*Plan Type No. 1* uses a half door at one side of opening with all doors folding and sliding to one jamb. Recommended practice is to use four-wheel hangers (No. 69, 117 or 64) and apply them to alternate doors. When the two-wheel hangers are used (No. 1069, 1117 or 1064), they should be applied to each full door.

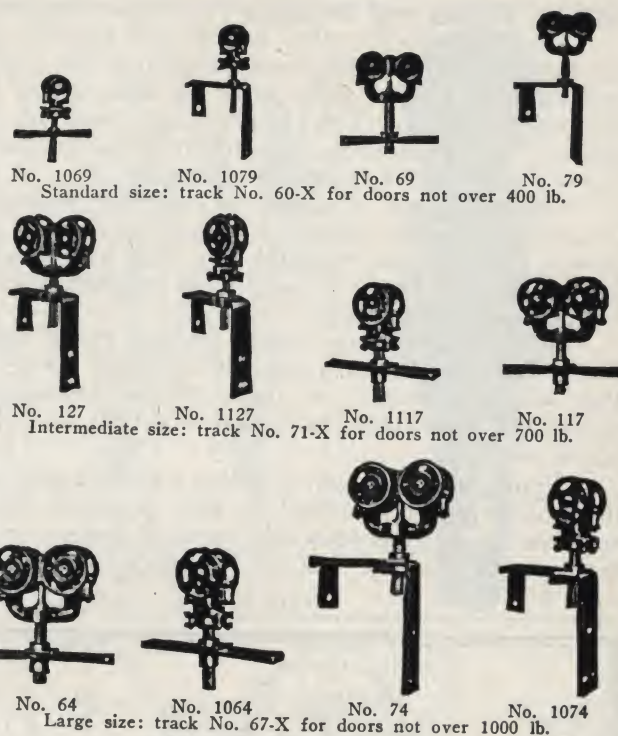
A passage door, full size, may be hinged to the opposite jamb.

Where doors in the opening are to be folded each way from center, use half doors at each jamb, and arrange the full doors in same manner as in above plan.

Plan Type No. 10 uses full doors throughout, arranged to fold and slide in units of two doors, each door having a two-wheel hanger (No. 1079, 1127 or 1074).

Detail shows casing stops applied on both sides and extending across the opening except for the distance equal to width of two doors, plus the combined thickness of all doors, at the end where first door is pivoted to the jamb. This space without stops permits only two doors to fold, and the operation of doors is to fold the two doors at pivoted end first. This will give a clear space into which the next unit of two doors is slid—still not folded—when this unit reaches the clear space these doors will fold flat like the first pair. Each unit thereafter is slid along until the clear space is reached and the folding of the doors is repeated.

This set is the smoothest running and the most easily operated form of accordion doors.

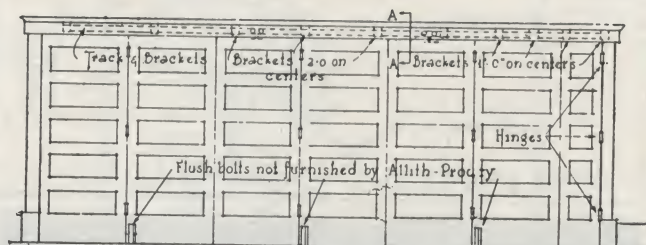


Accordion Door Hangers

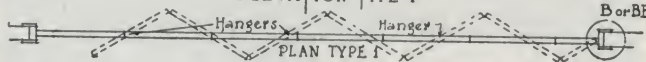
DIMENSIONS OF HANGER POCKET

*Model of bracket	60-CO	60-CQ	60-CQN	71-CO	71-CQ	71-CQN	67-CO	67-CQ
Dimensions:								
J.....in.	4 1/4	2 3/4	3 1/2	5 5/8	3	3 3/4	7	3 1/2
K.....in.	4 1/2	4 1/2	5	5 1/4	5 1/4	5 1/4	6 3/8	6 3/8

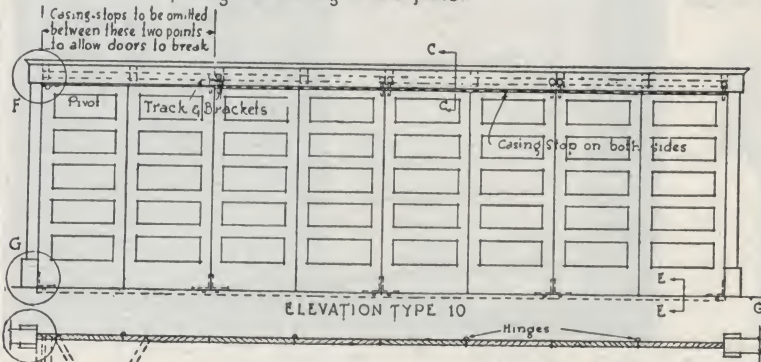
*See drawing No. 3 and 4 for brackets and tracks.



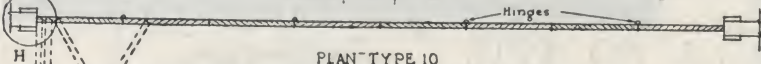
ELEVATION TYPE 1



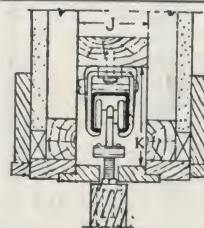
This Type has half door at one side of opening with all doors folding and sliding to one jamb.



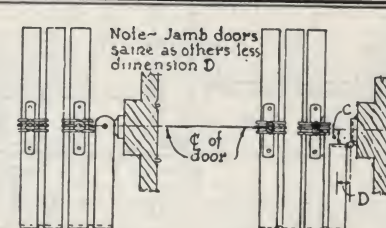
ELEVATION TYPE 10



This Type has full doors throughout, arranged to fold and slide in units of two doors, each door having a two wheel hanger.



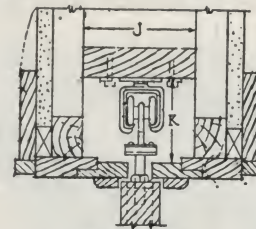
SECTION A-A PLAN DETAIL AT BB



PLAN DETAIL AT B.

NOTE—For doors up to 1 3/4" use No 50-1 Pivots for doors up to 3" thick use No 50-2 Pivots. When using No 50-1 Pivots width of half door is half the width of full door plus 7/8". When using No 50-2 Pivots width of half door is half the width of full door plus 1 1/2" (see detail B-B).

Note—Width of half door must be half width of full door less distance from center of door to center of hinge pin. See plan detail B. Dimensions C & D.



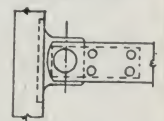
SECTION C-C



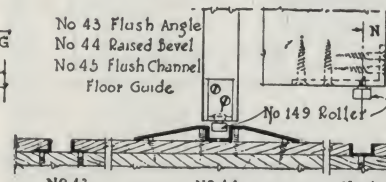
DETAIL AT F



DETAIL AT G



DETAIL AT H



FLOOR SECTION DETAIL AT E-E

Note—Points marked H may be hinged or pivoted.

DETAILS OF ACCORDION DOOR HANGERS

Labeled Sliding and Swinging Fire Door Hardware

Allith Labeled fire door hardware is regularly inspected and labeled under the supervision of the Underwriters' Laboratories, Inc., under the direction of the National Board of Fire Underwriters, and is also approved by the inspection department of the Associated Factory Mutual Fire Insurance Companies.

All cast parts are made of certified malleable, possessing twice the strength of gray iron castings and greater efficiency than wrought iron. The steel used in such parts as are made of steel is all carefully selected for the purpose intended.

Horizontally sliding doors, inclined track rather than level track, are preferable to swinging doors, for they occupy practically no room, and the openings are easily kept clear from obstructions for their successful operation.

Types—Allith Labeled sliding and swinging fire door hardware is furnished to meet practically every requirement. Unless otherwise specified, hangers, track brackets and fixtures will be furnished for three-ply (2 $\frac{5}{8}$ in.) doors.

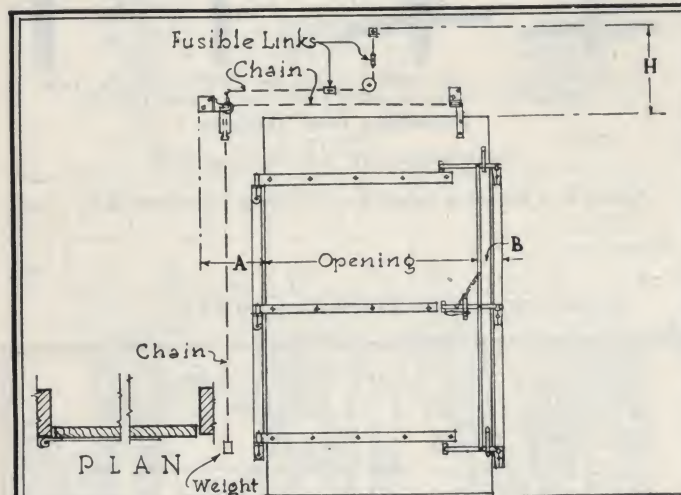
For detailed information on fire door hardware see our Catalogue No. 87-C.

If opening is square top, 12-in. headroom is required at edge of opening toward which door slides in closing, and $\frac{3}{4}$ in. more for every foot of track.

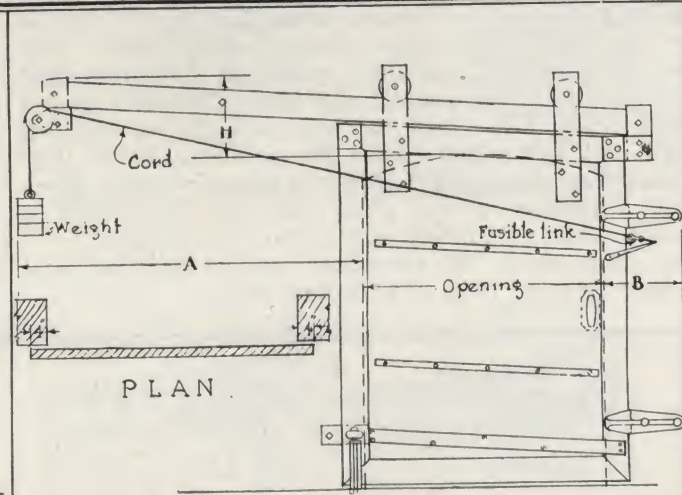
If opening is arched top, 12-in. headroom is required above top of arch and $\frac{3}{4}$ in. more for each foot of track from the center of opening.

MINIMUM HEADROOM AND CLEARANCE AT SIDE OF DOOR OPENING

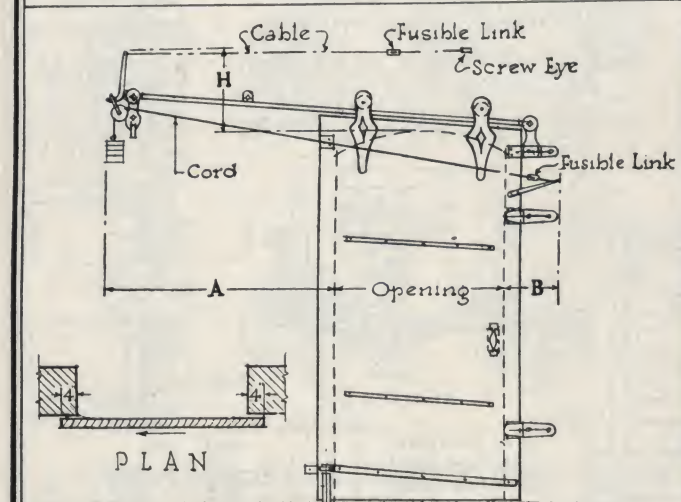
Width of door opening	473-R			F-700			500		
	A	B	H	A	B	H	A	B	H
2'-6"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	3'-10"	1'-2"	1'-1 $\frac{1}{8}$ "	3'-10"	1'-2"	1'-8 $\frac{3}{8}$ "
3'-0"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	4'-4"	1'-2"	1'-2"	4'-4"	1'-2"	1'-9"
3'-6"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	4'-10"	1'-2"	1'-2 $\frac{3}{8}$ "	4'-10"	1'-2"	1'-9 $\frac{5}{8}$ "
4'-0"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	5'-4"	1'-2"	1'-2 $\frac{3}{4}$ "	5'-4"	1'-2"	1'-10 $\frac{1}{4}$ "
4'-6"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	5'-10"	1'-2"	1'-3 $\frac{1}{8}$ "	5'-10"	1'-2"	1'-10 $\frac{7}{8}$ "
5'-0"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	6'-4"	1'-2"	1'-3 $\frac{1}{2}$ "	6'-4"	1'-2"	1'-11 $\frac{1}{2}$ "
5'-6"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	6'-10"	1'-2"	1'-3 $\frac{7}{8}$ "	6'-10"	1'-2"	2'-0 $\frac{1}{8}$ "
6'-0"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	7'-4"	1'-2"	1'-4 $\frac{1}{4}$ "	7'-4"	1'-2"	2'-0 $\frac{3}{8}$ "
6'-6"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	7'-10"	1'-2"	1'-4 $\frac{5}{8}$ "	7'-10"	1'-2"	2'-1 $\frac{1}{8}$ "
7'-0"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	8'-4"	1'-2"	1'-5"	8'-4"	1'-2"	2'-2"
7'-6"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	8'-10"	1'-2"	1'-5 $\frac{3}{8}$ "	8'-10"	1'-2"	2'-2 $\frac{5}{8}$ "
8'-0"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	9'-4"	1'-2"	1'-5 $\frac{3}{4}$ "	9'-4"	1'-2"	2'-3 $\frac{1}{4}$ "
8'-6"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	9'-10"	1'-2"	1'-6 $\frac{1}{8}$ "	9'-10"	1'-2"	2'-3 $\frac{7}{8}$ "
9'-0"	1'-9"	6 $\frac{1}{2}$ "	1'-9"	10'-4"	1'-2"	1'-6 $\frac{1}{2}$ "	10'-4"	1'-2"	2'-4 $\frac{1}{2}$ "



STYLE NO. 473-R
SINGLE SWING OVERLAP. INSPECTED AND LABELED



STYLE NO. F-700
SINGLE INCLINE SLIDE. INSPECTED AND LABELED



STYLE NO. 500
SINGLE INCLINE SLIDE INSPECTED AND LABELED



DRAWN BY
SWEET'S CATALOGUE
SERVICE, INC.

**ALLITH PROUTY HARDWARE FOR AUTOMATIC
SLIDING AND SWINGING FIRE DOORS**

SCALE $\frac{1}{4}$ " DRWG
EQUALS 1'-0"
DATE AUG. 25 B2

Straight Sliding Warehouse Door Hangers

No. 3 Rigid Hanger—Standard for fire doors. Similar to No. 6 Hanger but made in one piece, without the adjustment features of No. 6 Hanger. Length over all 21 in.

No. 6 Double Adjustable Hanger—Approximate capacity 1000 lb. For doors $1\frac{3}{4}$ to $3\frac{3}{8}$ in. thick. These hangers have a vertical adjustment of $1\frac{1}{2}$ in. Hanger is made of certified malleable iron, fitted with large easy running, roller bearing wheels. Used on freight stations, garages, warehouses, etc., it has no equal.

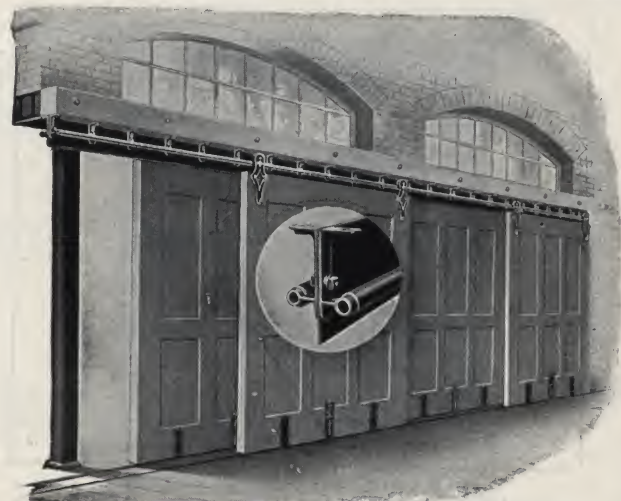
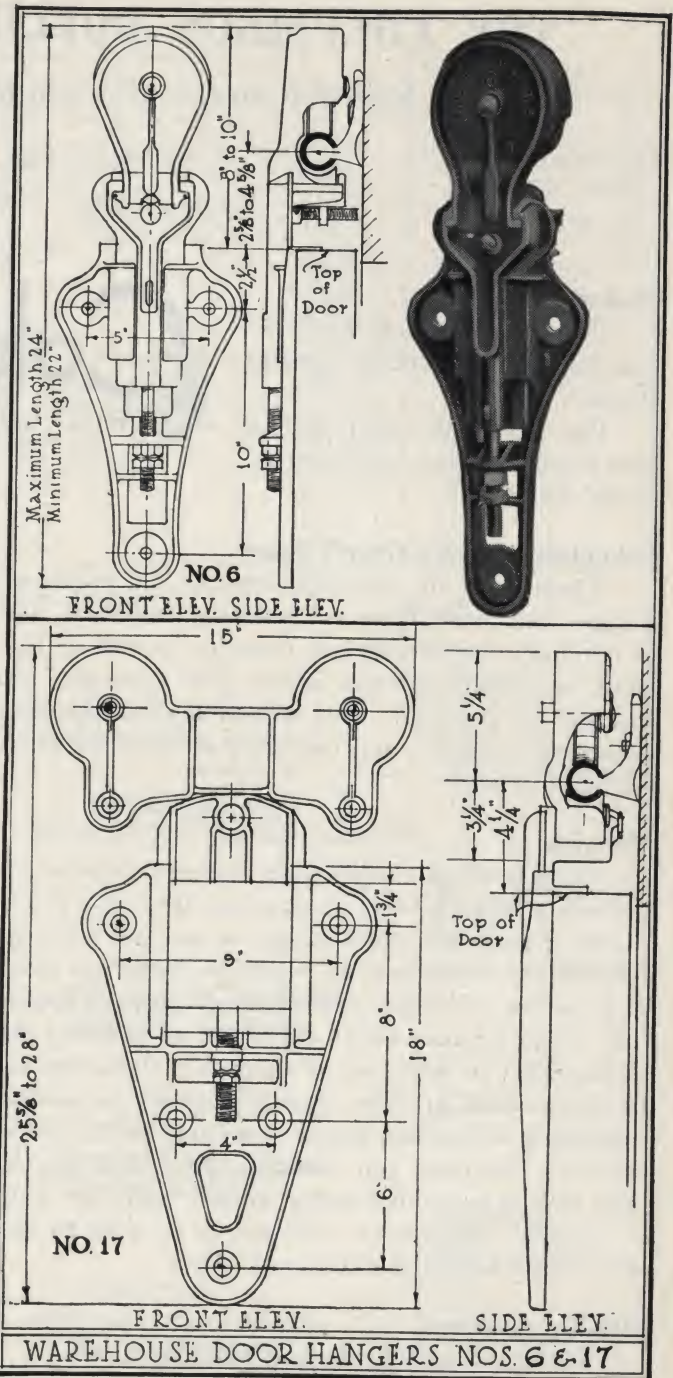
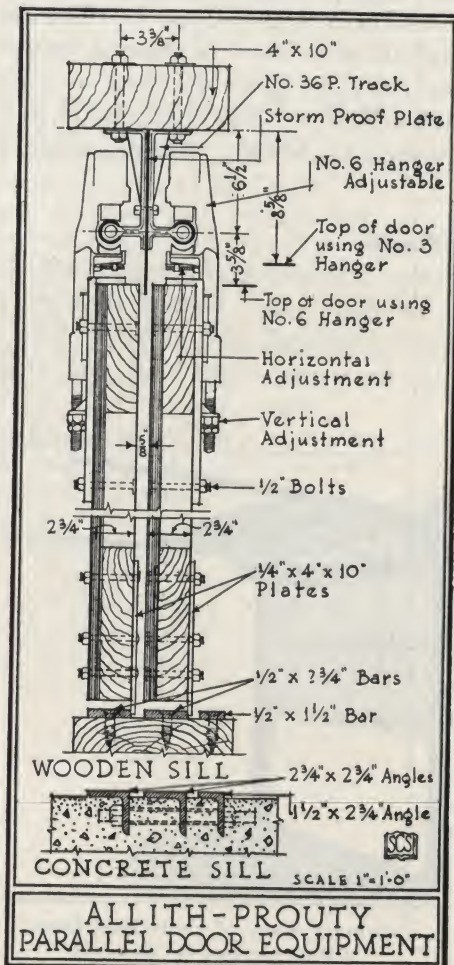
No. 17 Double Adjustable Tandem Hanger—Approximate capacity 2000 lb. For doors $1\frac{3}{4}$ to $3\frac{1}{2}$ in. thick. The hanger frame is 15 in. wide by 28 in. long; wheels $4\frac{3}{4}$ in. in diameter with hardened steel bushings and roller bearings. The axles are fitted with grease cups. The hanger is adjustable up and down, also in or out. The No. 27 is the same except that it has a short apron only $7\frac{1}{2}$ in. high, to go on cross rail above panels. In ordering, always specify thickness of doors.

Parallel Door Equipment

This outfit is designed for insuring perfect movement of continuous parallel doors, such as are used in freight stations, warehouses, public garages, etc. It is arranged to permit an opening at any place desired.

The track shown in the illustration is assembled in sections to accommodate different openings. It is suitable for attaching to any construction. Installation is simple and alignment perfect. The parting strip fastened between the brackets and extending below top of door makes the equipment stormproof as well as the strongest.

For wooden floors, $\frac{1}{2}$ -in. thick bars are used as floor guides; for concrete floors, $2\frac{1}{4}$ x $2\frac{1}{4}$ -in. angles.



Showing Application of Parallel Door Equipment

THE COLUMBUS ROLLING DOOR CORPORATION

Manufacturers of Columbus "Rol-Up-Over" Doors

TELEPHONE
ADAMS 1749

501-561 West Goodale Street
COLUMBUS, OHIO

Product

COLUMBUS "ROL - UP - OVER"
GARAGE and INDUSTRIAL SERVICE
DOORS.

For Columbus Steel Rolling
Doors and Shutters, see Manufac-
turers' Index.



Columbus "Rol-Up-Over" Doors

These doors are adaptable to public and residential garages and many types of industrial buildings, such as terminals, warehouses and factories, as well as hospitals and power stations where quiet operation and daylight are essential. This type of door is especially convenient in modern superservice stations where greasing lifts are used.

Materials

Because of the engineering features embodied in Columbus "Rol-Up-Over" Garage and Industrial Doors, all wood parts are standardized as per the following specification regardless of width or height of door. The continuous hinged strut members (patents applied for) which are used on all doors, are so designed that all possibility of deflection or warpage is eliminated and excessive wind pressure guarded against adequately. Lumber is of the best grade, free from knots and all parts are mortised and tenoned, glued and doweled with steel dowels, thoroughly sanded ready for paint or varnish. Sections are rabbeted $\frac{5}{16}$ in. deep on each rail making a shiplap waterproof joint.

Metallic Structure

Rollers—Pressed steel ball bearings.

Sheaves—Either cast grey or pressed steel operating on steel roller bearings.

Hinges—Continuous weather-proof hinges are 18 gauge cold rolled steel tooled to 10/1000ths in.

Track—Standard throughout, of special design 14 gauge cold rolled steel (.095). Track angle $2 \times 1\frac{1}{2} \times \frac{1}{8}$ -in. margin.

Castings and Stampings—All castings, except sheaves, are malleable iron; stampings 8 gauge USS. or over, tumbled and pickled, all movable parts are heavy cold rolled tool steel.

Door Sections

Columbus "Rol-Up-Over" Doors up to 7 ft. 1 in. are made with three panels; 7 ft. $1\frac{1}{2}$ in. to 9 ft. 4 in. have four panels; 9 ft. $4\frac{1}{2}$ in. to 11 ft. 6 in. have five panels; 11 ft. $6\frac{1}{2}$ in. to 13 ft. $9\frac{1}{2}$ in. have six panels; 13 ft. 10 in. to 16 ft. $11\frac{1}{2}$ in. have seven panels. No door section exceeds 30 in. in width.

Any number of sections may be made for glass at added cost but each standard door is made with one section for glazing. Panes of glass are standardized, 10 in. wide and 18 in. high, but special sizes may be had if necessary. Double strength glass is recommended.

Locking Device

A strong malleable iron bolting device is used on one side of door only, bolting through a slot in the track and controlled by a standard cylindrical lock designed to be master-keyed with the house if desired.



Full Inside View of Closed Door
Note the hinges



Angular View of Half Open Door
Nothing overhead but the tracks

Specifications

The door [doors] shall be Columbus "Rol-Up-Over" Doors as made by THE COLUMBUS ROLLING DOOR CORPORATION, of Columbus, Ohio.

The door [doors] shall be of the "Rol-Up-Over" type, consisting of four or more hinged sections supported on ball bearing rollers, floating on a fixed pin in a curved track, operated (a) manually, (b) electrically or (c) by chain hoist.

The rails, stiles and muntins shall be 1½ in. No. 1 fir, vertical grain old growth soft yellow or No. 1 vertical grain spruce; panels ⅝ in. three-ply flat fir veneer glued with casein weatherproof glue pinned with steel dowels. Sections shall be hinged with special weatherproof continuous hinges of 18 gauge cold rolled steel acting as struts, strengthening the door construction and preventing deflection when door is placed in open horizontal position.

The top section of the door shall be equipped with a radial arm to insure smooth operation in all positions of door structure and to provide a means of clamping the door against the jambs when in a closed position.

(Note: This radial arm is not used on vertical lift jobs where overhead tracks are two or more feet above lintel.)

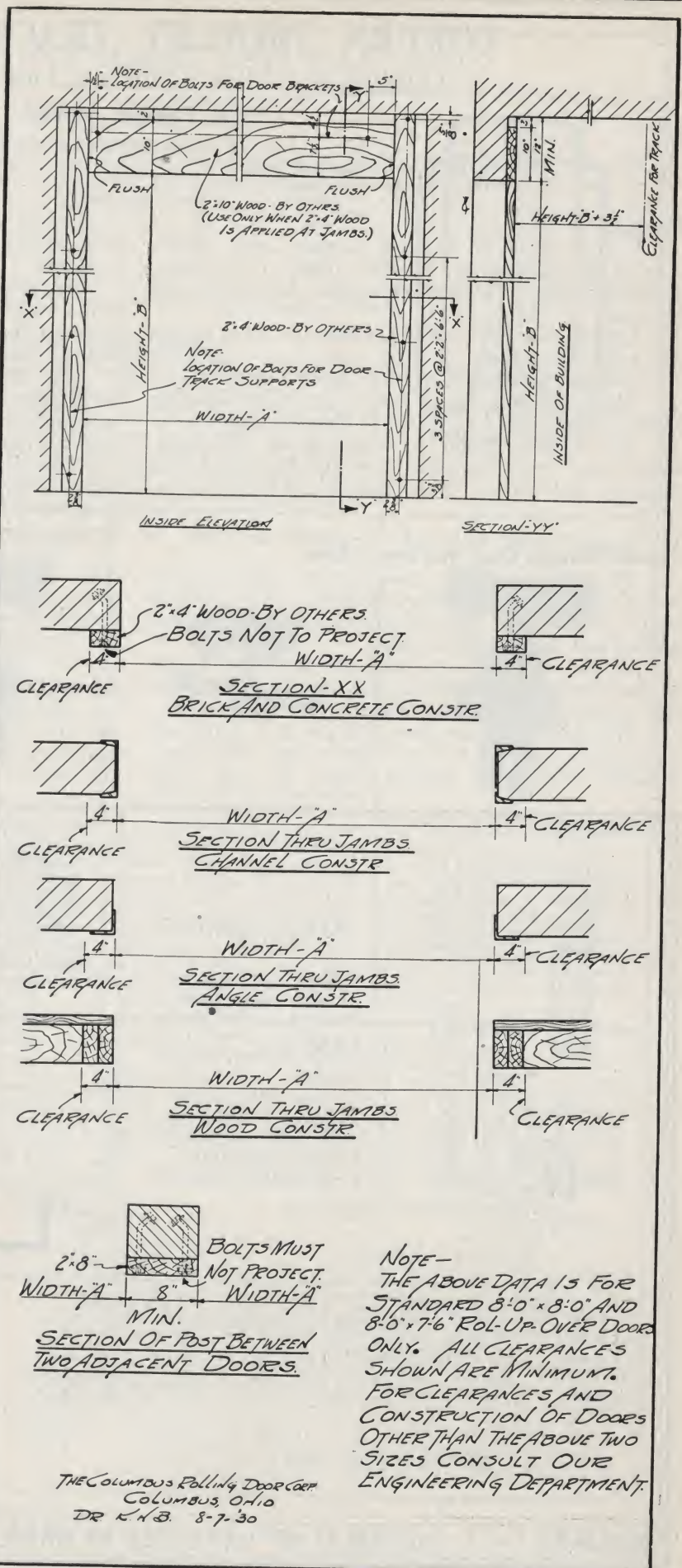
The track shall be adjustable laterally in relation to the face of the wall and the vertical track, and shall be mounted on 2x1½x½-in. angle continuous supporting members.

The door shall be accurately counterbalanced to properly equalize the tension of the lifting cables (a) by a single tension spring stretched parallel to the inside face of the wall above the lintel (or in case of door larger than 8x8 in.) (b) by a helical torsion spring mounted on a shaft parallel with face of wall seated in brackets above the lintel. Door and spring shall be connected by special high tensile strength airplane cable operating over suitable sheaves on all sizes up to 64 sq. ft., or on special drums in larger sized doors where helical torsion counterbalance is used.

Spring counterbalance shall be covered and protected by an iron hood shaped to enclose spring mechanism and fastened to brackets at either end of spring or shaft.

Locking device shall consist of supporting member lock bar and lock gear of malleable iron, controlled by cylindrical lock (which may be master keyed if required) to bolt through slot in the track and to be automatic in action.

(Note: White pine or any other special wood may be had on the architect's specification at an advanced cost. Any or all sections may be specified for glass at added cost.)



COBURN TROLLEY TRACK MFG. CO.

Garage and Heavy Sliding Door Hardware

HOLYOKE, MASS.

BRANCHES

NEW YORK, N. Y., 10 East 43rd Street
PHILADELPHIA, PA., 527 Commerce Street

BOSTON, MASS., 108 Broad Street
CHICAGO, ILL., 2424 West 22nd Street

Products

COBURN FOLDING SLIDING GARAGE DOOR HARDWARE, COBURN STRAIGHT SLIDING GARAGE DOOR HARDWARE including TRACKS, HANGERS, BRACKETS and HINGES.

COBURN No. 750 STYLE HANGERS for heavy garage and warehouse doors.

COBURN FOLDING PARTITION HARDWARE.

Also manufacturers of Overhead Track Conveying Systems and Rolling Ladders for high shelving.

For Coburn Metal Covered Doors, Windows, Frames and Trim, Standard Tin Clad Fire Doors and Shutters and Folding Partitions, see Manufacturers' Index.

Coburn Garage Door Hardware Sets

These hardware sets contain all the items required to erect the doors in working condition. They are made up for two different types of door opening; the folding sliding and the straight sliding.

In the *folding sliding* types, the doors are hinged to the jamb and supported at the upper outer edge by ball bearing swivel hangers sliding in a trolley track.

With this outfit, the doors fold and slide to the side, fit perfectly tight and will not warp or sag. This type is specially adapted to garages where the full width

of the door opening should be available and where the space between door jamb to the sidewall on each side is limited.

In the *straight sliding* types the tracks are parallel to the wall, the doors sliding to either side as the plan views of the designs indicate. In this type only part of the width of opening is available.

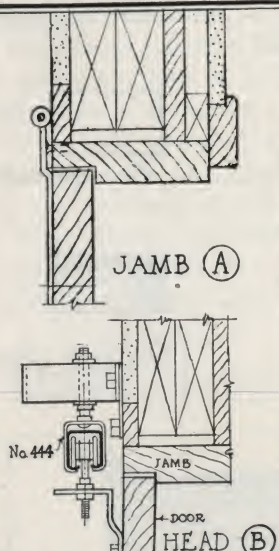
The standard equipment included in each set is listed under the description. All carriage bolts, lags and woodscrews required for the fastening of the different units are furnished with the set.

In case a service door is used, the ordinary lock will be required as shown, and if two service doors or swinging doors are used, as in the 6-door outfit, a cremone bolt or top and bottom bolt may be used.

The COBURN TROLLEY TRACK MFG. Co. can furnish butts, locks and all hardware required to make a complete equipment or, if desired, these items can be purchased elsewhere, the COBURN TROLLEY TRACK MFG. Co. furnishing only the track, brackets, and hangers.

Co-operative Service

Our Engineering Service Department is available at all times for a satisfactory solution of perplexing door problems. This service rendered to architects, engineers, contractors, owners without charge or obligation.




JAMB (A)

HEAD (B)

KEY TO 1½" DETAILS "A"-E"

A-Door Jamb for B
B-Door Head, frame building, No. 444* Hanger, parallel ear bracket, used where ceiling height is limited.
C-Door Head, brick building, No. 395 Hanger with side wall bracket
D-Door Jamb for 'C'
E-Suggested Door Sill.



VERTICAL ADJUSTMENT ONLY.

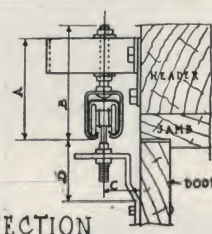
WALL BRACKET, PARALLEL EAR BRACKET, SIDE EAR BRACKET

SIZE	TRK. NO.	WEIGHT OF DOOR	THICK. MIN.	A MIN.	B MAX.	C MIN.	D MAX.	E MIN.	F MAX.	G MIN.	H MAX.	I MIN.	J MAX.
a	1	300	1 3/8	5 1/2	7 1/4	1 1/4	3 3/8	4 3/8	3 3/8	5 1/8	2 1/4	1 1/4	
b	2	500	1 3/8	6 1/8	8 1/2	1 1/4	4 1/8	5 1/8	4 1/8	6 1/8	3 1/4	1 1/4	
c	4	900	2	7 1/8	10 1/2	1 1/4	5 1/8	6 1/8	5 1/8	7 1/8	4 1/4	1 1/4	
d	6	700	2	7 1/8	10 1/2	1 1/4	5 1/8	6 1/8	5 1/8	7 1/8	4 1/4	1 1/4	

HANGER NO. 395.

HANGER NO. 444.

NO. & SIZE	TRACK NO.	WEIGHT OF DOOR	THICKNESS OF DOOR	A		B		C		D 444		D 445	
				MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		
444 OR 445A	1	125 lbs	1 1/4 - 1 3/4	4 7/8	5 1/4	6 5/8	1 1/4	11	3 3/8	4 3/8	3 3/8	5 1/8	
444 OR 445B	2	200 "	1 3/4 - 2 1/2	6 1/8	7	7 7/8	1 1/4	11	3 3/8	4 3/8	3 3/4	5 1/4	
444 OR 445C	4	300 "	2 - 3 1/4	7 7/8	9	9 7/8	1 1/4	14	4 1/8	5 1/8	4 1/2	7 1/8	
444 OR 445D	6	250 "	2 - 3 1/4	7 7/8	8 7/8	9 7/8	1 1/4	14	4 1/8	5 1/8	4 1/2	6 3/4	



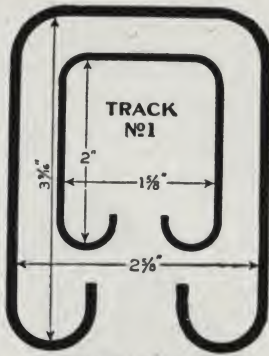
SECTION

DRAWING

DETAILS OF HANGERS NUMBER 395 AND 444

G 2

TRACKS, DOOR HANGERS AND BRACKETS



TRACK No. 4
Half Size Sections

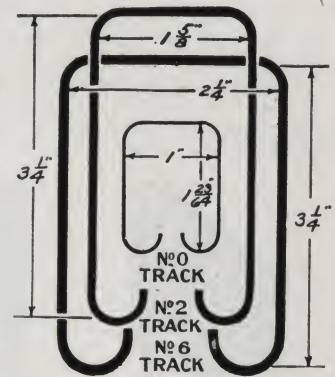
Coburn Tracks
PRICES, LENGTHS AND WEIGHT OF TRACKS

Track No.	Price per ft.	Longest length made, ft.	Weight per ft., lb.	Max. weight of door, lb.
0	\$0.20	3	5 1/2	100
1	.26	10	1 1/2	300
2	.40	10	2	500
4	.65	10	3 3/4	1200
6	.50	10	3	800

Curves—Nos. 1, 2, 4 and 6 can be furnished in curved sections with a minimum radius of 2 1/2 ft.

TABLE OF DOOR WEIGHTS

Material	Weight in pounds of each sq. ft. of door for various thicknesses							
	1 in.	1 1/2 in.	1 3/4 in.	2 in.	2 1/4 in.	2 3/8 in.	3 in.	3 1/2 in.
White pine.....	2.17	3.25	3.80	4.34	4.88	5.18	5.77	6.51
Oak and ash.....	3.33	5.00	5.83	6.67	7.50	7.96	8.86	10.00
Chestnut.....	3.42	5.13	5.98	6.85	7.69	8.11	8.99	10.26
Cypress.....	2.5	3.75	4.38	5.00	5.63	5.98	6.57	7.5
Whitewood.....	2.5	3.75	4.38	5.00	5.63	5.98	6.57	7.5



Half Size Sections

No. 444 Door Hanger

Has both vertical and lateral adjustments.
For use on garage and other doors which slide and swing to the side, giving a clear opening with a minimum amount of floor space, and still fit in the jambs, making a tight weather-proof job. Not recommended for doors over 3 ft. wide.

No. 444 door hanger has cast iron wheels, steel ball bearings, with turned cold rolled steel ball bearing swivel pendant, forged steel petticoat, steel adjusting and check nuts and steel lock washer.

No. 137 Door Hanger

Has both vertical and lateral adjustments.
For use on garage, barn and warehouse doors. Has machined cast iron wheels, case hardened roller bearings, drop forged steel pendant, machined cold rolled steel adjusting and lock nuts, and stamped steel petticoats.

No. 350 Door Hanger

Has vertical adjustment only.
For use on school, house and garage doors, where doors slide by each other or into a pocket. The No. 350 hanger has machined cast iron wheels, case hardened roller bearings, machined cold rolled steel ball bearing swivel pendant, cast iron adjusting nuts, and forged steel pendant plate.

No. 120 Door Hanger

Has lateral adjustment only.
For use on garage, barn and warehouse doors, where doors run to the side on a single run track. No. 120 hanger has machined cast iron wheels, case hardened steel roller bearings, steel pendant and heavy cast iron petticoat.

Coburn Wall Brackets



Single Wall Bracket



Adjustable Wall Brackets



Double Wall Bracket

SINGLE WALL BRACKETS

Track No.	A	B	C	D	F	G	Wt. lbs.	Number			List Price
								C	R	L	
0	1 1/2	3	1 1/2	2 3/8	1 1/2	3/8	9/16	B01	B01R	B01L	\$0.20
1	2 5/8	4 1/2	2 5/8	1 1/2	1 1/2	15/16	9/16	B11	B11R	B11L	.30
2	2 5/8	5 1/2	2 7/8	1 5/8	1 1/2	7/8	21/32	B21	B21R	B21L	.50
4	3 3/8	7 1/2	3 3/8	1 13/16	1 7/8	7/8	7/8	B41	B41R	B41L	1.60
6	3	6 3/8	3 1/4	1 5/8	1 1/2	1 1/16	7/8	B61	B61R	B61L	1.40

ADJUSTABLE WALL BRACKETS

Track No.	A Min.	B	C	D		E	F	G	H	I	J	K
				Max.	Min.							
1	1 1/4	6 1/2	2 1/4	1 5/8	5/8	1 1/2	1 1/2	1 1/4	9/16	2 1/4	3 1/2	4
2	1 1/4	7 3/4	2 1/2	2 1/8	1 1/8	1 1/2	1 1/2	1 1/4	9/16	2 1/4	3 1/2	4 1/2
4	1 1/4	9 3/8	3 3/8	3 1/8	1 1/8	1 1/2	1 1/2	1 1/4	9/16	2 1/4	3 1/2	5 3/8
6	1 3/4	9 1/4	3	3 3/8	1 1/8	1 1/2	1 1/2	1 1/4	9/16	2 1/4	3 1/2	5 3/8

DOUBLE WALL BRACKETS

Track No.	A	B	C	D	E	F	G	Wt. lbs.	Number			List Price
									C	R	L	
1	2 1/4	4 1/2	4 9/16	1 3/8	2 1/8	1 1/8	9/16	3 3/4	B112	B112R	B112L	\$0.70
2	2 1/4	5 1/2	4 3/4	1 1/4	2 1/4	1 1/8	9/16	5 1/2	B212	B212R	B212L	1.20
4	3 3/8	7 1/2	7 3/4	1 1/2	3 3/8	1 1/2	1 1/8	11 1/2	B412	B412R	B412L	2.40
6	3	6 3/8	6 3/8	1 5/8	2 3/8	1 1/2	1 1/8	10 1/2	B612	B612R	B612L	2.20

COBURN
TROLLEY TRACK
MFG. CO.

COBURN GARAGE DOOR HARDWARE

PLATE 3

No. 750 Style Hangers for Heavy Garage or Warehouse Doors

For Large Heavy Doors and Gates Where the Track Will Act as a Structural Support for the Door Over Wide Openings and Where Ease of Operation is Necessary

No opening is too wide or door too heavy to operate on this style of door hanger and track. The track is made of structural steel channels and I-beams and can be made an integral part of the building if desired.

The only limit to the free spans over which this style of track can be used is that of the safe carrying capacity of the structural steel. The size of the track and hanger

required is determined by the strength of the structural section. It should be figured at about 60% of the safe load of beams for the span as recommended in any of the steel handbooks.

The use of this type of hardware becomes an engineering problem and Coburn engineers will gladly co-operate with architects in any particular requirements they may have.



Patented

No. 750 Hanger

Used for straight track only. Wheels are machined cast iron, with hardened steel ball bearings. A cold rolled steel axle and a heavy forged machine steel petticoat give it the required strength for use on very heavy doors



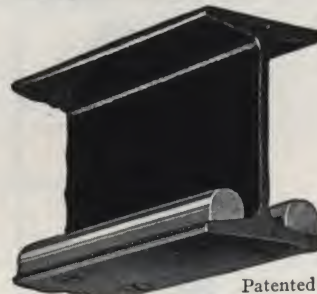
William Skinner & Sons' Garage, Holyoke, Mass.



Patented

Single Channel Track

A single cold rolled steel runway on the lower flange. 2 to 12-in. channels used. The hanger wheel has a minimum clearance between flanges and can not jump off the track



Patented

Double Track I-Beam

Special shaped cold rolled steel runways on the lower flanges. We use 3 to 12-in. I-beams. Runways are securely fastened to flange with machine screws from the bottom



Patented

No. 751 Hanger

Used for straight or curved track. Construction similar to No. 750 except that petticoat is replaced with a heavy forged steel pendant, cold rolled steel ball bearing swivel adjusting nut, lock nut and pendant plate for attaching to door

A Few Typical Applications

Fig. No. 4—Shows a method of attaching channel track to lintel or to a pilaster at the ends. The bolts through the web of the channel can be used for supporting the track but they should be in any event spaced not over 5 ft. on centers to keep the track vertical. Used for light doors not over 2 in. thick.

Fig. No. 5—Shows a method of spacing this channel track out from the wall to compensate for the thickness of doors. This is the method we recommend, for hanging channel track. We have found that $\frac{1}{8}$ in. between the wall and the face of the door to be about the right clearance.

Fig. No. 6—Shows track hung as in Fig. No. 4, but the petticoat offset to compensate for the thickness of doors. While it is advisable to keep the center of the door directly under the center of the track, it is not necessary.

Fig. No. 7—Shows a method of supporting the track from the lintel where the supporting bolts must be carried up from the top of the opening to avoid reinforcements or other obstructions.

Fillers should be placed behind the track every 5 ft. to compensate for the thickness of the doors and keep the track in vertical position.

Fig. No. 8—Shows a method of hanging three parallel runs of track on a structural hanger from the lintel or the ends of the run. If only two runs of track are required the channel track at the right can be omitted.

The exact construction of the supporting bracket can be varied to suit conditions.

Fig. No. 9—Shows a method of hanging three parallel runs of track from the ceiling, where it is impossible to hang same from sidewalls. If only two runs of track are required the channel track at right can be omitted. This is simply a typical method and may be varied to suit requirements.

This type of support was used for a set of 3-speed doors in an opening 37 ft. high for the American News Building, New York.

Fig. No. 10—Shows No. 751 door hanger mounted on channel track and is similar to No. 750, except the wheel is mounted on a ball bearing swivel, which allows the hanger to operate around curves and for corner doors.



Fig. No. 4



Fig. No. 5



Fig. No. 6



Fig. No. 7

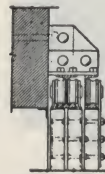


Fig. No. 8

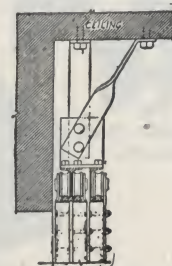


Fig. No. 9



Fig. No. 10

COBURN
TROLLEY TRACK
MFG. CO.

COBURN GARAGE DOOR HARDWARE

PLATE 4



MCCABE

Door Hangers

MCCABE HANGER
MANUFACTURING CO.



THE McCABE HANGER MANUFACTURING CO.

Manufacturers of Sliding Door Hangers and Specialties

MAIN OFFICE AND FACTORY

425-427 West 25th Street
NEW YORK, N. Y.



TRADE-MARK

Products

All types of SLIDING DOOR HANGERS, including:
ELEVATOR DOOR HANGERS.
PARLOR DOOR HANGERS.
ACCORDION DOOR HANGERS.
FOLDING DOOR HANGERS.
BARN DOOR HANGERS.
BRACKETS for Hangers.
SLIDING AND RECEDING WARDROBE DOOR HANGERS.

Also manufacturers of Combination Floor Guide and Weatherstrips, Vertical Bar Elevator Door Locks, Overhead Carrying Devices, Expansion Bolts, etc.

Service

Representatives of this Company are qualified and willing to furnish every possible assistance and co-operation to architects and builders.

You are invited to consult with us about your hanger problems. There is no obligation in receiving authoritative information from our Engineering Department. We are advising constantly how to meet various conditions which arise.

The Company and Its Responsibility

Specialization in the manufacture of door hangers for over thirty years has given this company an unsurpassed understanding of hanger problems.

Every hanger we manufacture has been specially designed to meet a particular condition. Our hangers possess features—found in no other makes—which positively insure superior ease of operation, and a long life without repair. In fine homes and well-constructed buildings everywhere in the United States and abroad—you will find McCabe Hangers silently and efficiently performing their duty. You may be sure that the first cost will be the last when the installation is a *McCabe* product.

Distribution

Our products can be obtained through any hardware dealer.

Disappearing Inter-wall Doors

The use of the disappearing inter-wall door is now becoming more general than ever before.



Partial View of Executive Offices, Chase National Bank, New York, N. Y.

Saving of space is a most desired feature in conference rooms, offices and apartments, and architects are using the space-saving advantages of the inter-wall door, as is shown in the photograph of the offices of one of the new city bank buildings.

You can have the wide opening between rooms when desired, with no doors standing in the way—or the rooms can be very effectively and completely separated if privacy is essential.

The design of the door can be made to harmonize with the woodwork of your rooms.

A 4-in. pocket in the partition wall is all the space required for the use of the inter-wall doors. The U-plate in the rear of the pocket makes it always possible to take out the doors without disturbing any partition woodwork.

House Door Hangers No. 10 and No. 2

Construction Details—No. 2 parlor door track is made of 13 gauge steel, the heaviest gauge used in any house door hanger. The carriages have drop-forged case hardened frames with double ball bearing wheels. Header plates, door plates, stops and guides are of malleable steel.

Pocket construction invariably provides a header, and to screw our header plates in position is the simplest form of erection. The pocket U-plate makes it always possible to get at the tracks. Printed instructions for hanging the doors are furnished in the sets.

Single and Double Sets—Single sets have the tracks arranged in two pieces, the joint coming at the opening edge of the pocket. The tracks are connected with the No. 104 bracket which screws into header plate. Three screws only are furnished on the tracks for single sets.

Double sets have the tracks arranged in two pieces, the joint coming in the center of the opening. Each piece of track has two $\frac{1}{2}$ -inch screws. The end screws are furnished with lifting nuts which slide into U-shaped header plates at the rear of the pockets. Center stops are furnished with the double sets.

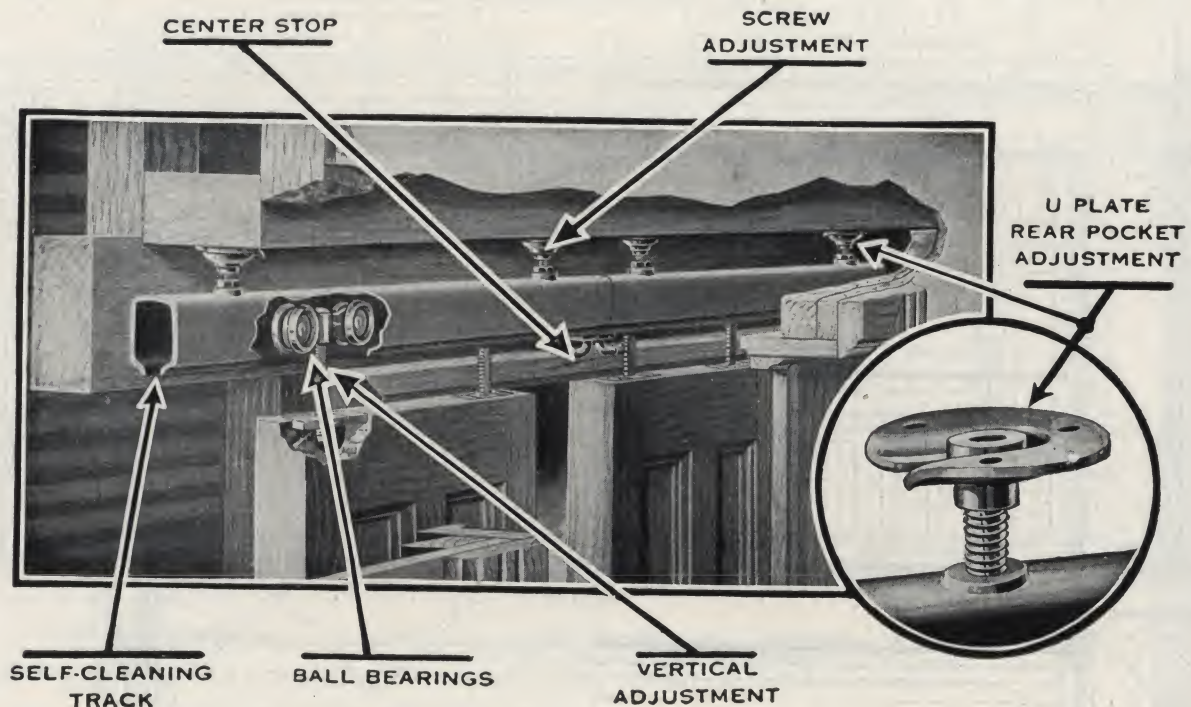
Where Used—The No. 10 House Door Hanger is made for the average house door of 150 to 250 pounds. The track is the same as used in the No. 2 Hanger. The carriage frames, header plates and door plates are made of pressed steel.

The No. 2 House Door Hanger is made for the heavier type house door of 300 pounds or over. This hanger has the drop forged carriage frames, header plates and door plates of malleable iron casting.



Doors Operate on the McCabe Hangers, Which Are Especially Designed for Doors Which Disappear into Pockets Between Partition Walls

This type of door has a distinct advantage over the hinged door, as it does not take up the floor space needed for the swinging hinged door, and it is not in the way of furniture or draperies, etc.

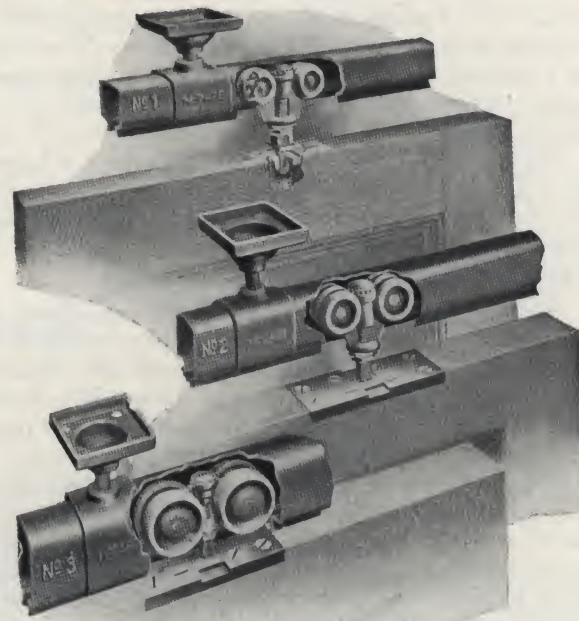


Accordion or Folding Door Hangers for Accordion or Folding Partitions

Ball Bearing Swiveled Carriage

The accordion type hanger is used on partitions where the jamb door is half the width of the other doors. There is no floor track required on this partition, as the doors are centrally hung. Flush bolts at the bottom of every other door will hold the partition firmly in place when closing the opening.

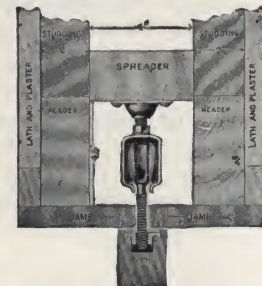
Any number of doors may be used and the average width of doors should not exceed 3 feet. Where an entrance is required through the partition, by using an odd number of doors, the odd door will be without a hanger and can be used as a regular hinged entrance.



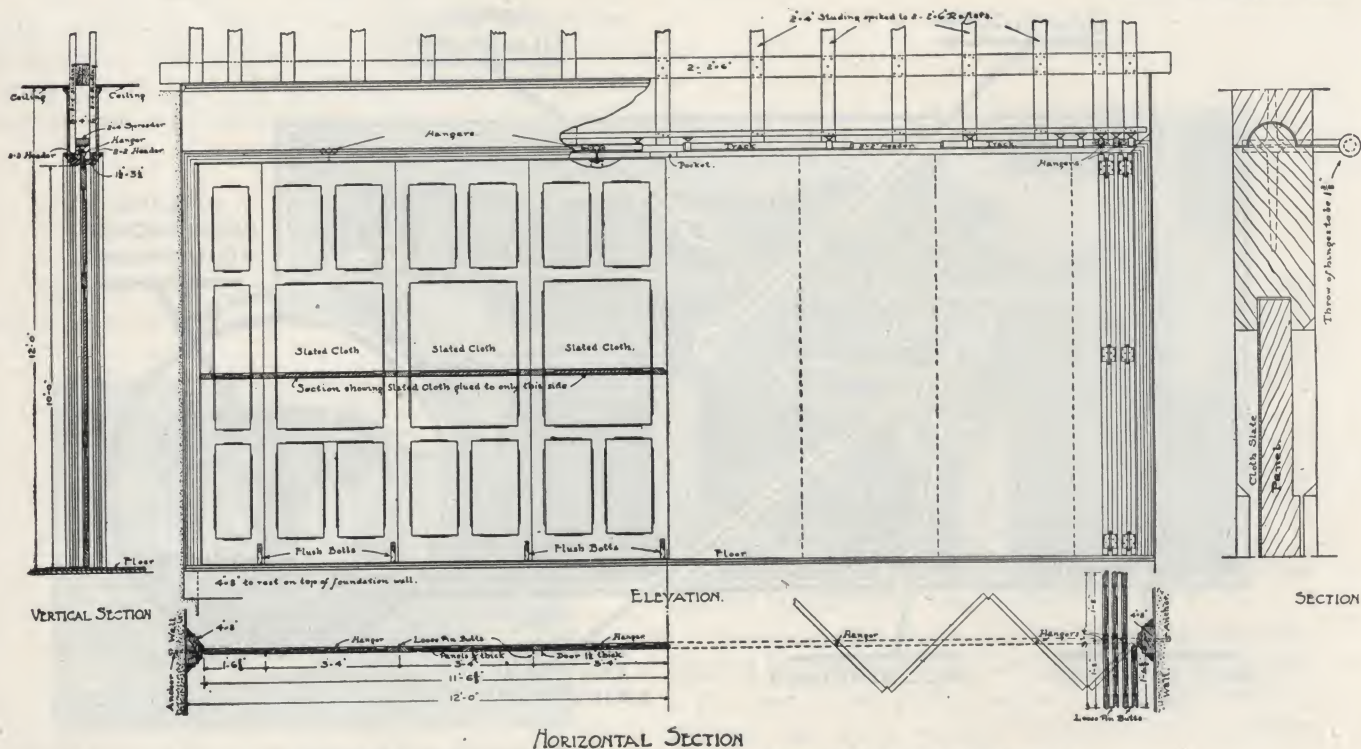
McCabe Accordion Tracks and Hangers

HEADROOM REQUIRED FOR ACCORDION DOOR HANGERS

Carriage No.	Headroom, in.
71	4 1/2
72	4 1/2
73	6 1/2



Section Through Head



Standard Details of Accordion Doors as Hung with McCabe Hangers

Special Folding Door Hangers Nos. 402 and 405*For Use Where All Doors in Partitions Are of Equal Width*

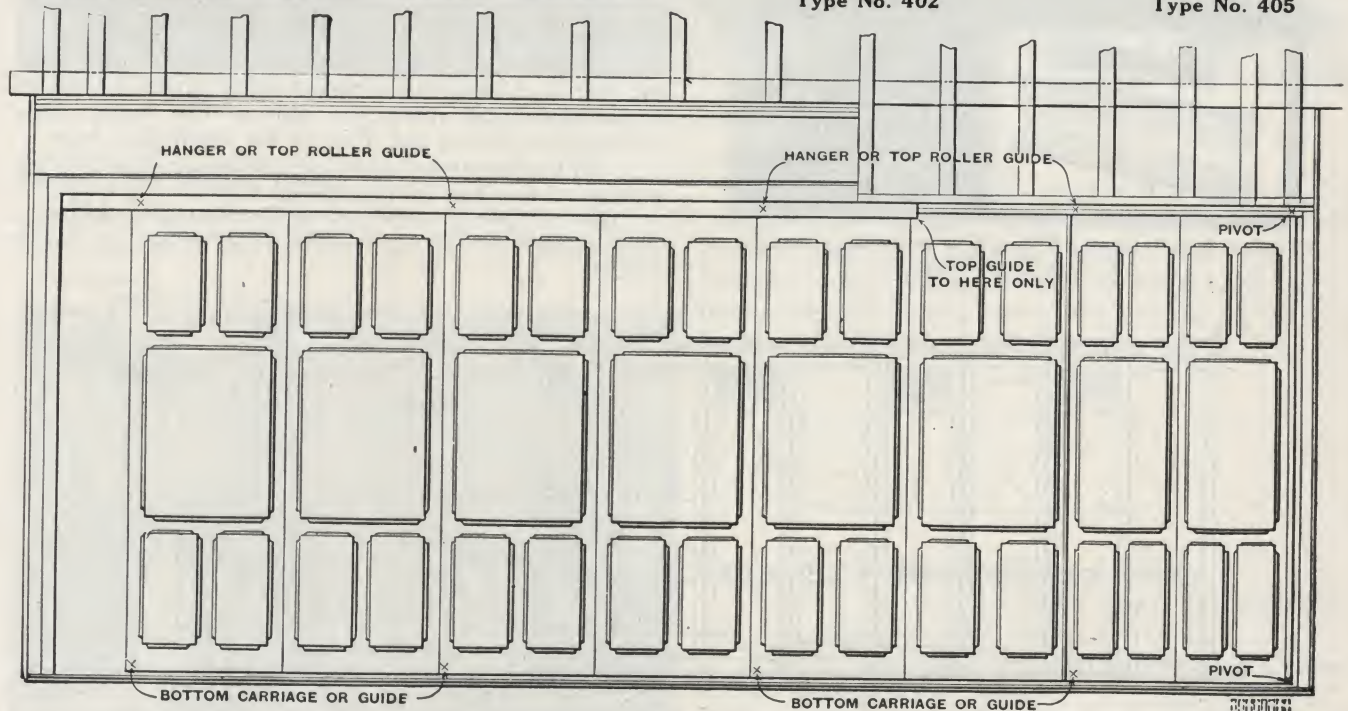
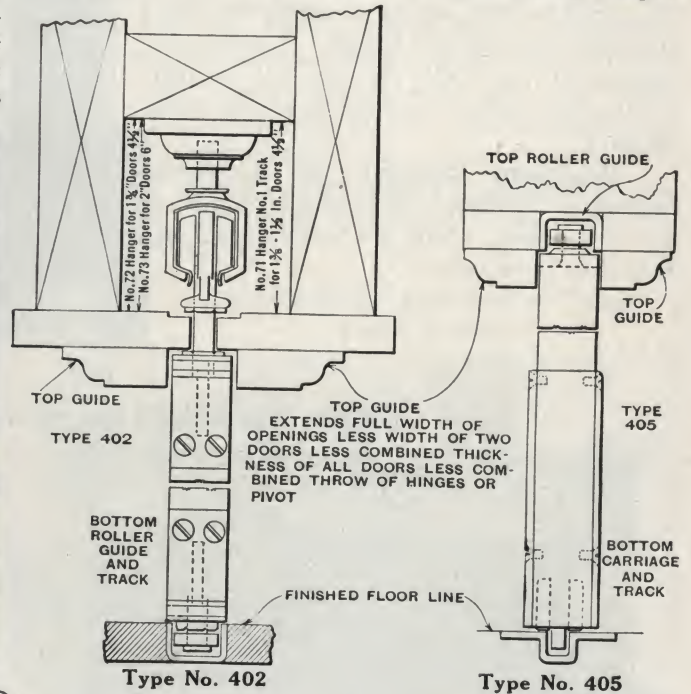
Type No. 402—Used on doors where the regular accordion hanger cannot be used. On this type door the carriage is placed at the end of the door, instead of the center as in the accordion type. The accordion track is used at the top with the accordion carriage; the bottom of the door has a ball bearing guide which runs in special pressed steel channel in the floor.

The doors will fold back as noted on plan and elevation sketch at the bottom of the page. It will be noted that all the doors are hinged together, making the opening and closing of the partition much quicker for the reason that the operator stands at the jamb side of the opening where the doors fold up and is able from this

position to open and close the doors, saving the extra walking back and forth across the opening.

Type No. 405—Used on doors the same as the No. 402 type with the exception that the doors roll on the floor and guide overhead. This type is used where overhead construction is not strong enough to carry door. See cross section for headroom on both types.

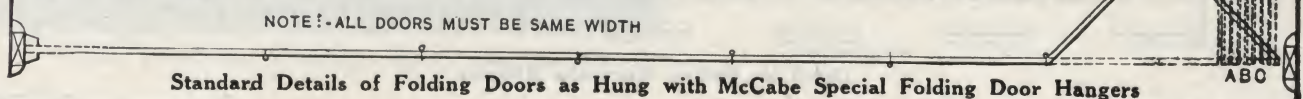
How to Specify—Folding partitions to be hung with McCabe No. 402 or McCabe No. 405 Special Folding Hangers.



PLAN AND ELEVATION
SHOWING DOORS PARTLY OPENED

NOTE:—PAIR NO. 1 FOLDS UP FIRST
BALANCE OF DOORS SLIDE TO POINT "C" AND PAIR NO. 2 FOLDS UP
BALANCE OF DOORS SLIDE TO POINT "B" AND PAIR NO. 3 FOLDS UP Etc.

NOTE:—ALL DOORS MUST BE SAME WIDTH



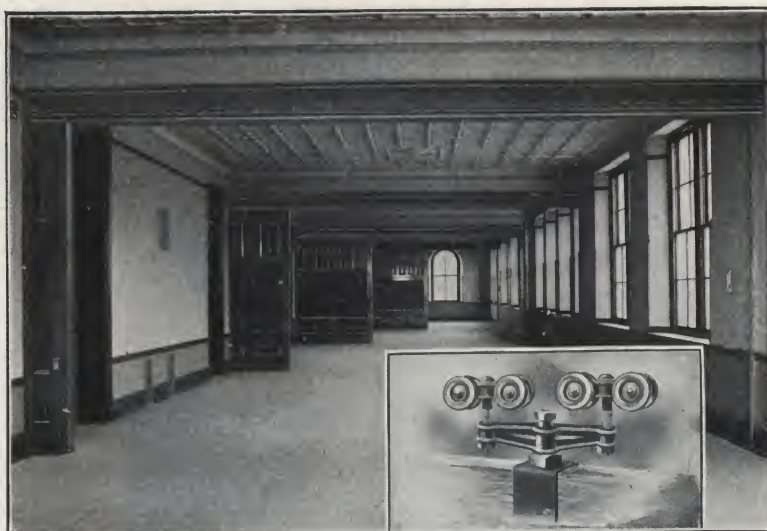
Standard Details of Folding Doors as Hung with McCabe Special Folding Door Hangers

Parallel Partition Sliding Door Hardware for Dividing Large Rooms

Parallel sliding doors forming movable partitions are used for dividing large rooms into smaller divisions. If the openings are large the doors can be arranged to slide back to each side. If the doors all slide to one side, separate tracks are required for each door.

For doors weighing 500 pounds we supply the No. 2 track with No. 94 carriage. For doors 500 to 1000 pounds we supply the No. 2 track with double-tree hanger. Clevis apron (shown at the right) or the No. 54 plate ($11\frac{1}{2} \times 2\frac{7}{8}$ inches) is furnished with these hangers.

Headroom—Required for double-tree hangers is 7 inches from bottom of header to top of the door. Using No. 94 carriage 5 inch headroom is required.



Typical Installation of Parallel Partition Door Hangers



Sliding Wardrobe Hangers for Use in School Buildings



Typical Installation of Sliding Wardrobe Door Hanger
For use in school buildings

The illustration at the left is a typical installation of McCabe wardrobe door hangers used in school buildings.

One long wardrobe is built, the front of which is closed by alternate stationary and sliding doors. The detail at the bottom of this page shows the sliding door mounted on hangers overhead.

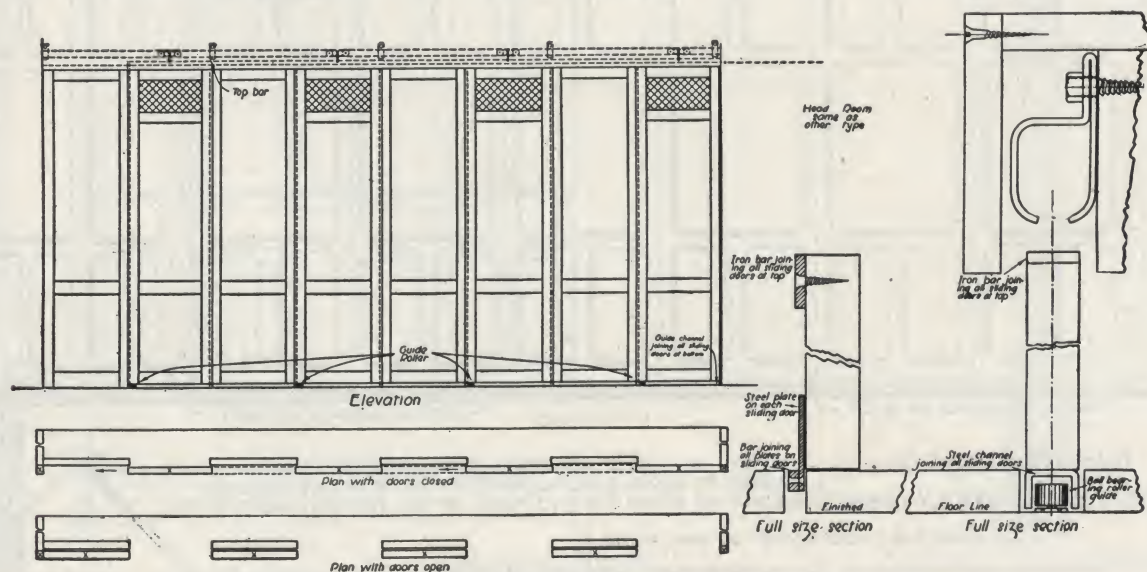
It is advisable to have the outside line of doors the sliding group, and the inside line the stationary group.

All sliding doors are connected on the top with a steel bar, and on the bottom with a steel channel.

One carriage is used on the top center of each sliding door. A small ball bearing roller guide is screwed to the floor, just inside the edge of the doors. This arrangement leaves the floor of the wardrobe clear.

All the wardrobe doors are opened or closed by the sliding of any one of the doors.

How to Specify—Wardrobe doors to be hung with McCabe Sliding Wardrobe Hangers complete with top bar and bottom channel.



Detail for Sliding Wardrobe Hangers

Stage Curtain Hanger Equipment for Center Parting Curtains

Our curtain equipment as illustrated below is used to the best advantage on center parting velours or plush curtains. The tracks should lap in the center of the opening about one foot. The track is supported on the side wall by brackets No. 230/104 and No. 10; if supported on wooden or iron header use brackets No. 16 or 8C.

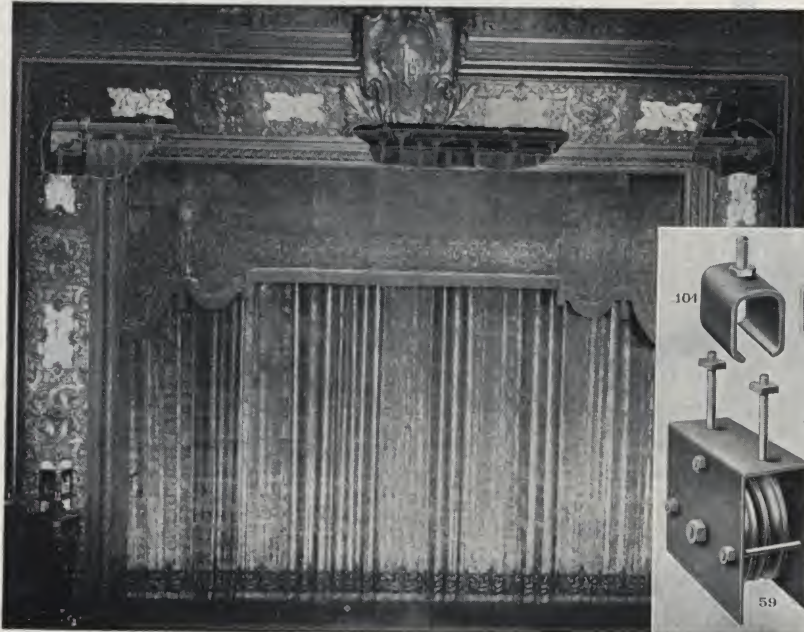
At one end of one track we mount a double pulley and at the opposite end of the other a single pulley; over which an endless cord passes. We supply floor pulley if desired but it is not necessary.

Do not try to form the folds of the curtain with

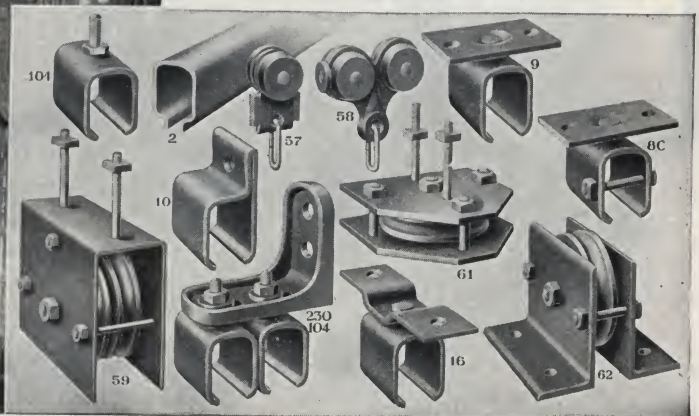
the carriages. It is best to arrange the folds as desired, binding off the top with canvas or leather strip, and space the carriages on this binding about 18 inches apart. It is always best to use double carriages with the single ones. The leading carriages on each curtain should be double carriages.

This equipment is used in the leading playhouses, motion picture theatres and school buildings throughout the country.

The track No. 2 is of 13 gauge steel. Carriages are ball bearing and have hard fibre wheels. You will note the felt piece in the construction of the single wheel carriage to avoid noise as the carriages come together when the curtain is pulled back. The pulleys are malleable castings with machine turned grooves, and have double ball bearings.

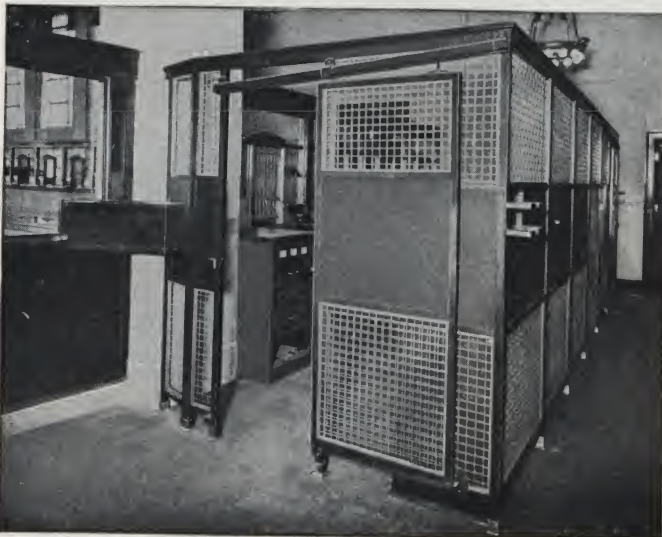


McCabe Hanger Equipment for Center Parting Curtains



Hangers for Sliding Gates

The illustration below illustrates the use of our No. 2 track and No. 10A carriage for self-closing teller cage doors.



Typical Installation of McCabe Sliding Gate Hangers

The No. 2 track is inclined about 2 inches in the average 6-foot length. It is attached with side wall brackets (see third page following). The No. 10A carriage is ball bearing with steel wheels, and has a riveted pendant which allows the pendant to take a vertical position, although carriage wheels are inclined.

Complete sets are furnished with:

Track No. 2, 6 feet 0 inches.

3 Brackets Nos. 10-11A-11B.

2 Carriages Nos. 10A-31G plate.

Hangers for Collapsible Elevator Gates

The No. 2 track and single wheel carriages are used for collapsible gates on elevator cars.

Track is furnished plain or with three 1/2-inch bolts for the average 6-foot length.

Carriages are ball bearing and have hardened frame, and pendant 1/2-inch diameter, 3/4 inches long, 13 thread. Carriages are furnished with two nuts.

Door Hangers for Doors Weighing Up to 1000 Pounds

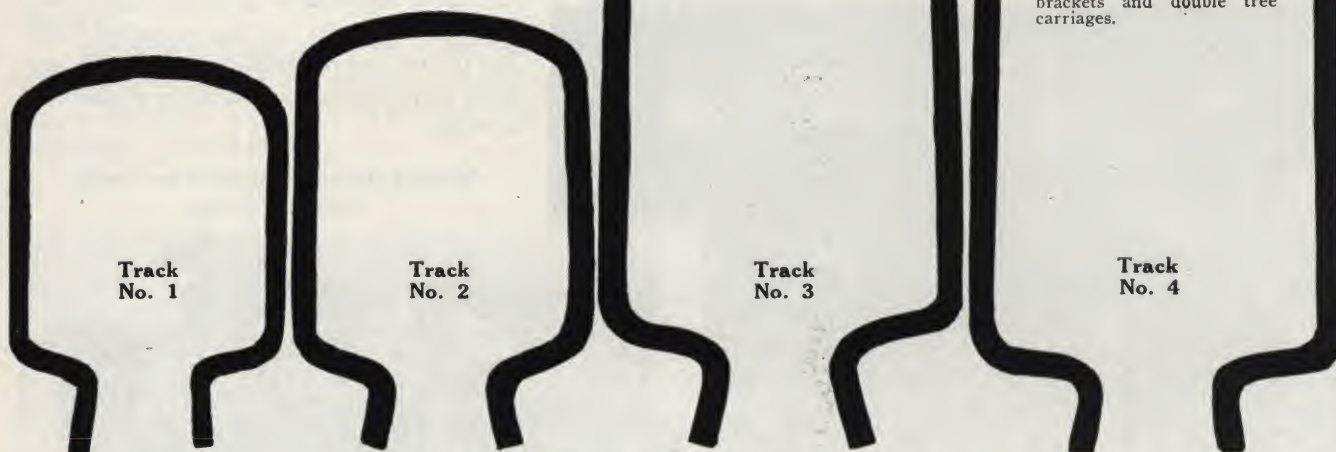
To Determine the Weights of Doors—The table below may be used to determine the weights of doors for the purpose of selecting a hanger of the proper strength. Use full thickness of door regardless of paneling.

Material	Weight in pounds of each square foot of door for various thicknesses								
	1 in.	1½ in.	1¾ in.	2 in.	2¼ in.	2½ in.	2¾ in.	3 in.	3½ in.
Pine.....	2.08	3.12	3.64	4.16	4.68	4.95	5.46	6.24	7.28
Oak or ash...	4.00	6.00	7.00	8.00	9.00	9.50	10.50	12.00	14.00
Cypress.....	2.50	3.75	4.36	5.00	5.62	5.93	6.55	7.50	8.75
Whitewood...	2.42	3.63	4.22	4.84	5.45	5.74	6.34	7.26	8.47
Chestnut....	3.42	5.13	5.98	6.84	7.69	8.12	8.97	10.26	11.97

TRACK WEIGHTS, GAUGES AND STOCK LENGTHS

Track No.	Gauge No.	Weight, lb. per ft.	Stock lengths, ft.
1	13	2	3, 4, 5, 6, 8, 10
2	13	2	3, 4, 5, 6, 8, 10, 12
3	12	3	4, 5, 6, 8, 10
4	12	4	4, 6, 8

Note: No. 3 track with brackets spaced every 2 ft. will carry doors weighing from 500 to 700 lb. No. 4 track similarly supported will carry doors weighing from 800 to 1000 lb. For heavier doors use more brackets and double tree carriages.



Full Size Illustrations of Tracks Nos. 1, 2, 3 and 4

Barn Door Hangers, Nos. 20 and 30

No. 20 Hanger—With No. 2 track is suitable for doors weighing 300 pounds or under. Brackets spaced 4 feet apart. No. 18 malleable apron has adjustment of 1¾ to 2¼ inches (thickness of doors).

Size of opening, in.*	Weight of set, lb.	
	Single doors	Double doors
3	20	..
4	24	..
5	28	33
6	32	37
7	37	42
8	41	46
9	46	51
10	50	55
11	54	59
12	57	62
13	..	69
14	..	74

*Or under.

No. 30 Hanger—With No. 2 track is suitable for doors weighing 300 to 500 pounds. Brackets spaced 2 feet apart. No. 19 malleable apron has adjustment of 2¾ to 3 inches (thickness of doors).

Size of opening, in.*	Weight of set, lb.	
	Single doors	Double doors
4	28	..
5	33	..
6	38	45
7	44	50
8	47	55
9	57	60
10	57	65
11	62	70
12	67	74
13	71	79
14	76	84
15	..	89
16	..	93

*Or under.



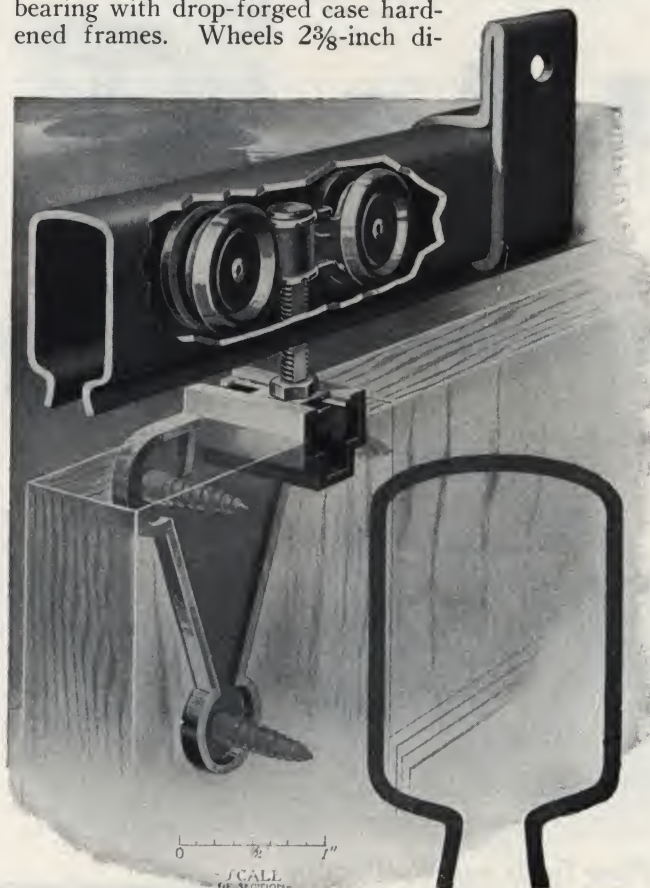
Nos. 20 and 30 Barn Door Hanger

Barn Door Hangers Nos. 3 and 60

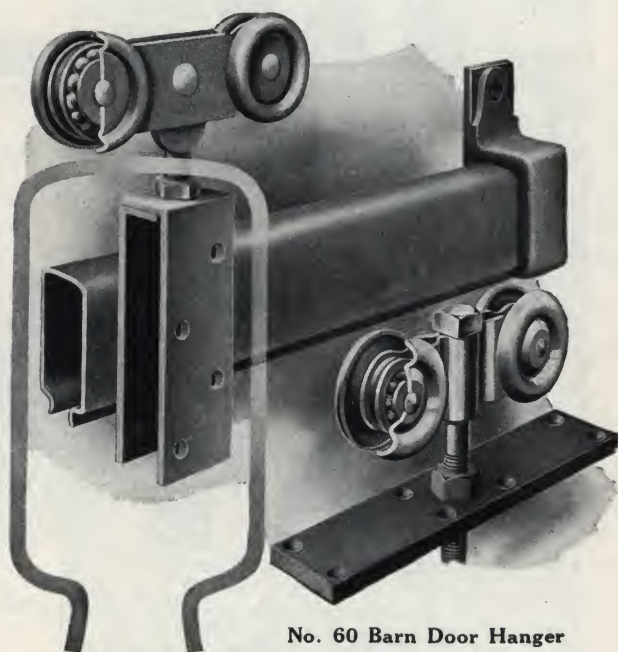
No. 3 Hanger—Designed for heavy warehouse and garage doors up to 800 pounds. The No. 3 track is made of 12 gauge steel. Brackets should be spaced 2 feet apart. Carriages are ball bearing with drop-forged case hardened frames. Wheels $2\frac{3}{8}$ -inch di-

ameter. No. 19 apron 7 inches long, or heavy clevis 9 inches long. Adjustment lateral and vertical. Head room required from top of bracket to top of door is 7 inches.

No. 60 Hanger—For heavy warehouse doors weighing 1,000 pounds per door. No. 4 track self-cleaning is made from 12 gauge steel. Brackets should not be spaced over 2 feet apart. Carriages Nos. 60 and 60A have pressed steel frames, case hardened. Wheels 3-inch diameter with double rows of ball bearings. Adjustable clevis apron (heavy) 9 inches long. Adjustment lateral and vertical. Head room required from top of bracket to top of door is $7\frac{1}{2}$ inches.



No. 3 Barn Door Hanger



No. 60 Barn Door Hanger

Receding Wardrobe and Receding Booth Hardware

Receding Wardrobe Door Hardware—Used on school buildings where individual compartment wardrobes are preferred. This

can be accomplished as shown in illustration. Each wardrobe has two doors, which slide back at right angles and stand parallel to side of wardrobe, allowing full interior to be used. Four channels are used on floor—two parallel to sides of wardrobe and two at 45° . Two tubular, self-cleaning tracks are used at 45° overhead, with two channels parallel to sides of wardrobe. Two ball bearing carriages, one in center of each door, with two pin plates, one at bottom center of each door, carry doors into position at sides of wardrobe.

Two pins on rear of each door, top and bottom, guide doors in side channels.

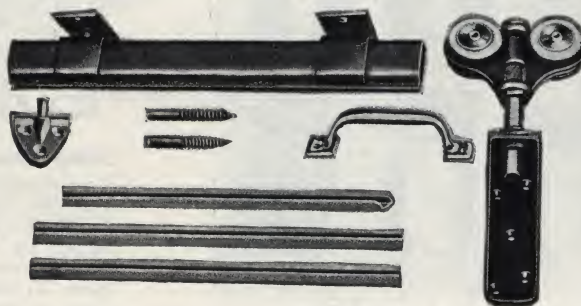
Receding Type of Booth Door Hardware—First manufactured by our Company for telephone booths. The door slides to the side and stands parallel to side of booth when open. Hardware for telephone booth is exactly one half the requirements shown for wardrobe doors opposite.

When ordering state exact width of each opening and width and thickness of each door.



Typical Installation Individual Compartment Wardrobe, Receding Type

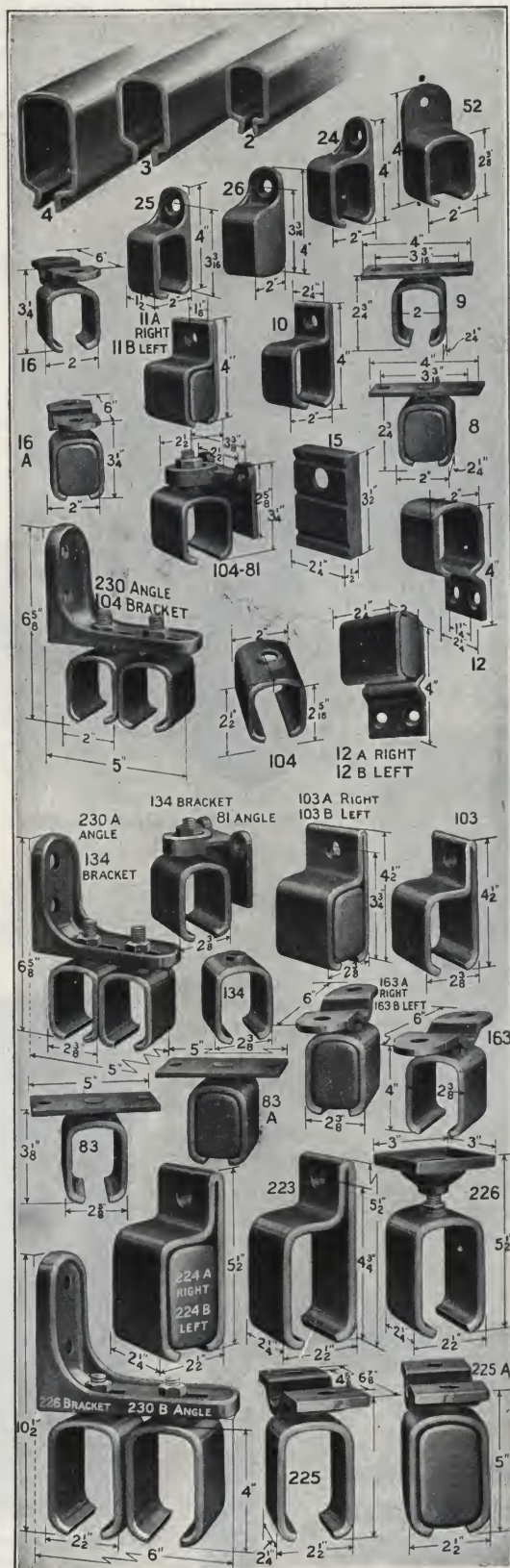
For use in school buildings



Typical Installation of Receding Booth Hardware

Brackets

The following illustration shows the various forms of brackets used for hanging track to the structural member of door opening. Fittings in upper half of illustration are for Nos. 20 and 30 hangers, No. 2 track; the 6 fittings at bottom are for No. 60 hangers, No. 4 track; and the remaining fittings are for No. 3 track.



Brackets for Nos. 2, 3 and 4 Track

Guide Rollers

Reversible Guide—For doors 3 inches thick, steel angle reversible with adjustable guide wheel 2 inches in diameter. Weight, 1½ pounds.

Lag Screw Guide—¾-inch lag, 4½ inches long, 2-inch diameter wheel. Weight, ½ pound.

Floor Guide—Malleable floor plate, 3 inches square. Wheel



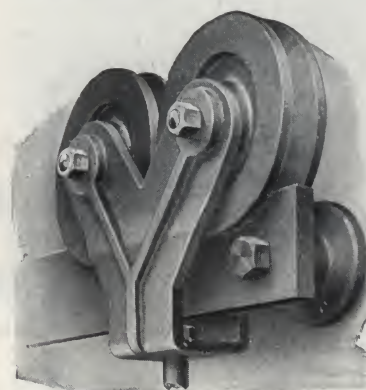
3 inches in diameter, overall height, 3½ inches. Weight, 1½ pounds.

Shoe Guide

For doors 1¾ to 2¼ inches thick, 3 inches wide, pressed steel angle, long side 4 inches, short side ¾ inches. Made up for special door thicknesses. Weight, 1 pound.



Shoe Guide



Tandem Trolley

Tandem Trolley

Originally designed for heavy engine house doors, but is used on any heavy door where flat bar track construction is desired. Wheels are 4 inches in diameter malleable cast—double ball bearing—machine turned grooves. They are connected by the Y-shaped malleable bracket which is bolted to the door.

Floor Guide and Weatherstrip

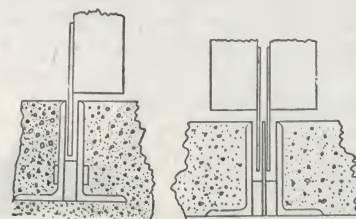
The No. 2 track inverted and anchored in the concrete by the No. 9 bracket forms the floor guide shown in this cut. It extends the full travel of the door. The weather strip which is made of heavy sheet steel, black enamel finish, guides between the lips of the track. This not only holds the door in alignment but makes the construction weatherproof.



Floor Guide and Weatherstrip

Weatherstrip and Floor Guide

Particularly desirable for parallel door construction. The angle sides form an anchor in the concrete and are held in position by separators. The clear spaces between separators allow water or dirt to drain off. When ordering state width and thickness of doors, and width of opening, or send rough sketch of door layout.



Single Door

Double Door

Strap Hangers for Flat Track

Constructed to run on a ¾-inch flat bar track, 3 inches wide. Wheels—malleable castings, 5 inches in diameter, double ball bearings—extra heavy steel strap apron 21 inches long. Finish in black enamel.



Flat Track Strap Hangers

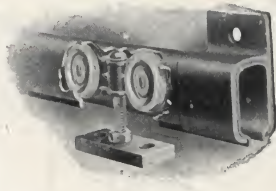
Continued on next page

Elevator Door Hangers

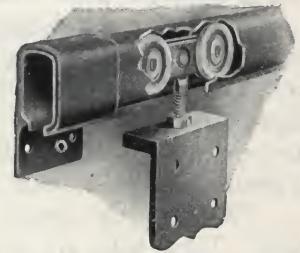
Track 6 feet, three brackets, two carriages No. 84 with 31-G plates for iron doors or No. 97 apron for metal covered doors.

When ordering give width of doors, thickness and direction of swing of door, and state if hollow metal or wood (metal covered).

Head room required for any of the above sets, 6 inches.



Hanger Equipped with
No. 31-G Plate



Hanger Equipped with
No. 97 Apron



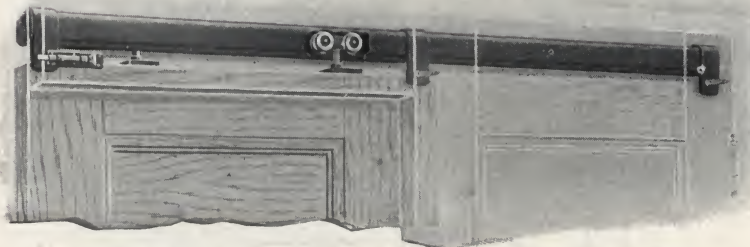
No. 2 Hanger for Bolting Overhead to Angle Construction

Track No. 2, 6 feet
3 bolts

COMPLETE SET
2 carriages No. 84 with 31-G plate or 97 apron
Weight, 19 pounds

McCabe Bar Lock

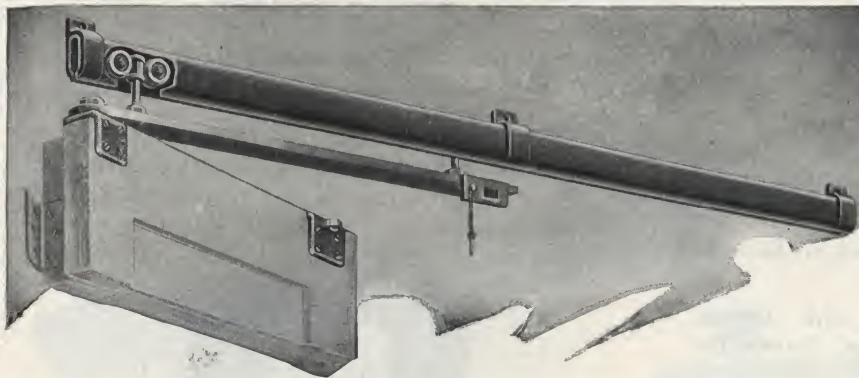
Made in spring pattern of steel tube, finished black oxidized. Is simple in its construction and is made strong and durable, to insure long service. Standard length of bar 3 feet 6 inches.



No. 2 Hanger for Combination Swing and Slide Doors when Transom Swings Out

Track No. 2, 6 feet
3 brackets

COMPLETE SET
2 carriages No. 84, 97 apron
1 shoe guide
Weight, 25 pounds



No. 2 Hanger with Single Bar Swing Device Where Transom Bar Is Stationary

Track No. 2, 6 feet
3 brackets
2 carriages No. 89, 97 apron

COMPLETE SET
Single bar device
1 shoe guide
Weight, 30 pounds



Bar
Lock

No. 5 Elevator Door Hanger

The track is a self-cleaning type, simple in construction, having three working parts, namely: hanger track, carriage track and ball retainer. It is made of No. 10 gage cold rolled steel, has a smooth rolling surface for the bearings and is of sufficient thickness and strength to insure long and efficient service.

The bearings consist of $\frac{3}{4}$ -inch hardened steel balls. These balls are the largest size in any elevator door hangers. Balls are spaced 3-inch centers which gives 17 balls to a 3-foot door. The balls, as noted on full size cross section, having only four points of contact, reduce the friction to a minimum, and easy running and quiet operation is the result.

The length of the hanger track is equal to the full travel of the doors. The carriage track is equal to the width of the door less the distance required for track stops. The ball retainer is three-fourths of the full travel of the door. There is no cantilever action, as the weight is always traveling on the balls. This ball retainer also acts as a cleaner in the track.

These hangers are suitable for doors weighing up to 300 pounds. On doors of heavier weight we supply track of heavier gage steel and 1-inch balls.

Doors may be adjusted laterally or vertically without difficulty.



Detail of "McCabe No. 5" Elevator Door Hanger for Single Door

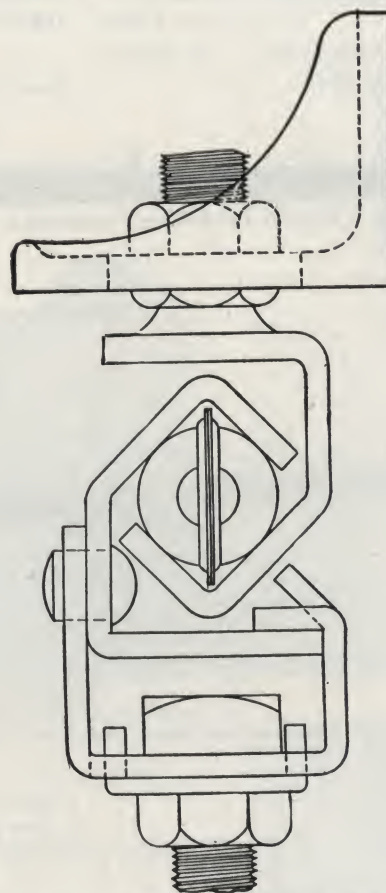
Elevator door hangers and tracks can be furnished for three arrangements of doors, namely: single door type; two-door type with doors sliding in opposite directions; and two-door type with doors sliding in the same direction.

How to Specify—Equip elevator doors with "McCabe No. 5" Elevator Door Hangers and "McCabe" Vertical Bar Locks.

McCabe "Blue Book"—This book on elevator door hangers sent on request.

No. 5 Hanger for Single Door

This arrangement is the most simple and is such that the door can slide in either direction. Angle brackets are furnished with all hangers as illustrated.



Cross Section of "McCabe No. 5" Elevator Door Hanger for Single Door

Scale, full size

Single Bar Swing Device

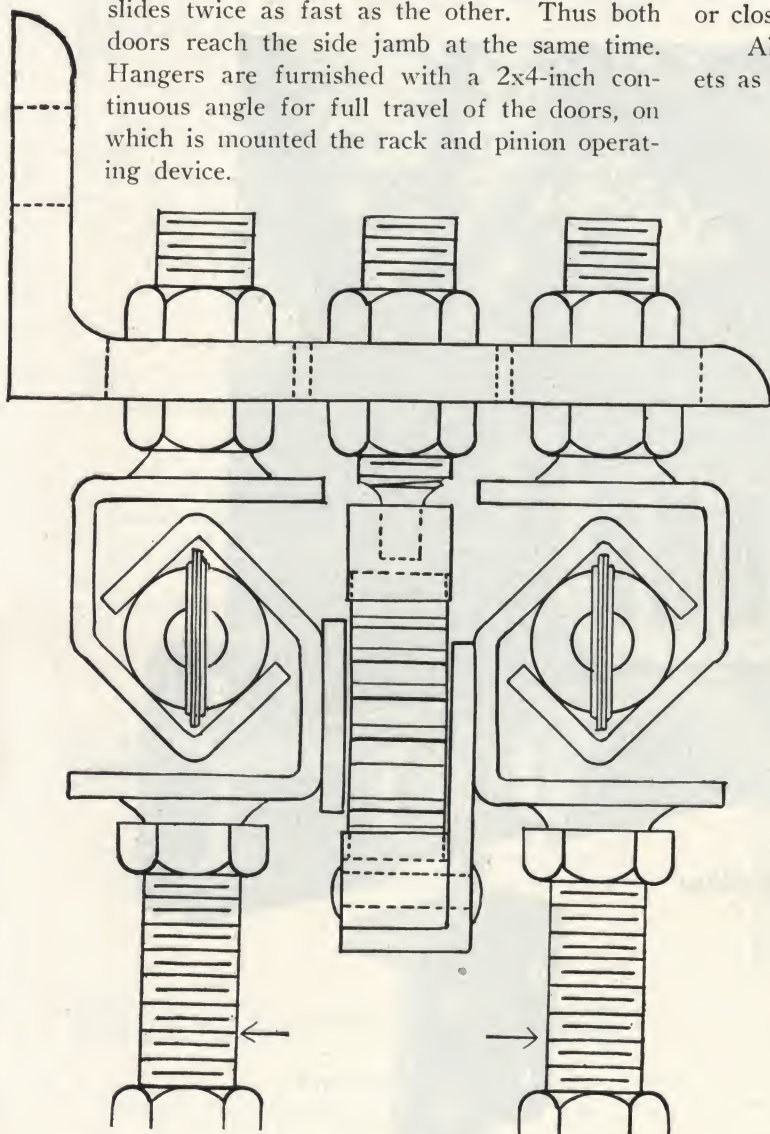
Used for sliding swinging doors in connection with No. 5 single hanger where transom bar is stationary.



Single Bar Swing

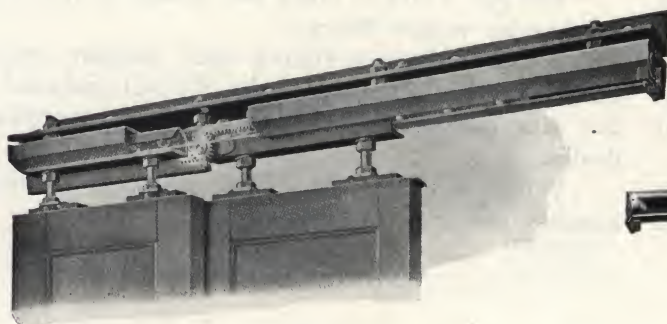
No. 5 Hanger with Two Doors Sliding in the Same Direction (Two-speed Type)

Two sets of tracks are required for this arrangement, each door sliding on a separate track. A pinion and two racks are so arranged that one door slides twice as fast as the other. Thus both doors reach the side jamb at the same time. Hangers are furnished with a 2x4-inch continuous angle for full travel of the doors, on which is mounted the rack and pinion operating device.



Cross Section of "McCabe No. 5" Elevator Door Hanger with Pinion and Rack Adjustment for Two Doors Sliding in the Same Direction

Scale, full size



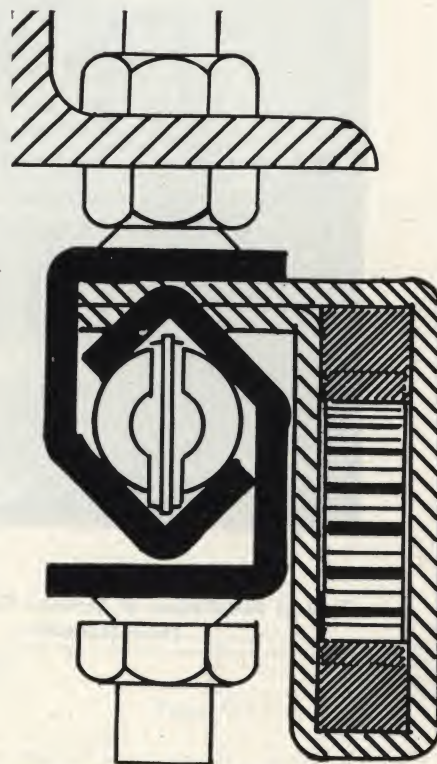
Detail of "McCabe No. 5" Elevator Door Hanger with Two Doors Sliding in the Same Direction

Showing pinion and rack adjustment

No. 5 Hanger with Two Doors Sliding in Opposite Directions

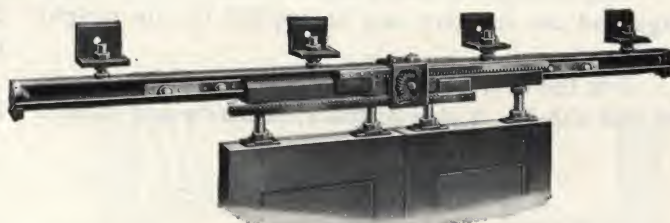
Both doors slide on a single track. A pinion and two racks are so arranged that when either door is opened or closed the other door automatically opens or closes.

All the hangers are furnished with angle brackets as shown.



Cross Section of "McCabe No. 5" Elevator Door Hanger with Pinion and Rack Adjustment for Two Doors Sliding in Opposite Directions

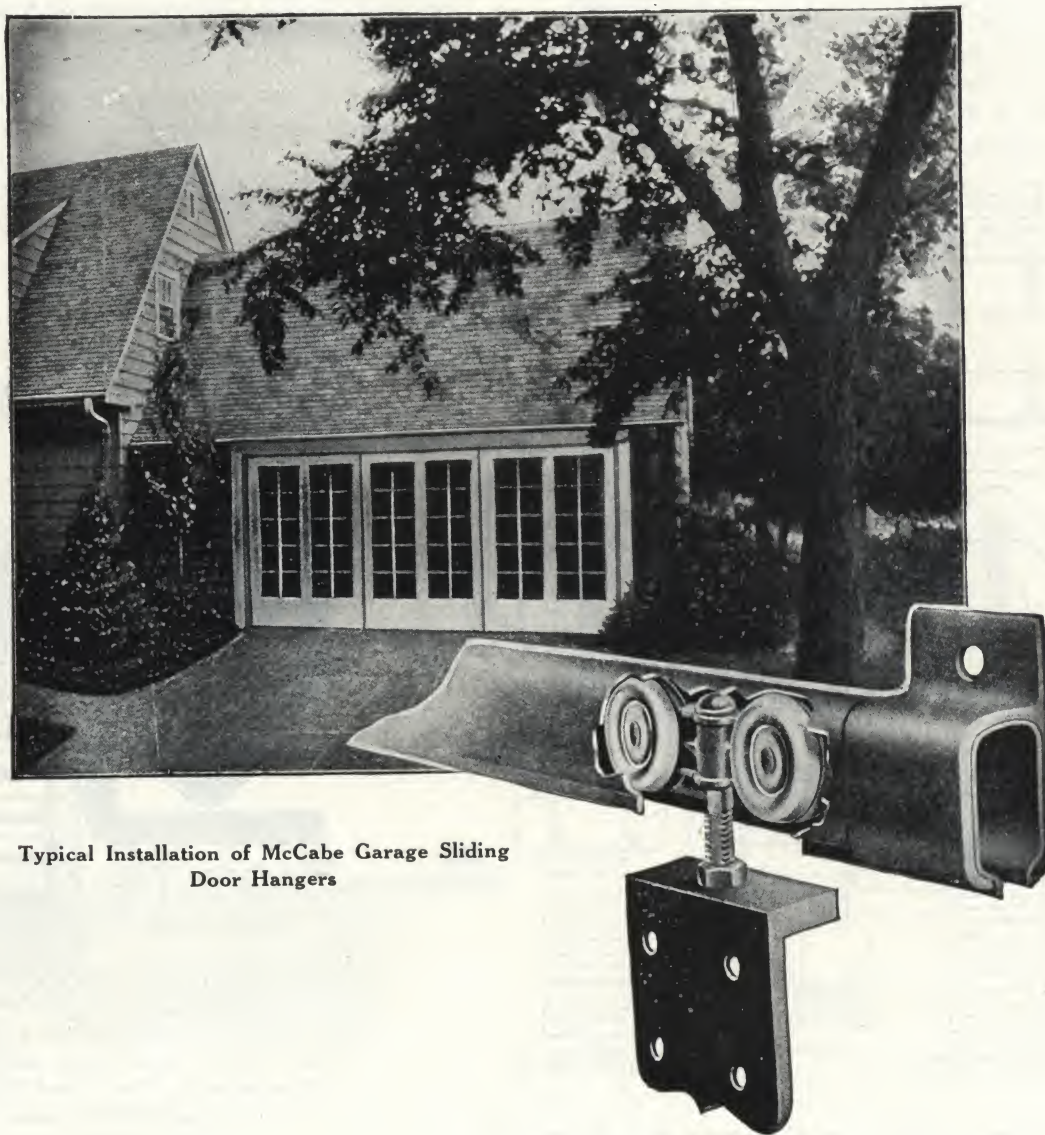
Scale, full size



Detail of "McCabe No. 5" Elevator Door Hanger with Two Doors Sliding in Opposite Directions

Showing pinion and rack adjustment

Garage Sliding Door Hangers



Typical Installation of McCabe Garage Sliding Door Hangers

The following page illustrates practical layouts of garage door openings which we feel will be a help to any one planning or designing garages.

Any number of doors can be used in these openings and our hangers can be applied to any weight of door.

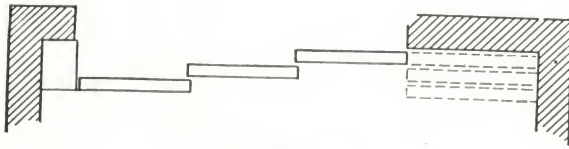
For the average weight of door up to 200 pounds we use the No. 2 size of track, brackets and rollers.

The No. 3 size of track and hanger is furnished for heavier weight doors.

We manufacture sliding door hangers only—therefore locks, hinges or pulls are not included in our sets, but can be purchased from any hardware dealer.

When ordering state type, width of opening, number, size and thickness of doors.

Garage Sliding Door Hangers—(Continued)

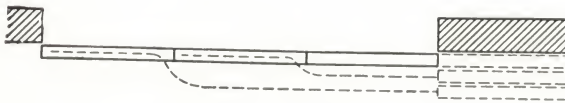


Type G-1

Using No. 16 bracket provide header for bracket over top of door

Head room 5 inches from top of door to underside of header

300-pound doors and under, brackets 4 feet apart
500-pound doors, brackets 2 feet apart

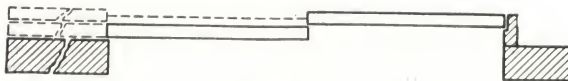


Type G-2

Provide header as wide as the combined thickness of all doors for No. 16 brackets

Head room 5 inches from top of door to underside of header

300-pound doors, brackets 4 feet center



Type G-3

Head room 5 inches from top of door to underside of header
300-pound doors, brackets 4 feet center



Type G-4

Head room 5 inches from top of door to underside of header



Type G-5

Head room using No. 16 brackets, 5 inches from top of door to underside of header

Head room using No. 230/104 (angle bracket) top of door to top of bracket 9 inches



Type G-6

Use No. 20 Barn Door Hangers double, see foregoing page for size of opening

Roller guide foregoing*page

Head room 6 inches

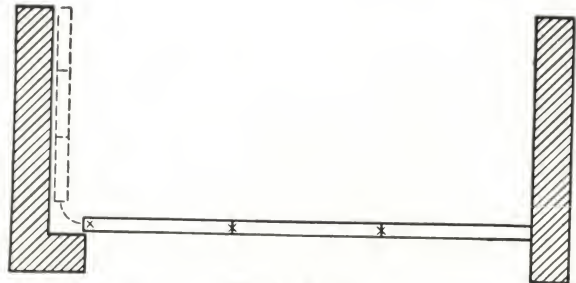


Type G-7

Use No. 20 Barn Door Hangers single, see foregoing page for size of opening

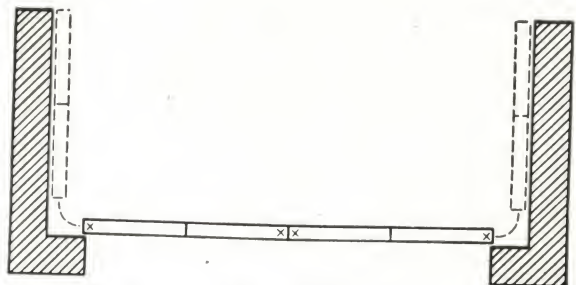
Roller guide foregoing page

Head room 6 inches



Type G-12

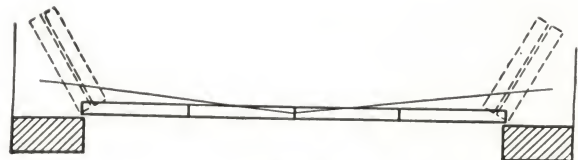
Head room 6 inches



Type G-13

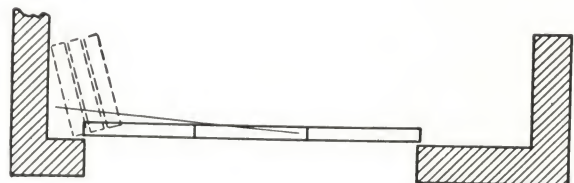
Headroom 6 inches

Space brackets 4 feet apart on doors 300 pounds



Type G-15

Head room 6 inches



Type G-16

Head room 6 inches

MCCABE

Sliding Door Hangers

OVERHEAD DOOR CORPORATION

MAIN OFFICE AND FACTORY
HARTFORD CITY, IND., U. S. A.

DISTRIBUTORS EVERYWHERE

CANADA: OVERHEAD DOOR COMPANY OF CANADA, LTD., 1951 Dundas Street, West, TORONTO, ONT.

The "Overhead Door"

The "OVERHEAD DOOR" for public, private and apartment house garages, factory, warehouse, greasing and filling stations, airplane hangars and similar buildings.

Made in any size or design to conform with any architectural trend. May be electrically operated if desired.

Stock Materials—Stiles and rails are made of the finest grade Sitka spruce, free from all knots and blemishes. Panels are made of three-ply fir veneer, manufactured with waterproof glue. All materials are thoroughly sanded and ready for paint or varnish. Doors can be made of clear cypress or white pine throughout, with solid raised panels, at extra cost. All rails and stiles are $1\frac{3}{4}$ " thick and veneer is $\frac{3}{8}$ " thick. All material is kiln dried.

"OVERHEAD DOOR" tracks and hardware are made of steel formed in our factory. All moving parts are ball-bearing. Safe working load of chain is many times the weight of the door. Springs are tested at 10% more stretch than required to operate the door.

Door Sections—Stiles and rails are mortised and tenoned together and are glued and doweled with steel dowels. Casein waterproof glue is used. Sections are joined together by means of special graduated hinges and the joints between the sections are rabbeted to make a shiplap joint. The rabbet is $\frac{3}{8}$ " deep on each rail and is sufficient to exclude all wind and rain.

Stock Doors—Stock Doors are made with 4" wide center stiles, $5\frac{3}{8}$ " end stiles, $2\frac{1}{8}$ " center rails, 4" top rails, 5" bottom rails. Each section is made with 5 center stiles and 6 three-ply fir panels $\frac{3}{8}$ " thick.

Doors made to size, in general are constructed as follows: Doors up to 10'2" wide are made with $3\frac{1}{2}$ " center stiles, $2\frac{1}{8}$ " center rails, $5\frac{3}{8}$ " end stiles, 5" top rails and 6" bottom rails. The bottom rails can be furnished extra wide if desired.

Doors from 10'3" to 16' wide are made with 5" wide center stiles, $2\frac{1}{8}$ " center rails, 6" end stiles, 6" top rails and 7" bottom rails. Doors over 16' wide are made with $6\frac{1}{2}$ " wide end stiles. The bottom rails can be furnished extra wide if desired.

Center stiles are arranged so that no glass or wood panel is over 16" or less than 10" in width.

Stock size doors are carried in stock by all "OVERHEAD DOOR" distributors and are available for immediate delivery. Stock size doors are: 8'x8', 8'x7'6", 8'x7'.

Number of Sections Required—

Doors up to 8'6"	4 sections
Doors from 8'6" to 10'6"	5 sections
Doors from 10'6" to 12'6"	6 sections
Doors from 12'6" to 14'6"	7 sections

Higher doors should be figured with intermediate sections not to exceed 23" in height. We reserve the right to specify changes, when better door operation will result.

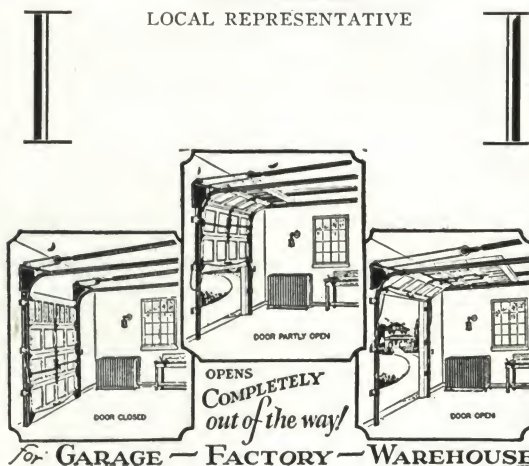
Glass Sections—Any or all sections may be arranged for glass. If mullions are required they are furnished $1\frac{3}{4}$ " wide.

Special Design Doors—Doors of special design will be built to conform to any architectural conception. The beauty and artistic features of a building may be incorporated in the garage doors. Our engineering department will gladly cooperate with architects in making their plans so they may utilize to the utmost the unique advantages of The "OVERHEAD DOOR."

Door Tracks—Doors up to 90 square feet, inclusive, have track 2" wide, mounted on jamb brackets. Jamb brackets are slotted for lag screws. Doors larger than 90 square feet have 2" track mounted on $2\frac{1}{2}$ "x $2\frac{1}{2}$ "x $\frac{1}{8}$ " reinforcing angle. Doors approximately 144 square feet or over, or doors of less area made heavier than regular, use 3" heavy gauge track. This is listed as heavy hardware track, the vertical tracks being either mounted by means of heavy gauge brackets or 3"x5" full length angle. 2" track is rolled with a 10" or 15" radius, while 3" track is rolled with a 20" radius.

Door Struts—Doors 12' wide or over require our steel struts to make the door rigid. Doors of special construction less than 12' wide may require struts.

LOCAL REPRESENTATIVE



Locking Device—A Yale cylinder lock in combination with a positive locking device, securely locks, bolts and bars the door, across its entire width, with a quarter turn of the handle. The door may be locked or unlocked from either side. Doors may be keyed alike, separately or master keyed.

Everything But Glass—All necessary hardware to make an installation is furnished with each door. This includes all bolts and screws. No glass is furnished unless specified.

Head Room—Head Room is indicated on all Jamb Details. "Head Room" is a term applied to the space required for installation and operation of "OVERHEAD DOORS." The term indicates the clear space (full door and track width) vertically above the top of the opening to the nearest point of obstruction, such as rafters, ceiling, beams or roof. For Head Room one must consider obstructing pipes, beams, etc., that may interfere with the operation of the door. Head Room considers the clear space for springs and their fastenings. For convenience "Head Room" has been given for a flat, unobstructed ceiling and also for a "Hip Roof," indicating a slanting roof, of all types, it being considered that the Hip Roof has the pitch up and away from the opening.

Jamb and Pier Construction—2"x6" facing secured to the wall with bolts, and made flush with the sides of the opening provides an ideal foundation for the hanging of any size "OVERHEAD DOOR." These facings should extend at least 15" above the header and be fastened securely near the top. Angle mounted track may be installed directly on steel jambs by drilling and tapping the jambs, and fastening the track securely with flat-head machine (Cap) screws. Where two or more doors are to be installed with a center pier, see Jamb Details for minimum clearances.

We recommend mounting "OVERHEAD DOORS" on steel jambs or wood casings, although it is not impossible to erect directly on brick or concrete.

Stock doors, or smaller, may be installed in a frame garage on jambs made of 2x4's with their inside edges flush. This is regular construction for a frame garage and requires nothing special.

Open Position of Doors—In a normal installation the underside of the door in an opened position will be 9" higher than the header height. Horizontal tracks slant upward 1" in 4' so that there will be more than 9" clearance above the header line at the back ends of the horizontal tracks.

Electric Control—"OVERHEAD DOORS" may be operated electrically with The "OVERHEAD DOOR" Control. Control stations may be located at any desired point giving instant control of the door. Private garage doors may be operated from the driveway, house or any convenient location.

Accessories

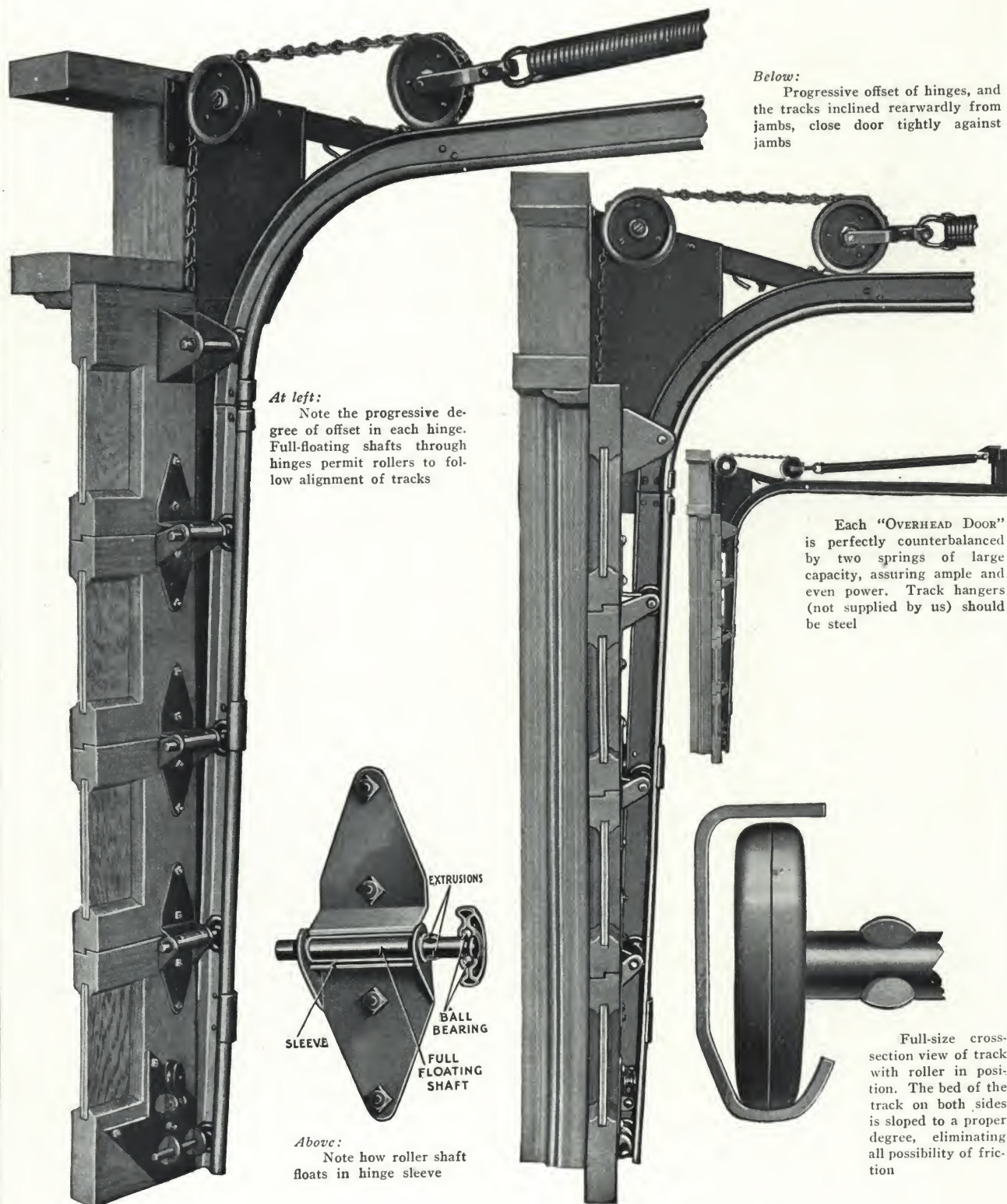
Attention is called to the many devices used with "OVERHEAD DOORS" to assist in their installation and operation, namely, girder and auxiliary track; chain hoist; chain hoist electric control; automatic fire-station equipment; full vertical doors, weight operated; metal clad doors; doors with more than normal vertical travel; doors of special construction for greasing stations; and accessories such as rubber rollers, built-in pass doors, etc., are listed.

Service

The "Overhead Door" sales-service organization is international in scope. There is an Overhead Door Company in your community, our direct representative, composed of skilled door engineers who will welcome the opportunity to confer with you regarding The "Overhead Door." Each individual company maintains trained installation specialists for your convenience.

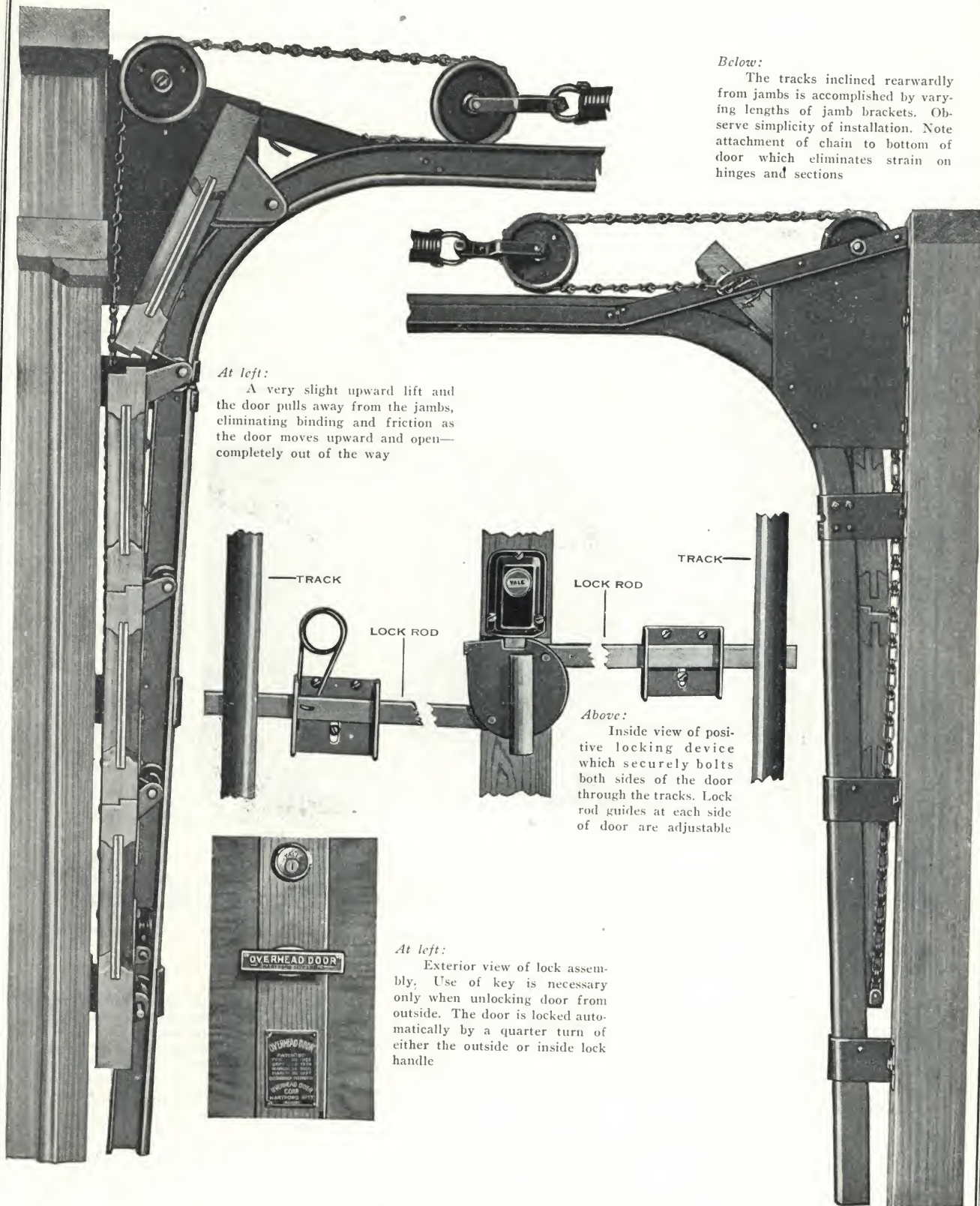
Specifications

In specifying "OVERHEAD DOORS," designate them as The "OVERHEAD DOOR," manufactured by OVERHEAD DOOR CORPORATION, Hartford City, Indiana, U. S. A.



The "Overhead Door" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "Overhead Door"

OUTSTANDING FEATURES OF THE "OVERHEAD DOOR"

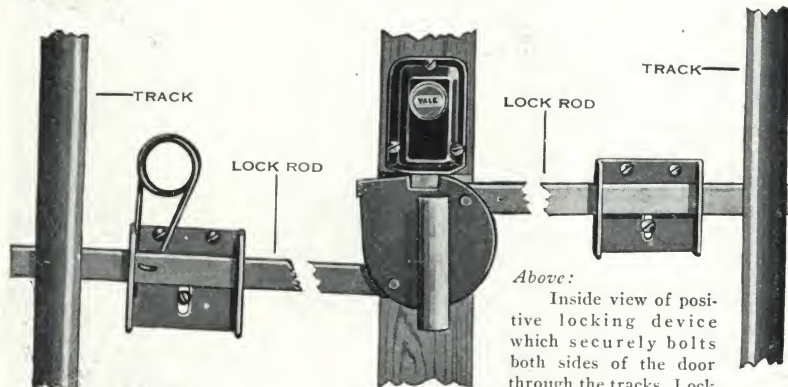


Below:

The tracks inclined rearwardly from jambs is accomplished by varying lengths of jamb brackets. Observe simplicity of installation. Note attachment of chain to bottom of door which eliminates strain on hinges and sections

At left:

A very slight upward lift and the door pulls away from the jambs, eliminating binding and friction as the door moves upward and open—completely out of the way



Above:

Inside view of positive locking device which securely bolts both sides of the door through the tracks. Lock rod guides at each side of door are adjustable

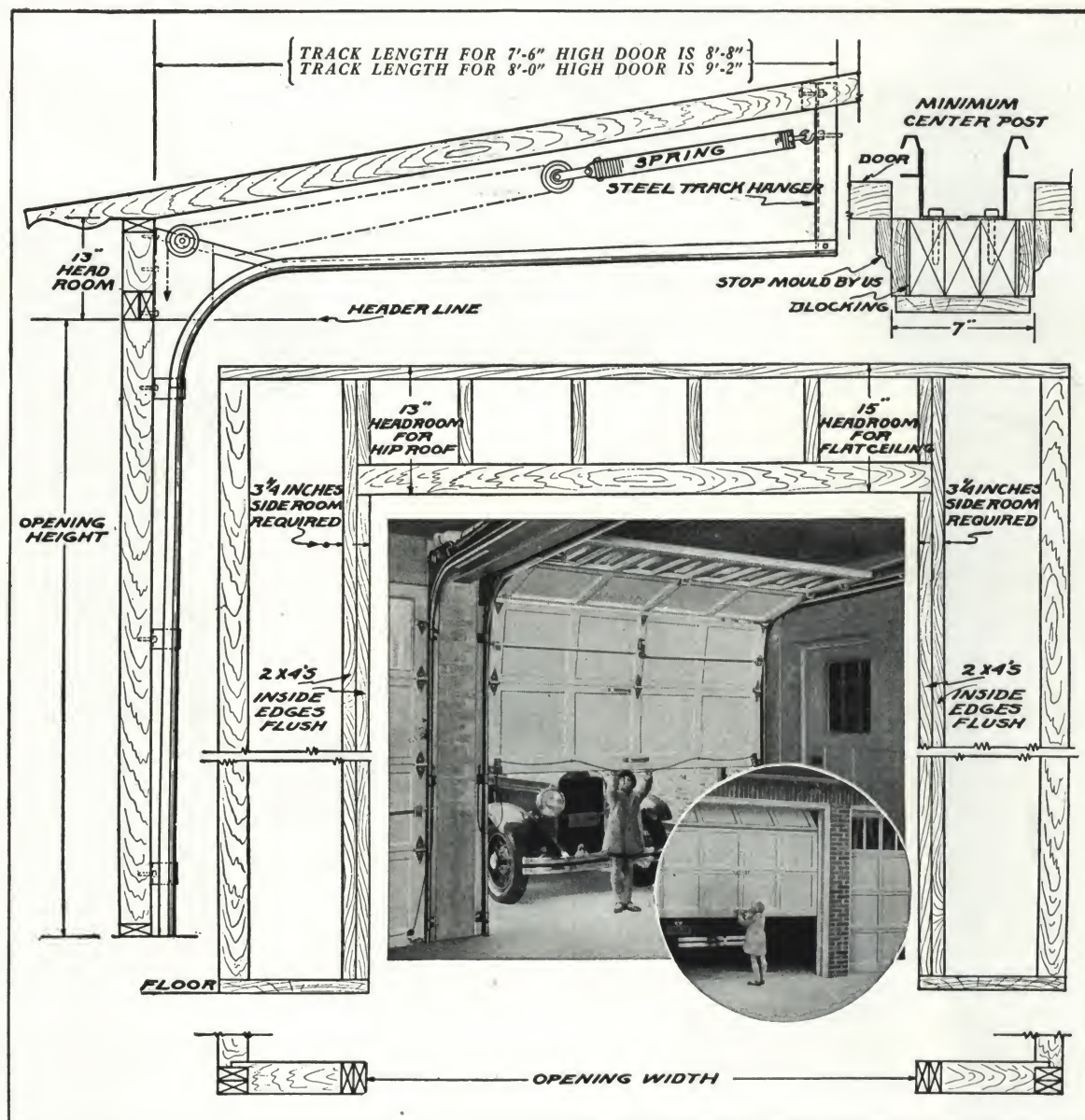


At left:

Exterior view of lock assembly. Use of key is necessary only when unlocking door from outside. The door is locked automatically by a quarter turn of either the outside or inside lock handle

The "Overhead Door" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "Overhead Door"

OUTSTANDING FEATURES OF THE "OVERHEAD DOOR"



Practical jamb construction for all "OVERHEAD DOORS" not exceeding 8 ft. wide or 8 ft. high.

Stock size doors are 8 ft. wide by 8 ft. high, 8 ft. wide by 7 ft. 6 in. high, and 8 ft. wide by 7 ft. high.

Tracks for all "OVERHEAD DOORS" to be installed on steel jambs are mounted on angle iron because a drill and tap method of installation is necessary.

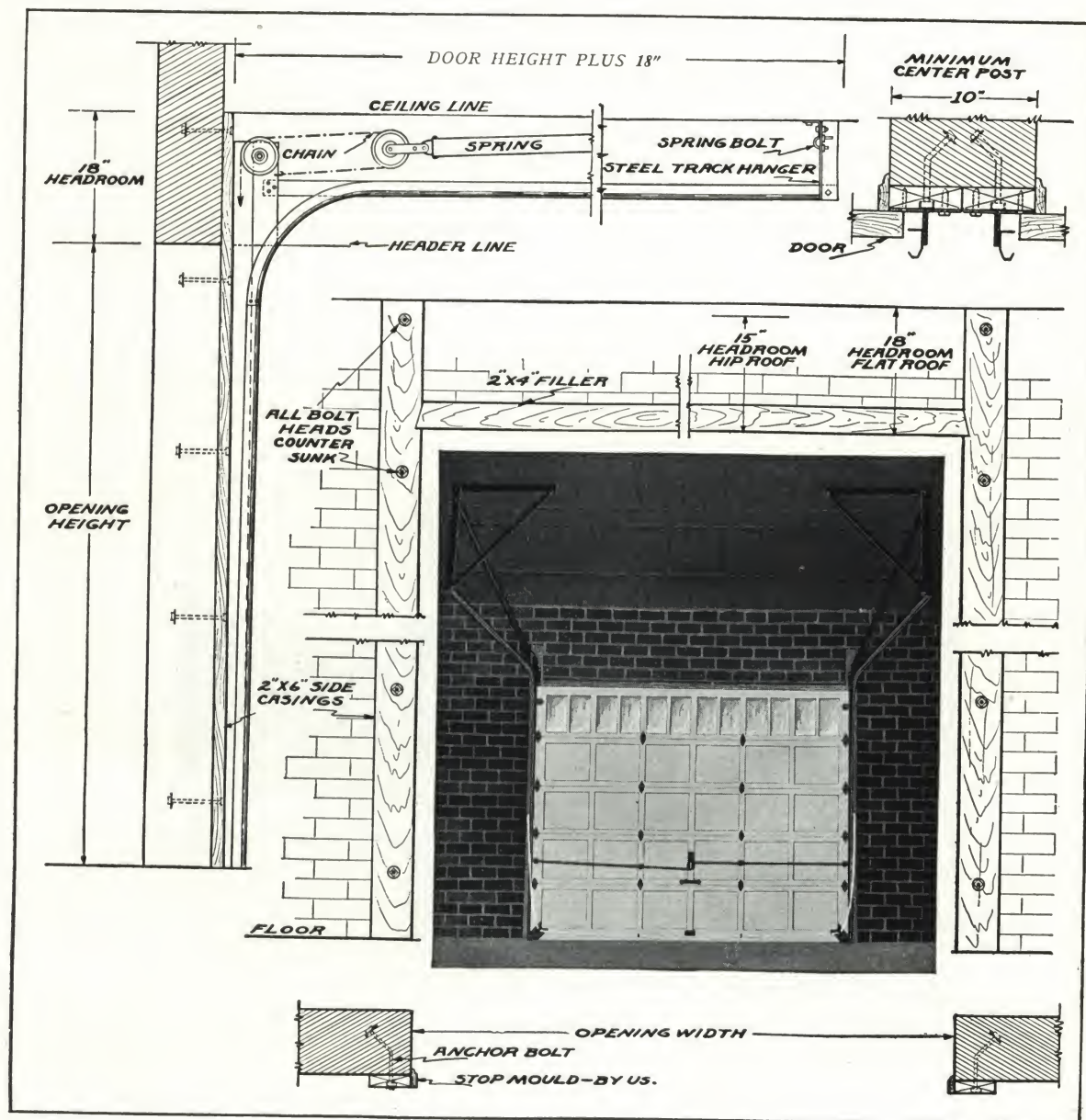
Doors 64 sq. ft. and less in area, to be installed on steel jambs have the vertical tracks mounted on $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{8}$ -in. angle. Horizontal tracks do not require reinforcement.

Should an inside wood (casing) jamb construction be desired follow Jamb Detail No. 3. Should the use of 2x4-in. instead of 2x6-in. casings as in Jamb Detail No. 3 be desired, the minimum clearances as specified in Jamb Detail No. 1, may be followed

The "Overhead Door" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "Overhead Door"

DETAIL
NO. 1

WOOD JAMB DETAIL FOR THE "OVERHEAD DOOR"



Practical jamb construction for "OVERHEAD DOORS" measuring in area up to (approximately) 144 sq. ft. and which are to be installed on wood (casing) jambs.

Vertical and horizontal tracks for doors 90 to 144 sq. ft. (approximately) in area are mounted on $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{8}$ -in. angle iron.

Doors 65 to 90 sq. ft. in area have the vertical tracks assembled with double jamb brackets and the horizontal tracks mounted on $1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{8}$ -in. angle iron.

If a door measuring less than 65 sq. ft. in area is desired for installation on inside wood (casing) jambs, clearances as

specified in Jamb Detail No. 1 may be followed, and 2x4-in. inside wood (casing) jambs may be used if desired.

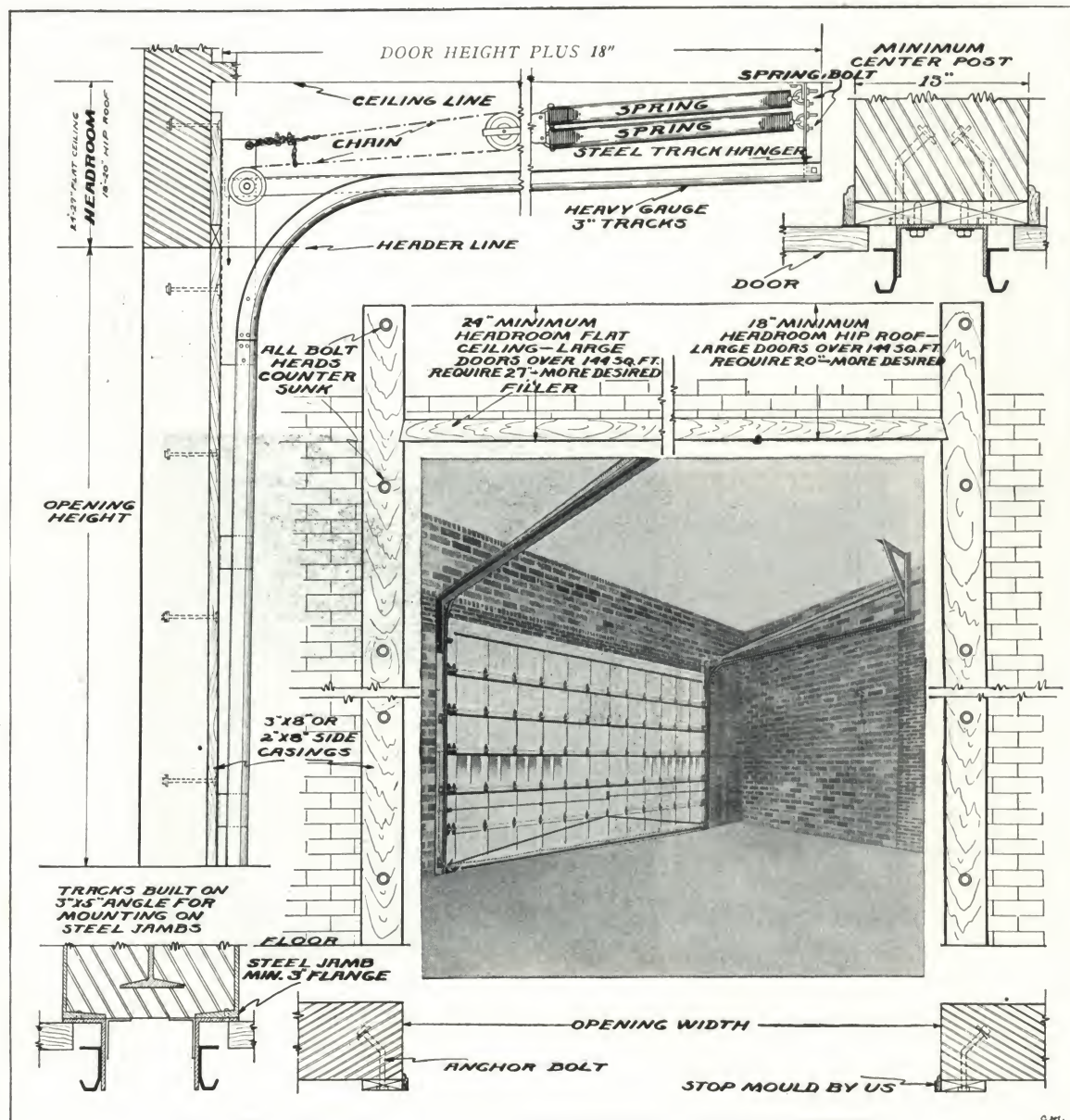
Tracks for all "OVERHEAD DOORS" to be installed on steel jambs are mounted on angle iron because a drill and tap method of installation is necessary.

Vertical and horizontal tracks for doors 64 to 144 sq. ft. (approximately) in area to be installed on steel jambs are mounted on $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{8}$ -in. angle iron. Doors 65 to 90 sq. ft. in area have the vertical tracks mounted on $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{8}$ -in. angle iron and the horizontal tracks mounted on either $1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{8}$ -in. angle iron or on $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{8}$ -in. angle iron.

The "Overhead Door" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "Overhead Door"

DETAIL
NO. 3

INSIDE WOOD (Casing) JAMB DETAIL FOR THE "OVERHEAD DOOR"



Jamb detail requirements for the installation of "OVERHEAD DOORS" measuring (approximately) 144 sq. ft. or more, in area.

Special heavy gauge track and hardware are standard equipment for use on doors of this classification, which are to be installed on either wood or steel jambs.

Doors 144 sq. ft. (approximately) and over in area, to be erected on wood (casing) jambs, have vertical tracks equipped

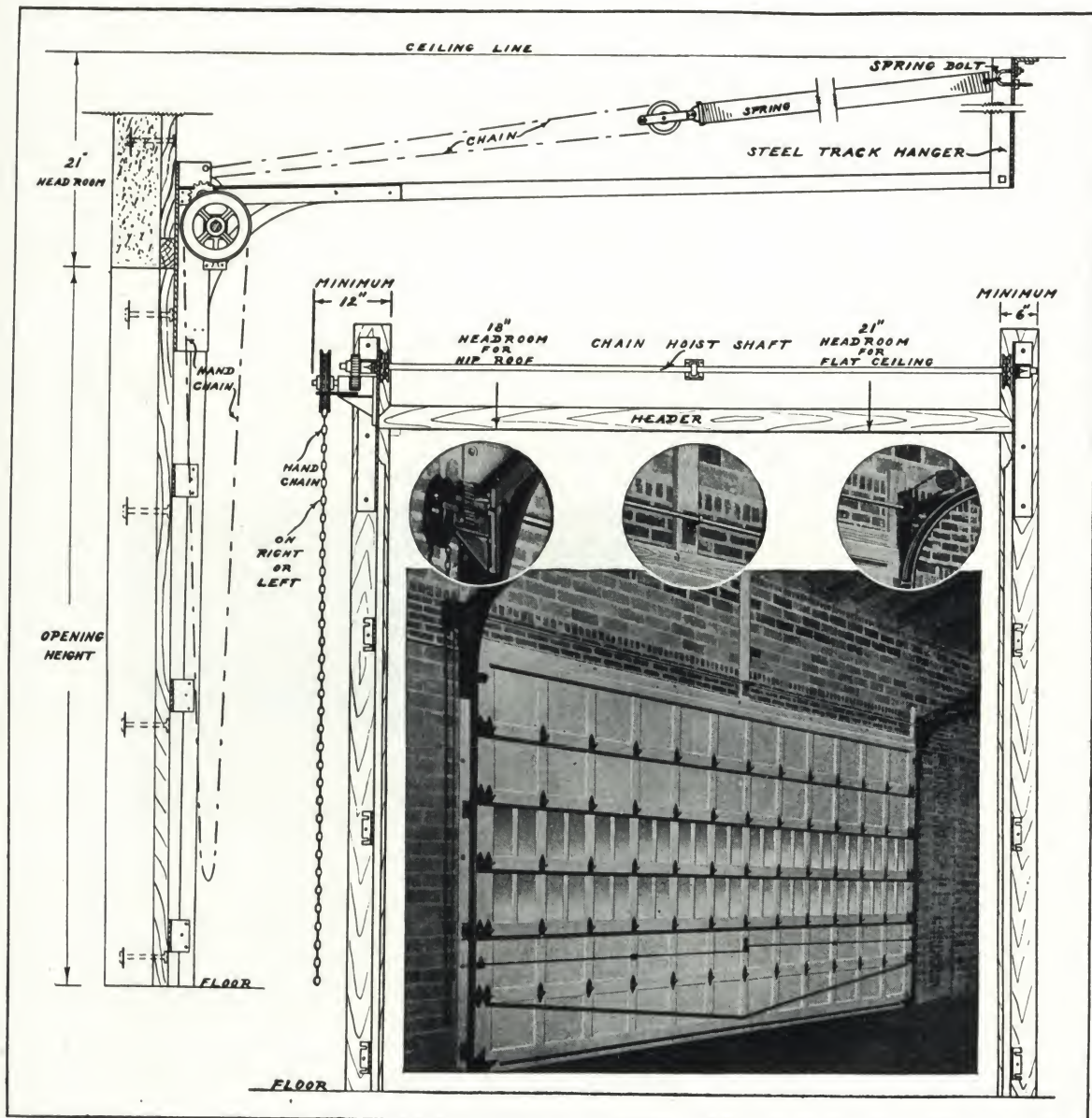
with heavy gauge jamb brackets and have the horizontal tracks mounted on $2\frac{1}{2} \times 2\frac{1}{2}$ -in. angle iron. Doors exceedingly wide or high (approximately 165 sq. ft. and greater) have vertical tracks mounted on 3×5 -in. angle iron.

For installation on steel jambs, vertical tracks of all doors 144 sq. ft. (approximately) in area and greater, are mounted on 3×5 -in. angle iron and horizontal tracks are mounted on $2\frac{1}{2} \times 2\frac{1}{2}$ -in. angle iron.

The "Overhead Door" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "Overhead Door"

DETAIL
NO. 4

HEAVY HARDWARE JAMB DETAIL FOR THE "OVERHEAD DOOR"



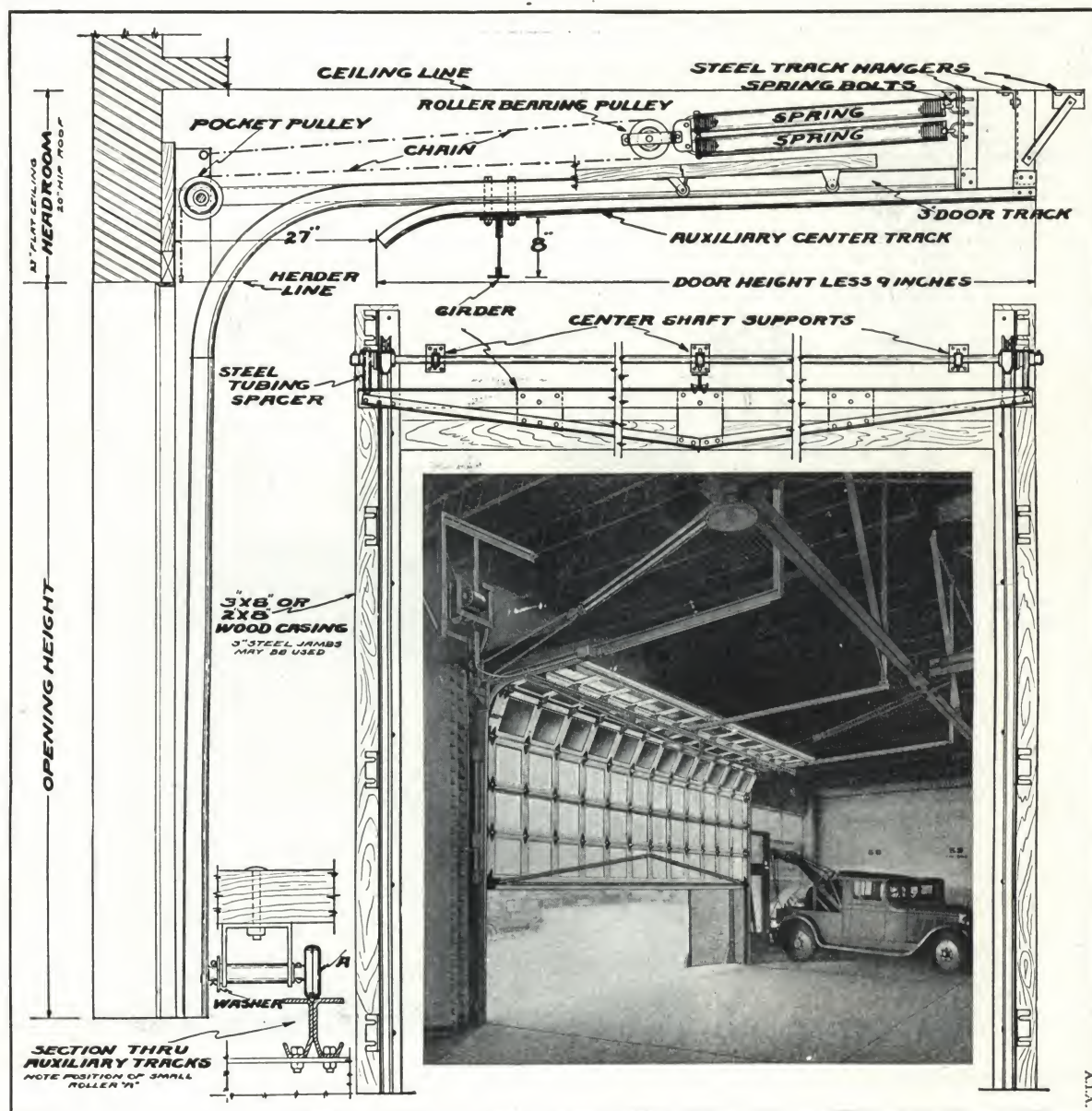
The chain hoist has been specially designed for large "OVERHEAD DOORS." The chain hoist is primarily manufactured for use on doors equipped with heavy hardware but may be used on doors equipped with $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{8}$ -in. angle iron

mounted tracks. The chain hoist operates The "OVERHEAD DOOR" rapidly and does not restrict hand operation from the outside. Hoist is available for operation of door from either side (right or left)

The "Overhead Door" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "Overhead Door"

DETAIL NO. 114-B
(See Jamb Detail No. 4)

CHAIN HOIST DETAIL



On all doors 18 ft. wide or wider, the girder and auxiliary track is recommended. The auxiliary or center track forms an ideal support for very wide doors when in the open or horizontal position. Doors less than 18 ft. wide, of special construction heavier than our regular stock, require the girder and auxiliary

track. Doors approximately 16 ft. wide and wider come under this classification. The chain hoist, hand or control operated, may be used as desired. (Above illustration is of a door 21 ft. x 12 ft. equipped with motor controlled chain hoist.)

The "Overhead Door" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "Overhead Door"

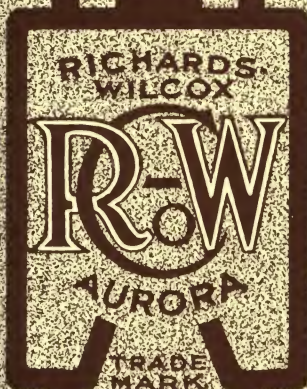
DETAIL NO. 123-A

GIRDER AND AUXILIARY TRACK DETAIL

Richards-Wilcox

DOORWAY

EQUIPMENT



RICHARDS-WILCOX MANUFACTURING CO.

INCORPORATED

Manufacturers of Door Hangers and Hardware Specialties

CABLE ADDRESS

"RICHWILCO, AURORA"

AURORA, ILL.

CANADIAN FACTORY
LONDON, ONTARIO

BRANCH OFFICES

ATLANTA, GA., 406 Southeastern Trust Building
BOSTON, MASS., 124-126 Pearl Street
CHICAGO, ILL., 166-168 West Lake Street
CINCINNATI, OHIO, 512 Provident Bank Building
CLEVELAND, OHIO, 459 Hippodrome Annex
DES MOINES, IOWA, 619 Hubbell Building
DETROIT, MICH., 505 Donovan Building
INDIANAPOLIS, IND., 1939 No. Meridian Street
KANSAS CITY, MO., 206 Reliance Building

LOS ANGELES, CAL., 500-501 Hibernia Building
MILWAUKEE, WIS., 445 Milwaukee Street
MINNEAPOLIS, MINN., 321 Plymouth Building
NEW ORLEANS, LA., 528 Canal Bank Building
NEW YORK, N. Y., 85 Walker Street
OMAHA, NEB., 228-229 City National Bank Building
PHILADELPHIA, PA., 507 Arch Street
ST. LOUIS, MO., 2665 Washington Avenue
SAN FRANCISCO, CAL., 111 Sutter Street

SEATTLE, WASH., 1214 Hoge Building

RICHARDS-WILCOX CANADIAN CO., LTD., LONDON, ONT.

Experience and Facilities

The RICHARDS-WILCOX MANUFACTURING Co. have been continuously in business over 49 years, since the founding of the company in 1880. They are pioneer specialists in door hangers and similar hardware specialties. The factory at Aurora, Ill., covers 260,000 sq. ft. The average yearly output is 10,000 tons of finished products.



Engineering Service

A corps of experienced engineers and draftsmen are maintained at the plant to assist in the designing and detailing of equipment particularly adapted to unusual or special conditions. The services of this department are obtainable, without obligation, through the local representative whenever required.

Responsibility

Our rating in R. G. Dun's and Bradstreet's is over \$1,000,000.00—first grade of credit.

Distribution and Service

R-W equipment is distributed through the better retail hardware dealers throughout the country. In the larger distributing centers branch offices are maintained in charge of an experienced R-W representative always accessible to the architect for prompt assistance and service.

Contract and Erection Department

To assure the maximum satisfaction and permanent ease of operation for folding partitions adapted to wide or high openings the RICHARDS-WILCOX MANUFACTURING Co. have recently added this new department to their service facilities. Since the main difficulty with this type of equipment has arisen largely from the use of ordinary mill made doors prone to warp and twist after erection, the R-W Co. now furnish veneered wood folding partition doors of the highest quality of construction and finish, fully equipped with the proper hardware and completely erected in the opening under the supervision of experienced erection mechanics.

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For R-W Fire Doors and Elevator Door Equipment, see Manufacturers' Index.

R-W "SLIDETITE" GARAGE DOOR EQUIPMENT

No. 1035 Equipment

Operation

"Slidetite" equipment consists of complete sets of hardware for the operation of from 3 to 10 doors closing in line in one opening. The doors are so hinged together and suspended at intervals on hangers running in overhead tracks that the doors open or close with a *sliding-folding*, accordion movement and at all times occupy the minimum space requirements.

When open, the doors are carried to one or both sides of the opening compactly folded together and swung clear of the jamb line opening, standing either at an angle to the front wall or, where space is sufficient, folded parallel with the front wall.

Although in-folding is recommended, "Slidetite" equipment is equally adapted to doors opening out.

Adaptability

Use for both private and public garages.

Features

The outstanding feature of "Slidetite" is that the particular method of operation causes the doors to close *absolutely tight* together and against the rabbet at head, jamb and sill. They are extremely easy to operate. Locking devices, operated from the outside, provide convenient access without the necessity of a separate garage entrance door. Up to 30 ft. in width no intermediate posts or mullions are required.

Doorway and Door Sizes—Door Weights

"Slidetite" equipment is adaptable to clear openings from 8 ft. wide to a maximum of 30 ft. wide equipped with from 3 to 10 doors.

Individual doors (all of the same width) should not exceed 3 ft. wide nor 250 lb. in weight.

Heights may vary up to a maximum of 12 ft., so long as the weight limitations are not exceeded (higher doors require other hardware).

Hardware Furnished

Each "Slidetite" set consists of the requisite quantity of track, hangers, hinges, floor guides, tie rods, handles and door locking devices (together with all bolts and screws for attachment) necessary to operate the number of doors for which the set is intended. Complete erection details are furnished with each set of equipment. The hardware furnished is as follows:

(A) **Track and Brackets**—Rolled steel tracks Nos. 31, 232 and 32 are used dependent on weight of door to be carried. Tracks are supported on steel brackets of type and number required to fit the particular track assembly. The maximum length of track section is 10 ft.—where the track length required is greater than 10 ft., two lengths are connected in perfect, rigid alignment with the R-W Lock Joint Bracket. Finish: tracks, black japan; brackets, black japan.

(B) **Tracks and Hangers**—No. 435, four (4) wheel, roller bearing: wheels, steel ($2\frac{1}{8}$ -in. dia. for track No. 31 and 3-in. dia. for tracks No. 232 and No. 33); drop forged steel frame and hardened bearings, adjustment, lateral and vertical; apron for track No. 31 is $7\frac{1}{8}$ in. high and 2 in. wide, and for tracks No. 232 and No. 33 $7\frac{1}{8}$ in. high and $2\frac{1}{2}$ in. wide. Finish, black japan.

(C) **Hinges**—All hinges are wrought steel, black enamel finish.

(C1) No. 435 surface hinge. Sizes: $2\frac{1}{2} \times 4$ in.; $3\frac{1}{2} \times 5$ in.; 4×7 in.; 12×4 in.

Note: Used inside and outside where no space between doors is required for cremone bolts or special locking devices. The correct size is furnished with each set.

(C2) No. 836 offset surface hinge. Sizes same as listed for No. 435. Hinge knuckle is offset $1\frac{1}{2}$ in. making a 3-in. space between doors when folded, otherwise hinge is similar to No. 435.

Note: Used for out-opening only whenever space between folded doors is required for cremone bolts or where special cremone bolt locking device is installed. The correct size is furnished with each set.

(C3) No. 1035 heavy offset hinge with surface pintle. Sizes: $18 \times 2\frac{1}{2}$ in.; $24 \times 2\frac{1}{2}$ in.; $20 \times 2\frac{1}{2}$ in.; $36 \times 2\frac{1}{2}$ in.

Note: Used at jambs where two or more doors are folded clear of jamb line. The correct size is furnished with each set.

(D) **Handles**—No. 81, gray iron, $6\frac{1}{2}$ in. over all, black enamel finish.

(E) **Cylinder Lock and Latch**—No. 6.0 rim cylinder lock and thumb lift latch and handle one (1) cylinder for locking door from outside only—two (2) cylinders for locking door from both sides. Face of cylinders made of solid polished bronze—lock case handle and thumb lift finished in black japan.

Note: Furnished when specified on free swinging door. See plan types, R-W page 3.

(F) **Cremone Bolts**—All cremone bolts are finished in black enamel.

(F1) No. 517 cremone bolt with lugged, adjustable bottom keeper is standard with No. 1035 "Slidetite" equipment. Locks both top and bottom with one movement of lever handle. Made in one size adjustable up to 9 ft. high (extra 18-in. sections furnished for higher doors).

(F2) No. 517x427 cremone bolt is No. 517 plus a high grade cylinder lock with offset locking attachment and an outside operating handle.

Note: Furnished when specified on plan types No. 4 $\frac{1}{2}$ and No. 8 $\frac{1}{2}$ (see R-W page 3) where outside access is desired.

(F3) No. 617 cremone bolt made in three principal sections—the center or lever handle locking section and top and bottom adjustable bolt sections—the three sections united by $\frac{1}{2}$ -in. connecting rods. Made in one size adjustable up to 10 ft. high (extra 18-in. sections furnished for higher doors).

Note: Furnished when specified in lieu of No. 517 bolt which is standard with No. 1035 equipment.

(F4) No. 617x427 cremone bolt is No. 617 plus a high grade cylinder lock with offset locking attachment and an outside operating handle.

Note: Device is similar to that illustrated for No. 517x427 bolt and is used under similar conditions when No. 617 cremone bolt is used elsewhere on No. 1035 equipment.

(G) **Tie Rods**—No. 435, $\frac{3}{8}$ -in. dia. with adjustable tension. Designed to fit No. 1035 hinge pintle pin.

Note: Furnished on all jamb doors where three (3) or more doors are hinged together.

(H) **Bumper Shoes and Floor Guides**—No. 435-72 black enameled, steel bumper shoes (for one or two doors as required). No. 273 adjustable floor center (or near center) door guide; made of black enameled steel and gray iron; adjustable for doors from $1\frac{3}{4}$ in. to 3 in. thick.

(I) **Door Holder**—No. 119 special black enameled spring metal.

Note: Furnished on all free doors located at end of multiple hinged units.

(J) **Mechanical Operators**—Where required in public garages, fire stations, etc., "Slidetite" doors can be equipped with R-W No. 1200 or No. 1300 Automatic Electric Door Operator. Complete information on request.

No. 1135 Equipment General

In operation the No. 1135 "Slidetite" equipment is similar to the No. 1035 equipment. It is particularly adapted to the highest type of private garage installations.

The track and hanger units are similar to the "Ideal" elevator door equipment and operate with exceptional smoothness and ease. Except for (1) the "Ideal" track and hangers and (2) the cremone bolts, the equipment is the same as described for the standard No. 1035 sets.

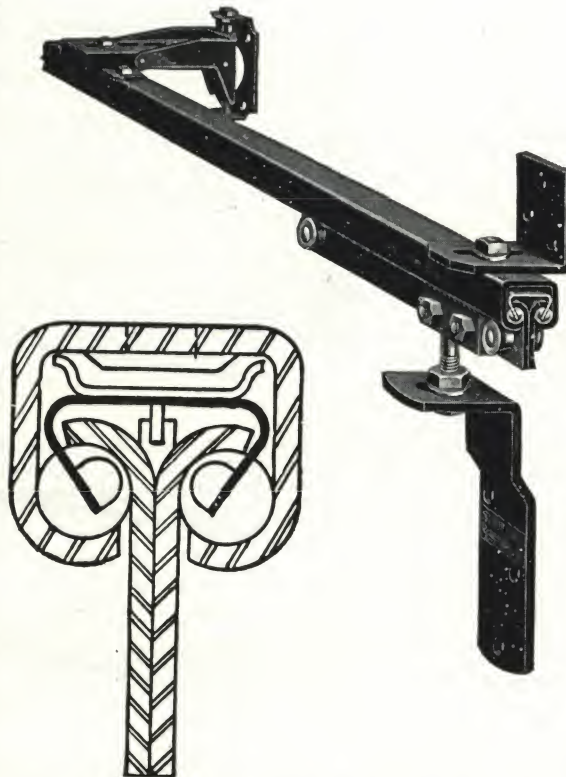
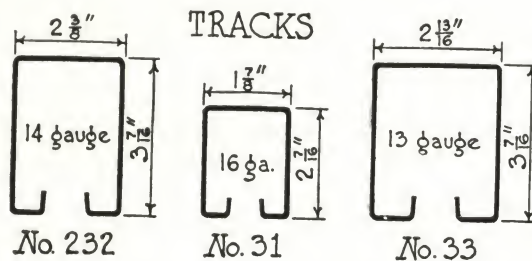
Tracks and Hangers

The door hangs from a wide rider-bar, rolling over hardened steel balls, which in turn, roll along a carefully milled steel track groove.

Friction is practically eliminated and at the same time the rider-bar travels at twice the speed of the balls. A ball retainer keeps the steel balls accurately spaced at all times.

Cremone Bolts

The No. 617 (and 617x427, when specified) cremone bolts are standard with the No. 1135 equipment.



No. 1135 Ideal "Slidetite" Track and Hanger

TABLE FOR NO. 1035 "SLIDETITE" STANDARD EQUIPMENT SETS

Catalogue No.	Number of doors	Maximum weight each door, lb.	Minimum head-room "R," in.	"S" Minimum, in.	
				Doors opening at 90°	Opening parallel with wall
1035-B3 -31	3	100	6	Thickness of 2 doors + 2½	1½
1035-B3 -232	3	175	8¼	Thickness of 2 doors + 2½	1½
1035-B3 -33	3	250	8½	Thickness of 2 doors + 2½	1½
1035-B4 -31	4	100	8¼	Thickness of 3 doors + 2¾	1½
1035-B4 -232	4	175	11¼	Thickness of 3 doors + 2¾	1½
1035-B4 -33	4	250	11½	Thickness of 3 doors + 2¾	1½
1035-B4½-31	4	100	6	Thickness of 2 doors + 2½	1½
1035-B4½-232	4	175	8¼	Thickness of 2 doors + 2½	1½
1035-B4½-33	4	250	8½	Thickness of 2 doors + 2½	1½
1035-B5 -31	5	100	8¼	Thickness of 3 doors + 2¾	1½
1035-B5 -232	5	175	11¼	Thickness of 3 doors + 2¾	1½
1035-B5 -33	5	250	11½	Thickness of 3 doors + 2¾	1½
1035-B6 -31	6	100	8¼	Thickness of 3 doors + 2¾	1½
1035-B6 -232	6	175	11¼	Thickness of 3 doors + 2¾	1½
1035-B6 -33	6	250	11½	Thickness of 3 doors + 2¾	1½
1035-B7 -31	7	100	9	Thickness of 4 doors + 3¼	1½
1035-B7 -232	7	175	11	Thickness of 4 doors + 3¼	1½
1035-B7 -33	7	250	11½	Thickness of 4 doors + 3¼	1½
1035-B8 -31	8	100	9	Thickness of 5 doors + 6¼	1½
1035-B8 -232	8	175	11	Thickness of 5 doors + 6¼	1½
1035-B8 -33	8	250	11½	Thickness of 5 doors + 6¼	1½
1035-B8½-31	8	100	9	Thickness of 4 doors + 3¼	1½
1035-B8½-232	8	175	11	Thickness of 4 doors + 3¼	1½
1035-B8½-33	8	250	11½	Thickness of 4 doors + 3¼	1½
1035-B9 -31	9	100	9	Thickness of 5 doors + 6¼	1½
1035-B9 -232	9	175	11	Thickness of 5 doors + 6¼	1½
1035-B9 -33	9	250	11½	Thickness of 5 doors + 6¼	1½
1035-B10 -31	10	100	9	Thickness of 5 doors + 6¼	1½
1035-B10 -232	10	175	11	Thickness of 5 doors + 6¼	1½
1035-B10 -33	10	250	11½	Thickness of 5 doors + 6¼	1½

Note: All dimensions for out-opening sets are the same as above except the dimension "S" where the plus figures for sets O1035-B3 and B4½ is 4½ in., for sets O1035-B4, B5 and B6 is 5¼ in., for sets O1035-B7 and B8½ is 8¼ in., for sets O1035-B8, B9 and B10 is 9 in.

How to Use the Table

(A) **System of Numbering**—The number in the left hand column designates the complete "open in" hardware set adapted to the number and weight of doors to be operated, and the plan type (the number of doors opening from the split to the right and left hand). In the table the numeral 1035 indicates the set type; the numeral B3 etc. indicates, B—No. 517 standard cremone bolts and 3 etc.—the plan type; the numerals 31, 232 and 33 indicate the track used for various door weights (see R-W page 2).

(B) **Open-out Sets**—To designate sets for out-opening doors, prefix the letter "O" to the first numeral, thus O1035.

(C) **To Substitute No. 617 Cremone Bolts**—Omit the letter "B" in the second numeral and specify the No. 617 bolt in the optional hardware (see suggested specification below).

(D) **To Specify No. 1135 "Ideal" Equipment**—Substitute the number 1135 for 1035 in the first numeral and omit the letter "B" in the second numeral and the track number, thus No. 1135-3, etc.

Specification

Furnish and install in accordance with the manufacturer's erection details, Richards-Wilcox "Slidetite" Garage Door Equipment as follows:

Doors (number or otherwise locate): No. "Slidetite" for opening wide, high; door thickness

Note: If there is more than one opening and the equipment varies, list each door separately.

Note: Select the equipment number from the table above. Insert dimensions required—measurements should be from finished jamb to jamb and from finished floor to finished jamb.

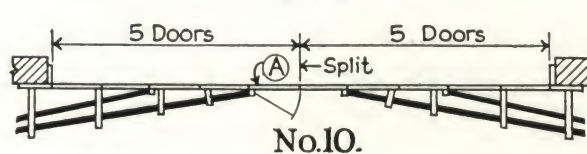
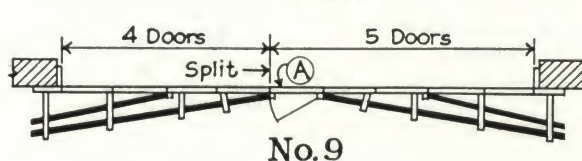
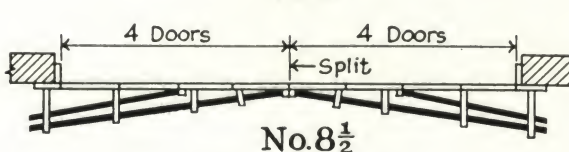
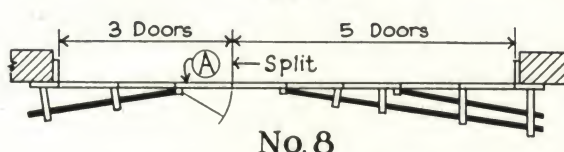
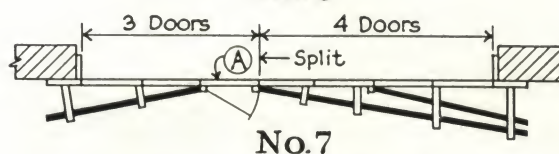
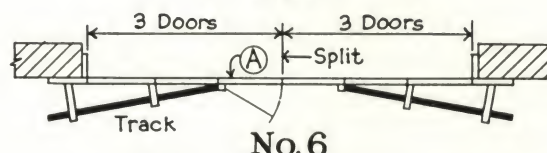
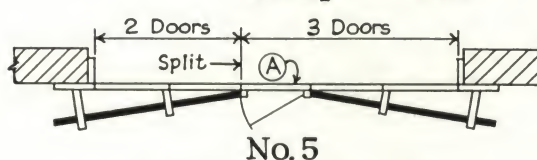
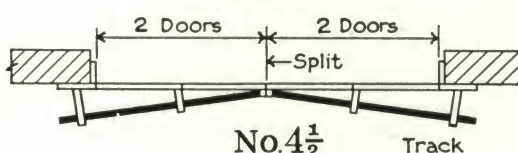
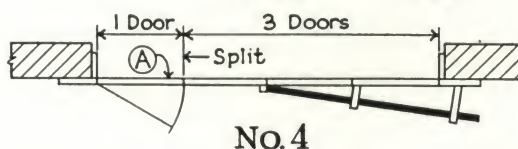
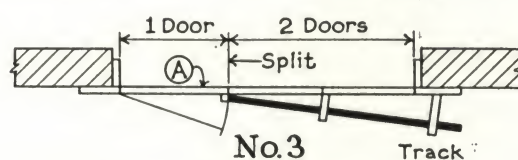
In addition to, or in lieu of, the standard hardware designated by the set number include the following optional hardware if desired.

Note: Select from list under heading "Hardware Furnished" R-W page 2.

- (a) No. 650 rim cylinder lock and latch (one (1) or two cylinders) for free swinging door.
 (b) No. 517x427 cremone bolt locking device.
 (c) No. 617 cremone bolts.
 (d) No. 617x427 cremone bolt locking device.

PLAN TYPES

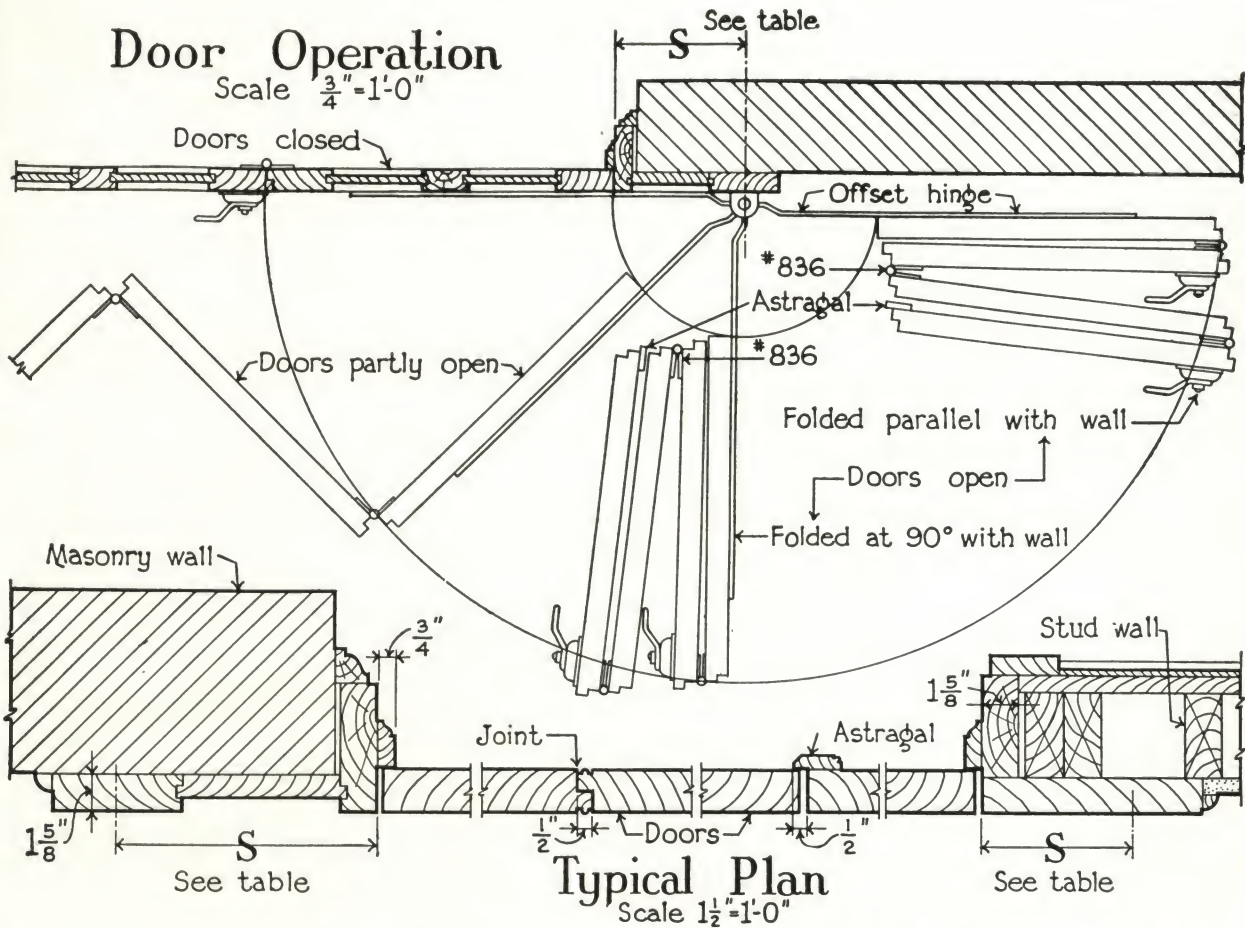
NOTE: Grouping of doors may be reversed to swing from either jamb from split.
 NOTE: Door "A" is a free swinging door.



No. 1035 AND No. 1135 R-W "SLIDETITE" HARDWARE

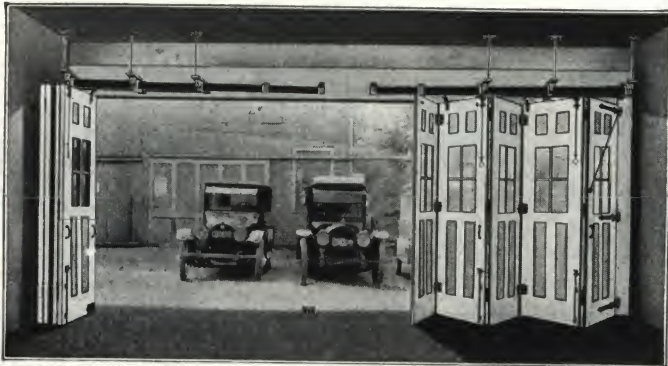
Door Operation

Scale $\frac{3}{4}"=1'-0"$

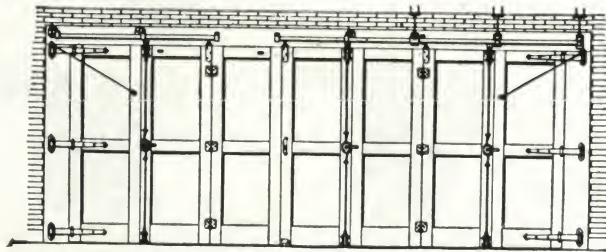


Typical Plan

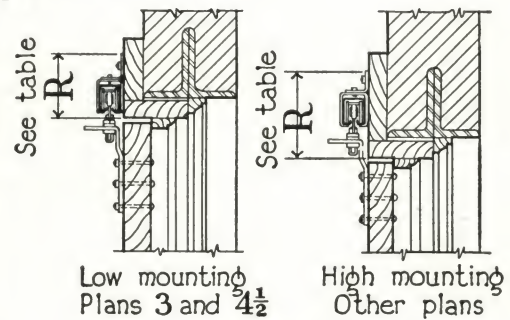
Scale $1\frac{1}{2}"=1'-0"$



Typical No. 1035-B9-31 Set

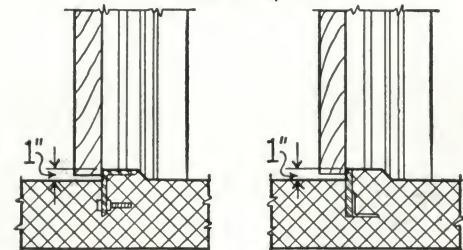


Typical Hardware on No. 1035-B7-31 Set



Typical Door Heads

Scale $\frac{3}{4}"=1'-0"$



Typical Sill Details

Scale $\frac{3}{4}"=1'-0"$

No. 1035 AND No. 1135 R-W "SLIDETITE" HARDWARE

R-W No. 235 "SLIDASIDE" GARAGE DOOR EQUIPMENT

Operation

Where maximum use of the floor area is desired and front wall space is limited, "Slidaside" R-W No. 235 is the ideal equipment. When open, "Slidaside" doors stand at right angles to the door opening along the inside wall or walls of the building. Only a small amount of floor space is required to swing the door open.

Note: The doorway clearance diagrams on this page indicate the amount of clearance required for various sized doors. Each square in the diagram represents one foot. The full lines mark the line of travel of doors on straight tracks, the dotted lines, doors on curved tracks.

Adaptability

"Slidaside" hardware is adaptable to various doorway conditions and arrangements (1) Single doors with space between the jamb and the side wall. Double doors with space between jambs and side wall. (2) Single and double doors with jambs adjacent to the side walls. (3) Pair of doors hinged together for opening with space between the jamb and the side wall. (4) Three doors hinged together and sliding to one side. (5) Six doors, three of which are hinged together sliding to the right, three of which are hinged together sliding to the left.

Hardware Furnished

Each "Slidaside" set consists of the requisite quantity of tracks, brackets, hangers, floor guides, end stops, hinges, handles, door holders, stay rollers, locks and bolts (together with all bolts and screws for attachment) necessary to operate the number of doors for which the set is intended. Complete erection details are furnished with each set of equipment. Plans of each set of "Slidaside" doors are found on page 6. The hardware furnished is illustrated on page 7 and is as follows:

(A) **Tracks and Brackets**—Rolled steel tracks Nos. 31, 232 and 33 are used with steel brackets required to fit the par-

ticular type of assembly for the various sets. Finish, black japan.

(B) **Trucks and Hangers**—No. 235 to fit sizes of track and weights of doors including two and four wheel truck types with long and short pendants as required. Dropped forge steel frame and hardened bearings. Roller or ball bearing as best adapted to the particular set. Adjustment lateral and vertical. Wheels $2\frac{1}{8}$ -in. diameter for track 31, 3-in. diameter for tracks 232 and 33. Finish, black japan.

(C) **Center Floor Guide**—No. 271 with bumper shoes No. 435-72 for the BB, DD, FF, HH, KK double door set. Finish, black enamel.

(D) **Floor End Stop**—No. 272 with bumper shoes 435-72 for use with all single door sets. Finish, black enamel.

(E) **Hinges**—All hinges used on all multiple door sets in this series are No. 635 wrought steel surface hinges, 12 gauge. Finish, black enamel.

(F) Handles—

(a) Flush Drop Handles for all except the JJ and KK sets. Finish, black enamel.

(b) Bow Handles No. 81 are supplied with all sets in the 235 series. Finish, black enamel.

(G) **Door Holders**—No. 119 supplied with the JJ and KK sets. Finish, black japan.

(H) **Stay Roller**—For JJ and KK sets are No. 55 finished in black japan.

(I) Locks and Bolts—

Note: Locking devices for various "Slidaside" sets are given on page 7.

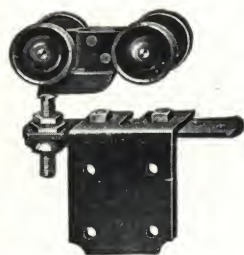
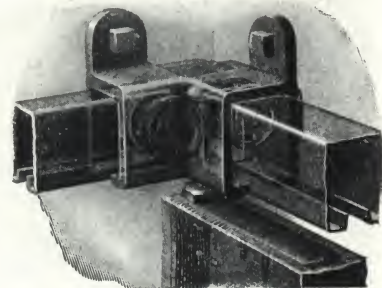
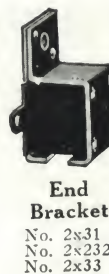
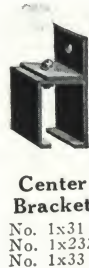
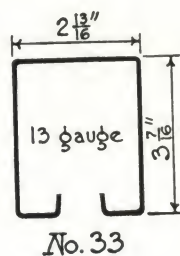
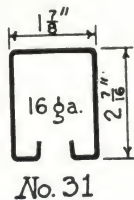
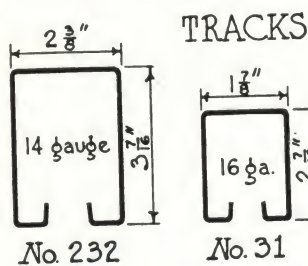
(a) **Cane Bottom Bolts** of heavy steel No. 524. Finish, black enamel.

(b) **Parallel Door Bolt and Lock** No. 516, made of malleable iron and steel. Finish, black enamel.

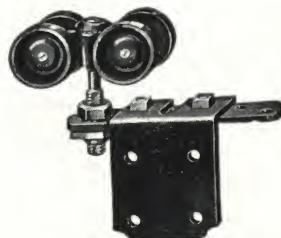
(c) **Door Lock** No. 825, half mortise type, steel and malleable iron. Finish, rustless dead black.

(d) **Door Lock** No. 525.

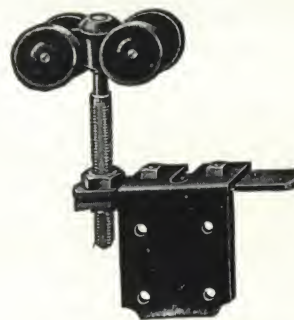
(e) **Door Bolt and gravity latch** No. 835. Bolt of malleable iron, other parts of steel. Finish, black enamel.



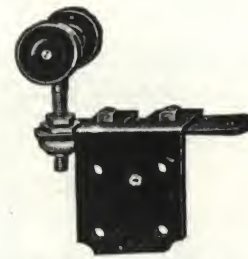
No. 235-23 for No. 31 Track
No. 235-28 for No. 232 Track
No. 235-24 for No. 33 Track



No. 235-1 for No. 31 Track
No. 235-7 for No. 232 Track
No. 235-2 for No. 33 Track



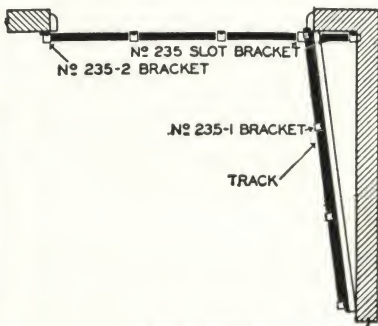
No. 235-11 for No. 31 Track
No. 235-17 for No. 232 Track
No. 235-12 for No. 33 Track



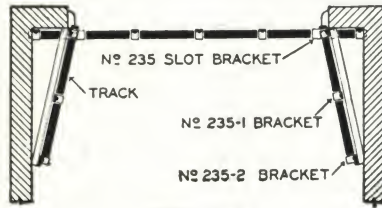
No. 235-3 for No. 31 Track
No. 235-8 for No. 232 Track
No. 235-4 for No. 33 Track

"Slidaside" Tracks, Brackets and Hangers

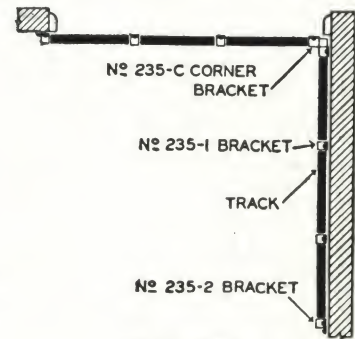
PLANS OF TRACKS



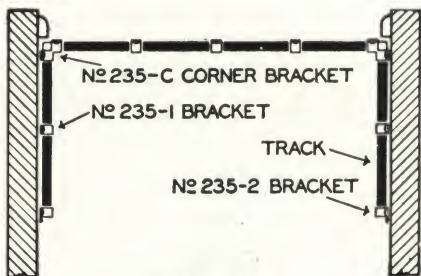
"AA" Sets



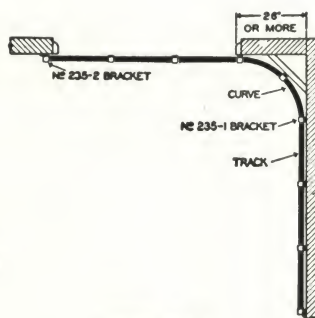
"BB" Sets



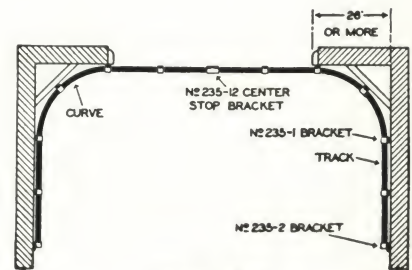
"CC" Sets



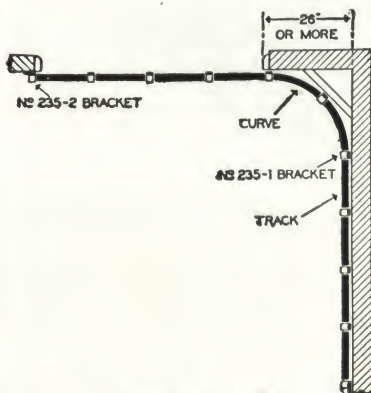
"DD" Sets



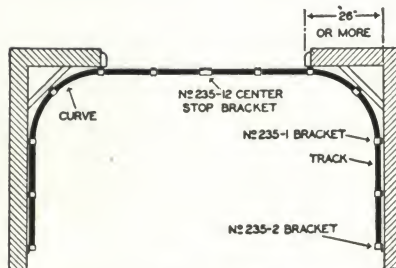
"EE" Sets



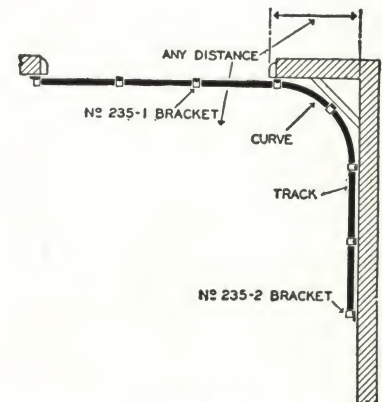
"FF" Sets



"GG" Sets



"HH" Sets

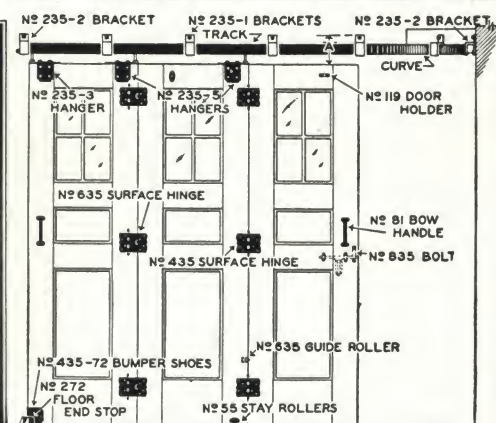


"JJ" Sets

Note: "KK" sets track plan is "JJ" doubled for six doors.



Six Door Set, "KK," Three Doors Sliding Each Side



Typical Hardware on No. 235 Sets

R-W No. 235 GARAGE DOOR HARDWARE

Plans of Tracks—Location of Typical Hardware

R-W No. 235 "SLIDASIDE" GARAGE DOOR EQUIPMENT

R-W NO. 235 "SLIDASIDE" SLIDING DOOR OUTFITS

Cat. No.	Number of doors	Width of opening, ft., in.	Maximum weight of door, lb.	Minimum headroom, in.	Space jamb to side-wall, in.
235-AA-1831	1	Up to 8-0	200	9	2 or more
235-AA-1931	1	8-1 to 9-0	200	9	2 or more
235-AA-11031	1	9-1 to 10-0	200	9	2 or more
235-AA-18232	1	Up to 8-0	200-350	11 $\frac{3}{8}$	2 or more
235-AA-19232	1	8-1 to 9-0	200-350	11 $\frac{3}{8}$	2 or more
235-AA-110232	1	9-1 to 10-0	200-350	11 $\frac{3}{8}$	2 or more
235-AA-1833	1	Up to 8-0	350-600	11 $\frac{3}{8}$	2 or more
235-AA-1933	1	8-1 to 9-0	350-600	11 $\frac{3}{8}$	2 or more
235-AA-11033	1	9-1 to 10-0	350-600	11 $\frac{3}{8}$	2 or more
235-BB-1831	2	Up to 8-0	200	9	2 or more
235-BB-1931	2	8-1 to 9-0	200	9	2 or more
235-BB-11031	2	9-1 to 10-0	200	9	2 or more
235-BB-18232	2	Up to 8-0	200-350	11 $\frac{3}{8}$	2 or more
235-BB-19232	2	8-1 to 9-0	200-350	11 $\frac{3}{8}$	2 or more
235-BB-110232	2	9-1 to 10-0	200-350	11 $\frac{3}{8}$	2 or more
235-BB-1833	2	Up to 8-0	350-600	11 $\frac{3}{8}$	2 or more
235-BB-1933	2	8-1 to 9-0	350-600	11 $\frac{3}{8}$	2 or more
235-BB-11033	2	9-1 to 10-0	350-600	11 $\frac{3}{8}$	2 or more
235-CC-1831	1	Up to 8-0	200	6 $\frac{3}{8}$	Less than 2
235-CC-1931	1	8-1 to 9-0	200	6 $\frac{3}{8}$	Less than 2
235-CC-11031	1	9-1 to 10-0	200	6 $\frac{3}{8}$	Less than 2
235-CC-18232	1	Up to 8-0	200-350	7 $\frac{7}{8}$	Less than 2
235-CC-19232	1	8-1 to 9-0	200-350	7 $\frac{7}{8}$	Less than 2
235-CC-110232	1	9-1 to 10-0	200-350	7 $\frac{7}{8}$	Less than 2
235-CC-1833	1	Up to 8-0	350-600	8	Less than 2
235-CC-1933	1	8-1 to 9-0	350-600	8	Less than 2
235-CC-11033	1	9-1 to 10-0	350-600	8	Less than 2
235-DD-1831	2	Up to 8-0	200	6 $\frac{3}{8}$	Less than 2
235-DD-1931	2	8-1 to 9-0	200	6 $\frac{3}{8}$	Less than 2
235-DD-11031	2	9-1 to 10-0	200	6 $\frac{3}{8}$	Less than 2
235-DD-18232	2	Up to 8-0	200-350	7 $\frac{7}{8}$	Less than 2
235-DD-19232	2	8-1 to 9-0	200-350	7 $\frac{7}{8}$	Less than 2
235-DD-110232	2	9-1 to 10-0	200-350	7 $\frac{7}{8}$	Less than 2
235-DD-1833	2	Up to 8-0	350-600	8	Less than 2
235-DD-1933	2	8-1 to 9-0	350-600	8	Less than 2
235-DD-11033	2	9-1 to 10-0	350-600	8	Less than 2
235-EE-1831	1	Up to 8-0	200	6 $\frac{3}{8}$	26 or more
235-EE-1931	1	8-1 to 9-0	200	6 $\frac{3}{8}$	26 or more
235-EE-11031	1	9-1 to 10-0	200	6 $\frac{3}{8}$	26 or more
235-EE-18232	1	Up to 8-0	200-350	7 $\frac{7}{8}$	26 or more
235-EE-19232	1	8-1 to 9-0	200-350	7 $\frac{7}{8}$	26 or more
235-EE-110232	1	9-1 to 10-0	200-350	7 $\frac{7}{8}$	26 or more
235-EE-1833	1	Up to 8-0	350-600	8 $\frac{1}{4}$	26 or more
235-EE-1933	1	8-1 to 9-0	350-600	8 $\frac{1}{4}$	26 or more
235-EE-11033	1	9-1 to 10-0	350-600	8 $\frac{1}{4}$	26 or more
235-FF-1831	2	Up to 8-0	200	6 $\frac{3}{8}$	26 or more
235-FF-1931	2	8-1 to 9-0	200	6 $\frac{3}{8}$	26 or more
235-FF-11031	2	9-1 to 10-0	200	6 $\frac{3}{8}$	26 or more
235-FF-18232	2	Up to 8-0	200-350	7 $\frac{7}{8}$	26 or more
235-FF-19232	2	8-1 to 9-0	200-350	7 $\frac{7}{8}$	26 or more
235-FF-110232	2	9-1 to 10-0	200-350	7 $\frac{7}{8}$	26 or more
235-FF-1833	2	Up to 8-0	350-600	8 $\frac{1}{4}$	26 or more
235-FF-1933	2	8-1 to 9-0	350-600	8 $\frac{1}{4}$	26 or more
235-FF-11033	2	9-1 to 10-0	350-600	8 $\frac{1}{4}$	26 or more
235-GG-1831	2	Up to 8-0	200	6 $\frac{3}{8}$	26 or more
235-GG-1931	2	8-1 to 9-0	200	6 $\frac{3}{8}$	26 or more
235-GG-11031	2	9-1 to 10-0	200	6 $\frac{3}{8}$	26 or more
235-GG-18232	2	Up to 8-0	200-350	7 $\frac{7}{8}$	26 or more
235-GG-19232	2	8-1 to 9-0	200-350	7 $\frac{7}{8}$	26 or more
235-GG-110232	2	9-1 to 10-0	200-350	7 $\frac{7}{8}$	26 or more
235-GG-1833	2	Up to 8-0	350-600	8 $\frac{1}{4}$	26 or more
235-GG-1933	2	8-1 to 9-0	350-600	8 $\frac{1}{4}$	26 or more
235-GG-11033	2	9-1 to 10-0	350-600	8 $\frac{1}{4}$	26 or more
235-HH-1831	4	Up to 8-0	200	6 $\frac{3}{8}$	26 or more
235-HH-11031	4	8-1 to 10-0	200	6 $\frac{3}{8}$	26 or more
235-HH-11231	4	10-1 to 12-0	200	6 $\frac{3}{8}$	26 or more
235-HH-11431	4	12-1 to 14-0	200	6 $\frac{3}{8}$	26 or more
235-HH-11631	4	14-1 to 16-0	200	6 $\frac{3}{8}$	26 or more
235-HH-18232	4	Up to 8-0	200-350	7 $\frac{7}{8}$	26 or more
235-HH-110232	4	8-0 to 10-0	200-350	7 $\frac{7}{8}$	26 or more
235-HH-112232	4	10-1 to 12-0	200-350	7 $\frac{7}{8}$	26 or more
235-HH-114232	4	12-1 to 14-0	200-350	7 $\frac{7}{8}$	26 or more
235-HH-116232	4	14-1 to 16-0	200-350	7 $\frac{7}{8}$	26 or more
235-HH-1833	4	Up to 8-0	350-600	8 $\frac{1}{4}$	26 or more
235-HH-11033	4	8-1 to 10-0	350-600	8 $\frac{1}{4}$	26 or more
235-HH-11233	4	10-1 to 12-0	350-600	8 $\frac{1}{4}$	26 or more
235-HH-11433	4	12-1 to 14-0	350-600	8 $\frac{1}{4}$	26 or more
235-HH-11633	4	14-1 to 16-0	350-600	8 $\frac{1}{4}$	26 or more
235-JJ-1831	3	Up to 8-0	200	6 $\frac{3}{8}$	No requirement
235-JJ-1931	3	8-1 to 9-0	200	6 $\frac{3}{8}$	No requirement
235-JJ-11031	3	9-1 to 10-0	200	6 $\frac{3}{8}$	No requirement
235-JJ-18232	3	Up to 8-0	200-350	7 $\frac{7}{8}$	No requirement
235-JJ-19232	3	8-1 to 9-0	200-350	7 $\frac{7}{8}$	No requirement
235-JJ-110232	3	9-1 to 10-0	200-350	7 $\frac{7}{8}$	No requirement
235-JJ-1833	3	Up to 8-0	350-600	8 $\frac{1}{4}$	No requirement
235-JJ-1933	3	8-1 to 9-0	350-600	8 $\frac{1}{4}$	No requirement
235-JJ-11033	3	9-1 to 10-0	350-600	8 $\frac{1}{4}$	No requirement
235-KK-11631	6	Up to 16	200	6 $\frac{3}{8}$	No requirement
235-KK-11831	6	16-1 to 18-0	200	6 $\frac{3}{8}$	No requirement
235-KK-12031	6	18-1 to 20-0	200	6 $\frac{3}{8}$	No requirement
235-KK-116232	6	Up to 16-0	200-350	7 $\frac{7}{8}$	No requirement
235-KK-118232	6	16-1 to 18-0	200-350	7 $\frac{7}{8}$	No requirement
235-KK-120232	6	18-1 to 20-0	200-350	7 $\frac{7}{8}$	No requirement
235-KK-11633	6	Up to 16-0	350-600	8 $\frac{1}{4}$	No requirement
235-KK-11833	6	16-1 to 18-0	350-600	8 $\frac{1}{4}$	No requirement
235-KK-12033	6	18-1 to 20-0	350-600	8 $\frac{1}{4}$	No requirement

side." (See page 6 for plans.) The first number after the letters indicates the locking device. On all the sets listed above, the number is 1, indicating inside locking only for all except the 3 and 6-door sets. In the latter it indicates outside locking only. Optional methods and devices for locking, however, are given below. The second, or second and third numbers, 8, 9, or 10, designate the width of opening. The last two or three numbers, 31, 232, or 33 represent the track size.

Locking Devices

In choosing sets from the above table, the following combinations of locking devices are available for the sets indicated:

The following combinations are available for one door or two doors hinged together sliding to one side with space between jamb and sidewall (AA, EE and GG sets): To lock from inside only, one 524 cane bottom bolt or one No. 516 door bolt. For locking from outside only, one No. 524 cane bottom bolt.

For single door sets with opening adjacent to the side wall (CC sets): To lock from inside only, No. 524 cane bottom bolt or No. 516 door bolt. For locking from outside only, one No. 825 door lock.

For pairs of single doors, or pairs of double doors hinged together sliding to both sides with space between jamb and sidewall (BB, FF and HH sets): To lock doors from inside only, two No. 524 cane bottom bolts or two No. 516 door bolts. To lock doors from inside and outside, one No. 524 cane bottom bolt or one No. 516 door bolt and one No. 525 door lock.

For two single doors sliding to either side with opening adjacent to sidewall (DD sets): To lock doors from inside only, two No. 524 cane bottom bolts or two No. 516 door bolts. To lock doors from inside and outside, one No. 524 cane bottom bolt or one No. 516 door bolt and one No. 825 door lock.

For three doors hinged together sliding to one side (JJ sets): To lock doors from outside only, one No. 835 locking bolt or one No. 525 door lock.

For six doors, three hinged together sliding to one side, three hinged together sliding to the other side (KK sets): To lock all doors from outside only, two No. 835 locking bolts or two No. 525 door locks. To bolt three doors from inside and three doors from outside, one No. 516 door bolt and one No. 835 locking bolt or one No. 525 door lock.

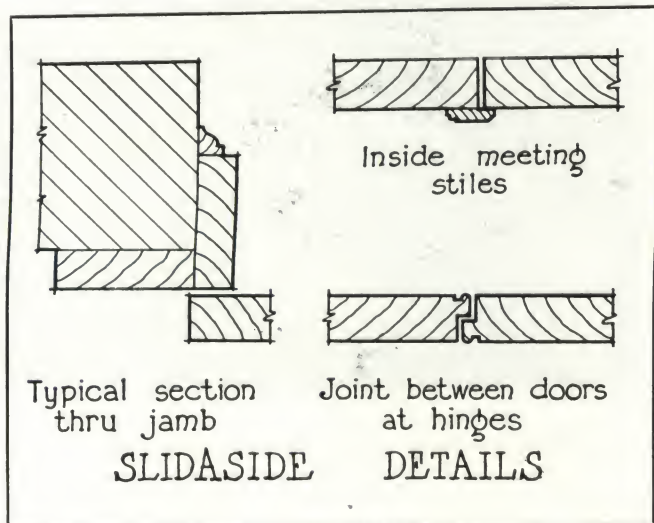
To Specify

Furnish and install in accordance with the manufacturer's erection details, Richards-Wilcox No. 235 "Slidaside" garage door equipment as follows:

(Select catalogue number for door weights, size and number of doors, from table) for doors weighing lb., total opening width, height, door thickness (Attach sketch of floor plan with dimensions.)

Note: Select from the above list of optional locking methods and devices for each type of equipment, the locks and bolts to be furnished.

Note: If there is more than one opening and the equipment varies, list each door separately.



How to Use the Table

The first number, 235, designates the "Slidaside" series. The capital letters, AA, BB, etc., indicate the type of "Slida-

R-W "IDEAL-SLIDING" GARAGE DOOR EQUIPMENT

Description

"Ideal-Sliding" Garage Door Equipment is high class hardware in which "Ideal" ball bearing track and hanger assemblies support sliding doors. The "Ideal" track and hanger assembly embodies, because of scientific construction, perfect operation. The door hangs from a wide rider-bar, rolling over steel balls, which in turn roll over a carefully milled track groove. Friction is practically eliminated and at the same time the door travels at twice the speed of the bearings. A ball retainer always keeps the steel balls properly spaced.

Operation

From the suggested hardware sets given below, equipment for single sliding and double sliding doors can be selected to suit various doorway conditions.

(A) Single doors sliding on single track to one side of doorway. (See Plan A below.)

(B) Pair of doors sliding in opposite directions on single track. (See Plan B.)

(C) Two parallel doors sliding on two tracks to wall space on one side of opening. (See Plan C.)

(D) Two parallel doors sliding from jamb to jamb on two tracks. (See Plan D.)

(E) Parallel doors on two tracks with front wall space in center of doorway. (See Plan E.)

(F) Parallel doors on two tracks sliding to wall spaces on both sides of doorway.

(G) Parallel doors sliding from jamb to jamb in two tracks, one inside and one outside. (See Plan G.)

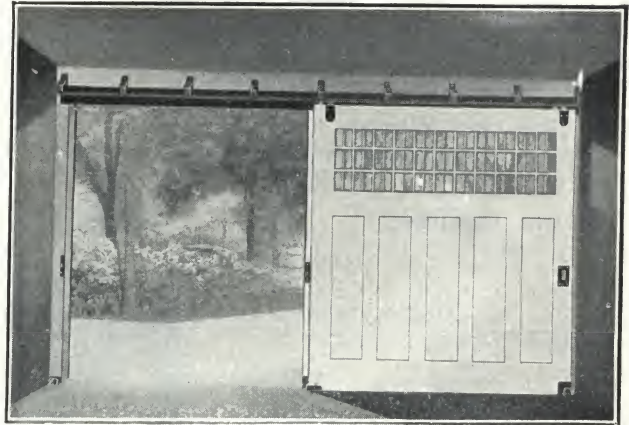
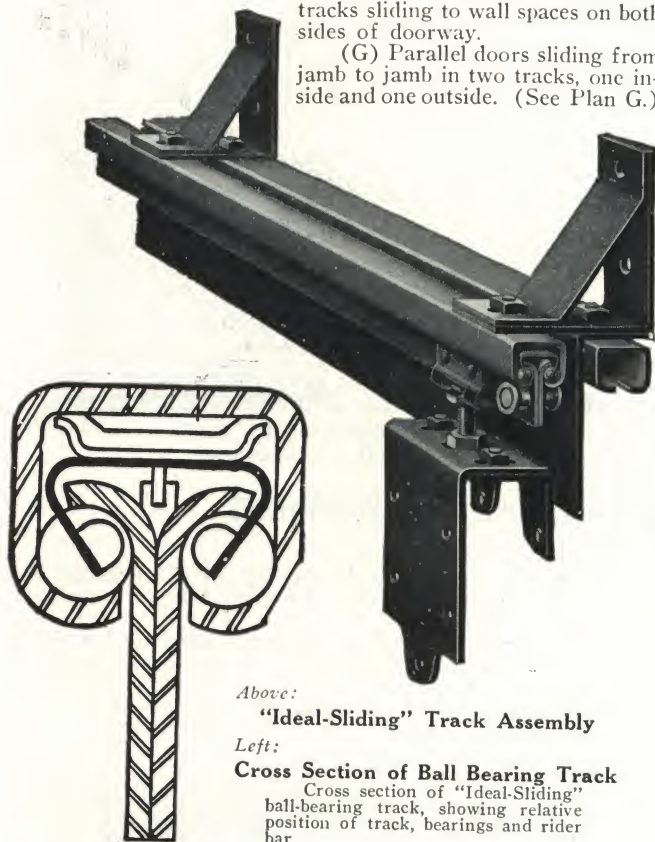


Illustration Shows a Two-Car Garage. Doorway Is Equipped with "Ideal-Sliding" Parallel Doors

Hardware Furnished

With the exception of the track and hanger assemblies which are of the "Ideal" type, all other hardware in the "Ideal-Sliding" sets is the same as described and illustrated in the section on "Parallel Sliding Garage Door Equipment" page 5.

Weatherstripping—Sets 457 and 454 are furnished with tracks having no weatherstripping. 456 hardware is supplied with tracks equipped with weatherstrips.

Weights of Doors

This equipment is made for doors weighing up to 500 lb.

Headroom

Distance between top of door and top of track brackets for plans using double track is 11 in. The headroom on plans using single track is 7 in.

To Specify

Furnish and install in accordance with the manufacturer's erection details, Richards-Wilcox "Ideal-Sliding" Garage Door Hardware as follows:

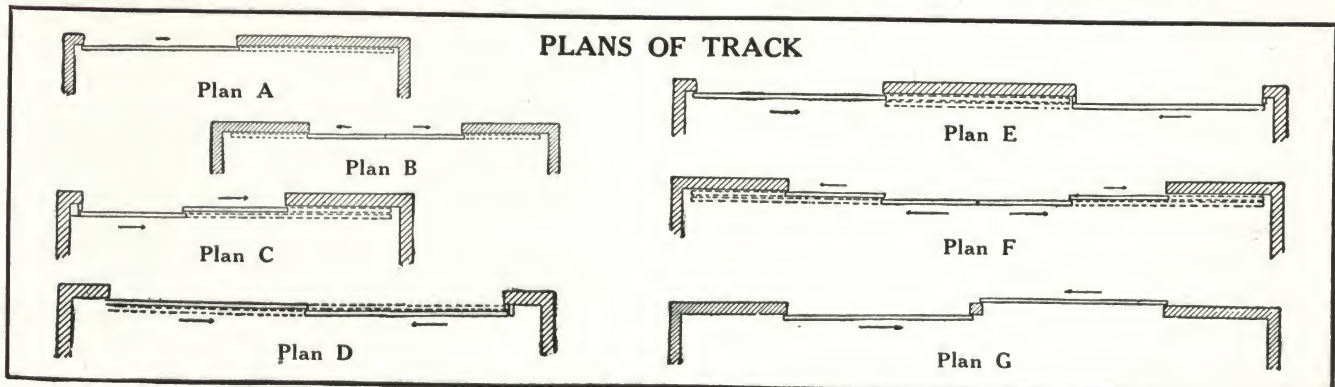
(Select catalogue number for size opening and plan of tracks) for doors weighing lb. total opening, width, height, door thickness

Note: If there is more than one opening and the equipment varies, list each door separately.

"IDEAL-SLIDING" SETS

	Size of opening, ft.	Using equipment No.	Maximum width of opening, ft.
Plan C	up to 8	457 (without weatherstrip)	10
Plan A	up to 8	454 (without weatherstrip)	20
Plan B	up to 8	454 (without weatherstrip)	13
Plan D	up to 16	457 (without weatherstrip)	20
Plan D	up to 16	456 (with weatherstrip)	20
Plan E	up to 8	457 (without weatherstrip)	10 ea.
Plan F	up to 8	457 (without weatherstrip)	20
Plan G	up to 8	454 (without weatherstrip)	10

PLANS OF TRACK



R-W STRAIGHT SLIDING GARAGE DOOR EQUIPMENT

Description

This equipment consists of all the necessary hardware to operate a single door or a pair of doors suspended from hangers sliding on one overhead track.

Door Sizes and Weights

This equipment is for doors weighing from 300 to 800 lb. Door thicknesses range from $1\frac{3}{4}$ to $3\frac{1}{2}$ in.

Hardware Furnished

The equipment is shown in detail in the descriptive drawings for both the single and double sliding doors. The hard-

SINGLE STRAIGHT SLIDING

Catalogue No.	Hanger No. Ball bearing	Track No.	For doors weighing, lb.	Thickness of doors, in.	Distance top of door to bottom of track, in.	
					Minimum	Maximum
1020-1 1027-1-1 1027-1-2	20-1/2 B 27-1/2 B-1 27-1/2 B-2	31	300	$1\frac{3}{4}$ - $2\frac{1}{2}$ $1\frac{3}{4}$ -2 $2\frac{1}{4}$ - $2\frac{3}{4}$	$1\frac{5}{16}$ $1\frac{5}{16}$ $1\frac{5}{16}$	$2\frac{5}{16}$ $2\frac{5}{16}$ $2\frac{5}{16}$
1028-1-1 1028-1-2	28-1/2 B-1 28-1/2 B-2	32	400	$1\frac{3}{4}$ -2 $2\frac{1}{4}$ - $2\frac{3}{4}$	$1\frac{5}{16}$ $1\frac{5}{16}$	$2\frac{5}{16}$ $2\frac{5}{16}$
1029-1-1 1029-1-2	29-1/2 B-1 29-1/2 B-2	232	600	$1\frac{3}{4}$ -2 $2\frac{1}{4}$ - $2\frac{3}{4}$	$1\frac{5}{16}$ $1\frac{5}{16}$	$2\frac{5}{16}$ $2\frac{5}{16}$
1123-1-1 1123-1-2	123-1/2 B-1 123-1/2 B-2	33	800	$1\frac{3}{4}$ -2 $2\frac{1}{4}$ -3	$1\frac{1}{4}$ $1\frac{1}{4}$	$2\frac{3}{8}$ $2\frac{3}{8}$
1150-1-1 1150-1-2	150-1/2 B-1 150-1/2 B-2	33	800	$1\frac{3}{4}$ -2 $2\frac{1}{4}$ - $3\frac{1}{2}$	$1\frac{1}{4}$ $1\frac{1}{4}$	$2\frac{3}{8}$ $2\frac{3}{8}$
	Roller bearing					
1020-2 1025-1 1025-2	20-2 25-1 25-2	31	300	$1\frac{3}{4}$ - $2\frac{1}{2}$ $1\frac{3}{4}$ -2 $2\frac{1}{4}$ - $2\frac{3}{4}$	$1\frac{5}{16}$ $1\frac{5}{16}$ $1\frac{5}{16}$	$2\frac{5}{16}$ $2\frac{5}{16}$ $2\frac{5}{16}$
1028-1 1028-2	28V-1 28V-2	32	400	$1\frac{3}{4}$ -2 $2\frac{1}{4}$ - $2\frac{3}{4}$	$1\frac{5}{16}$ $1\frac{5}{16}$	$2\frac{5}{16}$ $2\frac{5}{16}$
1029-1 1029-2	29V-1 29V-2	232	600	$1\frac{3}{4}$ -2 $2\frac{1}{4}$ - $2\frac{3}{4}$	$1\frac{5}{16}$ $1\frac{5}{16}$	$2\frac{5}{16}$ $2\frac{5}{16}$
1121-1 1121-2	121-1 121-2	33	800	$1\frac{3}{4}$ -2 $2\frac{1}{4}$ -3	$1\frac{1}{4}$ $1\frac{1}{4}$	$2\frac{3}{8}$ $2\frac{3}{8}$
1150-1 1150-2	150-1 150-2	33	800	$1\frac{3}{4}$ -2 $2\frac{1}{4}$ - $3\frac{1}{2}$	$1\frac{1}{4}$ $1\frac{1}{4}$	$2\frac{3}{8}$ $2\frac{3}{8}$

Note: Above catalogue numbers are for single sets. In specifying double door sets, substitute the figure 2 for the first figure in the catalogue number which is given as 1 above for single sets.

ware is illustrated on page 11 in the section on Parallel Sliding Door Equipment. As shown in the table of sets, roller bearing or ball bearing hangers may be chosen.

Locking Devices

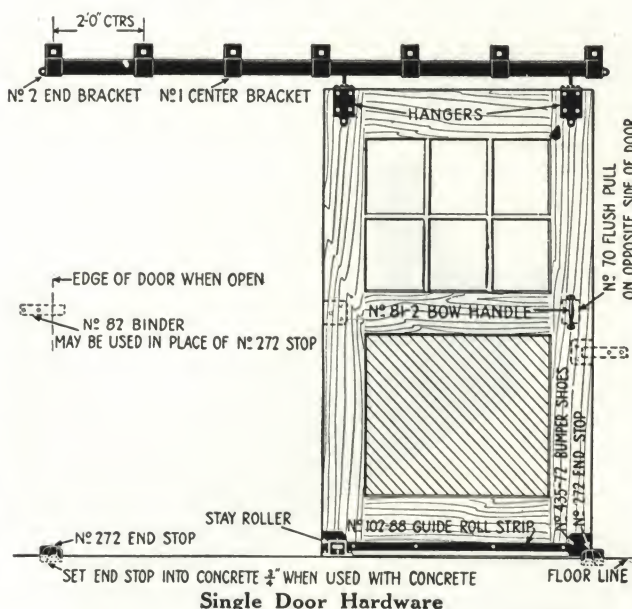
Specify No. 525 locks for these doors. Single doors require a jamb strip equal to the thickness of the doors to attach lock strike.

To Specify

Furnish and install according to the manufacturer's erection details, Richards-Wilcox Straight Sliding Garage Door Equipment as follows:

(Select catalogue number for door weights, door thickness, roller or ball bearing hangers and whether single or double doors.) For doors weighing lb. Total opening, width, height, door thickness

Note: If there is more than one opening and the equipment varies, list each door separately.



R-W HEAVY INDUSTRIAL SLIDING DOOR EQUIPMENT

Description

This equipment consists of all the necessary hardware to operate heavy doors on single or multiple runs of parallel track. It is designed for heavy doors weighing from 800 to 3000 lb. and up to $4\frac{1}{2}$ in. thick.

Operation

This equipment will operate over any width of opening. One, two or three runs of track may be used. Weights and thickness of doors are given in the table herewith.

HEAVY INDUSTRIAL DOOR EQUIPMENT

Hanger No.	Track	For doors weighing, lb.	Thickness of doors, in.	Distance, top of door to bottom of track	
				Minimum	Maximum
499-1 499-2	233	1200	$1\frac{3}{4}$ to 2	$1\frac{1}{4}$	$2\frac{3}{8}$
	233	1200	$1\frac{1}{4}$ to $3\frac{1}{2}$	$1\frac{1}{4}$	$2\frac{3}{8}$
155-1/2 B	375	1600	$2\frac{1}{4}$ to $3\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{3}{4}$
149-1 149-2 149-3c	145	2000	$1\frac{3}{4}$ to 2	$1\frac{1}{4}$	$3\frac{1}{4}$
	145	2000	$2\frac{1}{2}$ to $3\frac{1}{4}$	$1\frac{1}{4}$	$3\frac{1}{4}$
	145	2000	$3\frac{1}{2}$ to $4\frac{1}{4}$	$1\frac{1}{4}$	$3\frac{1}{4}$
598-1 598-2 598-3	533	2000	$1\frac{3}{4}$ to $2\frac{1}{4}$	$1\frac{1}{4}$	$3\frac{1}{4}$
	533	2000	$2\frac{1}{2}$ to $3\frac{1}{4}$	$1\frac{1}{4}$	$3\frac{1}{4}$
	533	2000	$3\frac{1}{2}$ to $4\frac{1}{4}$	$1\frac{1}{4}$	$3\frac{1}{4}$
1098-1 1098-2 1098-3	533	3000	$1\frac{3}{4}$ to $2\frac{1}{4}$	$5\frac{1}{2}$	$6\frac{1}{2}$
	533	3000	$2\frac{1}{2}$ to $3\frac{1}{4}$	$5\frac{1}{2}$	$6\frac{1}{2}$
	533	3000	$3\frac{1}{2}$ to $4\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$
1049-1 1049-2 1049-3	145	3000	$1\frac{3}{4}$ to $2\frac{1}{4}$	$5\frac{1}{2}$	$6\frac{1}{2}$
	145	3000	$2\frac{1}{2}$ to $3\frac{1}{4}$	$5\frac{1}{2}$	$6\frac{1}{2}$
	145	3000	$3\frac{1}{2}$ to $4\frac{1}{4}$	$5\frac{1}{2}$	$6\frac{1}{2}$

Hardware Furnished

Hardware, as shown in the drawing above for garage door equipment, is supplied for these industrial doors in correspondingly heavier sizes.

Hangers—Hangers are specifically designed for heavy duty. All are of ball bearing construction and will operate easily and smoothly the weight doors indicated for each type.

Tracks and Brackets—No. 233 Track is 10 gauge, lock joint, $4\frac{1}{4}$ in. high, $2\frac{5}{8}$ in. wide, inside measurement.

No. 375 Track is 10 gauge, $3\frac{1}{4}$ in. high, $2\frac{5}{8}$ in. wide, inside measurement.

No. 145 Track is 11 gauge with $\frac{1}{4}$ -in. angle iron tread, 3 in. wide, $4\frac{3}{4}$ in. high, inside measurement.

No. 533 Track is No. 9 gauge, $4\frac{1}{2}$ in. high, $2\frac{1}{8}$ in. wide, inside measurement.

Bracket attachments may be for overhead or wall attachment. Track is furnished in 4, 6, 8 and 10 ft. lengths. Brackets should be spaced on 24-in. centers.

To Specify

Furnish and install according to manufacturer's erection details, Richards-Wilcox Heavy Industrial Door Equipment as follows:

Hanger No. (select according to corresponding weights and thicknesses of doors, two hangers to each) for use with runs of track (if multiple track, to be assembled by manufacturer with necessary brackets) for doors weighing lb. Total opening ft. wide, ft. high. Door thickness in.

Note: If there is more than one opening and the equipment varies, list each door separately.

Note: State whether overhead or wall attachment.

R-W No. 1300 AUT-O-DOR ELECTRIC DOOR OPERATOR

Description

In bringing out the No. 1300 Aut-O-Dor Operator, we have kept pace with modern times by developing an Electric Door Operator that is neat in appearance and compact in design. We have eliminated the long levers and connecting arms that have so detracted from the general appearance of the door operators in the past.

We believe the No. 1300 Aut-O-Dor Operator to be the neatest door operating mechanism on the market today and when installed on the doors, it does not detract from the artistic design of the building.

Installation

Heretofore, the problem of installation has been a very vexing one. In the No. 1300 Aut-O-Dor Operator we have again complied with the popular demand, by developing a door operator so simple in design that it can readily be installed in an hour's time by any handy man, exclusive of the electric wiring.

The No. 1300 Door Operator is set in place in much the same manner as a liquid door check. It is only necessary to put three bolts through the top rail of the door and two lag screws or cap screws into the door jamb to install each unit, one unit being used on each side of the opening. In other words, there are only 10 bolts and screws to attach to make a complete installation.

Control

It is not necessary to run electric conduit to the rear of the building in order to operate an Aut-O-Dor, throughout the length of the garage. By means of an especially designed switch mounting, the doors may be operated by a small overhead cable, which is regularly furnished. As many cords may be dropped from the cable as desired. Cords are usually hung the full length of the driveway, and floor men find it more convenient to operate the doors from the pull cords than from wall switches. If desired, standard three and four-way switches can be secured from any electrician and used for operating the doors instead of the pull cords.

Inasmuch as no special switches are required to operate



No. 1300 Aut-O-Dor Unit Designed for Either Plain Swinging or Sliding-folding Doors

this controller, they are not furnished regularly. Any electrician can install as many sets of push button switches in the office and other places as necessary.

Safety Features

In order to guard against accidents, we have designed our No. 1300 Operator so as to take care of every emergency.

Should the electric current be off, the doors may be operated by hand from the inside by merely pulling the release cord. The introduction of this feature means that at no time are your customers locked in or out.

In case the doors are hit when in motion the crank arm is propelled through a friction clutch which allows slippage so that no damage is done to the mechanism. By pushing any operating button a second time the doors may be stopped in the middle of either cycle of operation.

As the doors are opened and closed by means of a crank, they start opening very gradually, the action becoming more rapid in the middle of the operation and stopping in a slow, easy manner without any sudden jerk or pull on the doors. This keeps the doors in good shape and will not break the glass by slamming.

Another great feature derived from the crank movement is that power increases toward the end of the operation. This makes it possible to completely close the doors against a heavy wind without any strain whatsoever on the mechanism.

When the doors are closed they are locked and cannot be blown open by a wind.

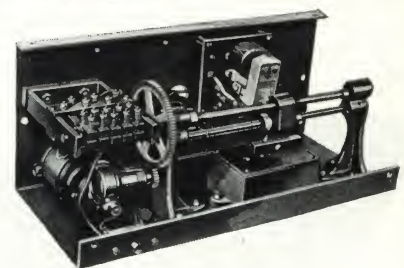
Time Switch for Fire Station Use

The Richards-Wilcox No. 1300 Aut-O-Dor Electric Door Operator has met with universal approval among the architects, as well as with Fire Department officials, for controlling large entrance doors in fire stations operated by a time switch.

In Fire Departments, it is important that when an alarm is turned in that the equipment leave the building in the shortest time possible and that the doors be controlled with the least amount of effort. By a slight pull on a cord hanging conveniently over the driver's seat, the doors are opened, and after the equipment has left the building the doors are automatically closed after a predetermined lapse of time. The time switch has a motor as a time element and is easily adjusted.

The doors may be opened and closed electrically independently of the time switch without the necessity of disconnecting the time element.

Should the occasion demand, there are extra contacts provided so that the lights, sirens, and other equipment may be controlled automatically without any extra duties being required of the firemen. Should there be an interruption in electric current after the time switch has started its cycle of operation, the doors will remain open and the time switch will continue its cycle of operation upon resumption of the electric current.



Time Switch



No. 1300 Aut-O-Dor in Fire Station

R-W FOLDING PARTITION DOORS AND HARDWARE

Description

Doors—In R-W folding partitions, the doors are of the well known Key Veneered construction manufactured by the Compound and Pyrono Door Company exclusively for the RICHARDS-WILCOX MANUFACTURING CO. If an absolutely sound-proof partition is desired, special doors will be made to meet the requirements.

Hardware—The hardware is of the well known Richards-Wilcox quality which has been in use for many years with satisfaction. It is made in a number of styles and finishes.

R-W No. 535—Doors are hinged together in pairs by invisible hinges and each pair of doors operated as an independent unit. Designed for large heavy doors, the weight of the doors is carried on the floor track, the upper track serving only to guide the top of the doors. (See page 12.)

R-W No. 237—The doors are hinged together in pairs the same as in No. 535 but the weight of the doors is carried by hangers running in a trolley track above the opening. Weights of doors are limited according to the capacity of the overhead track used. The floor track in this case merely acts as a guide for the doors. (See page 14.) This equipment is not recommended for doors over 12 ft. high.

Doors

Description—Extra heavy sawed veneers are used on stiles and rails. They are keyed to the laminated cores as well as glued to it. This tongue and groove construction forms a tenacious bond besides affording twice the gluing surface possible in flat veneers. The result is a veneer construction of exceptional sturdiness that will last for decades.

Types—These doors are furnished in flush type and in ten standard types of panel arrangement for use with R-W partition door hardware. (See illustrations.)

To Specify Doors—Furnish and install where shown on the plans, Richards-Wilcox partition doors for R-W (here name the hardware selected) Folding Partition Door Hardware as follows:

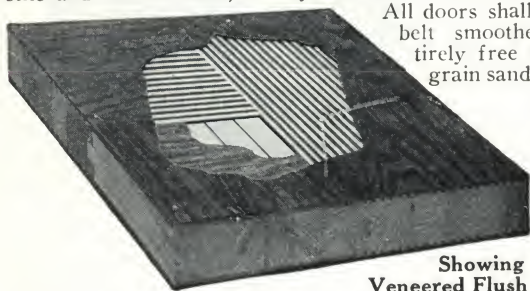
Note: Use matter below for flush type.

All doors so shown shall be made with stiles, rails, and flush panels.

Stiles and rails shall have cores built up of strips of soft-wood not over $\frac{3}{8}$ in. thick, with $\frac{3}{4}$ -in. edge strips of the same wood as face veneers. All stile and rail veneers shall be sawed $\frac{1}{4}$ in. thick to finish $\frac{1}{8}$ in., and shall be tongued and grooved to the core with at least four tongues and four grooves to the inch, and glued with best grade of glue. Tongues and grooves to be cut not less than $\frac{1}{8}$ in. deep. All stile and rail joints to be mortised and tenoned.

Panels shall be made with built-up cores and sawed face veneers and cross banding over the staved core. They shall be the full thickness of the door and shall finish flush with the stile and rail surfaces, with joints well made and glued.

All doors shall be hand or belt smoothed and entirely free from cross-grain sander scratches.



Showing Key Veneered Flush Door Type



No. 535 Doors



No. 237 Doors

The design and thickness of the doors to be as detailed on the plans.

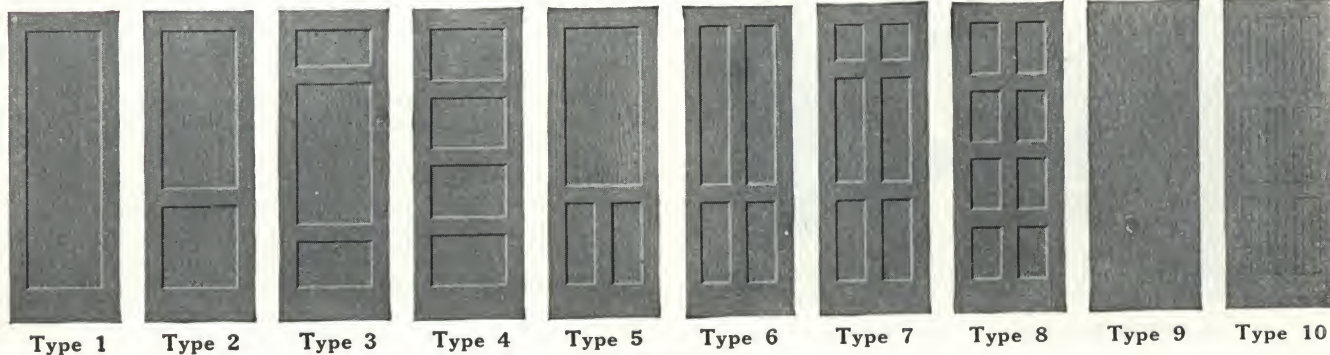
Note: Use matter below for panel type.

The doors shall have stile and rail cores built up of strips of soft-wood not thicker than $\frac{3}{8}$ in.; glued together under pressure, with $\frac{3}{4}$ -in. edge strips of same wood as face veneer. All stile and rail veneers shall be sawed $\frac{1}{4}$ in. thick to finish $\frac{1}{8}$ in. thick and shall be tongued and grooved to the core with at least four tongues and four grooves to the inch, and glued with best grade of glue. Tongues and grooves shall be cut not less than $\frac{1}{8}$ in. deep.

All panels shall be laminated five-ply with grain crossed on alternate plies. All stile and rail joints to be mortise and tenon construction. All doors to be hand or belt smoothed and entirely free from cross grain sander scratches on plane surfaces and from knife marks on mouldings and moulded edges.

The design and thickness of the doors to be as detailed on the plans.

Standard Door Types



Type 1

Type 2

Type 3

Type 4

Type 5

Type 6

Type 7

Type 8

Type 9

Type 10

R-W No. 535 FOLDING PARTITION DOOR HARDWARE

Description

Doors are hinged together in pairs by invisible hinges. Each pair of doors operated as an independent unit. Designed for large heavy doors, the weight of the doors is carried on the floor track, the upper track serving only to guide the top of doors. The plans on the next page suggest different door arrangements.

Width of Opening—The width of the opening is immaterial as the method of operation allows for any number of doors to be used. An odd number of doors may be used if desired by pivoting the door nearest the jamb and operating it as a single unit.

Door Height and Thickness

Maximum heights of doors recommended for various thicknesses: 1¾ in. thick, 12 ft. high; 2 in. thick, 14 ft. high; 2¼ in. thick, 15 ft. high; 2½ in. thick, 18 ft. high; 2¾ in. thick, 20 ft. high, and 3 in. thick, 24 ft. high. Thicker doors than those recommended above, for the various heights, can be used but the maximum thickness of doors for which No. 535 hardware is made is 3 in.

Passage Doors

When the partition doors are small, one door in the opening can be used as a passage door from room to room when the partitions are closed. There should then be an odd number of doors in the opening, the passage door being the odd door. It is not recommended for doors over 9 ft. high.

We recommend that the third door from the jamb be made the passage door. This door would then be hinged to the second door of the first pair of doors. It will be necessary to shorten the top door stop on one side of the doors so the end will be far enough from the jamb toward which the doors fold to clear the passage door and permit it to swing.

Wicket Doors

When doors are large, we recommend the use of wicket doors which can be placed in any of the doors except the pivot door. Wicket door threshold with table of minimum width of door stile is shown on page 13.

Spring Plates

When all the doors open to one side between jambs, spring plates for compensating jamb strips are furnished. This strip allows for slight variation in width of doors due to shrinking or swelling. It will always keep the doors pressed tightly together when they are closed. We are also prepared to furnish details for compensating strip (patent pending) at center of opening when doors divide at the center.

Hardware Furnished

No. 535 hardware is furnished in several different classes as follows:

Class A—

The Top Pivots, Bottom Pivots (except base plate, bottom stops, top stops, top guides are made of steel, polished and brass plated, brush brass finish. All bottom rollers, top guides, flush bolts, flush pulls, top stop lugs are solid brass, polished, brush brass finish. Tracks, jamb springs, guide track knees and base plate of bottom pivot are steel, dead black finish. Furnished with invisible hinges.

Class C—

The Top Pivots, Bottom Pivots, top stops, top guides are made of steel, dead black finish. All bottom rollers, top guides, flush bolts, flush pulls, top stop lugs, are malleable iron, dead black finish. Tracks, jamb springs, guide track knees are steel, dead black finish. Furnished with butt hinges.

Class D—

Same as Class C except has Invisible Hinges instead of butts.

Class E—

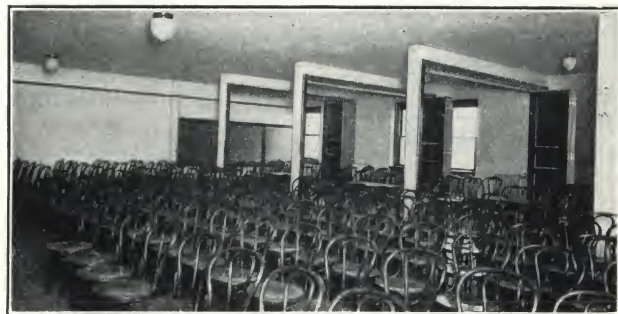
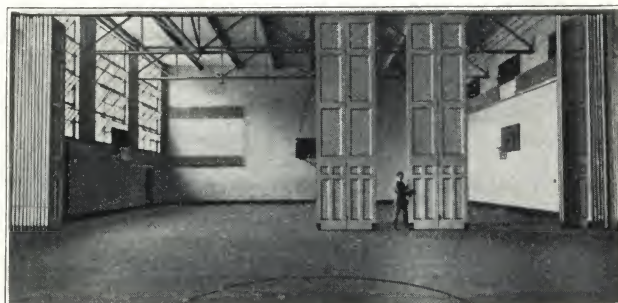
Same as Class A except has Surface Hinges with Back Plates instead of invisible hinges.

Class F—

Same as Class C except has Surface Hinges with Back Plates instead of butt hinges.

To Specify

Furnish and install according to the manufacturer's erection details, Richards-Wilcox No. 535 Folding Partition Doors as follows:



Types of No. 535 Doors

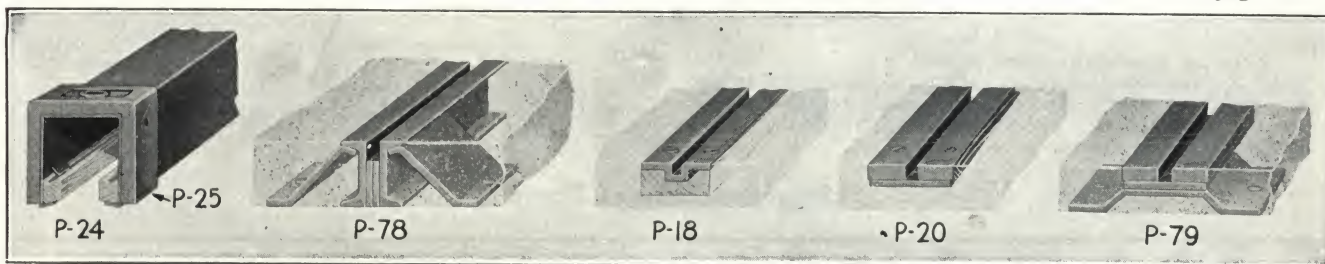
By Manufacturer—Doors shall be hinged together in pairs with invisible hinges and shall be mounted on double ball bearing flange type rollers running on cold rolled steel track set flush with the floor. Top of doors shall be guided and steadied laterally by ball bearing top guides running in wood-lined metal track. The doors shall be fitted with safety devices which will only permit of their being folded when in the correct position to engage with interlocking plates attached to floor and head jamb.

By Others—The partitions shall be furnished and installed complete by the manufacturer excepting rough bucks at jambs and at head which shall be furnished and installed by the general or carpenter contractor. The contractor shall provide sufficient supports for the floor track which shall be approved by the architect and the partition manufacturer. The trim consisting of soffits, finished jambs, casings and all other exposed members shall (shall not) be furnished by the partition manufacturer, but shall be installed by him. All paint and finishing shall be done by others.

The above partitions are to be guaranteed against defective material or workmanship for a period of five years.

To Specify Doors

See specifications for Key Veneered doors on page 11.



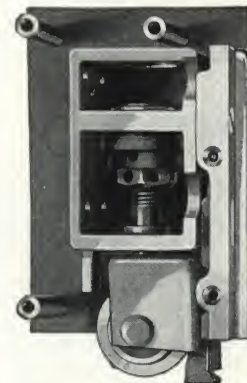
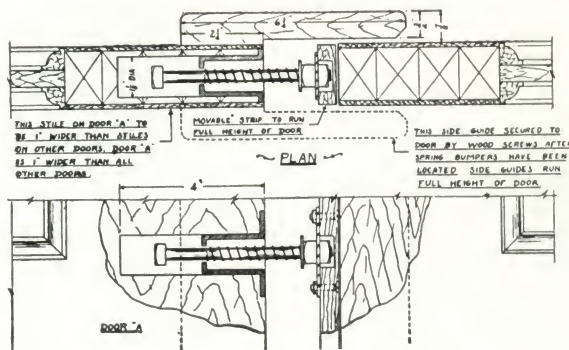
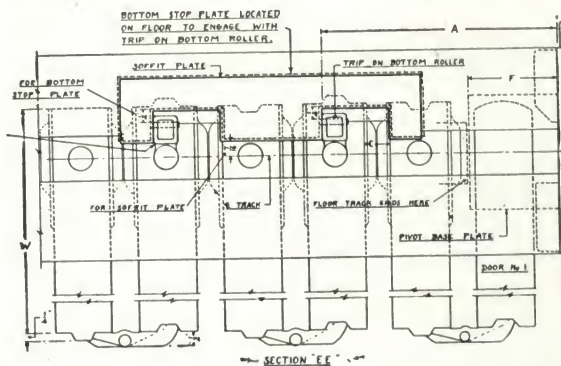
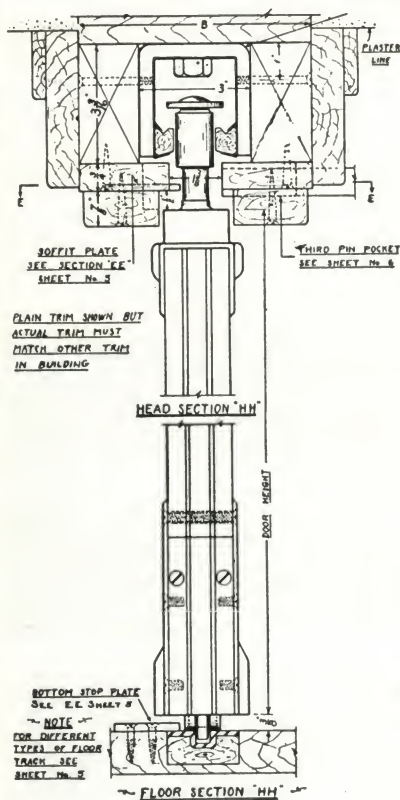
P-24 Top Track
P-25 Guide Track Knee

P-78 Bottom Track for Concrete Floor

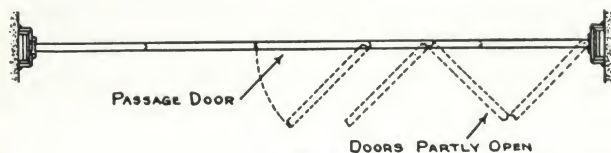
P-18 Bottom Track for Wood Floor

P-20 Bottom Track for Wood Floor

P-79 Bottom Track for Concrete Floor



**Bottom Roller with
Side Plate Removed**



Plan A

A 5-door opening showing the odd door hinged to the second door on the right. This method of providing passage door is suitable for small doors only, not over 9 ft. high. Notice spring jamb at the left.



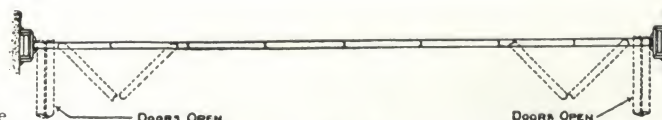
Plan B

See how the doors disappear into a Wall Pocket. Swing door can be completely shut when the Partition Doors are fully opened or closed.



Plan C

Showing how doors stand behind a projection of the wall. As the first door on the right end must slide to get into the door space behind projecting wall, rollers are substituted for the pivots otherwise used on this door. Spring jacks are not necessary.



Plan D

Doors divide at the center. Half slide to the right, half to the left.

Suggested Plans of Doors

R-W No. 535 FOLDING PARTITION DOOR HARDWARE

R-W No. 237 FOLDING PARTITION DOOR HARDWARE

Description

No. 237 doors are hinged together in pairs moving independently as in the case of No. 535 hardware but the weight of the doors is carried by hangers running in a trolley track above the opening. Weights of doors are limited according to the capacity of the overhead track used which is not recommended for doors over 12 ft. high. A floor track and guide is provided to guide the bottom of the doors. Where it is desired to close the doors into a pocket or have them stand behind a projection of the partition wall, each pair of doors may be fitted with hangers at both ends. The plans on the next page give a graphic idea of the various methods of installation to which No. 237 hardware is adaptable.

Width of Opening

The width of opening, as in the case of No. 535 doors, is unlimited due to the method of operation.

Size of Doors

Thickness and weight of doors for each type of track are given in the table below. Doors approximately 3 ft. wide are recommended.

Passage Doors

The same recommendations made with regard to Passage Doors in connection with No. 535 hardware hold true with No. 237 hardware.

Wicket Doors

As in No. 535, wicket doors are recommended when partition doors are large. They can be placed in any one of the partition doors except the pivot door. The minimum width of the door stile beyond the edge of the wicket door should be: 5½ in. for doors 1¾ in. thick or 6 in. for thicker doors.

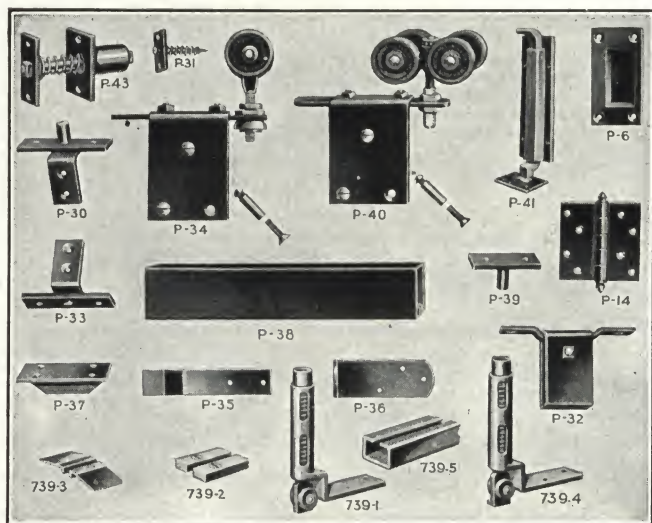
Spring Plates

Spring plates for compensating jamb strips to allow for swelling and shrinking of doors are provided similar to that described in No. 535 hardware.

Hardware Furnished

No. 237 hardware is illustrated in detail below with drawing showing application on doors.

Track and Hangers—Four sizes of overhead track are



LIST OF PARTS

P-6 No. 535 Flush Pull, Malleable iron, black finish, for doors 1¾ in. or more in thickness.
 P-6 No. 535 Flush Pull, Solid brass, brushed finish, for doors 1¾ in. or more in thickness.
 P-14 No. 135 Butt Hinges.
 P-21 Wicket Door Threshold, less latch.
 P-30 No. 237-0 Top Pivot. (Used with 237-0 and 237-10 Hangers).
 P-30 No. 237-2 Top Pivot. (Used with 237-2 and 237-12 Hangers).
 P-30 No. 237-3 Top Pivot. (Used with 237-2 or -4 and 237-13 or -14 Hangers).
 P-31 No. 535 End Jamb Spring.
 P-32 No. 3 Style Split Brackets.

furnished for various weights of doors as shown in the table. Two or four wheel hangers according to location, both illustrated below, may be chosen to fit each size of track. The hangers may be ball bearing or roller bearing.

Floor Guide and Floor Track—Both are illustrated below. The steel track, when set on top of the floor as in the case of 739-3 it forms a raised threshold with bevelled strip on either side. 739-2 is set into the floor flush. Nos. 739-2 and 739-3 are regularly furnished for doors 1¾ in. thick and track No. 30½. 739-5 should be put in place before the floor is laid so that it will be flush with the floor.

Bolts and Hinges—One and one-half pairs of hinges and one flush pull are required for every two doors. One No. 237 surface bolt is required for each opening when all doors fold one way, two required for each opening when doors divide at center.

Finish—Hardware is supplied with exposed parts in three finishes as desired: Solid brass, plated and black.

To Specify

Furnish and install according to the manufacturer's erection details, Richards-Wilcox No. 237 Folding Partition Door Hardware as follows:

(Select track number from table according to the weight and thickness of doors to be installed). Width of opening Number of Doors Height of Doors Width of Doors Thickness of Doors (Two wheel hangers), (Four wheel hangers) with (Ball Bearing), (Roller Bearing) Rollers, Type of Floor Guide (Select number from illustration) Finish of exposed parts (Solid brass), (plated), (black).

Note: A floor plan of type of operation of doors should accompany specifications.

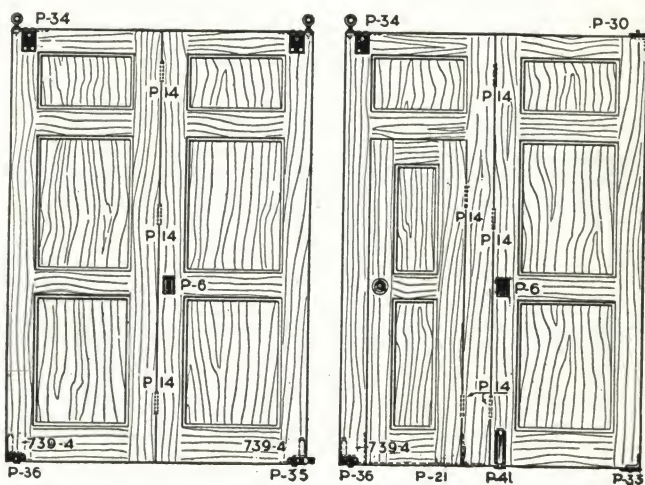
To Specify Doors

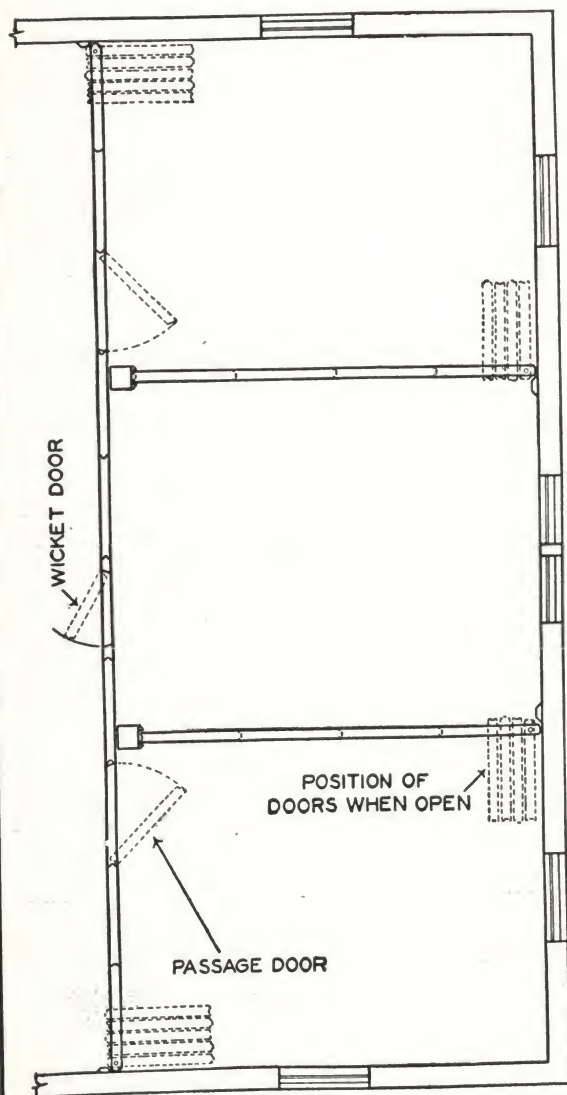
See page 11 for specification of Key Veneered Doors.

Note: Top of rail of door should not be less than 5 in. wide.

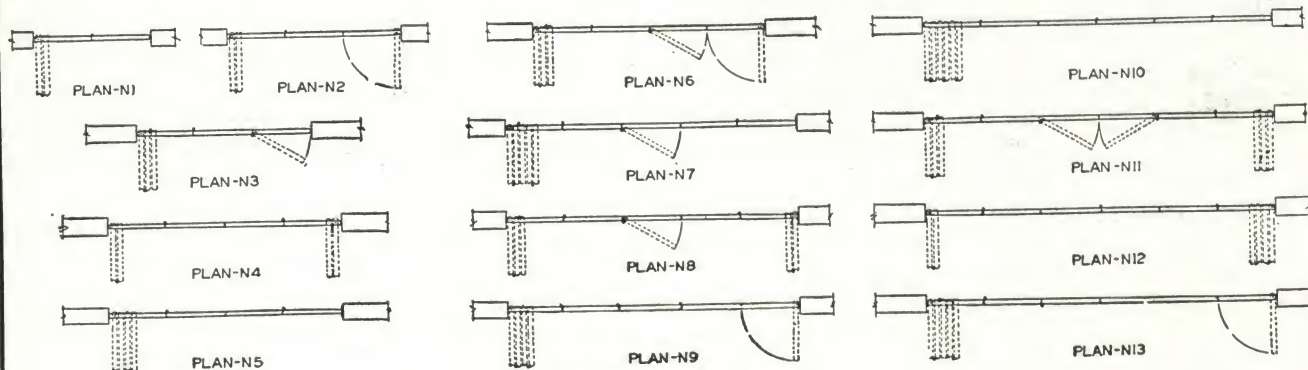
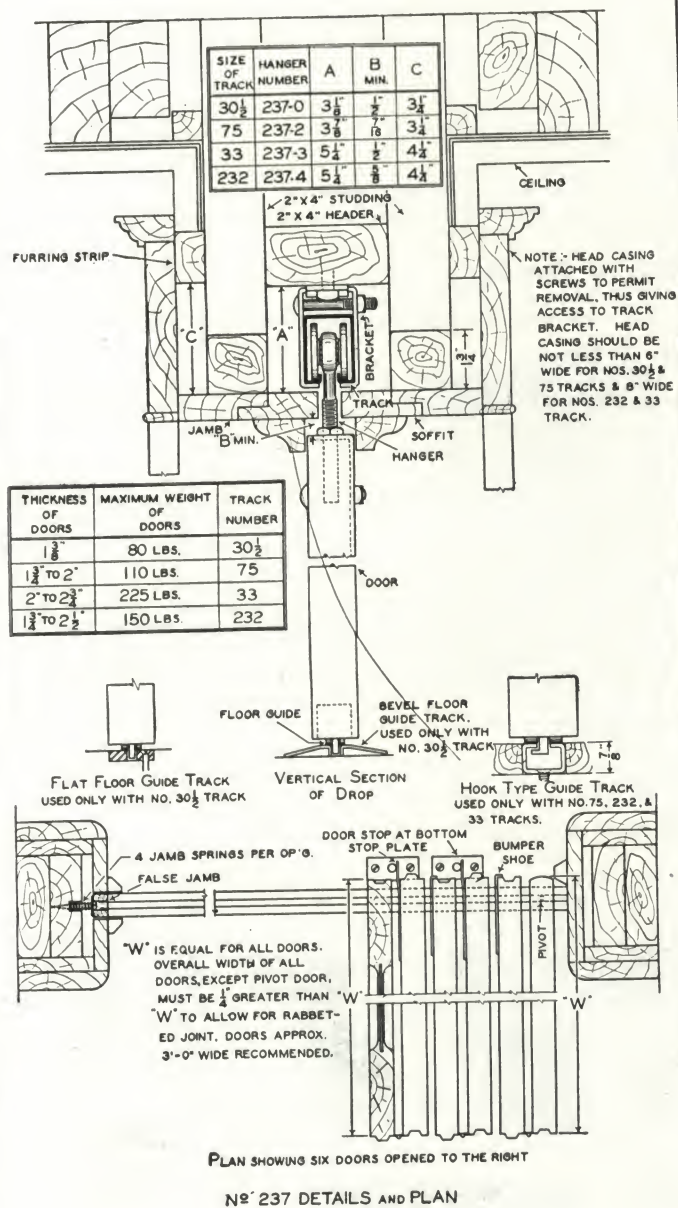
NO. 237 HARDWARE

Sets for Track No.	Thickness of doors, in.	Maximum weight of doors, lb.	Weight of hardware per door, lb.
30 ½	1 ¾	80	13
75	1 ¾ to 2	110	17
33	2 to 2 ¾	225	30
232	1 ¾ to 2 ½	150	25





Schematic Plan Showing Partitions of Different Widths



Suggested Door Plans

R-W No. 237 FOLDING PARTITION DOOR HARDWARE

R-W SLIDING ACCORDION PARTITION DOOR HARDWARE

Adapted to

Use in Sunday school rooms, Y. M. C. A.'s, industrial schools, lodges, hotel dining rooms, sample rooms, etc.

Operation

All the doors may be folded to one side or divided at center with half the doors folding to either side. When opened the doors fold compactly against the wall. No pocket required.

Half Doors—A half door is required adjoining the jamb toward which the doors fold. When doors divide and fold toward both sides, two half doors are necessary.

Width of Doors

No door should exceed 3 ft. in width. The exact width of the doors is determined by four conditions. First, the distance from the center of the hinge pin to the edge of the door. Second, by the thickness of the doors. Third, by the number of doors and fourth, by the style of hanger used.

To determine width of full size doors (when all doors fold to one side) add dimension "B" (from table below), to clear width of opening and divide this sum by the number of full size doors plus one half.

Example—Clear width of opening—12 ft. 1 in.; thickness of doors—2 in.; number of full size doors—4; "B" for loose pin butts (from table)—1¼ in.; 12 ft. 1 in. + 1¼ = 146¼ in.; 146¼ ÷ 4½ = 32½ in., width of full size doors.

Width of Half Doors—Width of half door—one-half width of full size door, less "B" from table. In the above example, 32½ ÷ 2 = 16¼ in. = one-half width of full size door. 16¼ — "B" = 16¼ — 1¼ = 15 in., width of half door.

Divided Doors—When doors divide in center proceed as above except base calculations on one-half the width of opening, dividing by one-half the number of doors.

Door Thickness

Doors of any standard thickness may be used, depending on their size and other special conditions.

Tongue and Groove Styles

This type of door is recommended because it will make a much tighter partition.

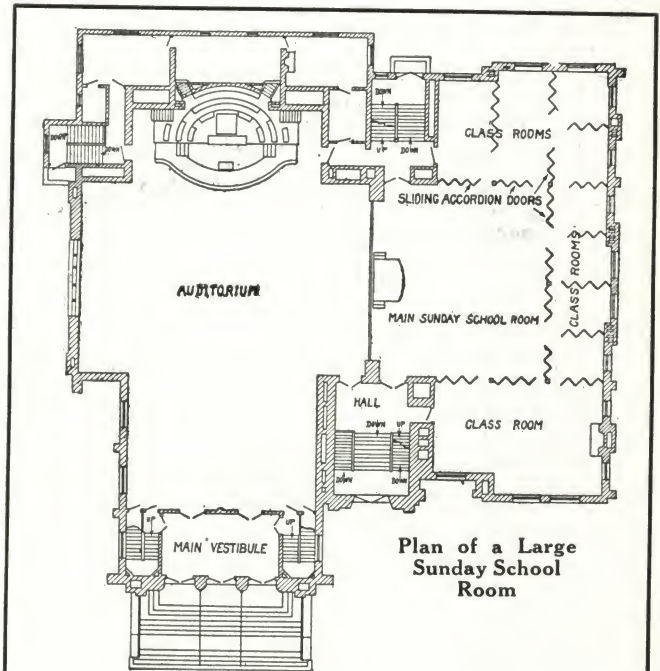
Butt Hinges

Use 1½ pairs of hinges to each hinge joint. As may be seen from the table below, the use of tight pin butts enables the hinge pin in some cases to be set very close to the edge of the doors because it is not necessary to make allowance for removal of hinge pins.

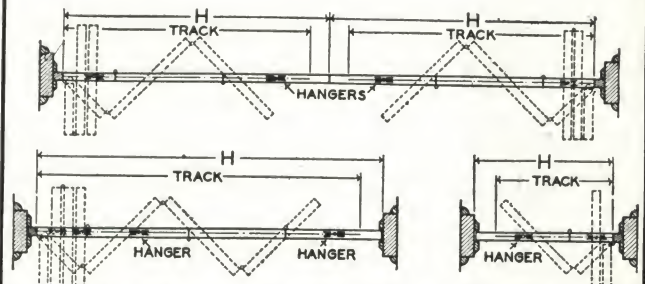
Butts in the sizes listed are considered suitable for ordinary wood doors of the given thickness, but for extra high doors or doors of material considerably increasing weight a larger size door hanger should be used. This necessitates the use of larger butts as shown in the table in the line corresponding to the hanger.



Sliding Accordion Doors



Plan of a Large Sunday School Room



Plans Show Space Allowed at End of Tracks for Insertion of the Hangers

SIZES AND DISTANCES FOR PLACING TIGHT AND LOOSE PIN BUTTS WITH THICKNESS OF DOORS

Hanger No.	Thickness of doors, in.	Size of butts, in.	Distance from center of hinge pin to edge of door "A," in.		Distance from edge of half door to center line of hanger track "B," in.		Space between doors when folded "C," in.		"E" Distance from top of soffit to bottom of header, in.	"F" Distance from top of door to top of soffit, in.		"J" Distance from top of jamb to bottom of furring strip, in.
			Loose pin butts	Tight pin butts	Loose pin butts	Tight pin butts	Loose pin butts	Tight pin butts		¾-inch Soffit	1½-inch Soffit	
135-0	1⅝	3 x 3	1/4	1/4	15/16	15/16	1/2	1/2	3 1/8	1 1/8	1 3/8	3 1/4
135-1	1¾	3 1/2 x 3 1/2	1/4	1/4	1 1/8	1 1/8	1/2	1/2	3 7/8	1 1/8	1 3/8	3 1/4
135-1	2	4 x 4	1/4	1/4	1 1/4	1 1/4	1/2	1/2	3 7/8	1 1/8	1 3/8	3 1/4
135-1	2 1/4	4 x 4	1/4	1/4	1 5/8	1 5/8	1/2	1/2	3 7/8	1 1/8	1 3/8	3 1/4
135-2	2 1/2	5 x 5	3/8	3/8	1 5/8	1 5/8	3/4	3/4	5 1/4	1 1/8	1 3/8	4 3/4
137-0	1⅝	3 x 3	1/4	1/4	15/16	15/16	1/2	1/2	3 1/8	1 1/8	1 3/8	3 1/4
137-2	2	4 x 4	1/4	1/4	1 1/4	1 1/4	1/2	1/2	3 7/8	1 1/8	1 3/8	3 1/4
137-2	2 1/4	4 x 4	1/4	1/4	1 5/8	1 5/8	1/2	1/2	3 7/8	1 1/8	1 3/8	3 1/4

Surface Hinges

Flat surface hinges may be used if desired so long as the size door hanger listed for given thicknesses of doors is followed and the hinges are of such dimensions that the space between the doors when folded is not less than that given in the table below for tight pin butts. Surface hinges are impractical unless offset for types of doors larger than those given. The dimension "B" for calculating width of door will then be one-half the thickness of the door plus one-half the space between the doors when folded.

Service Doors

It is sometimes desirable to have a passage or service door between the two rooms, and to accomplish this the two methods given in Figs. A-1487 and A-1488 are in use. Fig. A-1487 is a plan and elevation of a partition consisting of four full-size doors and two half doors. The left half of the partition is hung as described above. At the right side, instead of attaching the hanger to I, the door farthest from the half door, it is attached to the next door.

The door I is then free to be used as an ordinary swing door. This method is the more common and gives a reasonable degree of satisfaction on narrow doors, but for wider doors it is subject to difficulty from the door dragging on the floor. It is also necessary to use a little more care when folding the doors, especially if floor guides are not in use. The second method, Fig. A-1488, can sometimes be used to good advantage, and is perhaps the better of the two where conditions permit. This plan and elevation shows two full size and one half door folding toward one side and a separate swing door hinged to the opposite jamb. The swing door is used for service independent of the folding doors.

Hardware

Hangers—For accordion doors are of two types, that is, two-wheel and four-wheel hangers. The two-wheel hangers are designed for use on each full size door, but the four-wheel hangers are attached to each alternate door, beginning with the door farthest from the half door.

Track—When all the doors fold to one side, a length of track equal to the width of the opening, less 8 in., is required. The 8-in. space is convenient for inserting or removing the hangers from the track. When doors fold toward both sides of the opening a 1-ft. space may be left at the center between the two runs of track.

Flush Door Bolts and Pulls—A flush door bolt should be used at the bottom of each door to give the required rigidity to the partition. Ordinary flush pulls are not used. If desired, one flush pull may be used in each full sized door, alternating them on opposite sides of the doors. The pull should be on the opposite side from the hinge pin.

Floor Guides—These serve to steady the doors in operation but are not essential. For illustration of No. 739 floor guides see section on No. 237 folding partition door hardware.

To Specify

Furnish and install according to the manufacturer's erection details, Sliding Accordion Partition Door Equipment as follows:

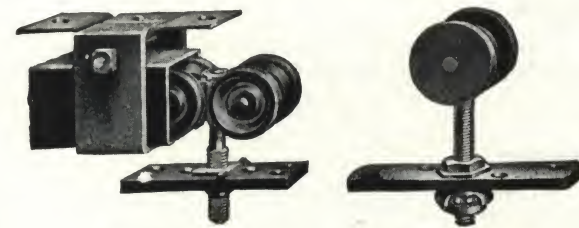
Set for hanger No. (Select hanger number from table according to weight and thickness of doors) width of opening door height door weight door thickness doors to be (divided in center) (folded to one side only).

To Specify Doors

Note: Key Veneered Doors are furnished and erected by the manufacturer with the installation of Sliding Accordion Partition Door Hardware if desired. See specifications for doors on page 11.

R-W SLIDING ACCORDION FOLDING PARTITION DOOR HARDWARE

Hanger No.	For track No.	Wheels		Thickness of doors, in.	Maximum weight of doors, lb.
		Regular	Bearing		
135-0	30½	Steel	Ball	1¾	80
135-1	75	Steel	Roller	1¾, 2 & 2½	110
135-2	33	Steel	Roller	2½	225
137-0	30½	Steel	Ball	1¾	80
137-2	75	Steel	Ball	1¾, 2 & 2½	110
137-3	33	Steel	Roller	2½ to 3	225



No. 135 Hanger

No. 137 Hanger

Types of Hangers

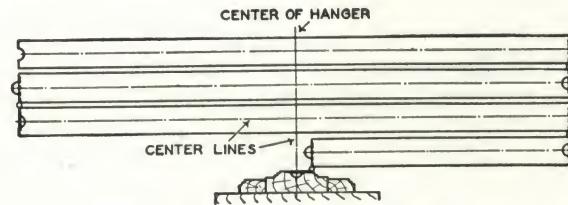
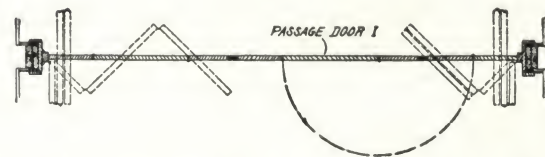
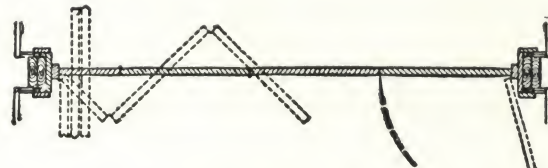


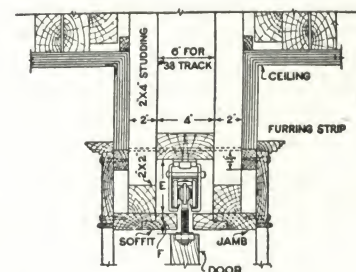
Diagram for properly attaching the Hangers



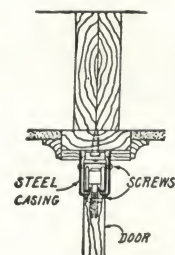
Plan of Partition having four full-sized Doors and two Half Doors



Plan showing two full-sized and one Half Door folding toward one side and a separate Swing Door hinged to opposite Jamb



Cross-Section showing typical Overhead Construction for Supporting Track



Another method of Construction some times used

R-W SLIDING ACCORDION PARTITION DOOR HARDWARE

R-W SLIDING FLUSH PARTITION DOOR HARDWARE

Adapted to

Folding partitions requiring unusually wide doors.

Operation

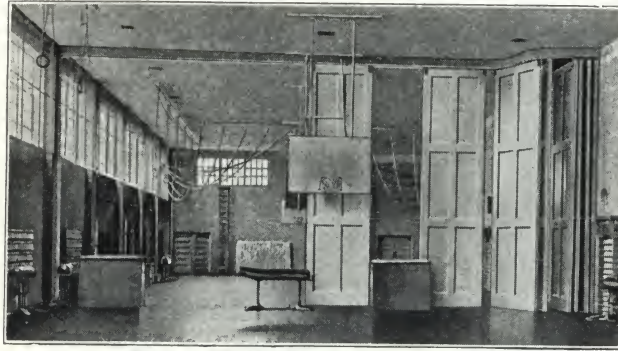
Each door is a separate unit. This door slides on hangers running in two tracks. One track is straight and the other parallel to it except near the side of the opening toward which the doors fold. At this place the track is made in the shape of a compound curve and is separated from the straight track by approximately the width of one door. No floor guide or track is required. The bottoms of the doors are held in place by flush door bolts.

Door Weights

No. 442 hardware is designed to operate doors weighing up to 500 lb. each.

Wicket Doors

A wicket door may be built into any one of the doors. For details, see wicket doors described in section on No. 535 Folding Partition Doors.



Sliding Flush Partition Installation

Hardware

Hangers—Hangers are No. 442, illustrated below: Heavily constructed, dead black finish.

Track—No. 33 straight track and No. 33 curve track illustrated below. Dead black finish.

Brackets—Three types of brackets necessary to install track, 5 and 6x33, 7 and 8x33 and 18 and 19x33 shown below. Location of brackets shown on plan. Dead black finish.

Flush Door Bolts—No. 135, 9 in. long 1 in. wide. Dead black or polished brass finish.

To Specify

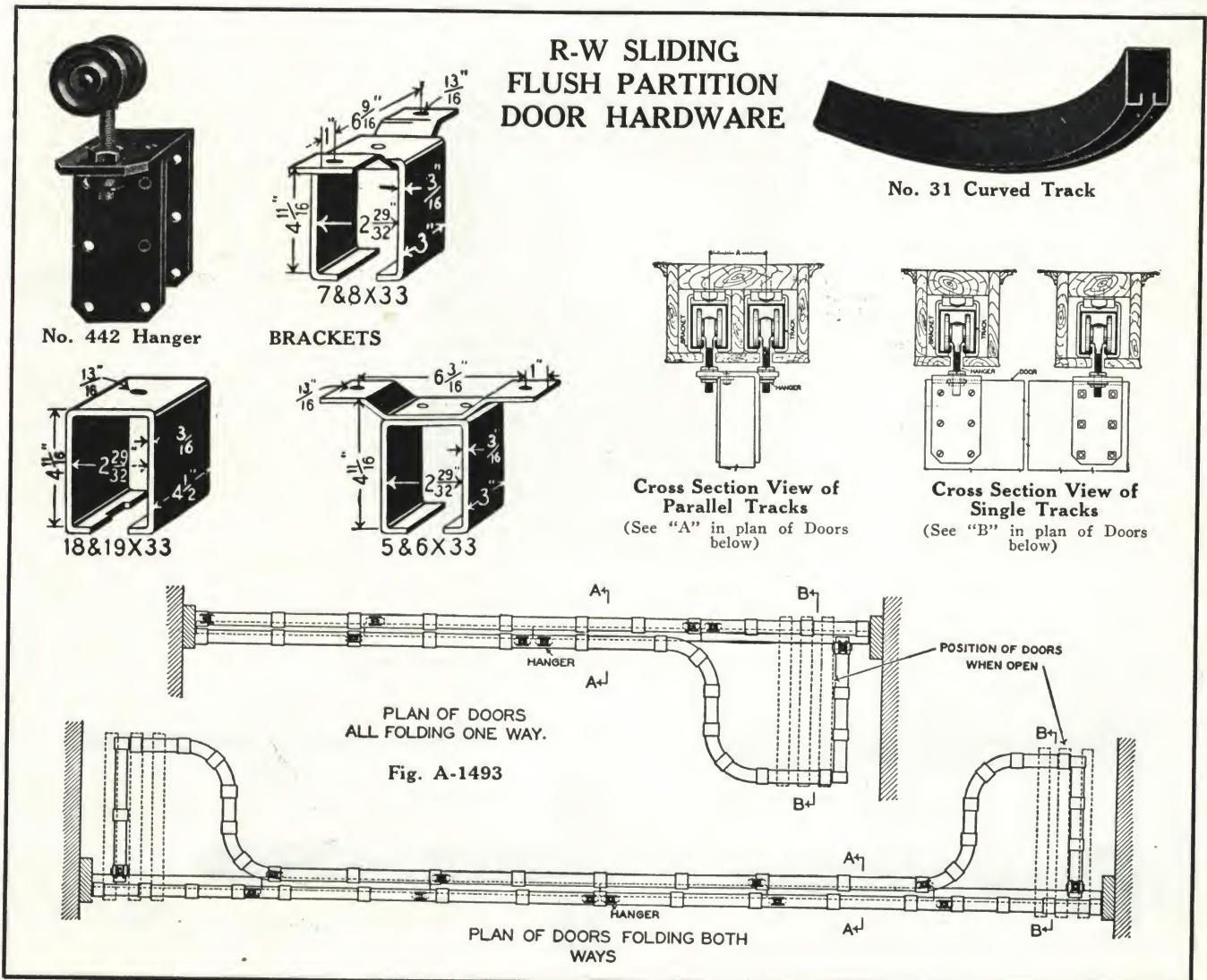
Furnish and install according to the manufacturer's erection details, Richards-Wilcox No. 442 Sliding Flush partition doors as follows:

Width of opening....., number of doors....., weight of doors..... lb., door thickness.....

Note: Attach sketch of floor plan showing which way doors fold.

To Specify Doors

Note: Key Veneered Doors, if desired, may be supplied by Richards-Wilcox in accordance with specifications shown on page 11.



R-W No. 434 ROUNDHOUSE AND SHOP DOOR HARDWARE

Description

The R-W No. 434 Hardware was designed primarily to meet the severe service and operating conditions required of roundhouse doors. It is positively the most satisfactory type of door hardware that has been offered for roundhouse, railroad shop and all other car door openings.

The doors are narrow, presenting only half as much area to the wind as the ordinary pairs of hinged doors. The upper corners of the center doors are supported and guided by hangers so the doors cannot be easily blown about by the wind.

On roundhouses it is only necessary to use 12-in. columns with 1-in. stops on each side, between the openings. The doors will fold behind the columns and give an entirely clear opening.

Operation of Doors

No. 434 equipment operates doors in the same manner as the "Slidetite" equipment described in the section on garage doors.

The doors are held open by heavy steel latches. They are bolted in closed position with heavy horizontal steel cane bolts which make no contact with floor or lintel, making the equipment equally suitable for use in buildings having cinder, block or concrete floors. All of the hardware is extra heavy and is adapted to both wood and steel doors.

No. 434 Hardware

The R-W No. 434 hardware consists of hangers, tracks, brackets, hinges, locking bolts and hold open latches. When wicket doors are used, hinges and latch are furnished for the same.

Tracks and Hangers—The hangers and track brackets are the Nos. 435x375 and 1035x375 illustrated on page 68. The track is our No. 375 made of No. 10 gauge steel.



No. 434 Hardware Applied to Wood Doors



No. 434 Hardware Applied to Steel Doors

Jamb Hinges—The jamb hinges consist of a strap made of $\frac{3}{8}$ x2 $\frac{1}{2}$ -in., $\frac{3}{8}$ x3-in., $\frac{1}{2}$ x2 $\frac{1}{2}$ -in., or $\frac{1}{2}$ x3-in. steel which extends entirely across the door. The double eye pintle has a $\frac{3}{4}$ -in. diameter pin. When mounting on minimum width columns, the pintles must be recessed into the column. The two doors of each pair are connected together by heavy double strap hinges made of $\frac{3}{8}$ x2 $\frac{1}{2}$ -in., $\frac{3}{8}$ x3-in., $\frac{1}{2}$ x2 $\frac{1}{2}$ -in., or $\frac{1}{2}$ x3-in. steel with knuckles 5 in. wide. The bolt holes in one leaf of the double strap hinges are made to correspond with the bolt holes in the strap of the jamb hinge. These two hinge leaves are placed on opposite sides of the door nearest the jamb and are bolted together with bolts through the door, in that way forming a continuous hinge from the jamb to the center of the opening. Ordinarily three sets of hinges are sufficient but very heavy doors may require four or five sets of hinges.

Cane Bolts—When floors are earth or cinder large cane bolts operating horizontally with guides and keeper plates are furnished for each pair of doors. The cane bolts slide across the hinged joint of the pair of doors holding them rigid in the same plane and preventing folding. When floors are concrete, wood or block, cane bolts locking into the floor are used and spring bolts are furnished to lock into the head jamb.

Hold Open Latch—A hold open latch bar is attached to the outside of one door of each pair. The hold open latch is attached to a post or a section of rail set in the ground as illustrated. The latch cannot be accidentally released but holds doors positively until manually released.

Wicket Doors—A pair of heavy tee hinges and a heavy warehouse door latch are furnished for wicket doors when so ordered.

To Specify

Furnish and install according to the manufacturer's erection details, Richards-Wilcox No. 434 Roundhouse and Shop Door Hardware as follows:

Number of doors..... For opening..... ft. wide..... ft. high. Thickness of doors..... in. Doors to be equipped with (three) (four) (five) sets of hinges.

Note: All doors in an opening must be of equal width.

JAMB HINGES FOR NO. 434 HARDWARE



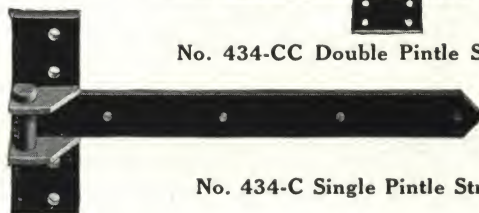
No. 434-A Reversible Pad Straight Strap Hinge



No. 434-B Reversible Pad Offset Strap Hinge



No. 434-CC Double Pintle Strap Hinge



No. 434-C Single Pintle Strap Hinge

R-W No. 448 SUPER-WAY MILL-TYPE DOORS

Advantages

The term "Mill-type" as applied to this new door construction has two significations:

First—That of peculiar fitness for mill or factory purposes.

Second—That of "slow-burning."

The underlying merit of Mill-type Doors is contained in the phrase "steel-to-steel," in contrast with the usual construction which is steel-to-wood.

A door operates by being hung on hinges, hangers or other hardware—steel fitted to wood—in which case the strains are transmitted from the steel to the wood through the bolts and screws that hold the hardware to the door. Such doors deteriorate rapidly from strains that are constantly acting to pull the wood members apart.

Adapted To

Super-Way doors are especially recommended for railroad freight sheds, baggage rooms, warehouses, shops, round-houses, and for all factory purposes where strength and permanence are essential.

Description

No Strain—In a Super-Way Mill-type Door there is no strain whatever on any of the wood members. All hardware attachments are made directly to the steel frame. The weight of the doors is carried by the built-in steel frame and by hinges, hangers and other hardware which attach not to wood, but to steel—steel-to-steel throughout.

Frame—A Monarch Mill-type Door consists of a $2\frac{1}{2} \times 1\frac{1}{4} \times \frac{1}{4}$ -in. steel T frame which is complete in itself. The illustrations will show, at a glance, that the wood members have nothing to do with hanging this door, but that the weight is carried by the steel which is not subject to sagging, warping and pulling apart common to ordinary doors.

Wood Units—Tongued and grooved units $1\frac{1}{4}$ in. square are fitted into this frame and nailed through the tongue and groove, piece by piece to each other. The nails are thus em-



Construction of No. 448 Door

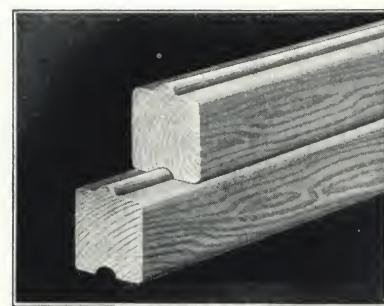
bedded between the strips—not a nail exposed anywhere. The strips nearest the T steel frame are nailed to the frame. The illustration below gives a cross section of the standard wood members of a Monarch Mill-type Door. Notice the wide but "shallow tongued and grooved construction" and the slightly round corners. When these units are spiked every 4 in. they form a rigid structure of unusual strength.

Super-Way Mill-type Doors are free from pulling apart of the wood sections. This common complaint in other doors is not experienced because the method of keying the wood members together makes a solid, firm construction, much superior to the paneling of the ordinary door. The wood strips are painted before assembling.

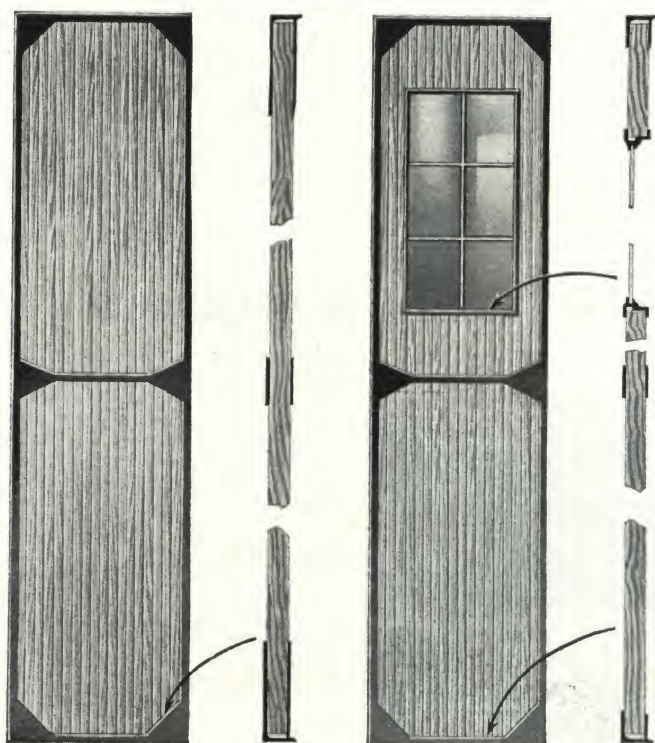
No Bolts—All of the steel members are riveted together, not bolted, making a permanently strong and rigid construction. There are no bolt ends or nuts sticking out anywhere. Everything is snug and trim. The result is a door $1\frac{3}{4}$ in. thick throughout, which is stronger and more durable than any $2\frac{1}{2}$ or 3-in. door built on the usual lines, but lighter than a paneled door of ordinary construction.

On Hinged Doors

The construction of hinged mill-type doors is the same as sliding mill-type doors except that a steel center member is built into the doors, to provide a metal-to-metal attachment for the center hinge as well as for the top and bottom hinges. The outer wood members of large hinged doors can be furnished double thickness or $3\frac{1}{2}$ in. if desired.



Cross Section of Wood Members



No. 448 Super-Way Mill Type Door

R-W No. 778 MULTIPLE OPERATION SCHOOL WARDROBES

General

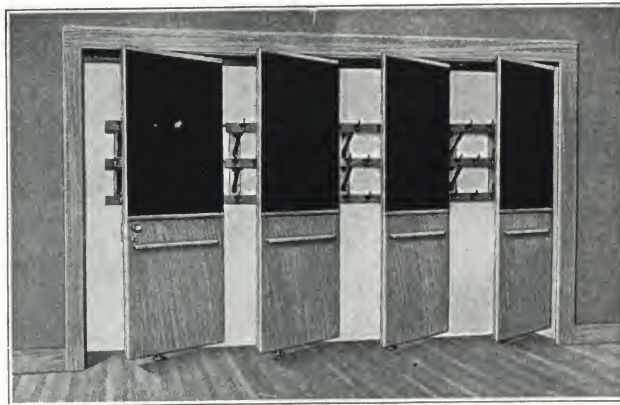
Richards-Wilcox "Disappearing Door" Multiple Operation Wardrobes occupy the smallest space possible. When doors are open they do not block the aisles. The doors recede into the wardrobe.

Description

Doors—In R-W "Disappearing Door" Multiple Operation Wardrobes, the doors are of the well known Compound construction and manufactured exclusively for the RICHARDS-WILCOX MANUFACTURING Co. by the Compound & Pyrono Door Company, for wardrobe use. All doors unless otherwise specified are made $1\frac{3}{8}$ in. thick, either flush or panel construction.

Hardware—The hardware is of the well known Richards-Wilcox quality and is made of malleable iron, black enamel finish. The pivot arms are ball bearing, made extra heavy and are machined to accuracy. Adjustment is provided in the arms, making it possible to keep the front of the wardrobe in perfect alignment at all times. The operating hardware consists of top and bottom ball bearing pivots, and a set of connecting bars. Shelf brackets, coat hooks, coat hangers, umbrella racks and drip pans are considered interior equipment and can be furnished if desired.

Slate Blackboards—Blackboards of either composition or genuine Bangor slate can be furnished. The slate is attached to the door and held in place with screws and a wood moulding located at the top and bottom of each panel. A cushion of felt is placed between the door and the slate blackboard to



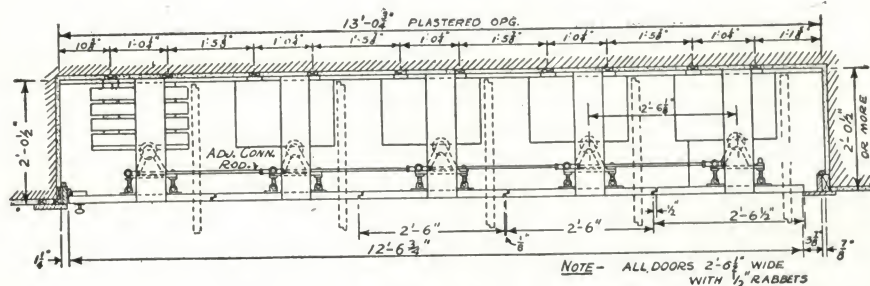
R-W No. 778-FBR

All the doors open in unison when the left-hand door is operated, and are always in the same relative position to each other. Here the doors are partly open.

Ventilation—The R-W "Disappearing Door" Multiple

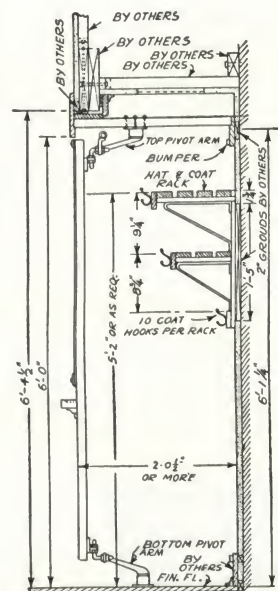
Operation Wardrobe Doors are set 4 in. off the floor. Air currents enter the wardrobe through this space and pass through the clothing, carrying off odors, germs, etc., and then pass out through the ventilating grills located in the top of the wardrobe and connected to the ventilating system.

Each door is 2 ft. 6 in. wide and the depth of the wardrobe is 2 ft. This will accommodate 10 pupils.



Horizontal Section Through Wardrobe

Showing size of plastered recess and location of grounds for five-door wardrobe. Add or deduct 2 ft. 6 $\frac{1}{8}$ in. for each door added or omitted from wardrobe



Vertical Section Through Wardrobe

Showing size of plastered recess and location of grounds

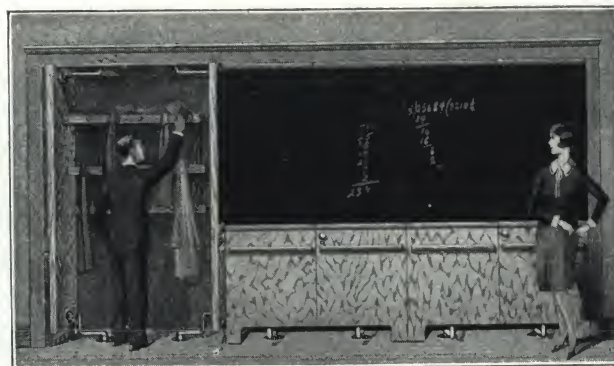
R-W No. 777 DISAPPEARING DOOR SCHOOL WARDROBES

Description

Richards-Wilcox Disappearing Door Wardrobes occupy the smallest space possible. When the doors are open they recede into the opening and do not block the aisles. Richards-Wilcox is prepared to furnish these wardrobes complete for installation including doors, hardware, exterior and interior woodwork, blackboards and chalk rails.

Advantages

Installation of Richards-Wilcox Disappearing Door Wardrobes as a standard equipment in new school buildings, makes it possible to build more



R-W "Disappearing Door" Wardrobe Type 777-A

R-W PAGE 21

buildings for less money. Considerably less space is required for Richards-Wilcox Disappearing Door Wardrobes than the ordinary cloakrooms. The saving in space will more than pay for the cost of the wardrobes.

Operation

The doors recede into the interior of the cabinet on heavy pivot arms top and bottom and are guided by guide tracks and rollers at top and bottom. See illustrations and details.

Doors

In R-W Disappearing Door Wardrobes, the doors are of the

Continued on next page

well known compound construction as pictured elsewhere in this catalogue, and manufactured exclusively for the RICHARDS-WILCOX MANUFACTURING Co. by the Compound & Pyrono Door Company, for wardrobe use. All doors unless otherwise specified are made 1½ in. thick, either flush or panel construction.

Hardware

The hardware is of the well known Richards-Wilcox quality and is made in either bronze, plated, or malleable iron, japanned. The pivot arms are made extra heavy and are machined to accuracy. Adjustment is provided in the arms making it possible to keep the front of the wardrobe in perfect alignment at all times. There is no danger of anyone stumbling over the pivot arms as they are set back a considerable distance into the wardrobe. The guide rollers that engage with the angle iron guide tracks are provided with adjustment to take care of any settling or shrinkage of the floor as well as any unevenness. The operating hardware consists of top and bottom pivots, top and bottom guide rollers, guide tracks and two pull handles. Shelf brackets, coat hooks, coat hangers, um-

brella racks and drip pans are considered interior equipment and can be furnished if desired.

Woodwork

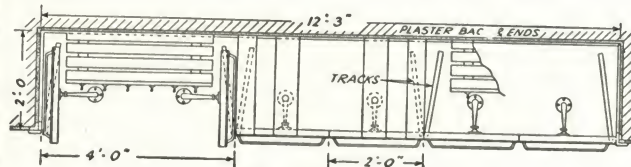
Wardrobes can be furnished in any kind of wood. The most common used woods for the exterior parts of the wardrobes are plain red oak, plain white oak, birch, yellow pine and white pine. The interiors are usually made of poplar or yellow pine.

Blackboards

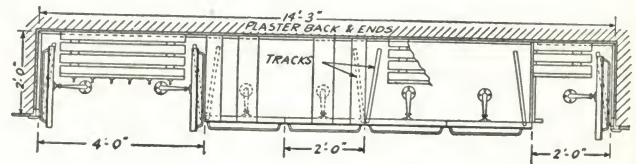
R-W Disappearing Door Wardrobes may be equipped with either composition or genuine Bangor slate blackboards. There are no mullions used between the sections, consequently you get a continuous blackboard surface.

The slate is attached to the door and held in place with screws and a wood moulding located at the top and bottom of each panel. A cushion of felt is placed between the door and the slate blackboard to take care of any jarring that may be produced by slamming of doors.

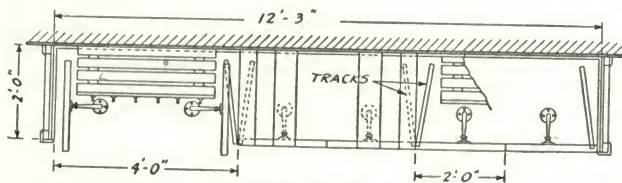
DETAILS OF No. 777 SCHOOL WARDROBES



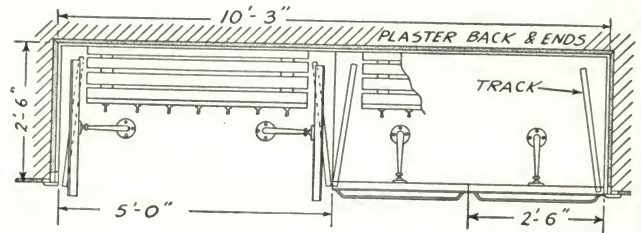
Type 777-A



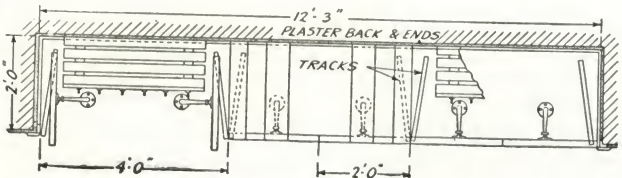
Type 777-D



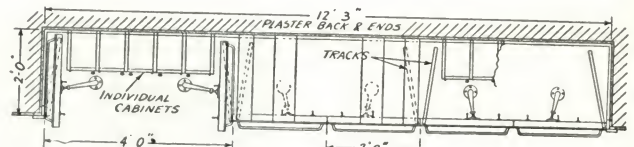
Type 777-B



Type 777-E

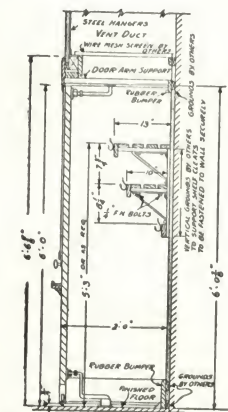


Type 777-C

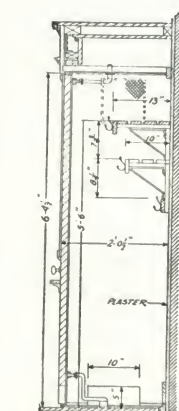


Type 777-F

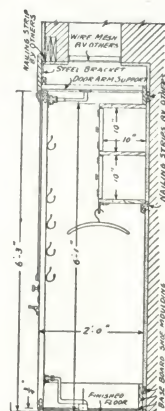
Plans of Types



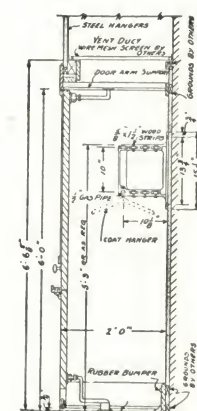
This section applies to types A-C-D and E



This section applies to type B



This section applies to type F



This section applies to type A-1

Cross Sections

Chalk Rail

Chalk rail has three large screws holding it to the door. An additional moulding or support is placed under the chalk rail and this is also screwed to the door. The chalk rail will carry more weight than can ever be applied to it under normal use.

Ventilation

The R-W Disappearing Door Wardrobe doors are set 4 in. off the floor. Air currents enter the wardrobe through this space and pass through the clothing, carrying off odors, germs, etc., and then pass out through the ventilating grilles located in the top of the wardrobe and connected to the ventilating system.

Security

One of the greatest of class-room evils is petty pilfering. This is absolutely eliminated by the use of Richards-Wilcox Disappearing Door Wardrobes because they are installed in the classroom and constantly under the watchful eye of the teacher.

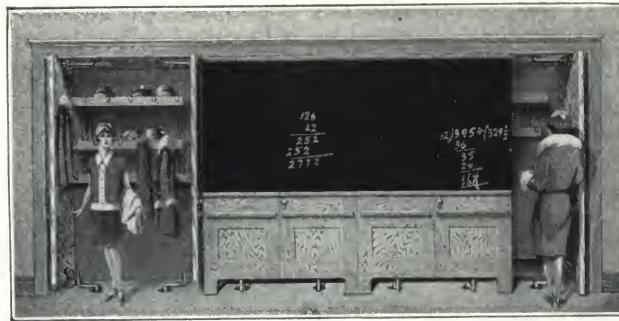
Types of 777 Wardrobes

Seven types of No. 777 school wardrobes are available. The operation of doors in all types is identical. The variations in types consist in differences in interior equipment, manner of placing in room and other features explained in the description of each type.

Type 777-A—Made with continuous blackboard. This type is made to set in a recess having plastered backs and ends. No divisions are required as the doors when open recede into the wardrobe and form a division. Any number of sections can be used. Each 4-ft. section will accommodate 17 pupils.

Type 777-A1—The construction of this type is identical with Type 777-A with the exception of the method of hanging the wraps.

Type 777-B—This type of wardrobe is made to set against



R-W Disappearing Door Wardrobe Type 777-D

back of the wardrobe to the inner surface of the door and consequently does not prevent a continuous flush blackboard surface.

Type 777-E—This wardrobe, furnished with or without blackboard sections is made to fit into a recess having plastered back and ends. Its units are 5-ft. sections that will accommodate 24 pupils.

Type 777-F—Identical in construction with type 777-A with the exception that the interior is equipped with a number of compartments. Each compartment is supplied with an individual lock.

To Specify

Furnish according to the manufacturer's standard details, Richard-Wilcox No. 777 school wardrobes as follows: Type No. (select type from description and details). Number of units (to fit into recess ft. wide by ft. high by ft. deep). (To set against the wall and to be ft. high, ft. wide, ft. deep.) Wood to be used (select from list given under heading "Woodwork"). Door thickness in.

The wardrobes shall be installed complete by the manufacturer, excepting grounds and base which shall be furnished and installed by the general carpenter or contractor. The trim around the wardrobe shall be considered a part of the wardrobe. All painting and finishing shall be done by others.

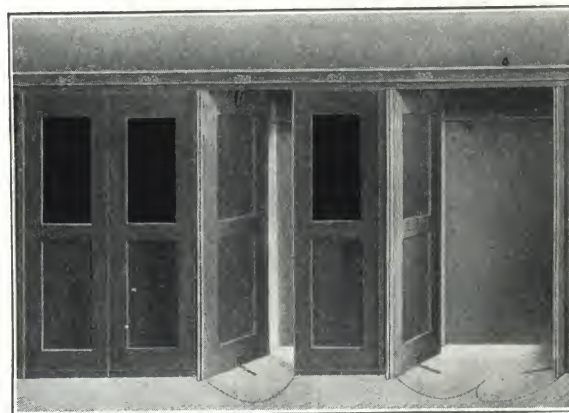
R-W No. 377 "RIGHT ANGLE" SCHOOL WARDROBE DOOR HARDWARE

Operation

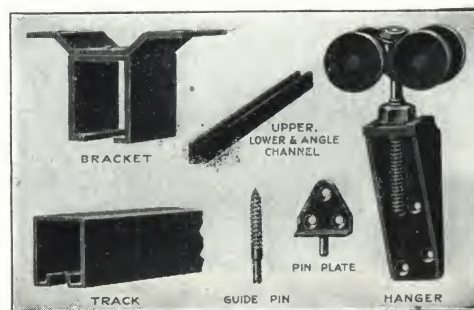
In opening, each door swings and slides into place (see door plan below) requiring only a small portion of the interior of the wardrobe in which to operate. Practically the whole interior can be used for clothing and hat shelf without interference. Three rows of coat hooks are ordinarily used. A single four-wheel hanger with swivel pendant is attached to the top of each door at its center. Guides at the upper and lower back corners and at the center of the bottom of the doors (see cross sections below) keep it absolutely in line and guide its travel.

Hardware Furnished

Hangers—No. 277, vertical adjustment, swivel pendant. Steel ball bearings in both hanger and pendant. Wheels, metal, 1 3/4 in. diameter. Suitable for doors 1 3/8 in. to 2 1/4 in. thick.



Six Door Wardrobe with No. 377 Hardware



R-W PAGE 23

Track—No. 30 1/2 trolley track, 16 gauge steel.

Channels—Channels for guide pins, upper and lower, hard brass or steel.

Sets of Fixtures—One set of fixtures consists of 2 hangers, 2 pieces of trolley track, 2 pin plates, 4 guide pins, 2 upper channels, 2 lower side channels, 2 angle channels, 4 No. 5x30 1/2 cross eared ceiling brackets.

Finish—All hardware except guide tracks is furnished regularly in black enamel finish. Brass guide tracks are recommended. Special finishes if desired.

To Specify

Furnish and install in accordance with the manufacturer's erection details, Richards-Wilcox No. 377 "Right Angle" school wardrobe door hardware as follows:

Doors..... in. thick, width of doorways....., number of wardrobes....., depth of wardrobes..... with (solid brass guide track) (steel guide track).

Note: Attach plan showing wardrobes to be fitted.

R-W No. 877 UNIT STANDARD WARDROBES

Advantages

The special feature of this wardrobe is the simplicity with which it can be installed. The wardrobes are made up of standard units, as described in the specifications. Each wardrobe is completely assembled at the mill before shipment, and is then knocked down in a convenient form so that any contractor can make the installation without any difficulty whatever. The wardrobe is not attached to the building in any way. After setting the wardrobe in place in the recess allowed for it, it is only necessary to install the trim to cover the space between the wardrobe and the recess.

Sizes

The pupils' wardrobe is built in standard units only, each unit 4 ft. wide, 2 ft. 2 in. deep, and 6 ft. 6 in. high over all. The teacher's wardrobe is 2 ft. 1½ in. wide. Any number of units may be installed together to form a single group.

The units are adapted for use in a plastered recess or for use without a recess in the wall.

Doors

Doors are 1¼ in. thick made in two designs; a two panel design and a flush door. The stiles and the rails of paneled doors have built-up cores of white pine or chestnut with ⅜-in. thick veneer on each side. The panels are ¼ in. thick, three-ply veneer. The flush doors have built up cores of white pine or chestnut with a cross-band and a rotary cut veneer on each side.

Sides

The units have paneled sides or ends with 1½-in. thick solid stiles and rails and laminated panels ¼ in. thick.

Backs

Each unit has a paneled back with 1½-in. thick solid stiles and rails and laminated panels ¼ in. thick.

Floor

The rough floor is made of 1½-in. thick tongued and grooved white pine covered with ⅜-in. thick battleship linoleum or as an alternate, ⅜-in. thick Stedman rubber. The front edge of the linoleum or the rubber is protected by a solid brass edging.

Top

The top is a built-up box section assembled into a single unit.

Exposed End

When the wardrobes are not built into a plastered recess, additional end panels are required.

Hardware, Interior Equipment

The door hardware is mounted to doors at the mill. Each pupils' wardrobe is equipped with two hat shelves, three coat hanging strips, seventeen extra heavy two-prong cast iron coat hooks, one umbrella rack and one drip pan for the umbrellas. The hardware can be furnished in two finishes; all parts dead black or the shelf brackets, coat hooks, hanger aprons, guide brackets and drip pans in unpolished bronze plate and the umbrella racks in polished bronze plate.

Locks and Latches

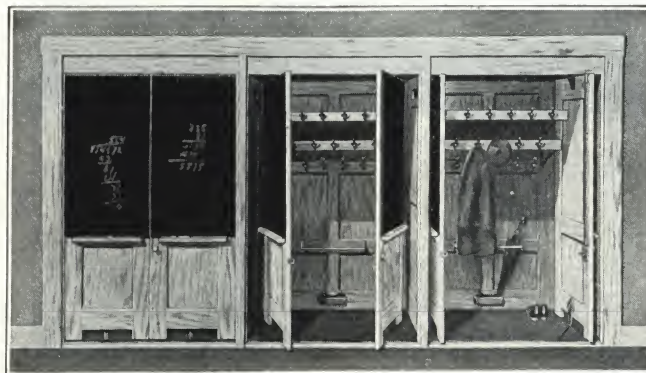
Locks or latches are required for pupils' wardrobes if blackboards or cork boards are used to hold the doors rigid while using blackboards or cork boards. The No. 0877-C latch, regularly furnished, is a two-point rim latch applied at the center of the opening, latching the two doors together and latching the doors to the top of the wardrobe. The exposed parts are solid bronze in wheeled finish. The knob is wrought bronze.

The No. 877-C lock is similar to No. 0877 latch except that a cylinder locking feature is added.

It is usually desirable to have a lock on the teacher's wardrobe. The teacher's wardrobe latch No. 0877-R is similar to the No. 0877-C except that the two-point feature is omitted.

Trim

When the wardrobes are set into a plastered recess, a casing is required around the wardrobe. This casing is not furnished as a part of the wardrobe. When the wardrobes are not installed in a plastered recess, a crown moulding or other suitable trim is required to finish around the top.



Unit Standard Wardrobe No. 877-PB

Rough Floors

It is preferable to install the wardrobes on the rough floor and lay the finished floor after the wardrobe is installed.

Blackboards

Each door can be furnished with blackboard and chalk rails, all applied at the mill. The blackboards are natural slate 21¾ in. wide x 3 ft. 6 in. high x ⅝ in. thick.

Cork Boards

Cork tack boards can be furnished on each door if required.

Sizes of Plastered Recesses

The depth of the plastered recess is 2 ft. 3 in.; height of the plastered recess is 6 ft. 8 in. The width of the plastered recess for one pupils' unit is 4 ft. 3 in.; for two pupils' units 8 ft. 3 in.; for three pupils' units 12 ft. 3 in.; for four pupils' units 16 ft. 3 in. Add 2 ft. to the length for the addition of a teacher's wardrobe.

Interior Woodwork

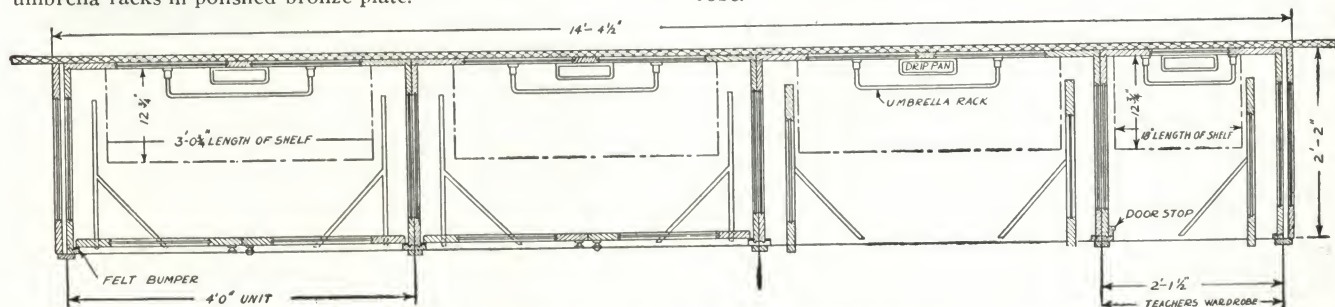
All of the interior woodwork is of yellow pine except the panels, which are of fir.

Painting

All prices are based on furnishing the wardrobe in the white: no painting, staining, or filling.

Standard Sizes

The size of the wardrobe units given is standard and is the only size which will be furnished in this type of wardrobe.



Floor Plans of Three-wardrobe Unit with Teacher's Wardrobe, Installed Out in Room—Accommodates 51 Pupils

R-W AIRPLANE HANGAR DOORS AND EQUIPMENT

Description

Almost every hangar, due to conditions over which we have no control, differs from other hangars in one or more respects. Hangar doors and the methods of operating them which are highly satisfactory for use in the South where the climate is warm are often unsuited for use in the North where intense cold and blizzards are met with in the winter months. In one section of the country weatherstripping is non-essential—in another section it is highly important. Where strong head winds are not encountered then it is immaterial whether tall narrow doors or tall wide doors be used.

We manufacture door equipment of almost every description in various weights: light, medium, heavy, extra heavy. From our extensive line of equipment; from our years of experience in the manufacturing of high quality door hardware; from our acquaintance with present day hangar door operating requirements; from our research as to future possibilities and needs; we are exceptionally well qualified to not only advise what method of door operation is best suited for a particular hangar irrespective of its size or location; but are prepared to supply the equipment itself in the shortest possible time.

Quick Operation Essential—The problem of heating and of keeping the heat in the hangar is a vital one and depends a good deal upon how quickly the doors may be opened and closed.

Trolley Track—If the roof trusses or structure above the opening are strong enough the doors may be suspended from overhead track.



Hangar at Cleveland, Ohio, R-W Equipped

Weight on Floor Track
—When, as mentioned above, ease and speed of operating the door are necessary then we recommend that the weight of the doors be carried on ball bearing wheels of large diameter which in turn run on some sort of a floor track, as industrial rail. The top of the door to be equipped with rollers, which help guide the doors, but in no case help support their weight.

It is also important that the industrial rail or other floor rail project an inch or so above the ground. Any

slot arrangement will soon fill with dirt or cinders in the summer or with snow and ice in the winter and in so doing hinder, if not completely stop, the operation of the doors. The slight projection of the rail above the floor level is not enough to in any way impede the progress of a plane either in entering or leaving the hangar.

Weatherstripping—Snow and a great amount of cold air in the winter time and rain, dust and dirt in the summer time will be blown into the hangar not only through the spaces where the doors are joined to one another but also where they come into contact with the overhead and floor tracks unless a very efficient method of weatherstripping is installed.

We have given this phase of door equipment considerable attention and are prepared to furnish weatherstripping for any type door or method of door operation.

Information—We will be pleased to confer with you and to suggest: The style of hangar desirable; its practical location; the best method of operating its doors and of what materials the doors themselves should be manufactured.

R-W PARALLEL SLIDING HANGAR DOOR EQUIPMENT

Description

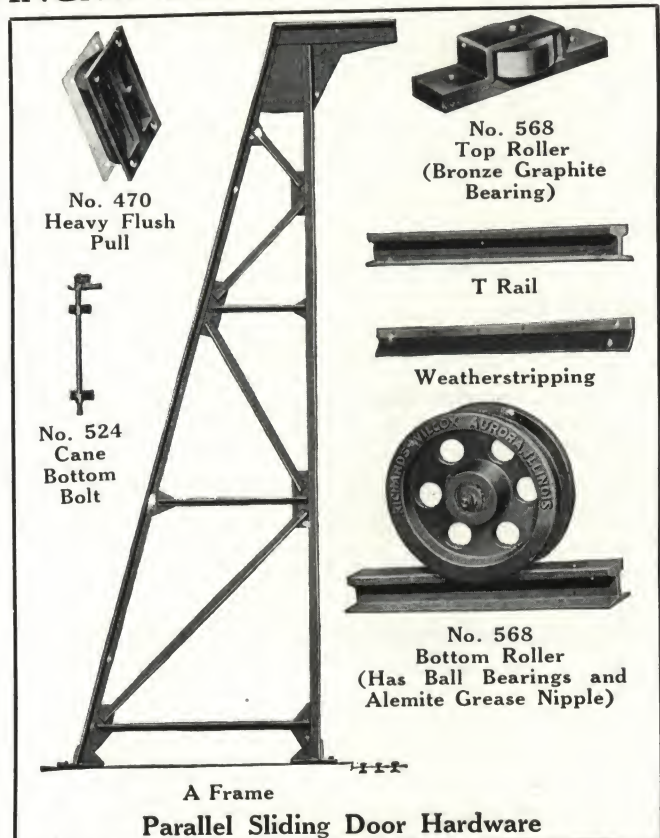
This equipment, as, will be seen from the illustration, provides for parallel straight sliding doors outside of the hangar itself. There are two methods of applying the equipment. One, by suspending the doors on tracks extending between two A frame steel structures on either side of the opening and beyond each sidewall. Two, doors operating in the same manner as in Number One but with guide rails only at the top extending between two A frames and with bottom rollers carrying the weight of the doors on T rails. As before stated the overhead track method is recommended for lighter doors. For heavier doors or those requiring rapid handling the bottom rail method is urged.

Overhead Trolley Track—When this system is applied to overhead trolley track, the equipment required is identical with that described in previous pages in connection with "sliding around the corner" equipment. The only exception is in the curved track. The track, bracket and weatherstrip assemblies previously described are extended between two A frames and the rest of the hardware required is the same as already described.

Floor Track—When floor track is used and the A frames are utilized for carrying the guide rails out beyond the building line, the equipment is identical with No. 567 hardware already described in the preceding section, with the exception of the top roller, which in this equipment is No. 568, illustrated herewith, and the necessary addition of the A frame structure. The 567 bottom roller is built into the door.

Weatherstripping—Adequate provision is made in both methods of parallel door operation for the proper placing of weatherstripping or astragals.

The Concrete Apron—When floor track is used the concrete apron, especially that part immediately adjacent to the door opening and into which the T rail track which carries the weight of the doors is set, should be of such strength as to easily support the weight of the doors or the weight of any fully loaded planes which will travel over it.



The A Frame—As illustrated, the A Frame is a strong welded steel structure available in the following heights in feet: 12, 14, 16, 18, 20, 22, 24.

R-W TOP AND BOTTOM ROLLERS FOR AIRPLANE HANGAR DOORS

General

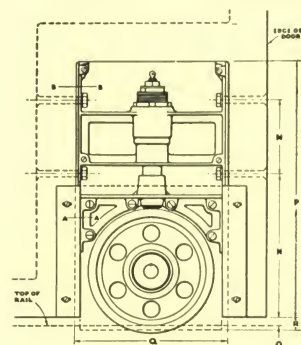
The Bottom Rollers described were designed especially for tubular and structural steel airplane hangar doors. Mechanically and scientifically correct designing, high quality materials and careful workmanship guarantee top and bottom rollers which will withstand an unusual amount of abuse, which will last for years and which will permit one man to easily, quickly and smoothly open or close the large airplane hangar steel doors to which they are to be attached. Top rollers only act to steady and guide the travel of the doors. Bottom rollers carry the entire weight of the sliding doors.

No. 574 Bottom Roller

No. 574 Bottom Rollers come assembled as complete units all ready to set into the 12x20 in. spaces allowed for them in tubular and structural steel doors. Each unit is quickly, easily and firmly attached to door with four ½ in. bolts.

Malleable iron and steel is used throughout except that wheel is of cast iron, machined.

Doors weighing up to 3000 lb. each, are easily, smoothly and quickly moved around corners by one man due to the large diameter of the wheel and to the bearings used throughout the unit. Timken bearings may be substituted for the ball bearings in the wheel if so desired. Felt washers protect the ball bearings of the wheel from dust or grit. All bearings are oiled by the Alemite method.



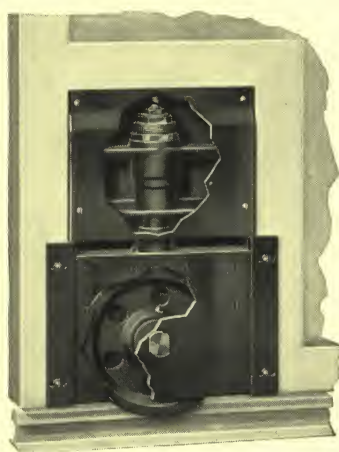
DIMENSIONS OF NO. 574

M	N	O	P	Q	Wheel	
					Tread diameter	Over-all diameter
6 in.	11 in.	*¾ in.	*1 ft. 8 1/8 in.	12 in.	8 5/8 in.	9 7/8 in.

*These dimensions are normal. Adjustment is provided to raise the door ¾ in. or lower it ½ in.

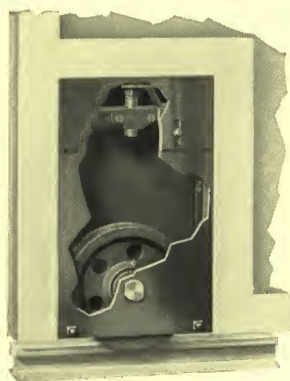
No. 573 Bottom Roller

No. 573 Bottom Rollers come assembled at complete units all ready to set into the spaces allowed for them in tubular and structural steel doors. Each unit is quickly, easily and firmly attached to door with four ½-in. bolts. Cast iron and steel is used throughout, wheel is machined. Doors weighing up to 3000 lb. each are easily, smoothly and quickly moved by one man due to the large diameter of the wheel and to the bearings used throughout the unit. Timken bearings may be substituted for the ball bearings



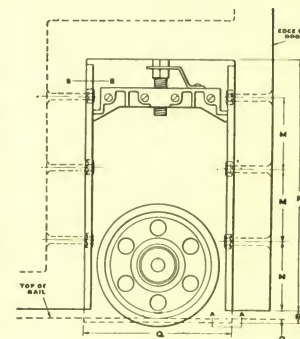
Wheel operates on a minimum radius curve of 2 ft. 6 in. Wheels are machined for 12 or 16-lb. A.S.C.E. industrial rails as ordered. When ordering state weight and make of rail.

To adjust roller remove top plate, loosen lock nut and turn adjusting screw up or down to desired position. There is a total vertical adjustment of 1 ¼ in.; ¾ in. up and ½ in. down from normal position. Bottom of door when in normal position is ¾ in. above top of industrial rail.



in the wheel if so desired. Felt washers protect the ball bearings of the wheel from dust or grit. All bearings are oiled by the Alemite method.

To adjust roller remove top plates, swing out lock plate which is loosely riveted to adjusting frame, and turn adjusting screw up or down to desired position. There is a total vertical adjustment of 1 ¼ in.; ¾ in. up and ½ in. down from normal position. Bottom of door when in normal position is ¾ in. above top of industrial rail.



DIMENSIONS OF NO. 573

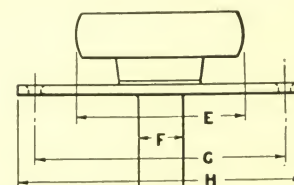
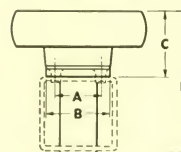
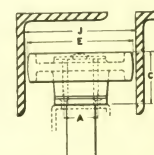
M	N	O	P	Q	Wheel	
					Tread diameter	Over-all diameter
6 in.	11 in.	*¾ in.	*1 ft. 8 1/8 in.	12 in.	8 5/8 in.	9 7/8 in.

*These dimensions are normal. Adjustment is provided to raise the door ¾ in. or lower it ½ in.

No. 573 Top Guide Roller

Made especially for use with tubular and structural steel doors weighing up to 3000 lb. each. The large diameter of the roller plus its graphited bronze bushing accounts for its ease and smoothness of operation.

Furnished in three sizes for attachment to 2 ½, 3 and 4-in. tubular steel doors.



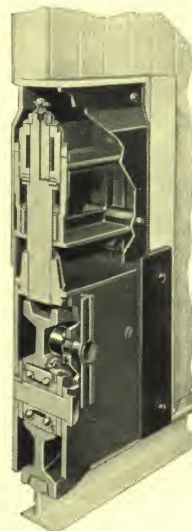
DIMENSIONS OF NO. 573

Cat. No.	Thickness of door	A	B	C	D	E	F	G	H	J
573-1	2 ½ in.	1 ½ in.	2 ¼ in.	2 ¼ in.	4 1/8 in.	4 5/8 in.	1 ¼ in.	7 in.	8 in.	4 7/8 in.
573-2	3 in.	1 ½ in.	2 ¼ in.	2 ¼ in.	4 1/8 in.	5 1/8 in.	1 ¼ in.	7 in.	8 in.	5 3/8 in.
573-3	4 in.	1 ½ in.	2 ¼ in.	2 ¼ in.	4 1/8 in.	6 3/8 in.	1 ¼ in.	7 in.	8 in.	6 3/8 in.

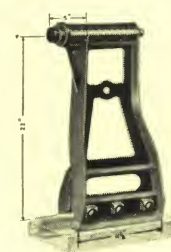
Wheel Lock and Bumpers

The R-W Wheel Lock illustrated here-with is an integral part of the roller. There are no springs or cams, no parts to wear, break or get out of order. The threaded shaft screws plug against web of wheel, braking it firmly.

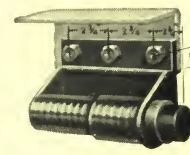
The Top and Bottom Bumpers shown prevent injury to doors, which contact with heavy rubber pad on end of plunger. A sturdy spring absorbs all shock.



Wheel Lock



Bottom Bumper

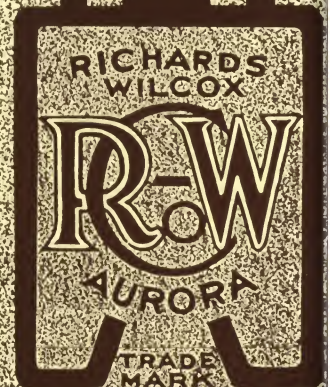


Top Bumper

Richards-Wilcox

DOORWAY

EQUIPMENT



McKEE DOOR COMPANY

Manufacturers of McKee Overhead Garage Doors for Garages, Service Stations, Factories and Warehouses

6224-6228 South Oakley Avenue
CHICAGO, ILL.

Description

Doors are made in approximately 2-ft. high horizontal sections hinged together. Sections raise vertically engaged in guide tracks moving to a horizontal position inside and above door opening. Doors are counterbalanced with an easily adjusted motor spring which winds on itself and cannot be overloaded. Ease of manual operation is thus insured.

Advantages

The motor spring is fully encased in a sealed steel sheave, packed in graphite lubricant, guaranteeing safety of operation. Valuable space is saved by placing the open doors entirely out of the way under ceiling. Quiet operation is insured by the cable lift and motor spring.

Construction and Materials

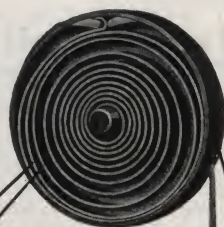
All hardware and operating mechanisms have been carefully and simply designed.

Doors are furnished with ball bearing rollers.

Stock doors are paneled sections and may be furnished with one or more sections open for glass.

Wood doors are blind mortised and tenoned with substantially built stiles and rails of white pine with three-ply fir panels.

The Counterbalancing Motor Spring
Adjustable, efficient, durable, safe, powerful, encased, neat, compact.



Inside View of Door Showing Hardware

Adjoining sections are rabbeted $\frac{1}{4}$ in. Sections are not over 26 in. high.

Specially designed doors can be built to specification.

Hardware Furnished

All hardware is of steel, furnished either plain or galvanized. For smaller doors ball bearing rollers with seven balls and tracks with bracket supports are used. Rollers with eleven balls and special track reinforcement are provided for larger size doors.

Truss Rods and heavier hardware is used for larger size doors.

Locking Device

Doors may be locked and unlocked from either side. Substantial locking rods engage track members on either side of door by a lock throw disc. A Corbin lock automatically engages the disc. Cylinders may be had furnished keyed alike.

Space Requirements

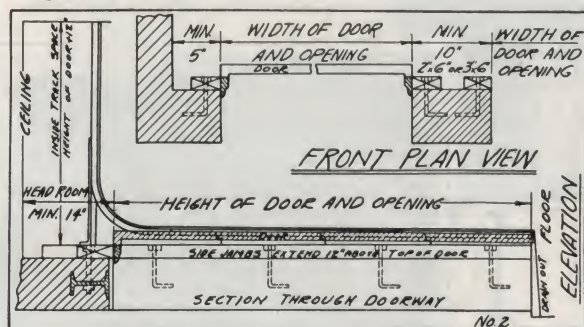
Stock doors 8x8 ft. and smaller can be furnished on $7\frac{1}{2}$ -in. center pier and 4-in. side space.

A clearance of 14 in. is required on all doors above opening.

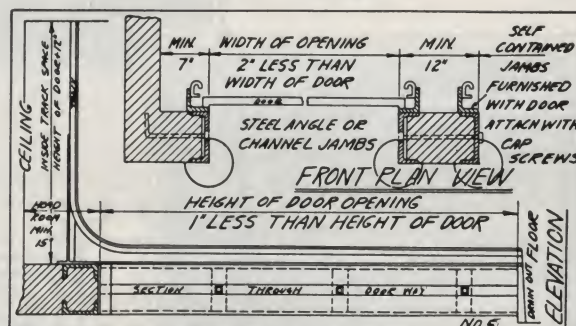
Larger doors require space out-

lined in jamb detail below.

Write for name of nearest representative.



Jamb Construction for Masonry



Strong Steel Jambs for Factories, Warehouses, etc.



Residential Installation



Service Station Installation

FARLEY & LOETSCHER MFG. CO.

Manufacturers of "Weatherseal" Garage Doors

DUBUQUE, IOWA

For our page on Disappearing Stairs, see Manufacturers' Index

Products

"WEATHERSEAL" No. 800 GARAGE DOORS
(Patents Pending).

Also Sash, Doors, Blinds, Frames, Interior
Finish and Building Specialties.



Locking Device

A special high grade cylinder lock, operated in connection with spring bolts is included. Doors open or lock from either side, and automatically lock when closed, if desired.

Description

Each complete "Weatherseal" door includes three sections, top glazed with plain glass set with wood stops, center and bottom sections 3-ply fir panels. Panels are dipped in pure linseed oil before assembling. Waterproof glue is used throughout. Stiles and rails clear white pine, 1 3/4 in. thick. All joints of door stiles and rails doweled with 5/8 in. hardwood dowels. In addition, hinges and brackets overlap, reinforcing the joints at every vital point—sixteen joints thus reinforced. The hinged intersections are deeply rabbeted, making them weather tight.

Doors are squared and completely assembled at the factory with door hardware attached, ready to hang. Everything to complete the installation is furnished, except door frame, casing, ceiling pulley boards and weight box material.

Head Room and Clearance

A minimum of only 1 3/4 in. head room is required above top of doors for installation. Clearance between the rear bumper of car and door about 12 to 15 in. Bottom panel requires 2 ft. 6 in. clearance at a point 6 ft. from the floor line, to swing open.

Doors when folded up reduce the height of the opening 7 in., leaving 7 ft. 5 in. clear in the 8 ft. openings and 6 ft. 11 in. in the 7 ft. 6 in. openings.

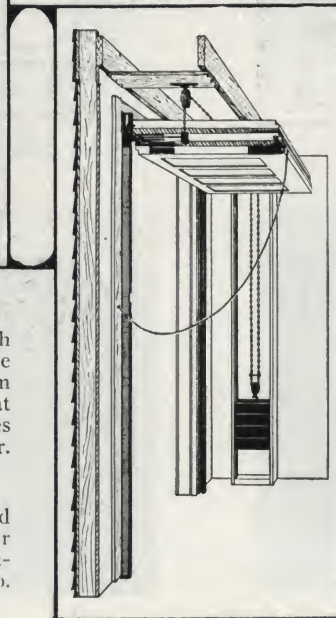
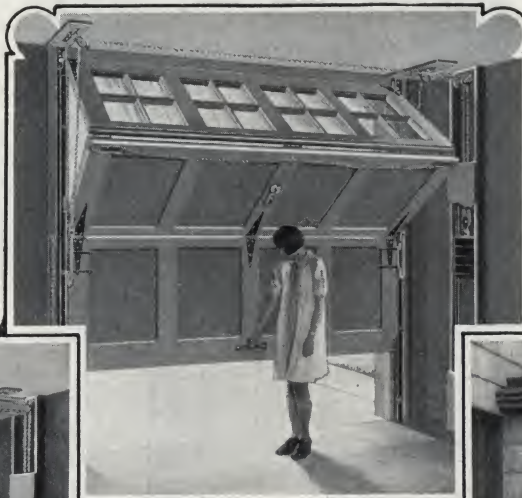
Advantages

There are practically no restrictions on the installation of "Weatherseal" Over-head Garage Doors. They overcome the annoyances characteristic of ordinary doors, such as sagging, twisting, binding and scraping, yet seal the opening perfectly weatherproof all around, as the door in closing is automatically forced tightly against the stops at sides and top. The bottom is scribed to the floor. This makes the garage easy to heat. Snow and ice do not interfere with their operation.

Swelling of doors or raising of the floor by frost cannot cause the doors to bind, as the special hanger brackets allow for more than 1 in. expansion or heaving. Doors are perfectly counterbalanced with weights and glide easily to an over-head position, giving an unobstructed opening. When closed, doors are held at eight points. Entirely mechanical in operation—no springs to break or lose their tension. The low ceiling possible with "Weatherseal" doors materially reduces the cost of the garage and saves in the heating.

Hardware

All hardware is included. Hardware is made of steel and malleable iron, black japanned. Pulleys are roller bearing with turned wheels. Chain is twist link, welded and galvanized. Counterbalancing weights are cast iron, made in sections.



Operation

Operates from inside or outside with equal ease. When the two spring bolts are released, the doors break inward away from the stops. The upward lift folds the doors at top of the opening. Entire operation requires less time than opening ordinary garage door.

Shipping and Weights

Shipped one door in crate. Hardware and weights separate. Complete instructions for installing included. Shipping weight approximately: 8x8 ft., 395 lb.; 8x7 ft. 6 in., 375 lb.

Sizes and Designs

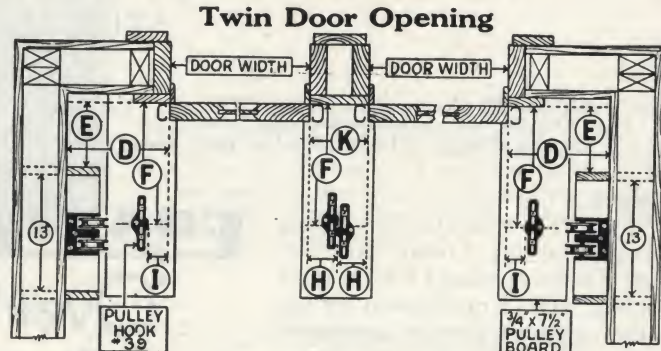
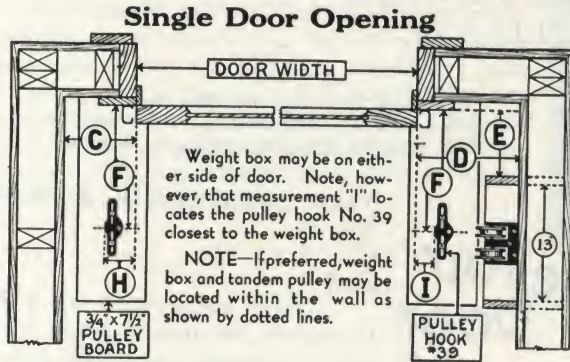
"Weatherseal" Garage Doors are made in two stock sizes, 8x8 ft. by 1 3/4 in. and 8x7 ft. 6 in. by 1 3/4 in., and in the design illustrated. This design, however, can be varied on special order according to detail; other sizes can also be made to order.

Literature

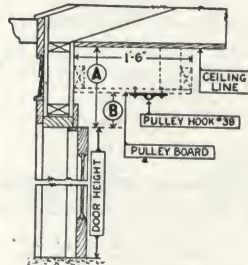
Illustrated folders and complete price information on request.

Address Dept. S-31.

CEILING PLANS FOR LOCATING PULLEY HOOKS AND WEIGHT BOX

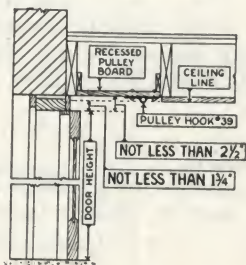


High Ceiling

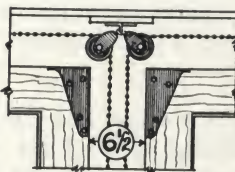


Vertical section, when head room "A" is 6" or more. When head room exceeds 10", frame down pulley board preferably to 6" as indicated by "B"

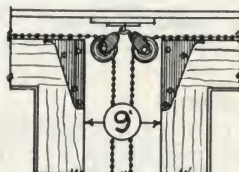
Low Ceiling



Vertical section through door frame when head room is limited.

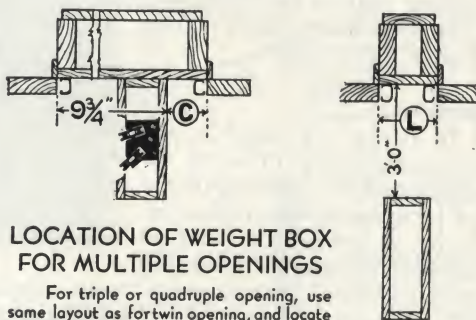


In openings having 6" or more head room, pulleys are placed above doors thus requiring only 3 1/4" minimum for each pulley. See meas. "C"



In openings having less than 6" head room, pulleys must be placed between doors, thus requiring 4 1/2" minimum for each pulley. See meas. "C"

Multiple Opening Mullions



LOCATION OF WEIGHT BOX FOR MULTIPLE OPENINGS

For triple or quadruple opening, use same layout as for twin opening, and locate weight boxes for center doors along side walls. For these installations center doors will require longer chain, which must be specified if wanted.

Weight boxes for other than the two end doors may also be centrally placed behind mullion, 3 feet from inside of mullion as indicated. If mullions are 13" or 14 1/4" (depending on ceiling height) or wider, weight box may be located directly behind mullion as illustrated above.

DOOR FRAME OPENING

New opening should be same size as door, set flush with inside of wall. The stops provide the necessary lap to seal the opening. It is advisable to use 1 3/4" jamps.

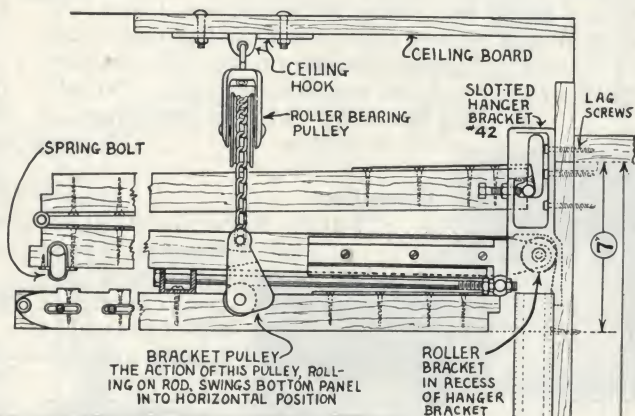
In old openings slightly under-size, door can lap over the frame an inch or less on each side and 3" or less on top, without difficulty. In oversize old openings, false jamps can be attached to fill out. Be sure, to have proper anchorage at top of the side jamb for hanger brackets, as these are under considerable strain when the door is open.

MEASUREMENTS FOR CEILING PLANS

Note that measurements given are always figured from the outside face or edge of door.

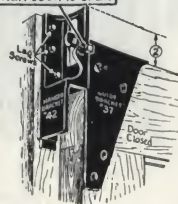
- C** { 3 1/4" minimum if head room is 6" or more.
4 1/2" minimum if head room is less than 6".
- D** { 3 1/4" minimum.
- E** { 3-0 minimum if "D" is 3 1/4" to 6".
1-7 minimum if "D" is 6" to 11".
7" or as near as possible forward or backward if "D" is 11" or more.
- F** { 13" for doors 8'-0 high.
12" for doors 7'-6 high.
- H** { 3 1/4" when head room is 6" or more.
4 1/2" when head room is less than 6"
- I** { 2" on all installations.
- K** { Not less than 6 1/2" when head room is 6" or more and not less than 9" when head room is less than 6".
- L** { Not less than 6 1/2" when head room is 6" or more and not less than 7 3/4" when head room is less than 6".

ELEVATION



DETAIL OF HANGER AND GUIDE BRACKET

SET SCREW TO LEVEL TOP PANEL WHEN DOOR IS OPEN



NOTE THE SLOT IN HANGER BRACKET WHICH ALLOWS FOR SWELLING OF DOOR OR HEAVING OF FLOOR BY FROST.

PATENTS

WEATHERSEAL GARAGE DOOR

PENDING

FRANTZ MANUFACTURING COMPANY

MAIN OFFICE AND FACTORY
STERLING, ILL.

BRANCHES

NEW YORK, N. Y., 71-73 Murray Street
CHICAGO, ILL., 553 West Randolph Street
INDIANAPOLIS, IND., 412 Board of Trade Building

ST. LOUIS, MO., 2029 Bellevue Avenue
LOS ANGELES, CAL., 302 East 4th Street
SAN FRANCISCO, CAL., 667 Howard Street

Product

FRANTZ "OVER-THE-TOP" DOOR EQUIPMENT for OPERATING UPRIGHT DOORS opening OVERHEAD. A practical type of mechanism for use on the doors of private, apartment house and public garages; warehouses; greasing and filling stations, and similar buildings. Produced and distributed by manufacturer of a full line of *guaranteed* Builders' Hardware who has enjoyed relations with building trades over a long period of years.

FRANTZ
Guaranteed Builders Hardware
"Over-the-Top" Door Equipment

6 in. wide, specify Equipment No. 78.

Cost

Retails everywhere for \$32.50 (complete equipment ready to install—doors not furnished). An inexpensive method for satisfactory "overhead" door operation. Low

cost is made possible by simplicity of mechanical details and *elimination* of need for special doors, counterbalance weights, pulleys and cables, excessive trackage, etc.

Specifications

For equipment for doors opening overhead specify Frantz "Over-the-Top" Door Equipment made by the FRANTZ MANUFACTURING COMPANY, Sterling, Illinois, U.S.A. For openings 7 to 8 ft. high and up to 8 ft.

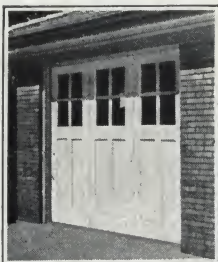
Distribution

Available for purchase at hardware stores, building supply dealers, lumber yards and similar outlets everywhere.

ADVANTAGES OF CONSTRUCTION

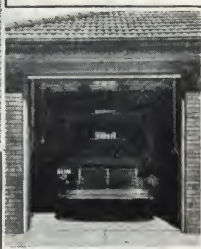
Adaptability

Frantz "Over-the-Top" Door Equipment No. 78 can be installed by the local carpenter on *any* set of *old* or new doors that measure from 7 to 8 ft. high and up to 8 ft. 6 in. wide. Requires but 2 in. of room above the head jamb. Easily adjustable for varying weights of doors. Ideal equipment for replacing hardware of swinging, sliding, sliding-folding or "around-the-corner" type outfits that are giving unsatisfactory service. (Note: All the illustrations on these pages are of installations made on *old* doors.) Adaptable for use on specially designed upright doors for palatial residence garages. Periodic "servicing" of this equipment is not necessary.



Operation

"Three Seconds and it's Open." Most satisfactory and convenient for operation by women and children.



A slight pull on the handle, on the outside, and door rises without effort and comes to a stop in "overhead" position without interference from operator. The same effect can be accomplished from the inside of building by a gentle push with the foot at the bottom of the door.

To close, operator applies outward thrust while grasping pull cord and door comes down into the opening as easily as it went up. Operation up and down is practically automatic.

Appearance

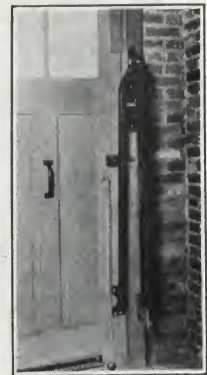
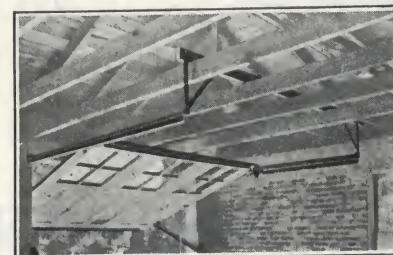
Handle and face of cylinder lock are only pieces of hardware exposed on outside of door. Permits use of attractive standard glazed doors, obtainable at local lumber yard, or doors made to architect's specifications.

Construction

All parts of wrought steel for strength and durability. Power for lifting door is supplied by two huge, heat treated and oil tempered coil springs of which less than one-half the capacity is required in operation—a wide factor of safety. Mechanisms are of the simplest nature possible consistent with long, dependable service. Provision is made for combining two or more stiles to become one, solid door. When door is up opening is 100% clear.

Installation

Can be installed quickly and easily. Any carpenter, following the fully detailed and illustrated instruction sheet furnished, can complete installation in a comparatively short time. No special or complicated cutting or fitting is required. For example, note simplicity of



"overhead" trackage and methods of holding it in place.

Jambs are made weathertight by simple carpentry as outlined in instruction sheet. For installations on double opening or 2-car garage doors, center post is required to be 7½ in. or more wide. (Fig. 1, opposite page.)

Clearance

Door operation is so controlled that ample clearance is provided both behind and above automobile when opening or closing. For example, rear bumper of a car may be against door when closed without door striking top of car when door is operated up or down. Where necessary, this feature can be capitalized upon by saving considerable floor space.



Note: The dimensions and details given below apply to standard openings—from 7 to 8 ft. high and up to 8 ft. 6 in. wide—for which Frantz "Over-the-Top" Door Equipment No. 78 should be specified. Similar information pertaining to larger openings can be obtained from Dept. SC, FRANTZ MANUFACTURING COMPANY, Sterling, Illinois.

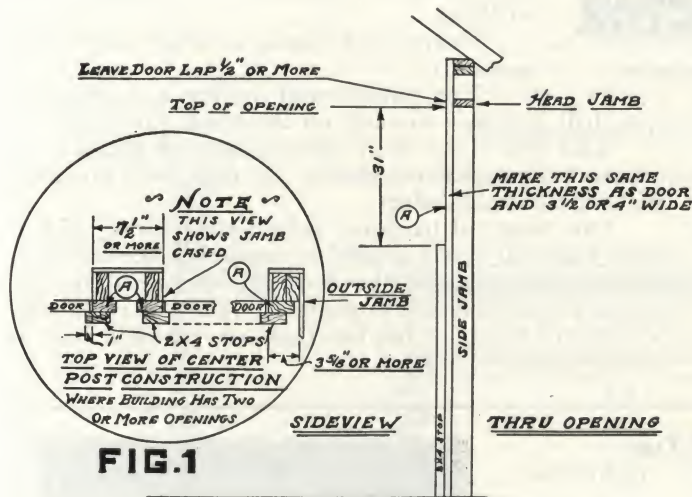


FIG. 2

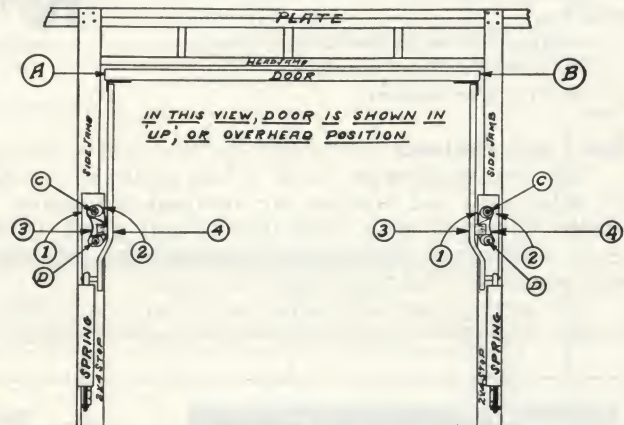


FIG. 3

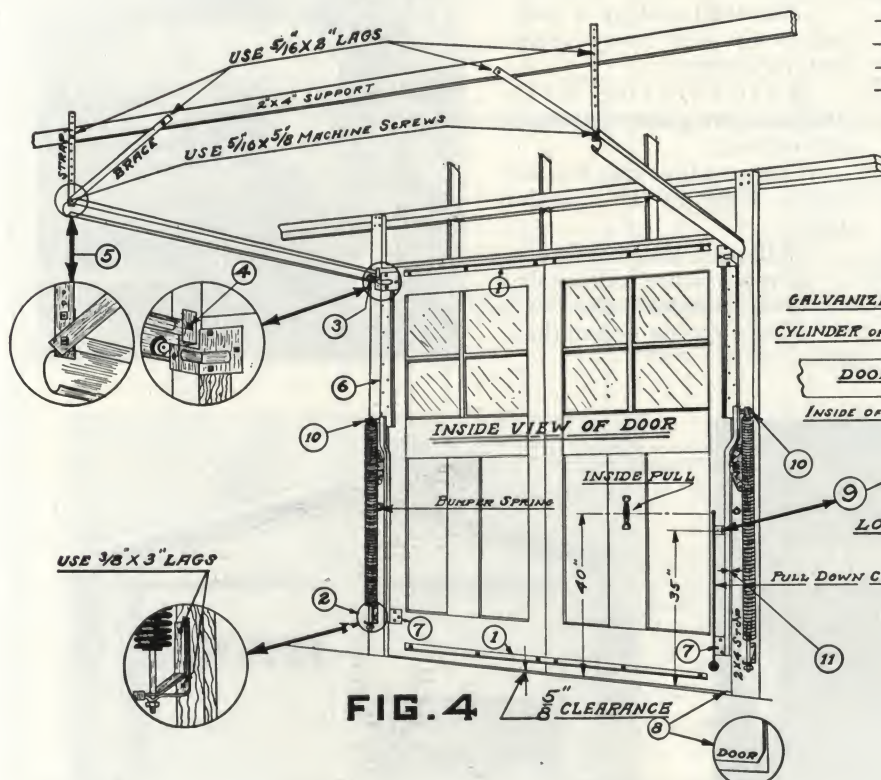


FIG. 4

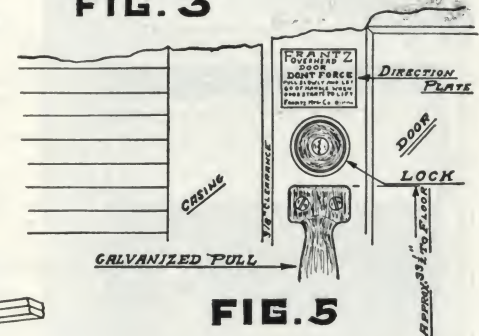
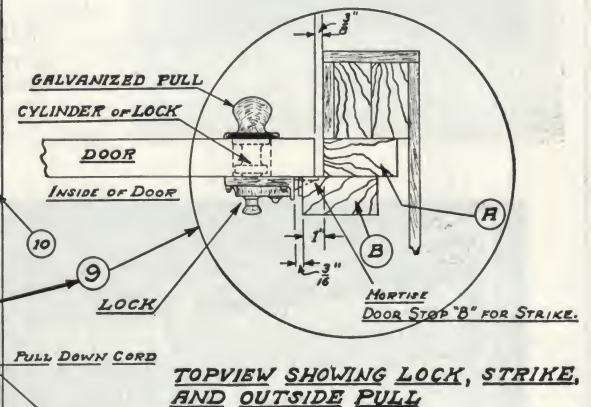


FIG. 5



THE KINNEAR MANUFACTURING CO.

Exclusively Door Manufacturers
"Rol-Top" Doors

820-870 Field Avenue, COLUMBUS, OHIO

BOSTON, MASS.
NEW YORK, N. Y.

PHILADELPHIA, PA.
WASHINGTON, D. C.

BRANCH OFFICES
CLEVELAND, OHIO
CINCINNATI, OHIO
DETROIT, MICH.

PITTSBURGH, PA.
NEW ORLEANS, LA.

CHICAGO, ILL.
KANSAS CITY, MO.

For our pages on Steel Rolling Doors and Shutters, see Manufacturers' Index

Facilities

Modern factory.
Engineering department trained in door problems.
Branch offices in the larger cities.
Efficient erection crews.
Service everywhere.



TRADE-MARK

ing to desired tension. Greater strength and absolute elimination of warping and buckling.

Heavy steel tracks in which the rollers operate.

The pulleys and rollers are provided with ball bearings running on hardened surfaces.

This provides a frictionless operation which with an exact counterbalance enables the door to be operated without noticeable effort.

One large oil tempered helical steel spring with a great factor of safety is used to counterbalance the door, and as both sides of the door are connected to this spring equalized action is obtained. Air craft cable with a factor of safety of not less than ten, connects door to counterbalance spring.

"Rol-Top" Features

The door sections are made of best grades of wood. The stiles, rails and muntins are mortised and tenoned together, doweled with steel dowels and glued with casein waterproof glue giving a section that is firm, rigid, square at joints and light in weight.

All sections are reinforced with horizontal bars U-shape anchored at both ends with means of tighten-

Rol-Top

Perfectly counterbalanced.

Will not sag.

Ready to operate easily in all kinds of weather.

Made of sturdy material.

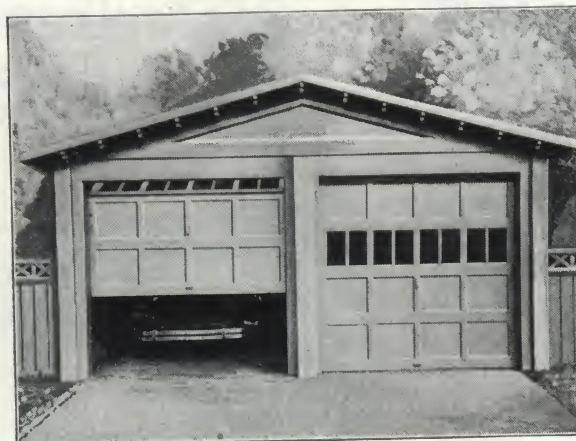
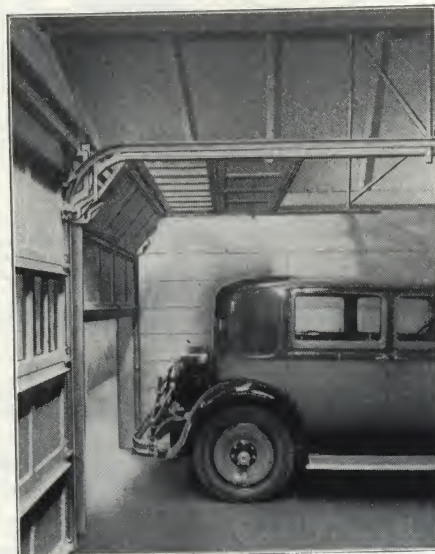
Manufactured by a company with over thirty years' door experience.

Reinforcing bars (trusses) give greater strength and rigidity.

Cast iron breaking bracket insures tight fit at top and jambs.

Malleable iron hardware. Strong secure locking device with cylinder lock.

Single spring counterbalance.



Continued on next page

All hardware is of malleable iron bolted through door sections. Hinges are exact in design and of great strength and rigidity. Locking device of malleable iron, and of special design to use with standard cylinder lock which will permit individual or master keys, and designed to lock or unlock from either side.

Easy operation inside or out and chain equipped with smooth cast iron ball for raising and lowering the door.

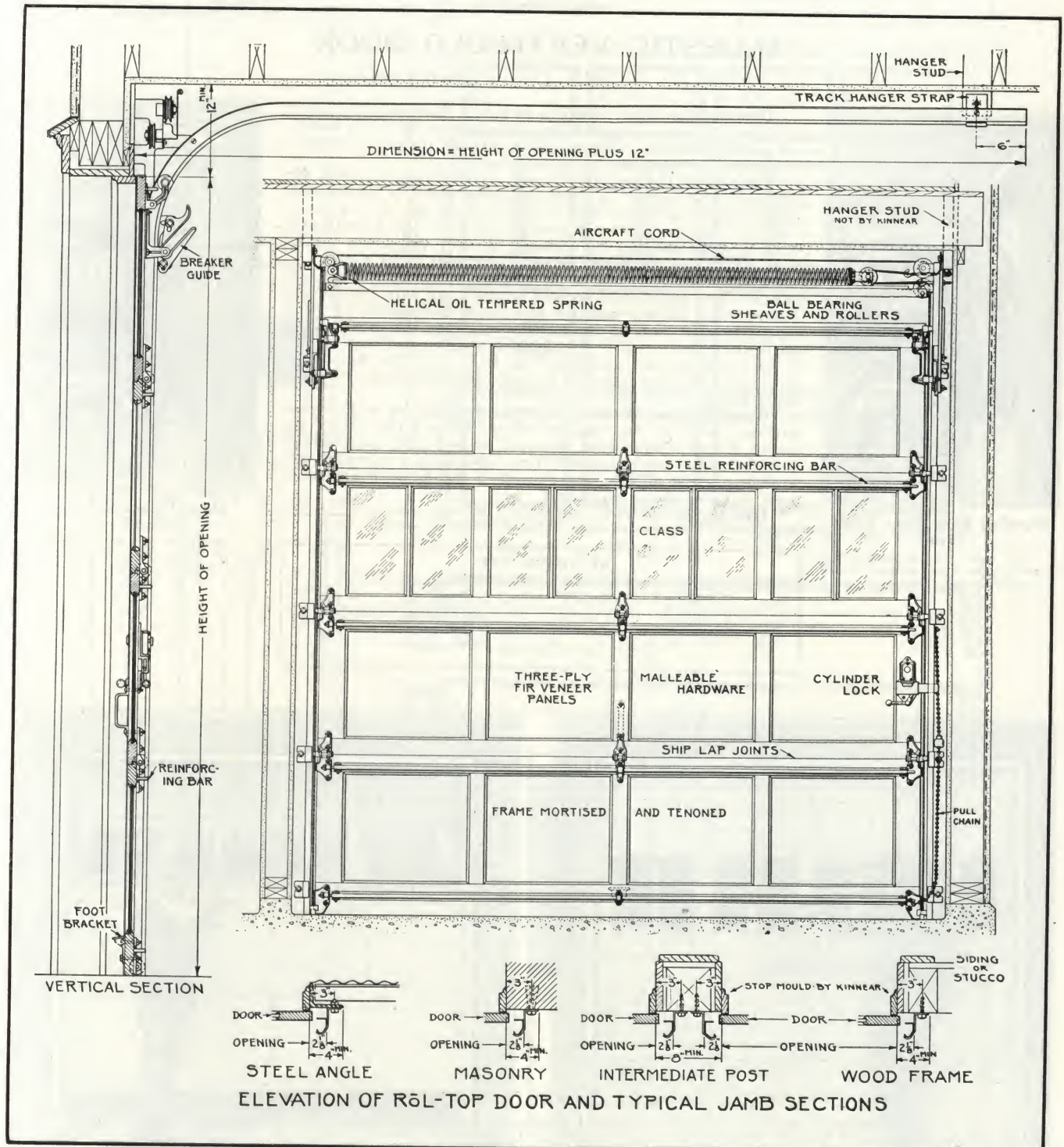
Door when closed is made snug at top, sides and

bottom, as an especially designed guide bracket forces the top section of the door into place.

On large doors mechanical operation is provided by means of endless chain. Electrical operation on all sizes where desired provided with push button control at desired locations.

Sizes in stock for immediate shipment 8 x 8 ft. and 8 ft. x 7 ft. 6 in. and our facilities permit prompt shipment on odd sizes.

Consult the Kinnear office or agent in your city for any data you may wish.



THE MAJESTIC COMPANY

Manufacturers of Building Products

HUNTINGTON, IND.

DISTRIBUTED THROUGH HARDWARE, BUILDING SUPPLY AND LUMBER DEALERS

For Majestic Building Specialties, see Manufacturers' Index

MAJESTIC VERTI-FOLD DOOR

Patent No. 1178945—Other Patents Pending

Description—This door is a new type that embodies many exclusive features of construction and operation due to its unique and patented design. It is particularly adapted for use in garages, warehouses and factories.

Method of Operation—Instead of swinging or sliding, the door folds and unfolds vertically so easily that it is almost self-operating. Ice and snow and temperature changes do not interfere with its operation and once installed, it will permanently function with ease and convenience, as door will never sag or stick. Door may be locked or unlocked from either side.

Installation—No tracks on ceiling and no springs are required. Door guides and counter balances are safely housed in slender metal casings installed just inside door jambs or these casings may be built in, if desired. Less than the usual ceiling height is needed. Comes completely assembled and crated, with all hardware in place including Yale lock. It is the easiest and quickest of all doors to install because fitting and adjustment are unnecessary.

Construction—Woodwork, made by specialists in door construction, is of the best quality White Pine and Fir. Joints are tongue and grooved. Door, equipped with flexible weatherstrip at bottom, fits snugly against frame providing a complete and weatherproof fit all around. Primed at factory with aluminum paint. Unprimed doors optional.

Design—Is attractive and will harmonize with any building design.

STANDARD SIZES

No. 31B7676.....7'6"x 7'6"	No. 31B8076..... 8'0"x 7'6"
No. 31B8070.....8'0"x 7'0"	No. 31B8080..... 8'0"x 8'0"
No. 31B8010.....8'0"x10'0"	No. 31B1080.....10'0"x 8'0"
No. 31B9090.....9'0"x 9'0"	No. 31B1010.....10'0"x10'0"

Other Sizes Special on Order



Showing How Door Folds Inside

Up over car without interference, even when bumper of car is almost against door



Door Folded All the Way Up

Inside the opening—completely out of way. Requires less than usual ceiling height

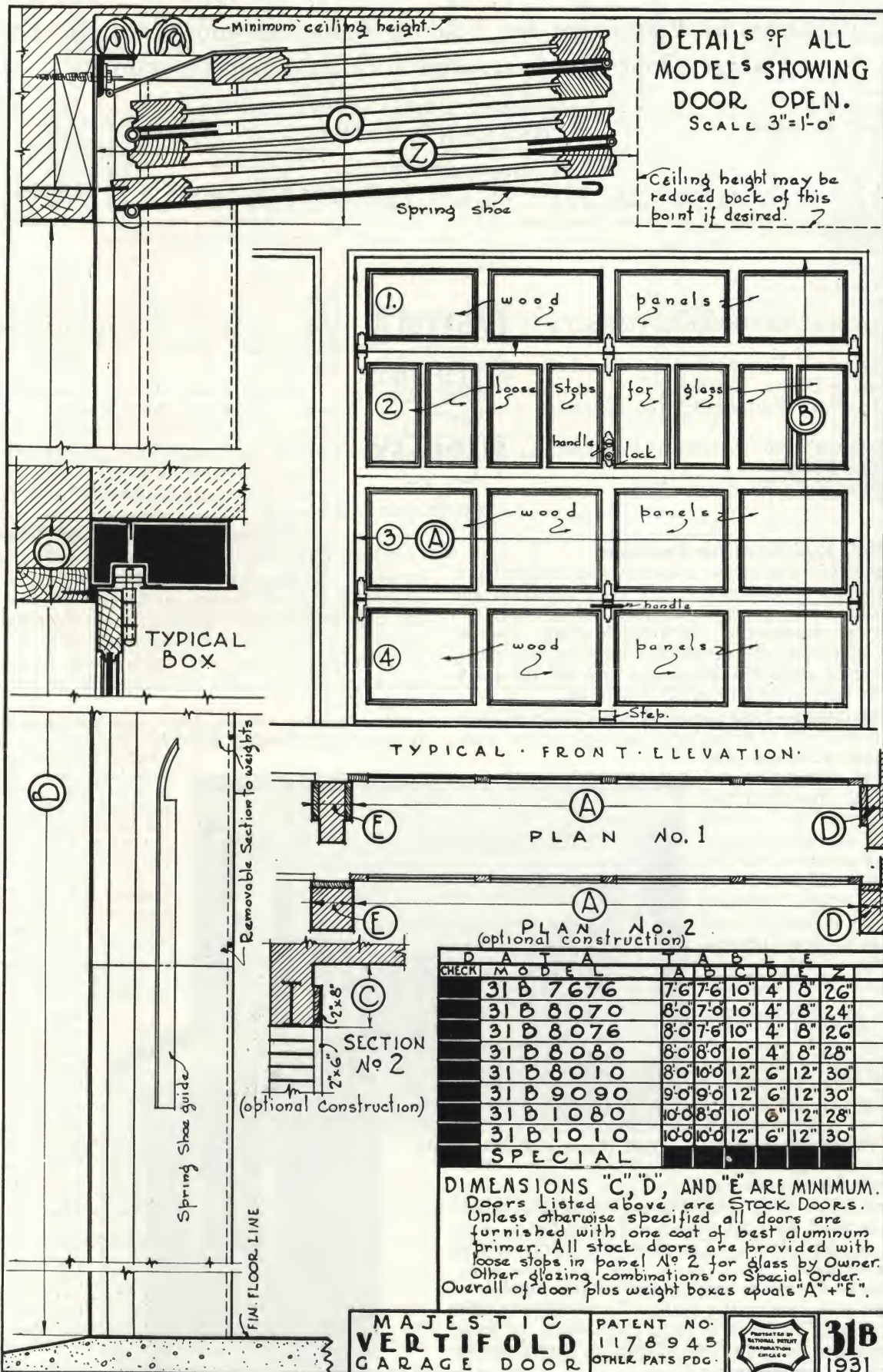


Outside View—Door Closed



Outside View—Door Folding Up

DETAILS OF MAJESTIC VERTI-FOLD DOOR



THE TOPPING MANUFACTURING COMPANY

Manufacturers of Equipment for Folding Partitions and Wardrobe Doors;
Garage Door Hardware and Electric Door Operators

TELEPHONE
ASHLAND 339 MAIN

MAIN OFFICE AND FACTORY
ASHLAND, OHIO

DISTRICT OFFICES:

BUFFALO, N. Y., J. J. O'LEARY SALES Co., INC., 700 Main Street
MILWAUKEE, WIS., S. A. SMITH, 290 Third Street
NEW ENGLAND, GEO. F. TRACY Co., 101 Tremont Street, Boston, Mass.—
Telephone, Liberty 1316

PACIFIC COAST, W. R. VOORHEES & Co., 417 Market Street, San Francisco, Cal.—Telephone, Sutter 6574
SEATTLE AND NORTHWEST, EARL H. JONES, 7236 Le Driot Court, Seattle, Wash.—Telephone, Beacon 3589

Product

"EASYFOLD" EQUIPMENT for Folding Partitions.

"EASYFOLD" EQUIPMENT for Wardrobe Disappearing Doors.

"RED RIB" EQUIPMENT for Accordion Doors.

"SLIDEASY" and "EASYFOLD" EQUIPMENT for Garage Doors.

"OPENEASY" ELECTRIC DOOR OPERATORS.



"Easyfold" Equipment for Partitions

"Easyfold" Equipment originally was designed and, through years of experience, has been improved and perfected to meet every requirement of strength and durability in construction, simplicity in design, and the extreme of ease in the operation of folding partitions. Headroom of only 31½ in. is required for the track. It may be used in new or in old buildings.

Description—Heavy track of cold rolled steel is suspended from above in strong tight-locking brackets. Hangers, easily accessible and of positive adjustment, are of malleable iron and drop-steel forgings with dust-proof ball bearing swivels—an exceptional construction. Double grooved wheels run on arched treads, reducing friction to minimum, span the slot in track and prevent spreading. Floor guide of extruded brass, with interlocking and removable top plates, cannot rust. The V-shaped dust pocket is cleaned easily by vacuum or by hand. Door guides have case-hardened ball bearing wheels, of large diameter, which rotate horizontally and take all side thrust in floor guide with no shearing action as doors fold. Ball bearing emergency rollers, with wide tread, have no contact with level floor. They protect uneven floors. Compensating jamb springs function always.

Doors—Partitions may comprise any number of doors; an even number if possible. Doors move in units of two, fold at either jamb or at both jambs, or travel past jambs and fold at wall or column. A hinged passage door may be built into any unit.

All doors in a partition must be of equal width,

1¾ to 3 in. thick. Doors may be of regular type, soundproof, or fireproof construction; flush, glazed, paneled, or designed for blackboards.

Soundproof Doors—"Easyfold" equipment, combined with Evanston Soundproof Doors, comprises the "Easyfold" Hamlinized Folding Partition, which has no superior in retarding the travel of sound or in ease of operation. Doors are sealed tight at top, bottom, and sides.

"Easyfold" Hardware Comprises—

Overhead track; brackets with lags or bolts; adjustable hangers; bottom guide wheels; emergency rollers; adjustable top and bottom pivots for end door at folding end; compensating jamb springs; floor guides, and special sills and braces for passage doors.

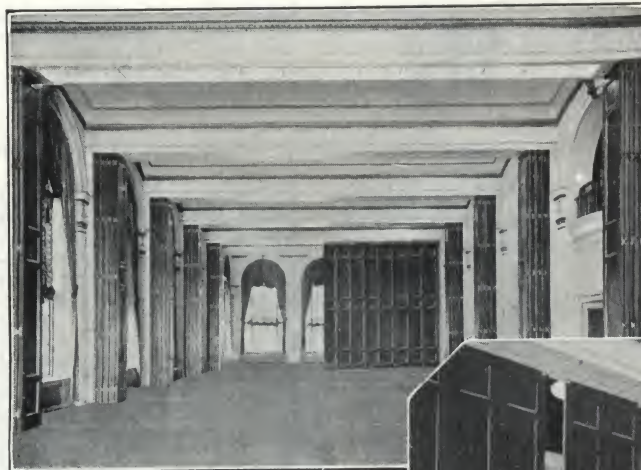
Finish—Access cover plates are bronze. Edge plates are plain to stain or dead-black, or special finish as specified.

Specifications—Doors, jambs, and trim to be as detailed, furnished with Topping "Easyfold" Equipment No. 10600, and installed by contractor in strict accordance with details furnished by THE TOPPING MANUFACTURING COMPANY. (When the Hamlinized Folding Partition is specified, use "Easyfold" No. 10600 H.)

For butts (or invisible hinges), flush bolts, door pulls, latch or lock sets for passage doors, see specifications for "Finishing Hardware."

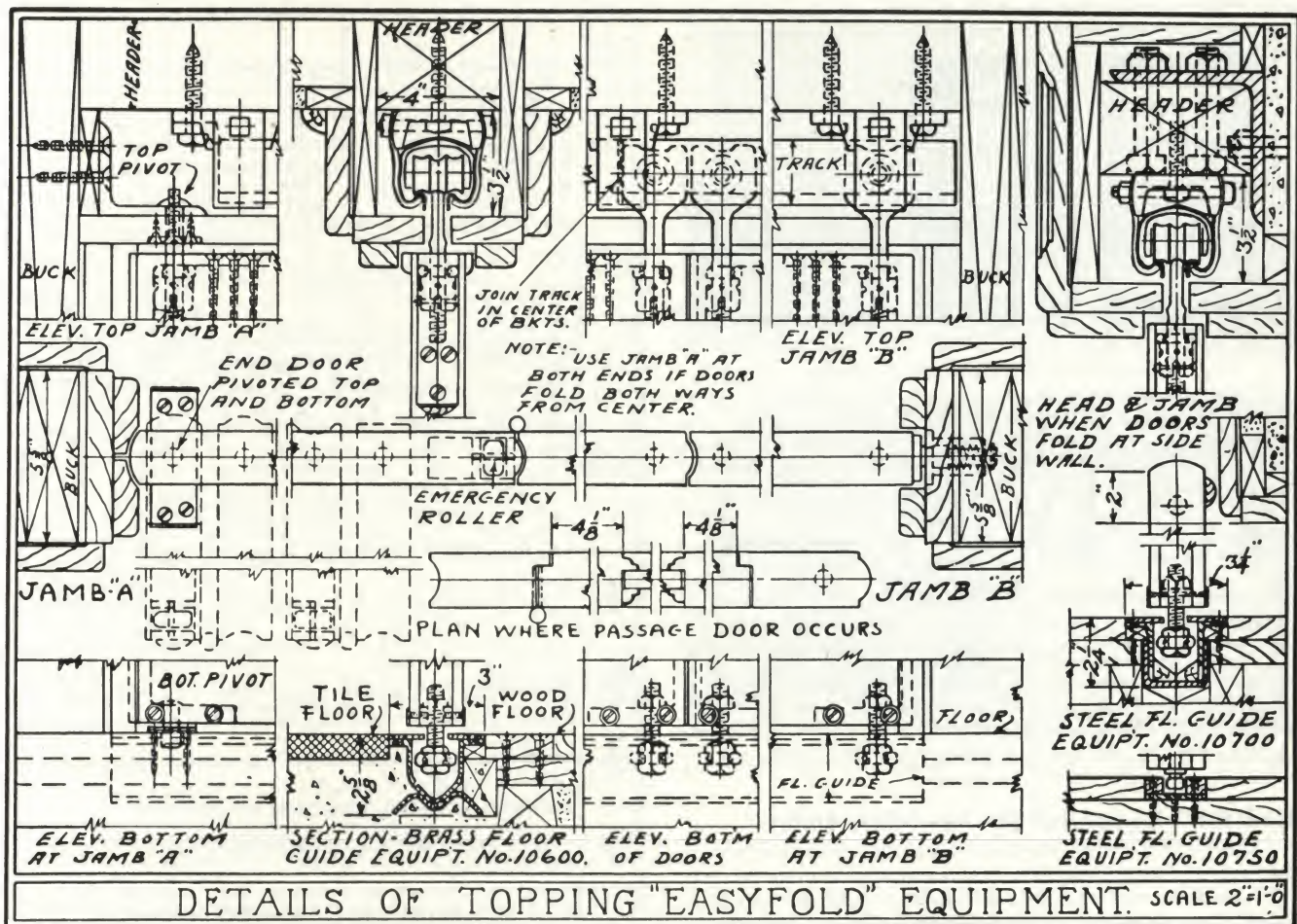
Butts for folding doors to be steel [bronze] [Soss Invisible Hinges]. Flush bolts to be

THE TOPPING MANUFACTURING COMPANY'S No. 609, with backset to center the doors (made with ¾, 1, 1½, 1¾, 1½, and 1¾-in. backsets) and bolt head to fit slot in floor guide. Flush door pulls to be THE TOPPING MANUFACTURING COMPANY'S No. 608 (No. 607 if doors are small). Latch [lock] with proper backset and with cup and drop handles both sides for passage door, all furnished to match other hardware in parts where these occur.

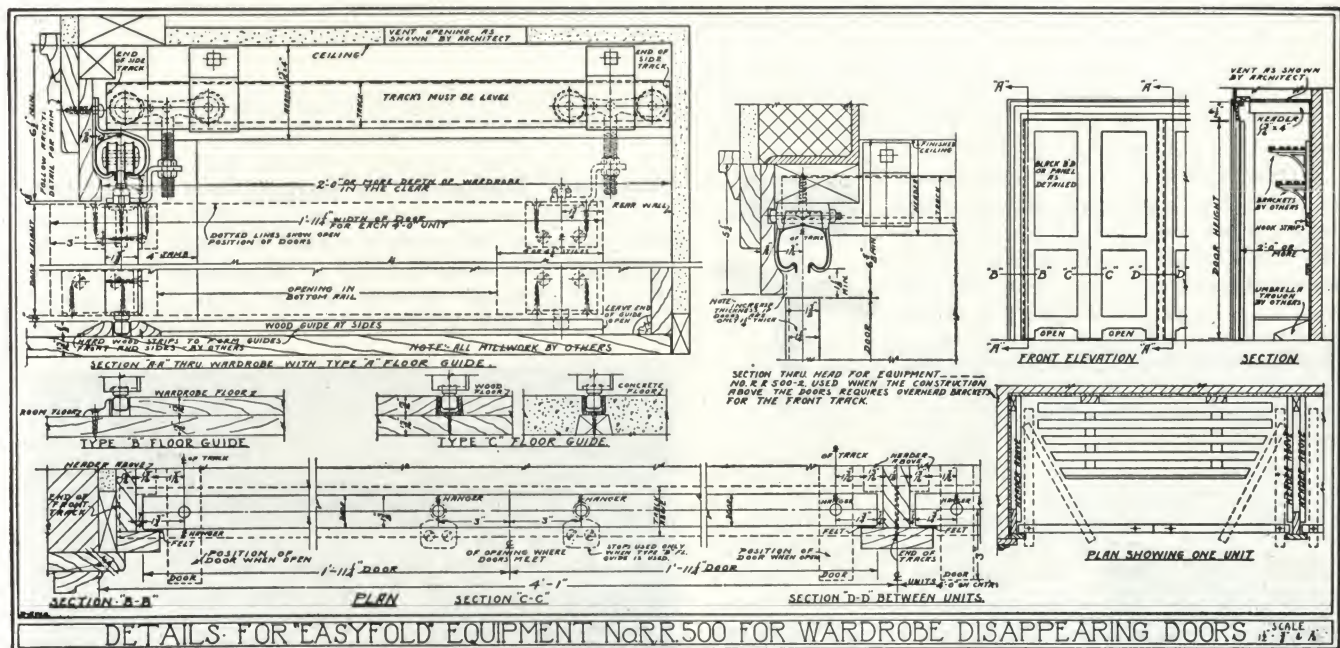


Neil House, Columbus, Ohio
GUSTAV W. DRACH, Architect





D-E.W.S.



"Easyfold" Equipment for Wardrobe Disappearing Doors

Wardrobes equipped with "Easyfold" No. RR500 insure ease of entrance and exit. They contribute to safety. The doors do not project into aisles; they disappear entirely into the wardrobe when opened. Permanent adjustment, ease of installation, and quiet operation are other distinctive features.

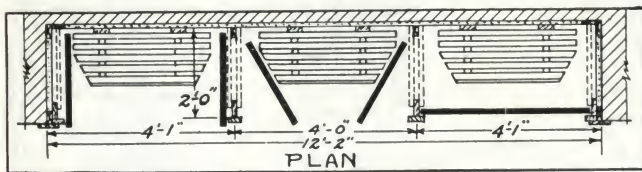
"Easyfold" Wardrobe Hardware—Comprises overhead track, tight-locking brackets with lags, adjustable hangers with rubber wheels and dustproof ball bearing swivels, door guides with wide tread ball bearing rollers, and sound deadening felt strips at jamps.

Note: Use hard maple strips for floor guide, beveled on one side and laid 3/4 in. apart, or build slot in floor; angle guides furnished when specified. "Easyfold" No. 500-1 requires 6 1/2 in. headroom and No. 500-2 requires 5 1/2 in. headroom above door. Side track requires 6 in. from top of door to finished ceiling. Doors must be 1 3/4 or 1 1/2 in. thick. Wardrobe units 4 ft. wide with doors 1 ft. 1 1/4 in. wide must be at least 2 ft. deep in clear.



Wardrobe with Disappearing Doors

Doors disappear entirely within the wardrobe when open, causing no obstruction in the aisle



Specifications—All wardrobes shall be built in by the contractor as detailed. Doors to be 1 $\frac{3}{8}$ in. [or 1 $\frac{1}{4}$ in.] thick and Topping "Easyfold" Equipment No. RR500-1 [No. RR500-2] to be furnished and installed by the contractor in accordance with details to be furnished by THE TOPPING MANUFACTURING COMPANY, Ashland, Ohio.

Note: Specify blackboards on doors, vent grilles, shelves, and umbrella racks, if desired. Specify also, if desired, door pulls or friction catches and coat hooks with "Finishing Hardware."

"Red Rib" Equipment for Accordion Doors

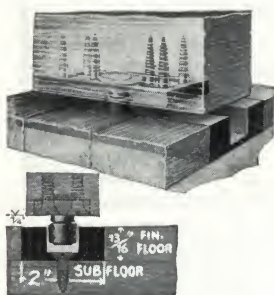
Comprises these superior features: side friction is eliminated; hanger adjustment is easy of access, simple, and positive; tandem wheel hangers may be used on doors 1 $\frac{3}{8}$ in. thick or thicker; "Easyfold" adjustable pivots on half doors insure perfect operation under changing structural conditions and perfect alignment with full width doors.

Light doors require only 2 $\frac{7}{8}$ -in. headroom, and heavy doors 1 $\frac{3}{4}$ in. thick or thicker only 3 $\frac{3}{8}$ -in. headroom between header and soffit. The pivoted half door requires $\frac{1}{2}$ -in. additional headroom.

Description—Track, brackets, and hangers are of same superior construction as detailed in description of "Easyfold" equipment. Floor guide is built of cold rolled steel, with $\frac{3}{4}$ -in. slot; all surfaces smooth and lacquered. Door guide with ball bearing, wide tread roller, rotating horizontally, eliminates friction. This floor guide with door guides prevents doors from dragging on floor. They should be specified with "Red Rib" equipment.

Doors—Openings may have any number of doors. Doors should not exceed 3 ft. in width. If pivoted, a half door must be exactly one-half width of full door plus 1 $\frac{1}{8}$ in.; if hinged to jamb, it must be exactly one-half width of full door less distance from center of track to center of butt pin. Beginning with door farthest from half door, a hanger is used on every other door.

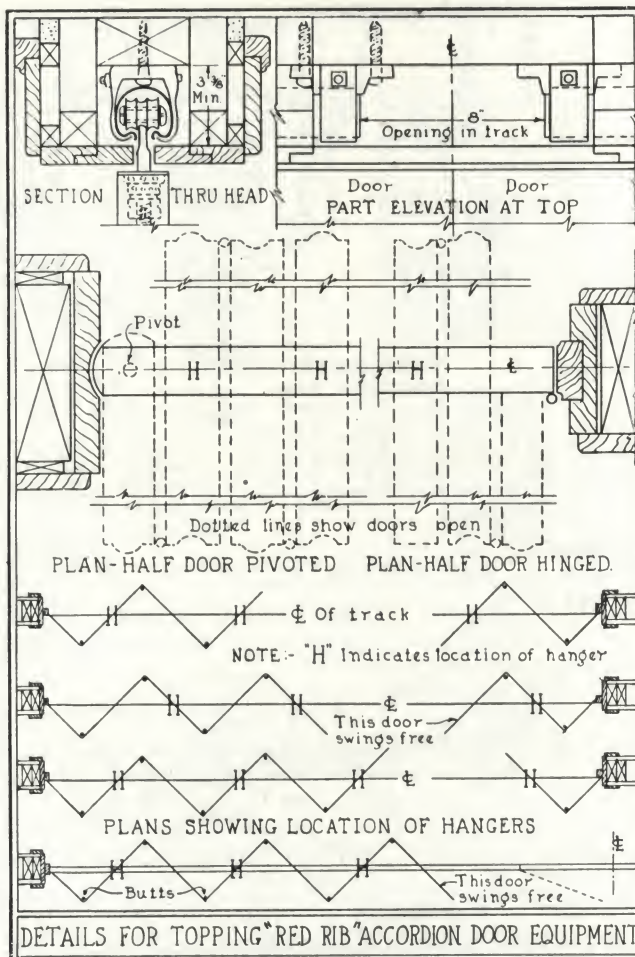
Specifications—Furnish and install for all accordion doors, "Red Rib" Hangers No. 105B, Track No. 92, Brackets No. 092C, to be spaced as recommended by the manufacturer, Floor Guide No. 750 for full width of opening,



Accordion Door and Floor Guides



Hanger



Door Guides No. 753 $\frac{1}{2}$, and Flush Bolts No. 609, all as manufactured by THE TOPPING MANUFACTURING COMPANY, Ashland, Ohio.

Note: For doors 1 $\frac{3}{8}$ in. thick, or for 1 $\frac{1}{4}$ -in. doors, specify "Red Rib" Hangers No. 105A, Track No. 91 and Brackets No. 091C. Specify "Easyfold" Pivots No. 604, butts, flush bolts, flush door pulls or lock trim for doors under "Finishing Hardware."

"Easyfold" Equipment for Garage Door No. EG900

Is not visible from outside and is designed especially for the private garage of high grade construction with wide openings of any number of doors, all doors opening in and folding away from jambs, parallel with and against sidewalls. It is not designed

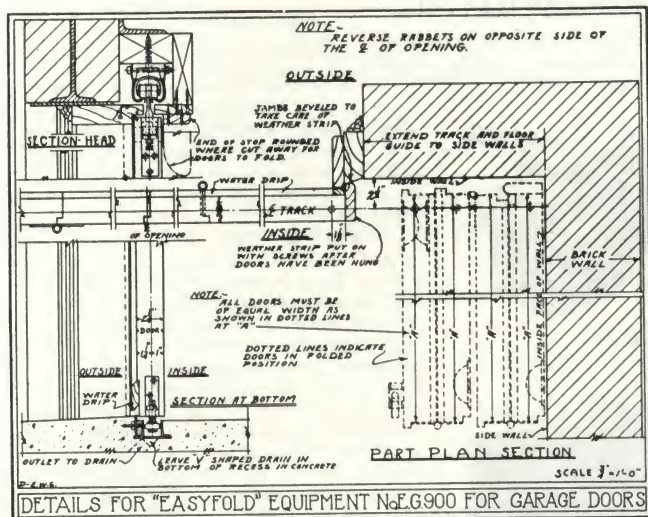


Interior View Showing Doors Folded at Sidewalls Entirely Removed from the Opening

for doors opening out. Track, brackets, and hangers are concealed.

Operation—Doors, suspended from above, roll in units of two between stops at header, which are omitted at ends where doors fold. Opening is clear when doors are folded. Doors cannot fold in opening.

Note: Doors must be at least $2\frac{1}{4}$ or $2\frac{1}{2}$ in. thick; joints rabbetted or astragal. Head and jamb casings should be screwed on. Any one of doors may have wicket door.



EG900 Equipment—Comprises track, brackets, and hangers of same superior construction as detailed in description of "Easyfold" equipment for folding partitions; steel floor guide, heavy door guides with brass rollers, door stops, door pulls, butts, and automatic cylinder door lock.

Specifications—The large opening [openings] shall have doors $2\frac{1}{4}$ in. thick, constructed as detailed. Doors shall be fitted with Topping "Easyfold" Equipment No. EG900, with floor guide and track extending to both sidewalls, and shall be furnished and installed by the contractor according to details furnished by THE TOPPING MANUFACTURING COMPANY, Ashland, Ohio.

Note: When detailed with wicket door, the cylinder latch desired and Topping Drop Pulls No. 677 should be specified.

"Slideasy" Equipment for Garage Doors

Meets the popular demand for a durable and thoroughly efficient equipment at low cost; made in standard sets for light or heavy doors, opening in or out, in two sizes, requiring 7 or 8-in. headroom, respectively, and special sets for doors opening out with track concealed inside.



Doors Opening Out, Equipped with "Slideasy" Equipment No. 99A3

"Slideasy" Equipment—Comprises "Red Rib" track with arched tread, heavy adjustable brackets, adjustable tandem wheel hangers, with or without hold-open device operating automatically inside of track; aprons with long supporting sleeves; latch, pull, and binder which control operation of door bolts top and bottom; interlocking door and floor guides which hold doors securely at bottom against jambs and sill; and butts or hinges as required.

Specifications—Furnish and install "Slideasy" Garage Door Set No. 097A (for heavy doors, No. 097B, or, if desired with "hold open" hanger, No. HO-097B).

Note: If butt hinges are wanted at jambs, specify No. 97A for light doors and No. 97B or No. HO-97B for heavy doors. Sets Nos. P97A, P97B, and HO-P97B have heavy offset pintle hinges to swing doors clear of opening.

Lock for free or entrance door is not included in set. It should be specified separately.



Doors Opening Out, Equipped with "Slideasy" Equipment No. 99A3

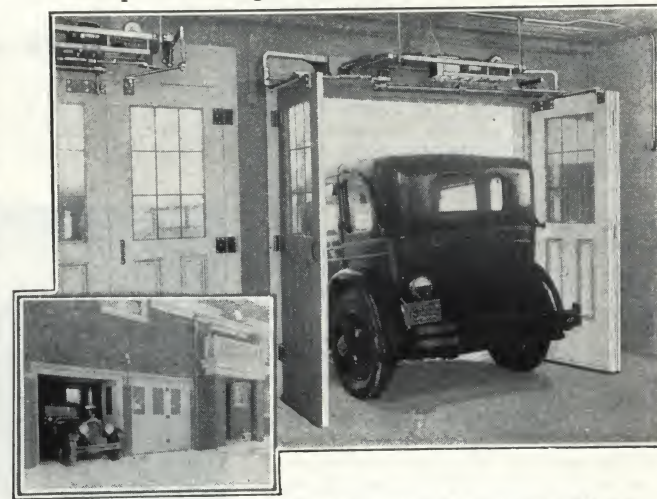
For Garages of the Better Class—99A equipment assures distinction in appearance and ease in operation for garages of the highest type. Track secured to head jamb inside is concealed from exterior view when doors are closed. Doors open out and may fold at one jamb or at both jambs. Regular equipment is furnished for openings of 3 to 6 doors. Special equipment is furnished to order for openings of 7 to 10 doors. Details will be furnished on request.

Specifications—Furnish and install "Slideasy" Garage Door Equipment No. 99A, as manufactured by THE TOPPING MANUFACTURING COMPANY, Ashland, Ohio.

Note: Locks for free or entrance door and roller wheel guard No. 185 are not included in set. They should be specified separately.

"Openeasy" Electric Door Operators

A simple, practical, and durable electrical device for automatically opening and closing doors of all types in public and private garages, fire stations and warehouses. Complete catalogue mailed on request.



Doors Open Clear of Jambs with "Openeasy" Electric Door Operator

BARBER-COLMAN COMPANY

Manufacturers of Garage Doors and Garage Door Operators

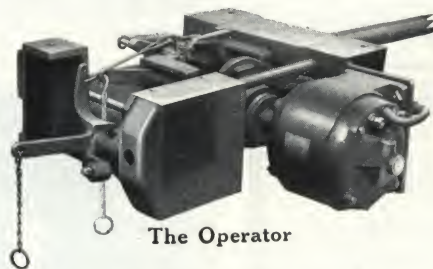
ROCKFORD, ILL.

For our pages on Temperature Control and Furnace Regulators, see Manufacturers' Index

BARBER-COLMAN DOOR OPERATORS

The Operator

Description—The Barber-Colman Door Operator is a device for opening and closing garage doors electrically; it is designed for operation by either switch control or radio control, or both. It will operate nearly all types of swinging, sliding or overhead doors. Power is transmitted by a standard motor unit through members which differ according to the type of door. An adjustable "overload release" device removes all power from the door when it strikes any obstruction. Provisions for reset and for manual release are simple and convenient. All parts of the machine are easily removable and standardized. The standard operator is designed to run on 110-volt, 60-cycle a-c. Operators can be furnished to run on 220-volt, 60-cycle a-c., 110-volt d-c., or 220-volt d-c.



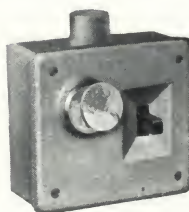
The Operator



The Transmitter



The Receiver



Outside Switch



Drive-
way
Post
Switch

Radio Control

How It Operates—The Barber-Colman Radio Controlled Door Operator makes possible the opening and closing of garage doors by means of a radio transmitter operated from the instrument board of a car. Coded signals make it private. A series of radio impulses transmit a message that will open only the door for which they are coded. The operating mechanism holds the door open and does not allow the wind to blow it shut. When the door is closed it is securely locked by a mechanism that cannot be picked. At night, radio signal from car not only opens doors but also automatically turns on garage lights.

Transmitter—Each car which is to control a door is equipped with a transmitter that broadcasts a particular series of impulses. A pull on the transmitter knob conveniently placed on the dashboard causes this code to be sent automatically. The transmitter consists of three main parts: the timer, the spark coil unit and the transmitting antenna. Power is drawn from the car battery and consumption is negligible. The timer, which governs transmission, is encased in a small box and clamped back of the instrument board. The spark coil unit, enclosed in a watertight box clamped to the main

frame, furnishes the high frequency current necessary for broadcasting. This current flows through the transmitting antenna which consists of two lengths of rubber insulated wire suspended diagonally under the car. The wire is mounted in such a manner that there is little danger of mechanical injury. The only part of the transmitter in evidence is the knob on the instrument board.

Receiver—The receiver unit is contained in a box about 1 ft. square and 1½ ft. long mounted on the wall inside the garage. Connected to it is the receiving antenna which consists of a wire buried in the driveway. The receiver analyzes the coded signal from the car and, if it is the proper code, trips off the electric operator which opens and closes the door. A selecting mechanism in the receiver makes it responsive to two different codes for garages having two doors. The receiver requires 110-volt, 60-cycle a-c., the power ordinarily furnished for house lighting. The single vacuum tube used in the detecting circuit of the receiver is of the type used in automatic train control equipment. The mechanism is simple in design and reliable in operation.

Switch Control

Self-restoring Switch—A self-restoring toggle switch is furnished with each operator as standard equipment. It can be installed in a standard surface or flush type switch box in the house or garage. It will control two door operators selectively.

Driveway Post—Conveniently installed at the side of the driveway for operation without leaving the car. The lock-switch in the post head makes a contact when the key is inserted, which opens the doors. A self-restoring toggle switch, not locked, is also provided in the post head by which the door can be closed but not opened.

Outside Switch—This switch, like the driveway post, embodies the lock switch for opening and the free switch for closing. It may be used in place of the post where a wall or fence affords a convenient location.

BARCOL OVERDOOR EQUIPMENT

Description

The Barcol Overdoor is an "overhead" type door, made in sections and carried on rollers in tracks so that, to open it, it is pushed up. When open, the door lies flat along the ceiling above and inside the doorway, occupying no wall space inside the opening.

Door Parts

The sections of the Barcol Overdoor are hinged together, and the ball bearing rollers which carry them run in steel tracks that are vertical to a point near the top of the opening when they turn on a 15-in. radius and run horizontally as far as necessary to support the full height of the door.

The counterbalancing coil springs are located, as shown, above the sides of the opening. This type of construction requires only 12½-in. headroom.

Springs—Springs are made with a special mounting, providing a means by which they can be cut to exact length

to counterbalance weight of door at every point of its travel.

Rollers—These are located at every section division, supporting the door along its full height. Tight closing at all points against the stop strips is obtained by means of special hinge roller plates which swing out with a lever action during the last 2 in. of the door's travel.

Rubber Astragal—This, along the bottom of the door, adds flexibility to the seating, and makes a seal which follows irregularities in the floor.

Special Hinges—Hinges which have a tubular pin are used, giving a large bearing surface and insuring long life and satisfactory operation.

Handle with Yale Lock—A handle is provided by which the door can be opened from either the inside or the outside. A spring-operated latch is arranged to catch automatically when the door is closed.

Stiles and Rails—Made unusually thick, and strongly put together in order to give a solid, lasting construction.



SCHOELKOPF MANUFACTURING COMPANY

Manufacturers of Air-Lec Automatic Door Operators

• MADISON, WIS.



Sliding

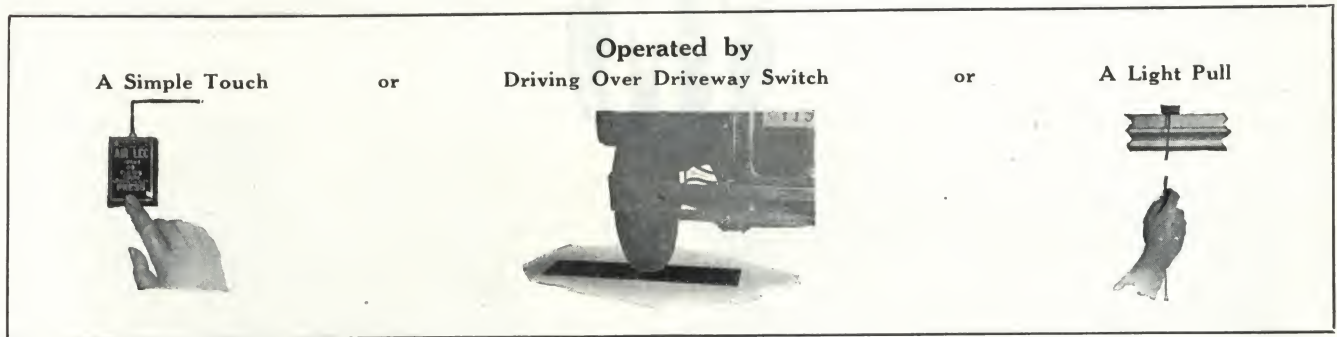
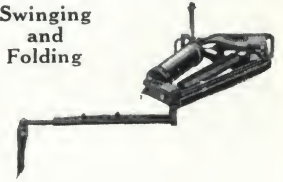
Function

Air-Lec Automatic Operators open and close swinging, folding or sliding doors quickly, quietly and smoothly.

How Operated

Air-Lec Automatic Operators are *powered* by compressed air from the regular air line and *controlled* by switches placed conveniently so doors may be instantly opened or closed from any part of the building.

Swinging
and
Folding



Description

Current—For the switches is furnished by a 6-volt dry cell.

Installation—Very easy and simple. All working mechanism is above the doors out of the way. Only 5 in. headroom required. Air-Lec does not interfere at any time with the operation of either door by hand.

Design—Designed on the "over dead center" principle which insures utmost operation economy and smooth opening and closing on a "cushion of air."

Construction—Entirely of bronze, steel and malleable iron, and built to give 24-hour use for many years. Nothing to get out of order.

Uses—Air-Lec is the ideal door operator for public garages, warehouses, bus garages, cold storage plants, factories, fire departments and the better private garages. A fusible link attachment makes it especially adaptable to fire doors in factories.

Service—Our engineers who, for eight years, have solved door problems are prepared to advise architects and engineers concerning the types of doors most suitable; the selection of hardware and any other items pertaining to door operation.

Guarantee—Guaranteed to open and close the doors for which made, with a further guarantee of one year against defective workmanship and material.

AIR-LEC PRICES (*)

For Swinging and Folding Doors (†)					For Sliding Doors (‡)				
Cylinder diameter, in.	Single		Double		Cylinder		Door travel, ft.	Single	Double right and left
	(§) For doors up to, width, ft.		(§) For doors up to, width, ft.		Stroke, in.	Diameter, in.			
2	5	\$67.50	10	\$125.00	10	2½	4 to 7 or 8	\$ 70.00	\$130.00
2½	6	70.00	12	130.00	18	2½	7½ to 12	80.00	150.00
3	8	72.50	16	135.00	24	3	9½ to 16	100.00	190.00
4	10	75.00	20	140.00	32	4	12½ to 20	120.00	230.00

(*) All prices f.o.b. Madison, Wis., and subject to change without notice. Each Air-Lec comes complete, including bolts, 3 switches, 100 ft. double wire, warning sign and instructions.

(†) The gas pipe connecting rods not furnished with sliding Air-Lec due to varying lengths depending on door travel. Pipe can be bought locally for less than transportation alone, due to bulkiness.

(‡) Mounting brackets and arms for folding doors, opening in, \$2.00; pair \$4.00. Mounting brackets and triangles (doors swinging or folding

out) \$5.00; pair \$10.00. Extra double wire per 100 ft. roll \$2.00; extra switches \$0.25; driveway switch, connects through conduit, \$40.00; transformer for alternating current \$5.00; pressure regulator (when air pressure varies 50 lb. or more) \$7.50; fire trip \$5.00.

(§) Cylinders interchangeable. If after trial, due to low air pressure, wind or other resistance to overcome, you find Air-Lec is underpowered, it is only a few moments' work to substitute the next larger diameter cylinder at the exchange price of \$2.50.

We Suggest You Specify as Follows

Air-Lec Door Operators, manufactured by SCHOELKOPF MANUFACTURING COMPANY, Madison, Wis., to be supplied by owner for doors indicated. Carpenter contractor to bolt door operator in position securely and connect to door and make adjustments. Plumbing contractor to run a ½-in. gal-

vanized pipe from air supply, including a settling trap and blow-off near door operators and connect same. Electric contractor to do the wiring to all the operating switches as indicated (100 ft. double annunciator wire and three operating switches regularly furnished with operator).

THE YODER-MORRIS COMPANY

Manufacturers of Y-M Electric Door Operators, "Clearover" Doors, Four-Fold Doors and Hardware for Garages, Service Stations, Warehouses, Industrial Plants, Roundhouses, Airplane Hangars, Fire Stations and Mines

5500 Walworth Avenue
CLEVELAND, OHIO

REPRESENTATIVES AND SERVICE DEPARTMENTS IN ALL PRINCIPAL CITIES

THE Y-M ELECTRIC DOOR OPERATOR

The Y-M Door Operator is an electrically operated device for opening and closing all types and sizes of doors. It is so designed and constructed as to give satisfactory service under the most exacting conditions. The operation is performed smoothly, quickly and positively. The doors always start and come to a stop slowly, thus preventing undue strain on the motor and giving it extraordinary power when required, as well as eliminating the wear and strain on doors and hardware caused by continual slamming.

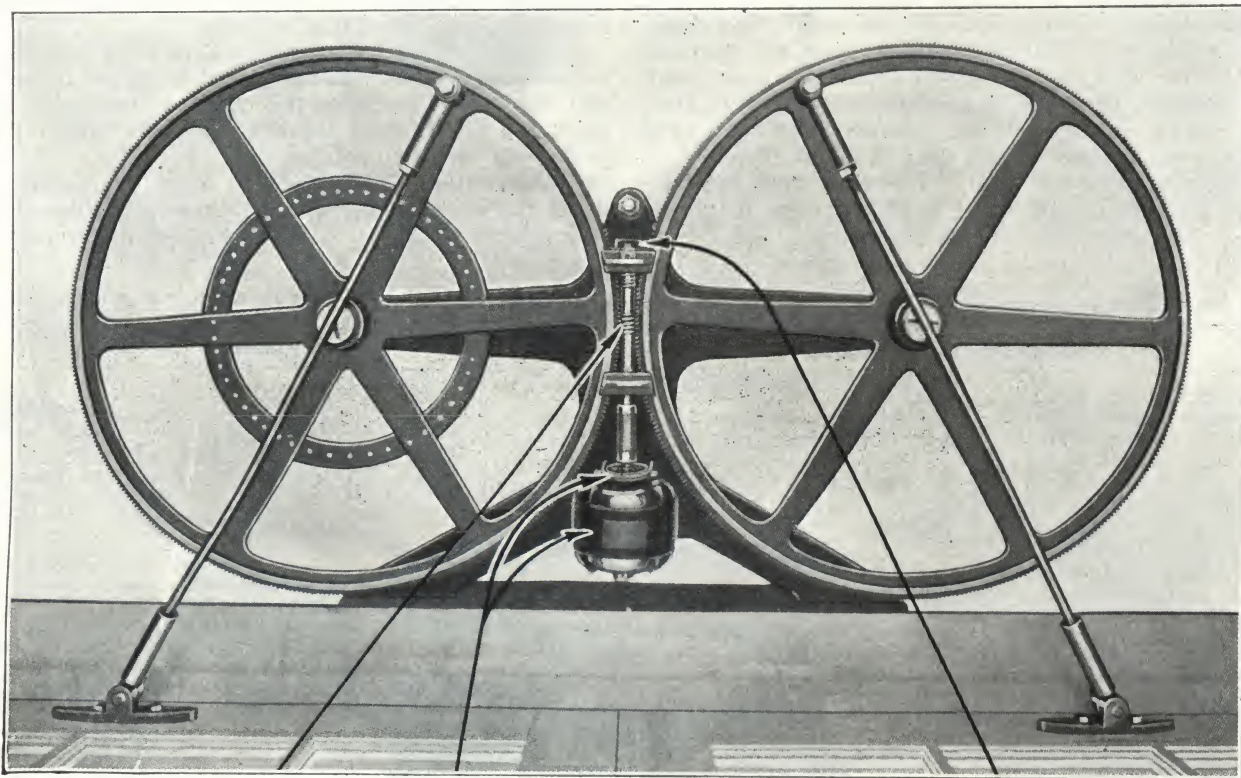
The worm gear, effecting a 400-to-1 reduction in speed, not only serves as a powerful reduction unit, but at the same time provides a locking device that is entirely automatic and efficient. The doors are securely



locked in either open or closed position.

Y-M Operators do not have a crank arm to bend or break at the shoulder. The power is applied to the motor at the outside rim of the large gear wheels and the crank strain is equalized over the gears as a whole, resulting in great durability and permanence of adjustment.

The Y-M safety feature prevents damage to objects coming in contact with doors while in motion and is positive at all times. Y-M features the absence of clutches and slipping belts which might cause uncertain and undependable operation. Each operator is also equipped with an overload circuit breaker which acts as an additional safeguard for the motor.



Worm Gear Motor and Motor Brake

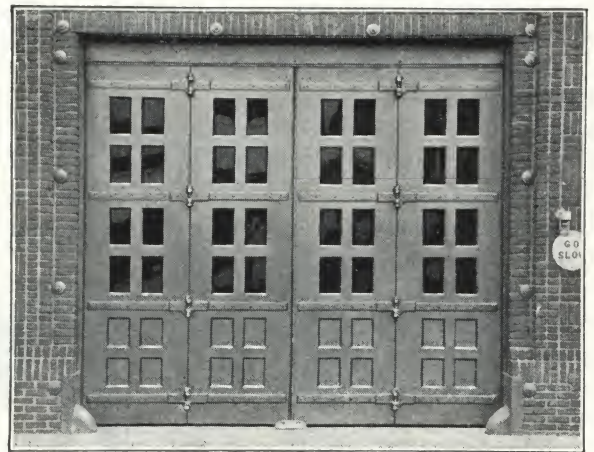
Safety Switch

Bottom View of the Y-M Standard Operator

Worm gear effecting a 400-to-1 reduction of speed and serves as perfect device for locking doors in any position
Motor and motor brake. Motor is of special design. Flexible coupling guards against binding in bearing



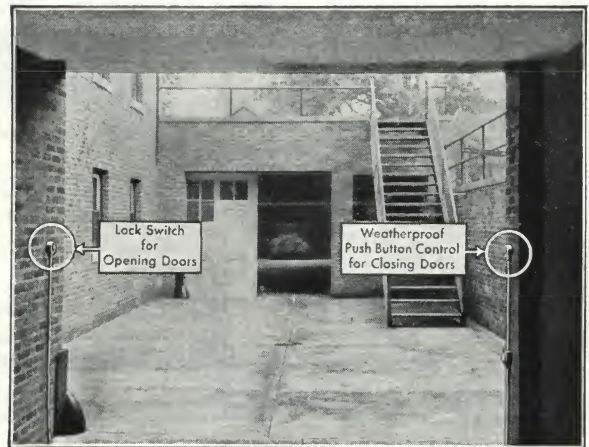
Y-M 3-in. Roller Bearing Hardware on Y-M Doors
Y-M Standard Operator is also shown



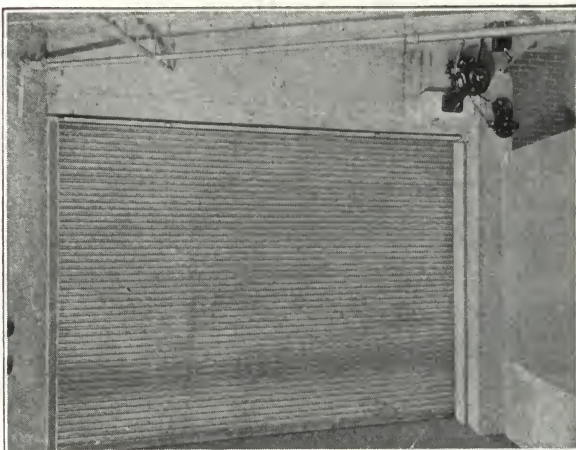
Outside View of Y-M Doors and Roller Bearing Hinges



**Y-M Operator Functioning on Door Where Crane
Passes Through Factory Building**



Controls as Used on an Apartment Garage



Y-M Operator as Used on a Roller Curtain Door
The same operator will operate either vertical slide or vertical lift doors



**A Fire Department Installation of the Y-M Door
Operator**

Y-M ELECTRIC DOOR OPERATOR CONTROLS

Any number and kind of controls can be installed, so that doors can be opened or closed from any location.

Lock Switch Post Control—Remote control of garage doors without getting out of car is best accomplished, when security is considered, by means of Lock Switch Post placed at side of driveway at some distance from the garage. One-dial post controls serve one or two entrances; two-dial post controls one to four entrances; three-dial post controls one to six entrances, and four-dial post controls one to eight entrances. Post made of cast iron, locks and dials of bronze. Protects premises against robbery.

Cord Pull Control—Attached overhead. A pull of the cord starts operator when doors are either in open or closed position—especially convenient in public garages and factories. As many may be used as desired.

Lock Switch and Box—Same cylinder lock and dial that is used with our cast iron post control. Fitted with $1\frac{1}{2}$ -in. threaded opening at bot-

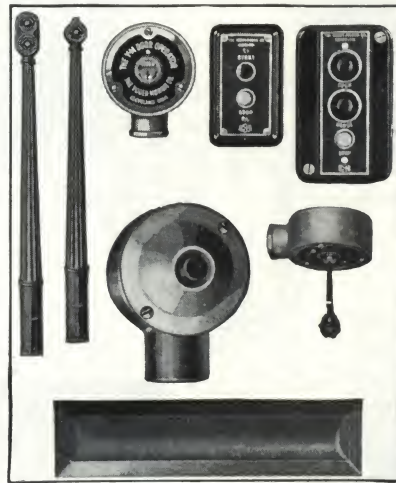
tom for mounting on gas pipe post and has screw knockouts at back for securing same to wooden post or side of building.

Open, Close and Stop, Push Button Control—Permits starting, stopping and reversing of operator at any point. Used with reversible motors.

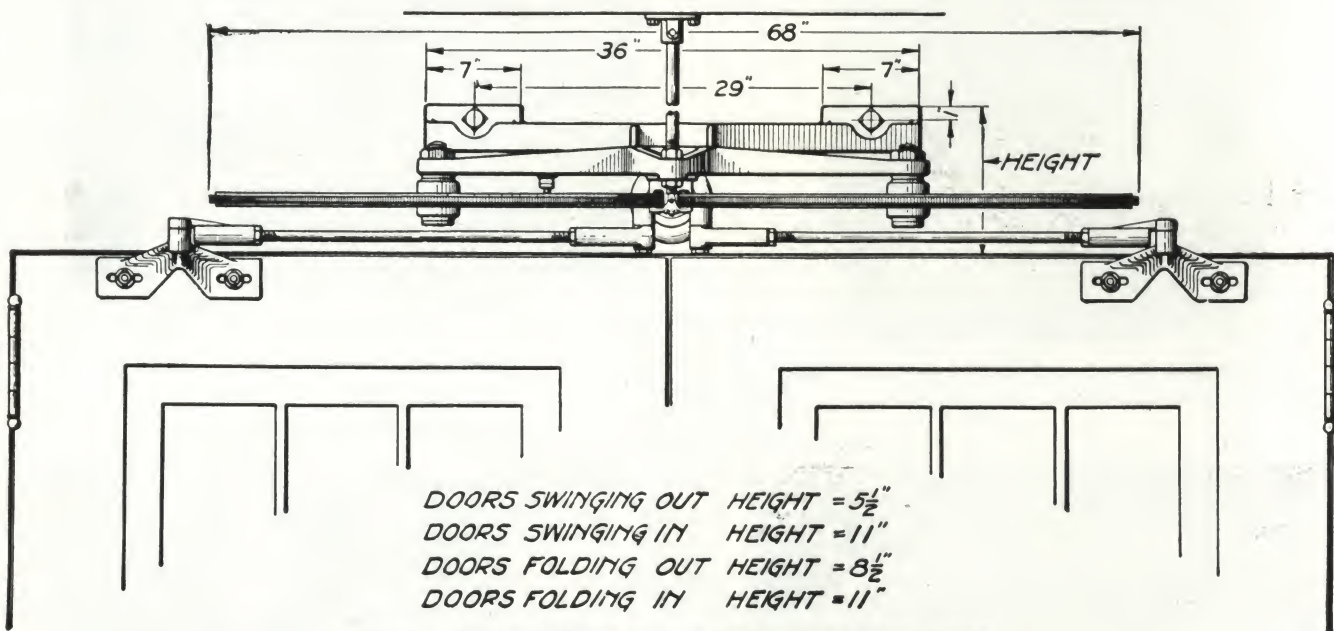
Emergency Stop Push Button Control—Permits stopping and starting operator at any point. Furnished with Standard Operator.

Single Button Control—Used where emergency stop button is not required and where two-wire hook-up is used. (For 110 or 220 volts.) Furnished with Junior models.

Y-M Tread Control—Very convenient where operation of doors is required without regard to security of premises. Tread Control either opens or closes doors or both by passing over same with auto wheel—lies flat on driveway. Held in place by anchors in concrete. Durable construction and is weather-proof in all seasons. Patents pending.



Various Types of Y-M Controls



Showing Standard Operator Attached to In-swinging Doors

With the Following Information Orders Can Be Filled

Current—

Direct
 Alternating
 Voltage
 Cycle
 Phase

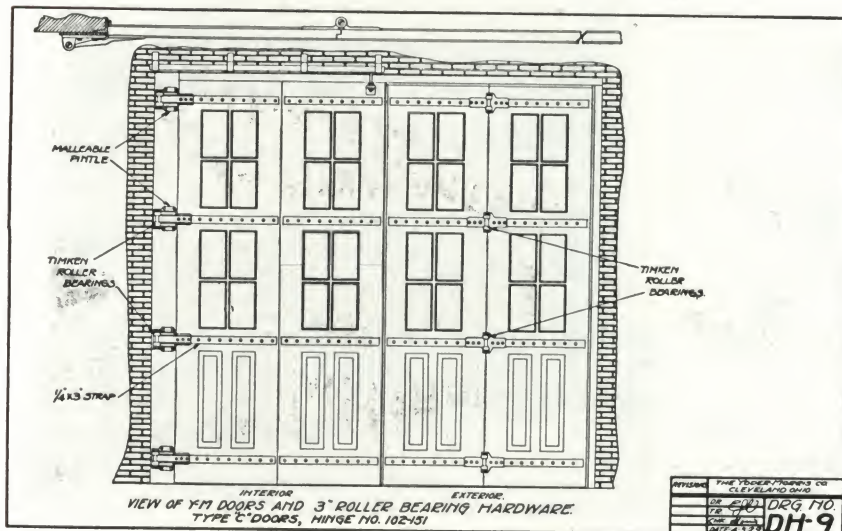
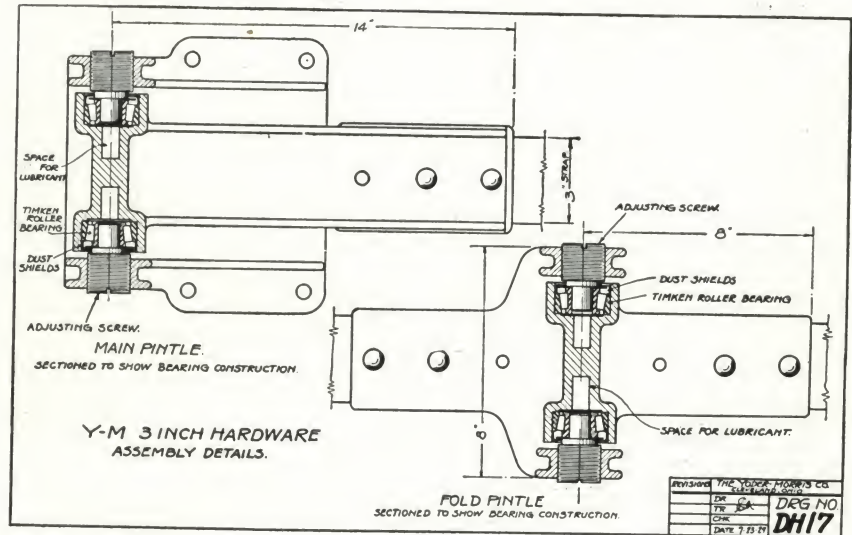
Door Measurements—

Height of opening
 Width of opening, hinge pin to hinge pin.....

Distance top of door to ceiling.....
 Any obstruction back of door.....
 Clearance behind door—left.....right.....
 (Above observations made from within building)
 Distance from top of door to top of track in sliding and folding doors
 (Draw sketch of same)
 Building—Frame..... Brick..... Concrete.....
 Thickness of door....Thickness of wall above door....
 Degree of swing of door each way—left....right....

Y-M ROLLER BEARING HARDWARE

Designed for all types of service, especially adapted to heavy duty service. Will support heaviest doors and operate with greatest ease, as a result of all load, both thrust and radial, being carried on Timken roller bearings.



Engineers who have seen and used Y-M Roller Bearing Hardware pronounce it the most highly developed they have ever seen. Its construction is the very best and it is built for maximum durability and ease of operation.

Used by Such Representative Concerns as

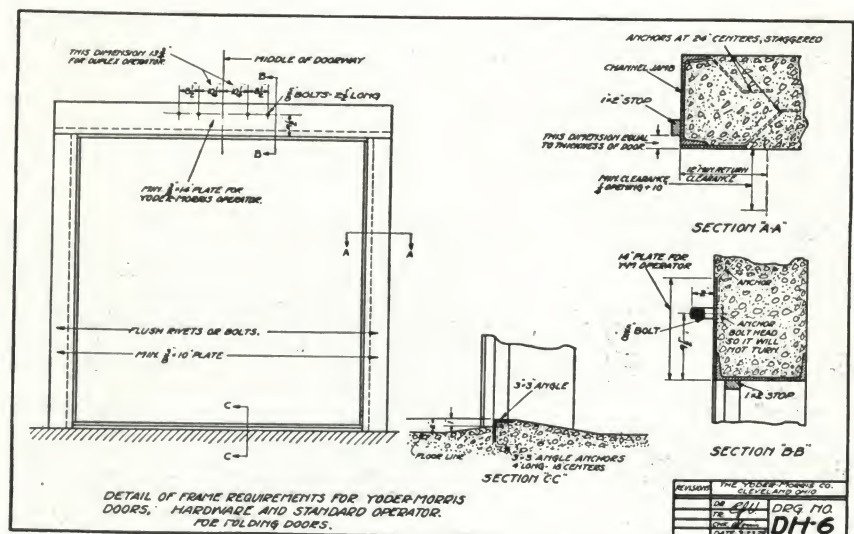
White Motor Company,
Cleveland, Ohio

Graham-Paige Company,
Detroit, Mich.

Michigan Bell Telephone
Company, Grand Rapids,
Mich.

Cleveland Electric Illumi-
nating Company

Van Sweringen Realty
Co., Cleveland, Ohio, and
other large users.



Y-M "CLEAROVER" DOOR AND ELECTRIC OPERATOR

Y-M "Clearover" Door (patents pending) is built to meet the demand for quality products that will give lasting satisfaction and service over a period of years.

Time-tested principles and new improvements make it a satisfactory door to operate. Architects, engineers and contractors will find in "Clearover" Doors ease of operation and freedom from liability to damage. Great strength and sturdy construction make it distinctly unusual. No expense has been spared to make the complete door, tracks and hardware strong.

Both hardware and tracks are oversize to give more years of useful service. Every feature of "Clearover" Doors is in conformity with the soundest engineering practice. Gauge of track, together with material from which hinges and other parts are fabricated are heavy.

Sections are of white pine in standard design, 1¾ in. thick with heavy panels to match. However, the door can be manufactured of any other wood. Door panels may be constructed of either kalamein, hollow metal or corrugated steel.

Y-M "Clearover" Door goes all the way up leaving a completely clear opening, also stays up until pulled down. It operates easily and smoothly.

Special Mechanical Features—A barrel spring produces a neater and more attractive appearance inside the opening, eliminating any jangling sound of loose springs dropping against the door above. It also makes more substantial installation.

Design of bottom fixture through which traction connection

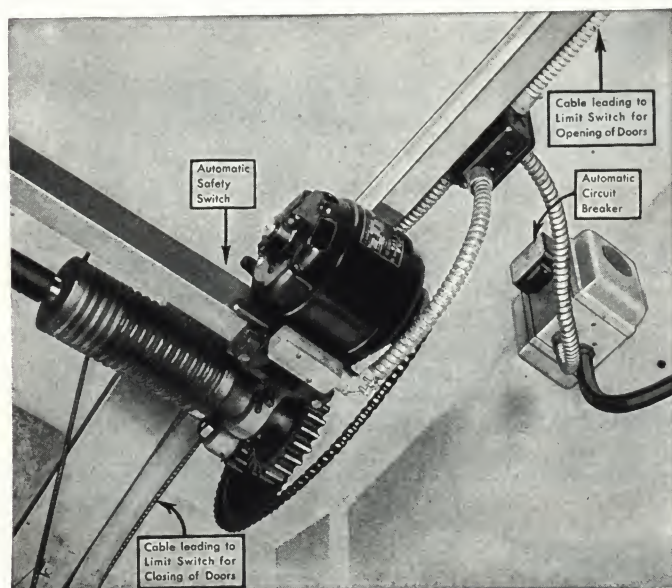
to spring above is effected has been given special attention. It provides support with an adequate factor of safety.

Two cables used to connect to bottom fixtures are of ample proportion and very flexible. They run upwards from side of door over cable drums on the barrel spring shaft.

The roller itself floats on a fixed pin—a feature of great importance because it provides complete freedom from binding. At the same time, it prevents roller from slipping out of the track as is frequently the case.

Made to Meet Every Need—Y-M "Clearover" Doors are manufactured in four to eight horizontal sections, depending upon the opening heights. Stiles and rails of white pine 1¾ in. thick. Other kinds of wood will be furnished. On all openings over 15 ft. 8 in. wide stiles and rails furnished on standard door are either redwood or fir.

Doors are supported by a vertical tubular track, mounted on continuous angle ½ in. thick. Hinges which connect the sections are fastened with through bolts, no wood screws being used. As the doors open, they pass over the track to assume a completely open position approximately parallel to ceiling. They are counterbalanced through connection with barrel coil springs located above lintel of opening. All door rollers run in vertical radius and on extended horizontal track.



Y-M "Clearover" Operator Designed for Y-M "Clearover" Door



Y-M "Clearover" Door as Seen from Outside

Specifications

Doors

All doors, where indicated on plans, are to be Y-M "Clearover" doors as furnished and installed complete with necessary hardware by THE YODER-MORRIS COMPANY of 5500 Walworth Avenue, Cleveland, Ohio, or its authorized representatives.

Doors shall be manufactured in four to eight horizontal sections, depending on opening heights, stiles and rails being white pine 1¾ in. thick, and panels to be of white pine. (Other kinds of wood will be furnished when specified.)

Doors shall be supported by vertical tubular track, mounted on continuous angle ½ in. thick, through floating ball-bearing rollers 2½ in. in diameter on fixed pins carried in specially designed panel bracket hinges. Hinges between adjacent door sections shall be sufficiently long to grip immediate and outside stiles at a point inside of rails, thus holding rails and stiles firmly together—they shall be attached exclusively with through bolts and no wood screws will be permitted.

Doors shall lap opening 1 in. on each side and at head; meeting rails shall be rabbetted.

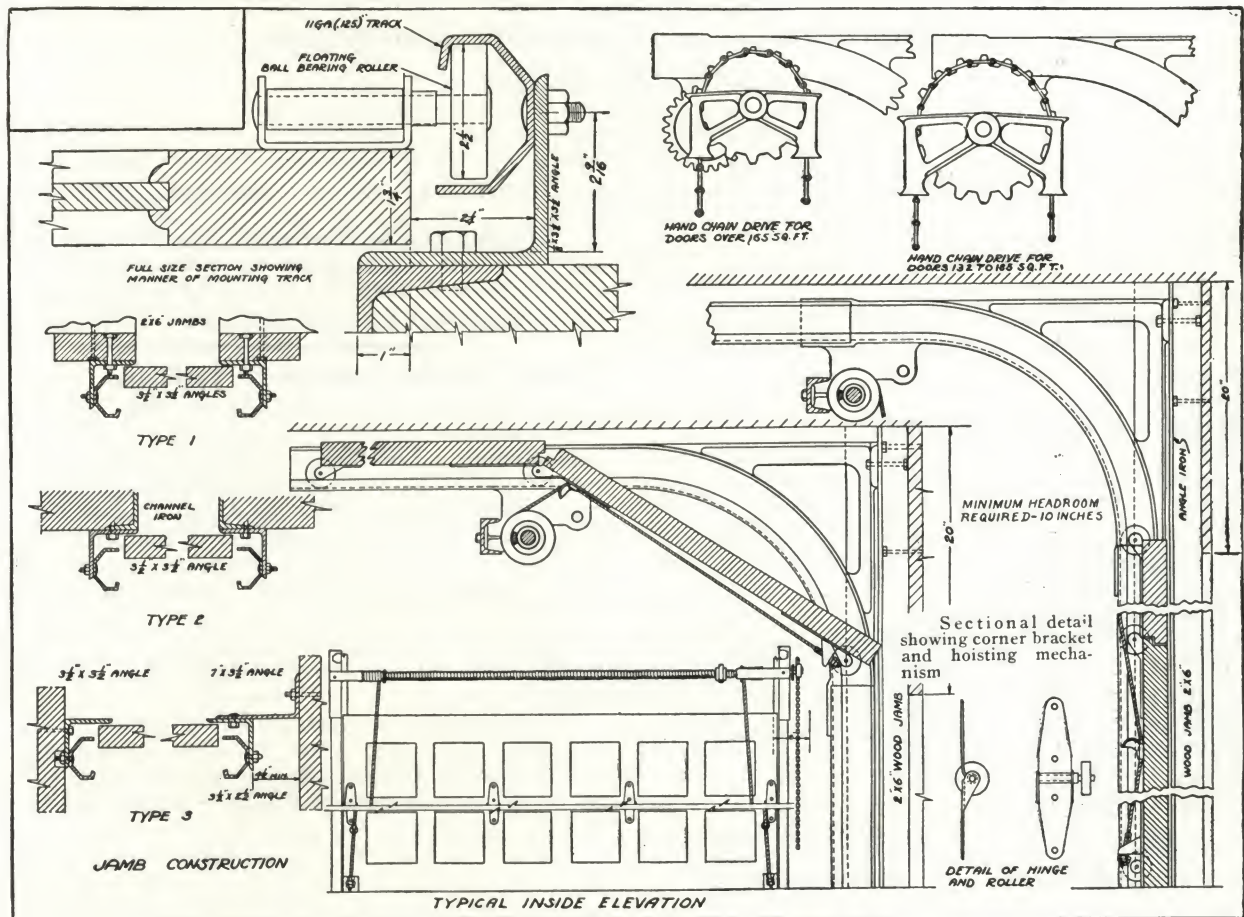
In opening, doors shall pass around cast, radius track to assume a completely open position approximately parallel to the ceiling. Counterbalancing shall be effected through connection with barrel coil springs located above lintel of opening. All door rollers shall run in vertical, radius and extended horizontal track.

Electric Operators

For doors specified to be motor operated, there shall be furnished and installed, by door contractor, Y-M "Clearover" electric operators as manufactured by THE YODER-MORRIS COMPANY of 5500 Walworth Avenue, Cleveland, Ohio, complete, furnishing remote control push buttons. Motors furnished shall have electrical characteristics matching power lines specified by the architect. (Single phase, three phase, or direct current motors can be furnished as specified.) Operators shall be equipped with limit switches designed to cut out at or near end of opening or closing travel and coasting or gliding of door, out of motor control, for more than six inches will not be approved. Motors must further be equipped with overload cut-outs designed to prevent burn-outs, and emergency cut-outs, functioning to turn off power if door strikes an obstruction in closing motion. Push buttons shall be three-button type—"open," "close" and emergency "stop"; they shall be momentary contact.

Any type hook-up which requires individual who is operating door to press button for a portion of door travel and then suddenly remove such pressure to prevent door slamming into rear bracing will not be accepted.

The electrical wiring for power and control lines will be performed by the electrical contractor but necessary wiring diagrams are to be furnished by this door contractor.



Construction Details—The Y-M "Clearover" Door

ELECTRIC DOOR OPERATORS

THE YODER-MORRIS COMPANY has for many years been known as one of the foremost designers and builders of electric operators for sliding, swinging, side folding and overhead type doors.

The Y-M "Clearover" Operator used in connection with the Y-M "Clearover" Door provides the ideal installation.

Practically any form of electrical control can be furnished.

Remote control push buttons operate the door from any point desired, inside or outside of a building.

This operator is simple in construction with very few moving parts and easily installed.

It has all the safety features embodied in it that is usual in all Y-M operators.

The above drawing illustrates various methods of installing and some of the constructional details of the Y-M "Clearover" Door.

Type 1—Shows vertical track mounted on wood jambs.

Type 2—Shows vertical track mounted on channel iron door frame.

Type 3—Shows method of mounting door tracks between two parallel walls.

The other illustrations in the drawing show the door in open and closed position and show the corner brackets, hoisting mechanism, counter spring, hand chain mechanism and other details of construction.

On doors of less than 135 sq. ft. the hand chain mechanism is usually not required.



THE CANTON FOUNDRY & MACHINE CO.

Manufacturers of Automobile Turntables

CANTON, OHIO

NEW YORK OFFICE: Carnegie Hall, 154 W. 57th Street—Telephone, Circle 2994

REPRESENTATIVES

BOSTON, MASS., ZENAS R. TAYLOR, INC., 470 Atlantic Avenue
LOS ANGELES, CAL., J. E. DWAN, 616 South Anderson Street
SAN FRANCISCO, CAL., C. J. JORGENSEN CO., 604 Mission Street

CHICAGO, ILL., F. G. MANUEL, 1657 Monadnock Building, 53 W. Jackson Boulevard
PHILADELPHIA, PA., ROBT. B. LEDERLE, Witherspoon Building

Products

"UNIVERSAL" AUTOMOBILE TURNTABLES for pleasure cars and trucks.

"CANTON" PITLESS AUTOMOBILE TURNTABLES.

For our page on Builders' Accessories, see Manufacturers' Index.

"Universal" Automobile Turntable

Two styles, with and without washrack extension. Mechanically perfect in construction, and easy to turn. Weight of table and load it supports rests on 2-in. (steel) ball bearings, that revolve in a machined, circular track, 54 in. in diameter, reducing friction to a minimum.

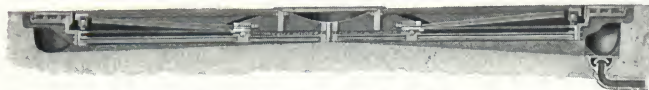
Superstructure is of rigid I-beam construction. Top of table made of 1/4-in. steel plates. All parts made of iron and steel; simple in design.

"Universals" may be placed on upper floors as well as on ground floors. Castor wheels at periphery of table are used only to prevent table from tilting. Heavy load does not substantially increase friction.

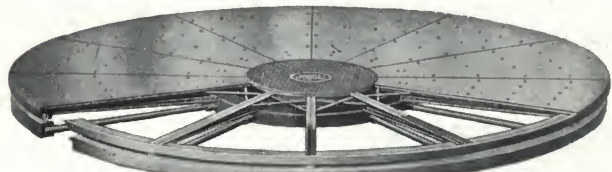
Advantages—Removable steel plates on top; water drain around outer edge of pit; can not tilt, always perfectly poised; easily turned. Quickly and easily erected from knocked down shipment, by one man; only 12 in. in depth.



Total depth, 12 in.



Top and Sectional View Showing Details of Construction of the "Universal" with Washrack Extension



Total depth, 12 in.

Details of Construction of the "Universal" without Washrack Extension

TURNTABLES FOR PLEASURE CARS

Wheelbase	in.	132	144	156
Diameter	ft.	14	15	16
Supporting capacities.....	lb.	8000	8000	8000
Shipping weights.....	lb.	5600	6000	6500

Prices, complete dimensions and specifications of heavy duty turntables, 10-ton capacity, gladly furnished upon request.

Specifications—Blue print, complete specifications and directions for building pit and erecting table furnished with each order. Any careful mechanic can erect.

Catalogue—Send for Catalogue "C-99" and prices.

"Canton" Pitless Automobile Turntable

A circular steel track, 1 1/4 in. high, surrounds a center plate, to which it is attached and held rigid by 8 radial rods. The track is surmounted by 2 steel runways, each 18 in. wide and 13 ft. long. Each runway has 4 ball bearing wheels as shown in accompanying illustration, and the entire weight of the car is borne by these bearings, reducing friction to the minimum. The wheels support the runways 3/4 in. above the track. The runways are held in place by a brace at the middle. A steel king pin, running through this brace and the center plate, forms the pivot of the turntable. The track is 11 ft. in diameter.

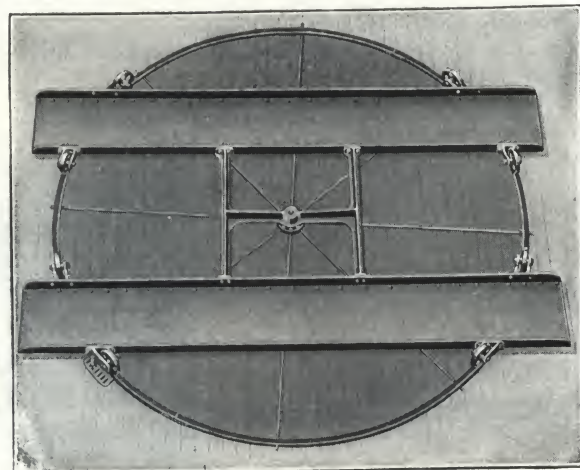
Advantages—An automobile turntable is almost as essential for human comfort as the automobile itself. In fact, the automobile is dangerous and destructive when the driver is under the handicap of facing in one direction, while he drives in another.

The "Canton" Pitless turntable requires no elaborate and expensive preparation for installing. Since it needs no pit, it can be set down anywhere on a solid base and it is ready to turn the car. But it may also be installed with the track and bracing embedded in a concrete floor. This is easily done in a new garage when the concrete is soft. It may also be installed in the same way in an old garage by chipping away channels for the track and brace rods.

Since the working parts are not covered by a solid platform, but merely have two runways to receive the car, a minimum of steel is used, and therefore a minimum of weight and a minimum of expense result.

The "Canton" Pitless turntable may be locked so it will not glide or wobble when the car is being driven off or back on the turntable.

Catalogue—Write for Catalogue G which gives further description, details and prices.



"Canton" Pitless Automobile Turntable

ACKMAN WINDOW SAFETY DEVICES, INC.

Standard and Approved Window Cleaner's Safety Devices and Equipment
Made of Bronze and Monel Metal

TELEPHONE
WATKINS 4994

257 West 19th Street, NEW YORK, N. Y.

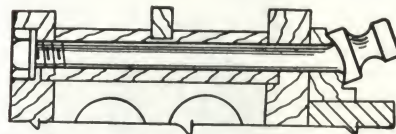
Architect's Specifications

All windows, which are to be cleaned from the outside, and which are 6 ft. or more above grade, roof, balcony or fire escape, shall be equipped with Ackman Window Cleaner's Devices, as manufactured by the ACKMAN WINDOW SAFETY DEVICES, INC., New York, N. Y.

Install devices: Two (2) to each window, 46 to 51 in. above sill.

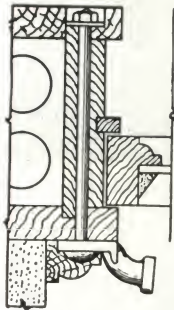
Select the type from illustrations to suit the type of frame and jamb, or mullion they are for.

Our devices are listed by Underwriters' Laboratories, Inc.

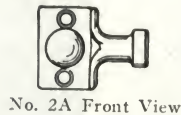


No. 2

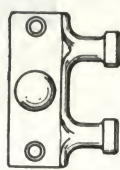
No. 2 For Wood or Kalamein Frames and Mullions
Undersurface of shoulder is made concave, flat or convex to suit the particular type of staff bead or pilaster. Pat., Nov. 23, 1927. Also made with double head for 4-bolt system



No. 2A



No. 2A Front View



No. 2D
Double Head Type

Through Bolt Devices



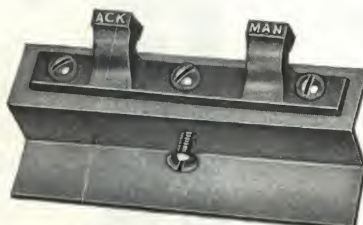
No. 6. Super-Grip Masonry Anchor

Can be set in any type of masonry reveal where a joint occurs 46 to 51 in. above sill. Also made with double head for 4-bolt system

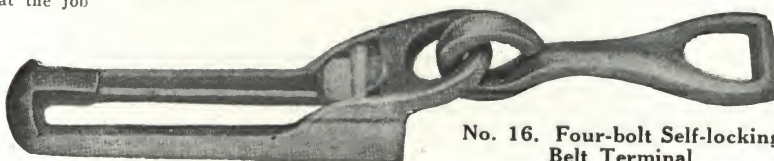


No. 8. Hollow Metal Frame and Mullion Device

Reinforcing plates are attached by frame-maker during fabrication of frames. Also made for heavier gauge metal frames, such as Campbell, S. H. Pomerooy's Special Type "A," Truscon, Lupton and similar types. Can be attached at the job



No. 12. Hollow Metal Frame Device, Four-bolt System
Made to conform to contour of all window frames



No. 16. Four-bolt Self-locking Belt Terminal

Recent Installations

NEW YORK—Court Square Building; St. Mark's Hospital (addition); St. Joseph's Convent; Public Schools; American-Pacific Bank; Bank of Canada Building; Fifth National Bank; Greenwich Bank; General Motors Building; United Cigar Stores Co. Building; Fire Department Buildings; Loft Candy Factories and Office Buildings.

HARTFORD—Ætna Life Insurance Building.

PHILADELPHIA—Warwick Hotel.

NEW BRUNSWICK—Johnson & Johnson Buildings.

JOHNSTOWN—Garfield Junior High School.

PATERSON—Paterson General Hospital.

NEWARK—Military Park Building; Presbyterian Hospital.

ELIZABETH—St. Elizabeth's Hospital.

PITTSBURGH—Lauer-Magee Hospital.

ATLANTA—Rhodes Haverty Building.

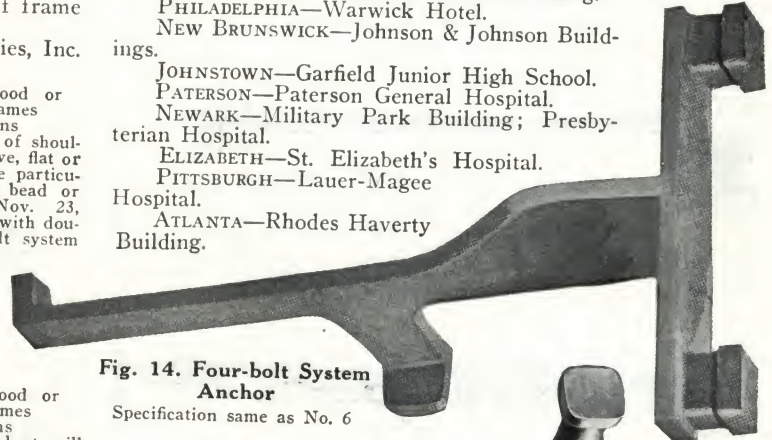
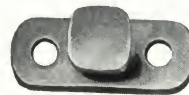


Fig. 14. Four-bolt System Anchor

Specification same as No. 6

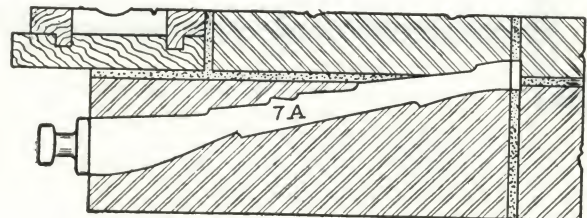


No. 10. Mullion Device



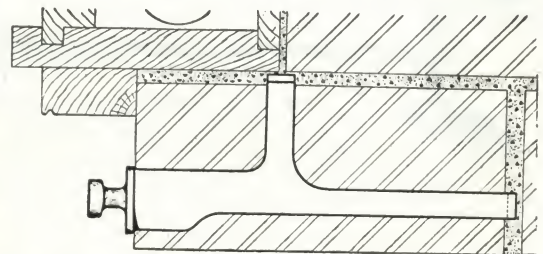
No. 11. Jamb Device

For solid steel sash of the Fenestra, Truscon, Lupton, William Bailey and similar type windows, holes drilled on 1½-in. centers, or other dimensions to suit sash manufacturer



No. 7A. Brick Anchor

For masonry jambs installed by mason contractor



No. 7. Brick Anchor

For installing in the masonry during construction installation by mason contractor



No. 18. Ackman Window Cleaner's Safety Belt
Made of canvas, leather or krome

AMERICAN WINDOW SAFETY DEVICE CO.

TELEPHONE
WABASH 3842

326 South State Street, CHICAGO, ILL.

American Safety Devices

This company has spared no expense in designing and perfecting American Window Cleaners' Safety Devices which have met with universal approval.

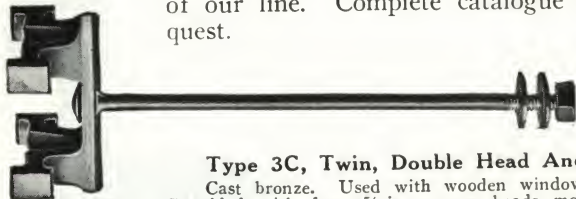
American Safety Devices afford absolute safety, are neat appearing, very easily installed, simple in operation and are made in a sufficient number of designs to meet all conditions of various types of sash and construction. The illustrations show part of our line. Complete catalogue on request.



Tested by Underwriters' Laboratories, Inc.

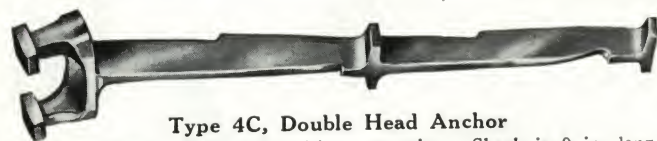
American Window Safety Devices have been tested and listed as standard by Underwriters' Laboratories, Inc. Quoting from their report: "The foregoing conclusions indicate that these devices are practical to install and maintain, durable and uniform in construction, sufficiently strong, and that the accident hazards incident to their use have been decreased to an acceptable degree."

Full report from the Underwriters will be sent upon request.



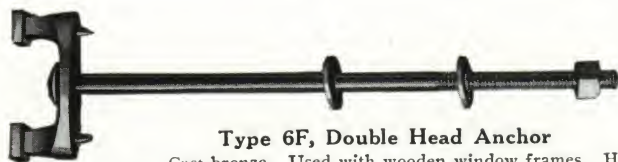
Type 3C, Twin, Double Head Anchor

Cast bronze. Used with wooden window frames. Provided with four $\frac{5}{8}$ -in. square heads mounted in pairs $1\frac{1}{4}$ in. apart. Heads are mounted on posts placed at opposite ends of base plate $2\frac{1}{2}$ in. long, 1 in. wide, and provided with a $\frac{3}{8}$ -in. square hole to accommodate the through bolt which is of rolled brass with an upset head, washer, lock washer and nut.



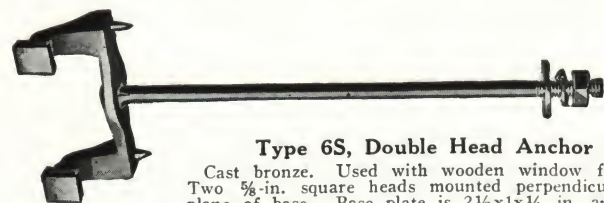
Type 4C, Double Head Anchor

Cast bronze. Used with brick construction. Shank is 9 in. long. Two $\frac{5}{8}$ -in. square heads are mounted $1\frac{1}{2}$ in. apart on an oval shaped body. A lug at one end and notches on the edges of the shank and in addition two lugs mounted on the shank 4 in. from the anchor head to prevent removal from wall.



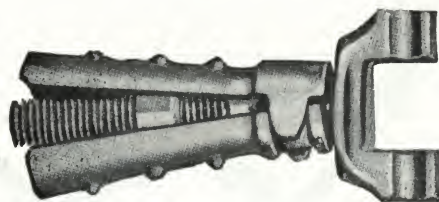
Type 6F, Double Head Anchor

Cast bronze. Used with wooden window frames. Has two $\frac{5}{8}$ -in. square heads connected by posts to a base plate $2\frac{1}{2} \times 1$ in. Through bolt of $\frac{3}{8}$ -in. rolled brass rod has threaded head which is screwed into threaded hole in center of base plate and the end riveted over. Provided with washer, lock washer and nut. Base has two pointed lugs to prevent turning anchor after mounting.



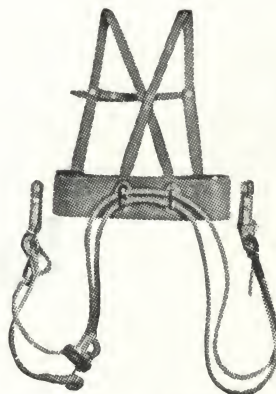
Type 6S, Double Head Anchor

Cast bronze. Used with wooden window frames. Two $\frac{5}{8}$ -in. square heads mounted perpendicular to plane of base. Base plate is $2\frac{1}{2} \times 1 \times \frac{1}{4}$ in. and has $\frac{3}{8}$ -in. square hole to accommodate an upset head through bolt of rolled brass. Provided with washer, lock washer and suit. Base has two pointed lugs which prevent turning anchor after mounting.



Royal Bronze Expansion Bolt No. 7

For installing in masonry of existing building. Simple to install. Just drill one hole into masonry on each side of window frame with $3\frac{1}{2}$ -in. center, 42 in. above sill in face of reveal in wall. Set in expansion bolt in each hole, turn on head until absolutely tight.



Type No. 1, Safety Belt

A heavy leather waist belt with leather shoulder and chest straps each provided with adjusting buckles. Two cast bronze rope guides at back are equipped with rollers to eliminate wear on safety rope. Equipped with 4-ply, $\frac{1}{2}$ -in. diameter manila rope provided with adjusting device.



Palmer House, Chicago, Ill.

HOLABIRD & ROCHE, Architects
THOMPSON-STARRET Co.,
Contractors



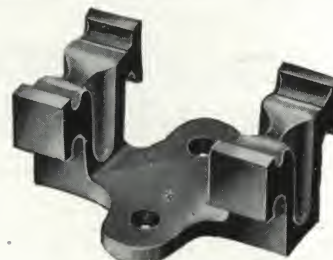
Double Head Belt Terminal

Cast bronze, $6\frac{1}{2}$ in. long. Slots are so located that the load is carried by both the upper and lower heads of the anchor. A flat phosphor bronze spring must be raised by the window cleaner to remove the terminal.



Double Head Non-removable Bronze Anchor No. 8A

For attaching to wood mullions or frames, with anchorage of 3-in. rod, with 2 harpoons to prevent removal, after being once set. Cast bronze.



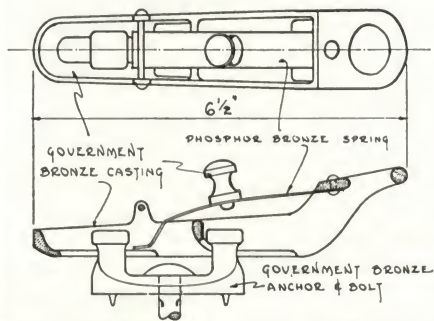
Type N4, Twin Double Head Anchor

Cast bronze. Used with hollow metal window frames. Has four $\frac{5}{8}$ -in. square heads mounted in pairs $1\frac{1}{4}$ in. apart. Heads are mounted on posts placed at opposite ends of base plate $2\frac{3}{4}$ in. long, $\frac{3}{4}$ in. wide. Mounted by two $\frac{7}{8}$ -in. No. 18 round head brass screws with nuts.

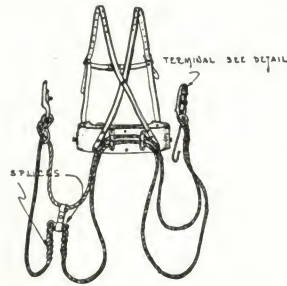
APPROVED BY
UNDERWRITERS'
LABORATORIES

TYPICAL INSTALLATION DETAILS
WINDOW CLEANERS' SAFETY APPLIANCES

AIA FILE
27A2



BELT TERMINAL - FOUR HEAD TYPE
SCALE - FULL SIZE



SAFETY BELT. NO 1
LEATHER BELT. FOUR-STRAND
YACHT MANILLA ROPES

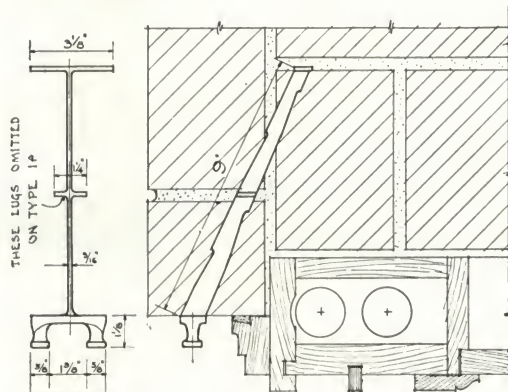
SPECIFICATIONS.

WINDOW CLEANER'S HARDWARE SHALL BE OF THE FOUR HEAD TYPE AS MANUFACTURED BY THE AMERICAN WINDOW SAFETY DEVICE CO. OR EQUAL. ANCHORS SHALL BE SET 42" TO 45" ABOVE WINDOW SILL.

GENERAL (OR CARPENTER, OR MASON) CONTRACTOR SHALL FURNISH ALL ANCHORS FOR THE ENTIRE BUILDING AND SHALL DISTRIBUTE SAME AMONG CONTRACTORS INTO WHOSE WORK THEY ARE TO BE INCORPORATED.

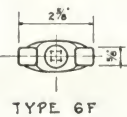
EACH CONTRACTOR AFFECTED BY THESE SPECIFICATIONS SHALL INSTALL IN HIS WORK, ALL ANCHORS FURNISHED TO HIM BY THE GENERAL (OR CARPENTER, OR MASON) CONTRACTOR.

THE MORE COMMON TYPES OF ANCHORS ARE SHOWN BELOW.

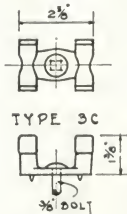


TYPE 4C
TYPE 1A
SIMILAR

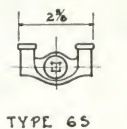
FOR MASONRY JAMBS
INSTALLED BY MASON.



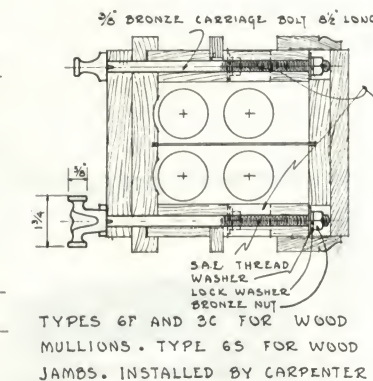
TYPE 6F



TYPE 3C

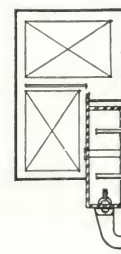


TYPE 6S

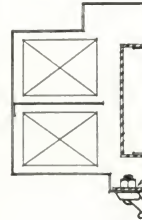


TYPES 6F AND 3C FOR WOOD
MULLIONS. TYPE 6S FOR WOOD
JAMBS. INSTALLED BY CARPENTER

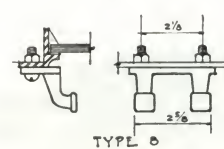
NOTE - TYPES 6F, 3C, AND 6S MAY BE USED IN OLD WORK WITHOUT DISTURBING INTERIOR TRIM. BORE 1/2" HOLE AS INDICATED BY DOTTED LINES, AND INSERT WASHERS AND NUT THRU SAME. SPECIFY SHORTER BOLTS.



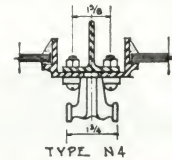
FOR CAMPBELL OR OTHER MAKES OF METAL
WINDOWS HAVING FRAMES OF #12 GAUGE OR
HEAVIER METAL. INSTALLED BY METAL
WINDOW CONTRACTOR.



FOR LIGHT GAUGE HOLLOW METAL WINDOWS.
INSTALLED BY METAL WINDOW CONTRACTOR.

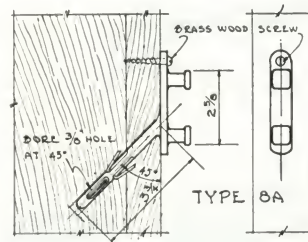


TYPE 8



TYPE N4

FOR STEEL SASH AND MULLIONS



TYPE 8A

FOR WOOD JAMBS
OR MULLIONS
INSTALLED BY
CARPENTER

NOTE - TYPE 8A
IS NOT APPROVED
BY UNDERWRITERS'
LABORATORIES.

NOTE - ONLY THE MORE COMMON TYPES OF ANCHORS ARE SHOWN ABOVE, BUT WE ARE PREPARED TO FURNISH PROPER ANCHORS TO SUIT ANY CONDITION. IT WILL PLEASE US TO BE OF SERVICE TO YOU AT ALL TIMES.

AMERICAN WINDOW SAFETY DEVICE CO.
326 SOUTH STATE STREET CHICAGO ILLINOIS

AINSWORTH BUCK, INC.

Manufacturer of "Whitner" Window Cleaners' Safety Devices

TELEPHONE
FITZROY 9376, 9377

20 Vesey Street, NEW YORK, N. Y.

SALES REPRESENTATIVES

BALTIMORE, MD., Wm. H. COLE & SONS, 40 South Charles Street
BOSTON, MASS., WILLIAM C. PICKERSGILL, 612 Statler Building
BUFFALO, N. Y., WEED & COMPANY, Genesee Building
BUTTE, MONT., D. E. FRYER & Co.
CLEVELAND, OHIO, THE W. BINGHAM Co.
DALLAS, TEX., W. L. MACATEE & SONS
DENVER, COLO., COLORADO BUILDERS SUPPLY Co., 1534 Blake Street
DETROIT, MICH., THE RAYL COMPANY, 1233 Griswold Street
HOUSTON, TEX., W. L. MACATEE & SONS
INDIANAPOLIS, IND., VAN CAMP HARDWARE & IRON Co.

LOS ANGELES, CALIF., REGAL CASEMENT Co., 2852 W. Tenth Street
PHILADELPHIA, PA., MURTA, APPLETON & Co., Samson at 12th Street
PITTSBURGH, PA., JOSEPH WOODWELL Co.
PORTLAND, ME., MARSTON-WADE, INC., Masonic Building
PORTLAND, ORE., D. E. FRYER & Co., 410 Exchange Building
ST. LOUIS, MO., HARRY C. UHLENHAUT, 2144 Railway Exchange Building
SEATTLE, WASH., D. E. FRYER & Co.
SPOKANE, WASH., D. E. FRYER & Co.
SYRACUSE, N. Y., BURHANS & BLACK, 136 N. Salina Street
TACOMA, WASH., D. E. FRYER & Co., Provident Building

Absolute Safety for Window Cleaners—Also for Those on the Sidewalk

Absolute safety and practicability are essential features embodied in "Whitner" window cleaners' safety devices, which are made of the best materials obtainable.

They are offered as high quality products that will outlast the building in which they are installed.

These devices are approved by the Labor Departments of New York, New Jersey and Pennsylvania Industrial Commissions.

Special devices made to meet architects' requirements.

Blue prints giving installation details will be sent on request.

Specifications for Architects

Figs. 10, 700A, 800A and 800—

Furnish and install on jambs of wood windows 51 in. above the sill, "Whitner" [2-bolt or 4-bolt] system rod bolt No. [10, 700A, 800A or 800] to go entirely through pulley stile with nut and washer on the inside, as manufactured by AINSWORTH BUCK, INC.

Fig. 300—

Furnish and install on jambs of wood windows 51 in. above the sill, "Whitner" [2-bolt or 4-bolt] system bronze wing bolt No. 300 with screws, as manufactured by AINSWORTH BUCK, INC.

Figs. 28A and 28—

Furnish and install on jambs and mullions of hollow metal (or steel) windows 51 in. above the sill, "Whitner" [2-bolt or 4-bolt] system hollow metal frame fitting No. [28A and 28] with reinforcing plate and screws, as manufactured by AINSWORTH BUCK, INC.

Fig. 37C—

Furnish and install on jambs and mullions of hollow metal (or steel) windows 51 in. above the sill, "Whitner" 2 bolt system hollow metal frame fitting No. 37C with reinforcing plate and screws, as manufactured by AINSWORTH BUCK, INC.

Fig. 7—

Furnish and install on jambs and mullions of wood or kalamein windows 51 in. above the sill, "Whitner" [2-bolt or 4-bolt] system bronze lag bolts No. 7, as manufactured by AINSWORTH BUCK, INC.

Fig. 400—

Furnish and set in masonry jambs, 51 in. above the sill, "Whitner" 2-bolt system special anchor No. 400 (which extends in the backing) as manufactured by AINSWORTH BUCK, INC.

Fig. 102—

Furnish and set in masonry jambs 51 in. above the sill "Whitner" 2-bolt system bronze anchors No. 102, as manufactured by AINSWORTH BUCK, INC.

Fig. 92—

Furnish and set in masonry jambs 51 in. above the sill, "Whitner" 4-bolt system bronze anchors No. 92, as manufactured by AINSWORTH BUCK, INC.

Fig. 660—

Furnish and install bronze hollow metal frame fitting with patented reinforcing plate [2-bolt or 4-bolt] system, as manufactured by AINSWORTH BUCK, INC.



Fig. 1. Leather Safety Belts for Window Cleaners
2 or 4-Bolt Systems



Fig. 12. 2-Bolt Belt Terminal—Locks on Head of Bolt
or Anchor
Can not slip off

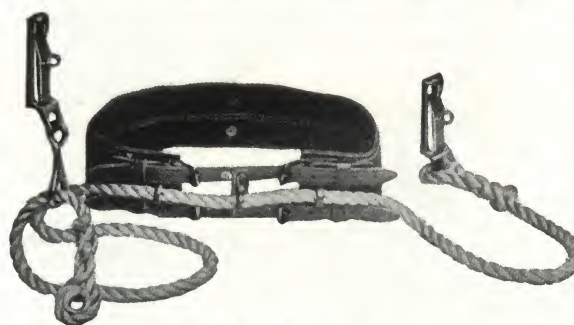


Fig. 8. Canvas Safety Belt for Window Cleaners
2 or 4-Bolt Systems



Fig. 3. 4-Bolt Belt Terminal—Locks on Head of Bolt
or Anchor
Can not come off

Belts and Terminals

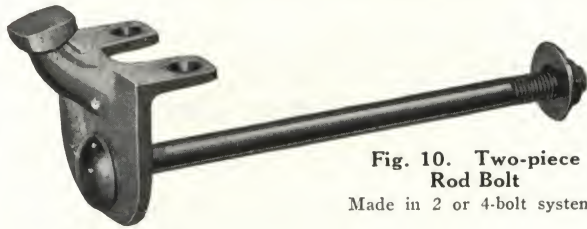


Fig. 10. Two-piece Rod Bolt
Made in 2 or 4-bolt systems

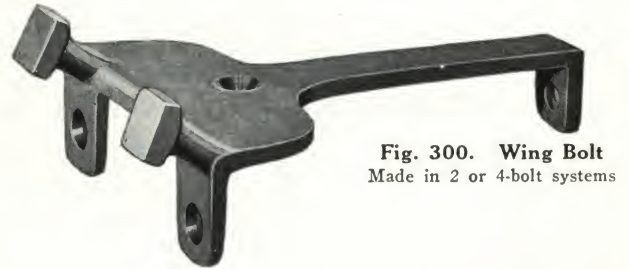


Fig. 300. Wing Bolt
Made in 2 or 4-bolt systems

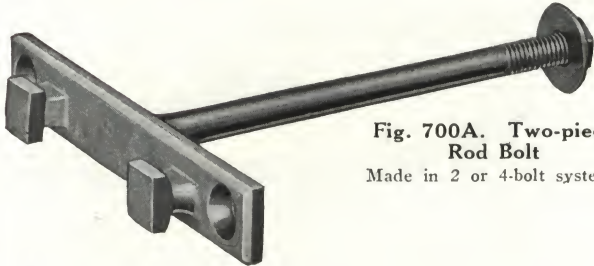


Fig. 700A. Two-piece Rod Bolt
Made in 2 or 4-bolt systems

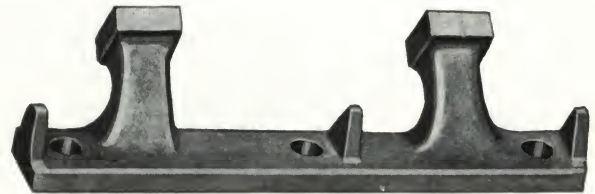


Fig. 28A. 4-bolt Hollow Metal Frame Fitting



Fig. 800A. Two-piece Rod Bolt
Made in 2 or 4-bolt systems

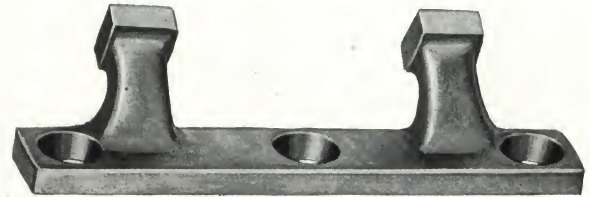


Fig. 28. 4-bolt Hollow Metal Frame Fitting

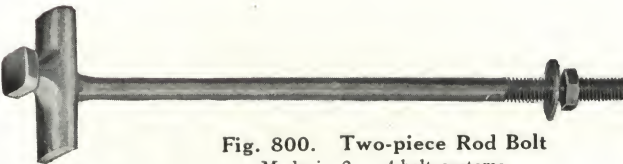


Fig. 800. Two-piece Rod Bolt
Made in 2 or 4-bolt systems



Left:
Fig. 37C. 2-bolt Hollow Metal Frame Fitting



Fig. 92. Bronze 4-bolt Anchor
Set in brick or stone jambs by mason contractor



Fig. 7. Lag-screw
Made of bronze or galvanized steel. One placed on each side of wood or kalamein window for 2-bolt system—two for 4-bolt system

Fig. 660. Bronze Hollow Metal Frame Fitting with Patented Reinforcing Plate

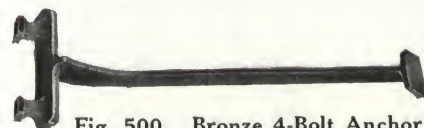


Fig. 500. Bronze 4-Bolt Anchor
Special type for use in brick, stone or terra cotta. Made also in 2-bolt system

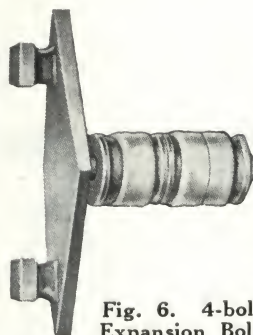


Fig. 6. 4-bolt Expansion Bolt
Cinch system of expansion. Made in 2 or 4-bolt systems

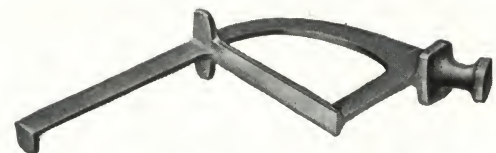


Fig. 400. Special Bronze 2-bolt Anchor
(Patent pending)
Specially adapted to veneer brick, stone or terra cotta jambs. Leg extends into the backing. Set by masonry contractor. Also for 4-bolt system



Fig. 102. Bronze 2-bolt Anchor
Set in brick or stone jambs by mason contractor

Anchor Types

R. J. DICKEY & SONS, INC.

SUCCESSORS TO
ROYAL SAFETY ANCHOR CO., CHICAGO, ILL.
NATIONAL SAFETY WINDOW DEVICE CO., CHICAGO, ILL.
EVERFAST WINDOW CLEANING SAFETY DEVICE CO., CHICAGO, ILL.

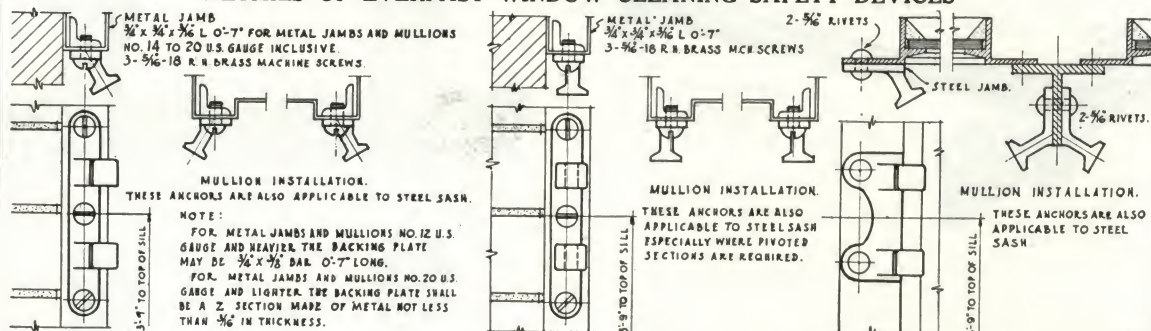
Manufacturers of Everfast Window Cleaning Safety Devices
COLUMBUS, IND.

DISTRICT OFFICES.

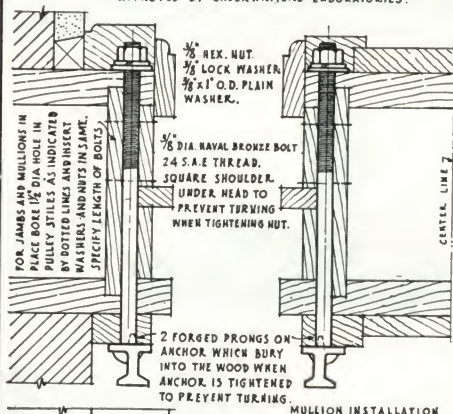
BOSTON, MASS., Wm. C. PICKERSGILL, Statler Bldg.
CHICAGO, ILL., FRANK FLAHERTY & Co., First National Bank Bldg.
CLEVELAND, OHIO, GESING BROS., Terminal Tower
DETROIT, MICH., R. C. NAGLE, David Stott Building
FORT WORTH, TEX., W. J. McCANDLESS, Capps Bldg.
MONTCLAIR, N. J., CHAS. H. GAGEN, Davega Bldg.

NEW YORK, N. Y., KENTLER BROS., 136 Liberty Street
PHILADELPHIA, PA., SHIELDS & BRO., 521 Market Street
PORTLAND, ORE., CRESS & Co., 283 Oak Street—Telephone, Atwater 9648
SAN FRANCISCO, CAL., D. A. PANCOAST Co., 605 Market Street
ST. PAUL, MINN., R. E. STANTON Co., 2694 University Avenue
ST. LOUIS, MO., Z. G. SHAW, Maryland Hotel

DETAILS OF EVERFAST WINDOW CLEANING SAFETY DEVICES

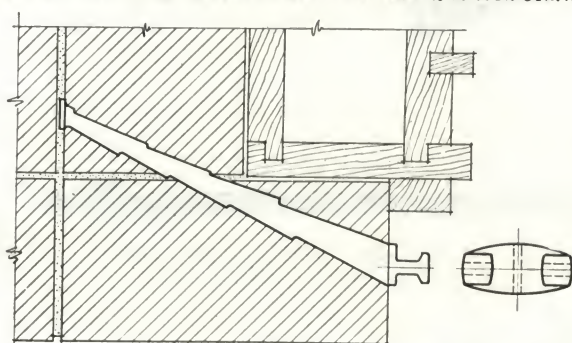


NO 1FD BRASS DROP FORGED ANCHOR.
APPROVED BY UNDERWRITERS LABORATORIES.

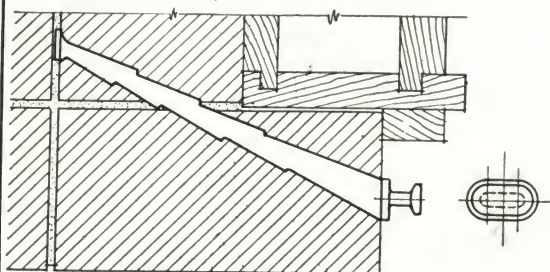
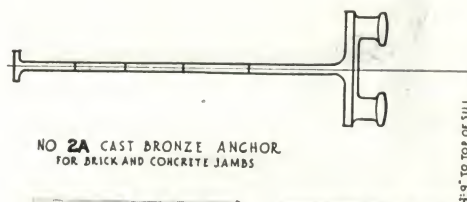
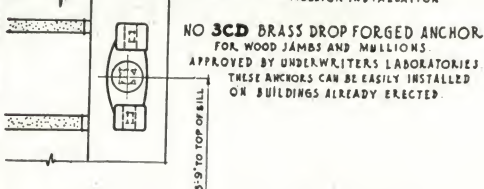


NO 1PD BRASS DROP FORGED ANCHOR.
APPROVED BY UNDERWRITERS LABORATORIES.

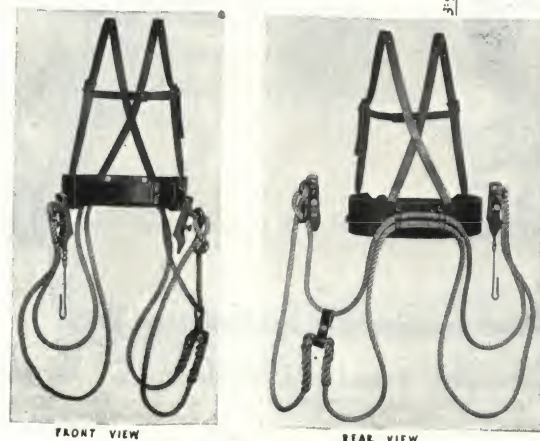
NOTE: ANCHORS MOST COMMONLY USED ARE HERE SHOWN BUT WE HAVE OTHER TYPES TO SUIT ANY CONDITIONS. OUR ENGINEERING DEPARTMENT IS AT YOUR SERVICE.



NO 16D BRASS DROP FORGED ANCHOR.
APPROVED BY UNDERWRITERS LABORATORIES.



NO 1 CAST BRONZE ANCHOR.
FOR BRICK AND CONCRETE JAMBS.



FRONT VIEW

REAR VIEW

THE EVERFAST SAFETY BELT
EQUIPPED WITH SOLID BRASS DROP FORGED TERMINALS AND CAST BRONZE FITTINGS THROUGHOUT
APPROVED BY UNDERWRITERS LABORATORIES.

THE IMPERIAL BRASS MFG. CO.

Double Safety Window Washing Devices and Building Hardware
1222 West Harrison Street, CHICAGO, ILL.

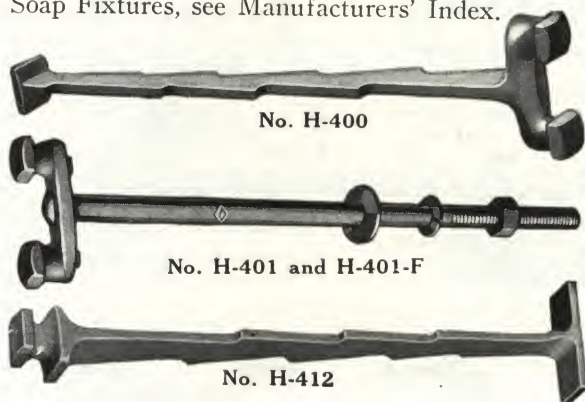
Product

DOUBLE SAFETY EXTRA HEAVY WINDOW WASHING DEVICES.

KICK PLATES, DOOR GUARDS and PUSH and PULL BARS.

Also manufacturers of Thresholds, Brass and Bronze Railing, Special Builders' Hardware, Swimming Pool Ladders, Outdoor Signs, Name Plates, etc.

For Watrous Flush Valves and Liquid Soap Fixtures, see Manufacturers' Index.



No. H-408

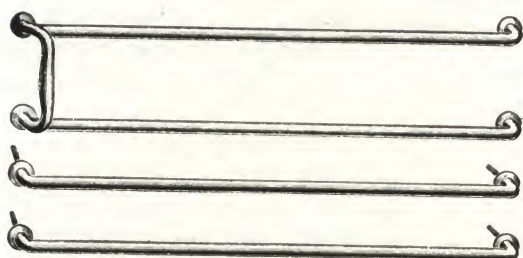


No. H-406 and H-406-F

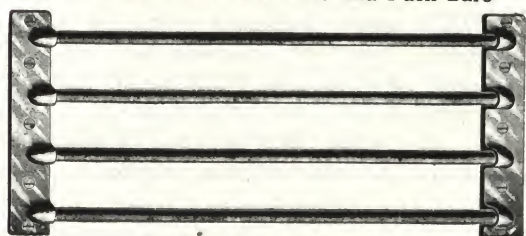
Specifications for Window Washing Devices

Furnish and install Imperial Extra Heavy Double Safety Devices manufactured by THE IMPERIAL BRASS MFG. Co. of Chicago, Ill. Install Nos., one on each side of window with anchor heads in vertical position, placed at a height of 45 to 50 in. above sill.

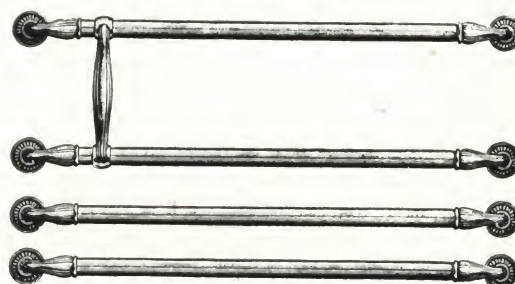
Device No.	Type for	Furnished and installed by	Material	General
H-400 and H-412	Brick, concrete and stone walls	Mason contractor	Manganese bronze casting	Furnished in extra heavy type
H-401	Wood jambs or mullions	Carpenter contractor	Manganese bronze casting	Bolt $\frac{3}{8}$ -in. diam. Furnished $8\frac{1}{2}$ and $10\frac{1}{2}$ -in. lengths
H-401-F	Wood jambs or mullions	Carpenter contractor	Brass forging, approved by Underwriters' Laboratories New Listing, October 1, 1930	Same as H-401, except in brass forging
H-406	Hollow metal jambs	Metal window contractor	Manganese bronze casting	3 holes, $2\frac{1}{8}$ -in. centers. Use $\frac{5}{16}$ -18 round head machine screws and reinforcing plate
H-406-F	Hollow metal jambs	Metal window contractor	Brass forging, approved by Underwriters' Laboratories, New Listing, October 1, 1930	Same as H-406, except in brass forging
H-408	Steel frames	Metal window contractor	Manganese bronze casting	2 holes, $1\frac{1}{8}$ -in. diam., $2\frac{1}{8}$ -in. centers. Use $\frac{5}{16}$ -18 round head machine screws
H-409	Safety belt	Contractor	Best quality leather $3\frac{1}{2}$ in. wide Rope eyes and terminals made of brass forgings	Double safety terminals which fit single or double head devices



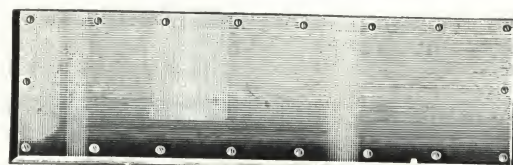
No. H-801 Protection Grab and Push Bars



No. H-747 Door Guard



No. H-815 Grab and Push Bars



Standard Style Kick Plate—Brass or Bronze

ROYAL WINDOW SAFETY DEVICE COMPANY

Safety Devices for Window Cleaners
673 West Madison Street, CHICAGO, ILL.

Royal Window Safety Devices

Royal window safety devices for use on the wood mullions, the steel or hollow metal frames or in the masonry wall. These devices have been designed by men who have studied this problem from the safety of the cleaner and the cost of the building owner. Every device bearing the name Royal is of the best metal obtainable—strong and durable.

The belt for the cleaner is of high grade live leather—adjustable, easy slipping guides in the back to allow freedom of movement, terminal of bronze and slipproof once on the anchor heads—and of a strength to support the weight of the heaviest man.

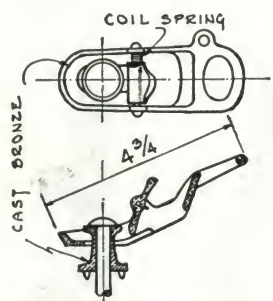
Listed by Underwriters' Laboratories, Inc.

• SPECIFICATIONS •

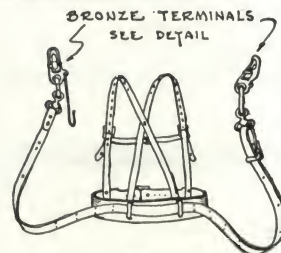
WINDOW CLEANERS' HARDWARE SHALL BE OF THE TWO ROUND HEAD TYPE AS MANUFACTURED BY THE AMERICAN WINDOW SAFETY DEVICE CO., OR EQUAL. ANCHORS SHALL BE SET 42" TO 45" ABOVE WINDOW SILL.

GENERAL (OR CARPENTER, OR MASON) CONTRACTOR SHALL FURNISH ALL THE ANCHORS FOR THE ENTIRE BUILDING AND SHALL DISTRIBUTE SAME AMONG CONTRACTORS INTO WHOSE WORK THEY ARE TO BE INCORPORATED.

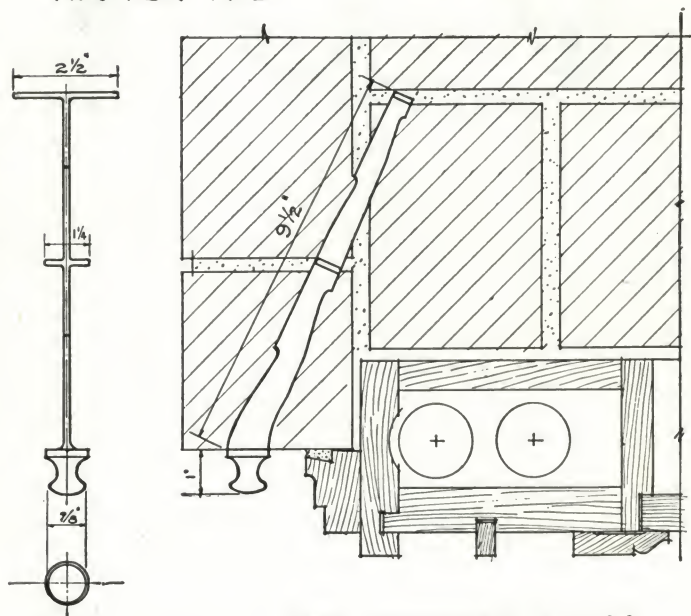
EACH CONTRACTOR AFFECTED BY THESE SPECIFICATIONS SHALL INSTALL IN HIS WORK, ALL ANCHORS FURNISHED TO HIM BY THE GENERAL (OR CARPENTER OR MASON) CONTRACTOR.



BELT TERMINAL
TWO HEAD TYPE

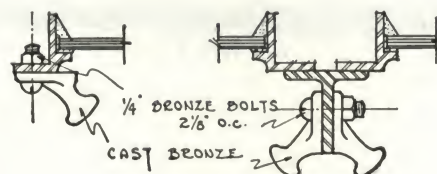


ALL LEATHER
CONSTRUCTION
SAFETY BELT #2

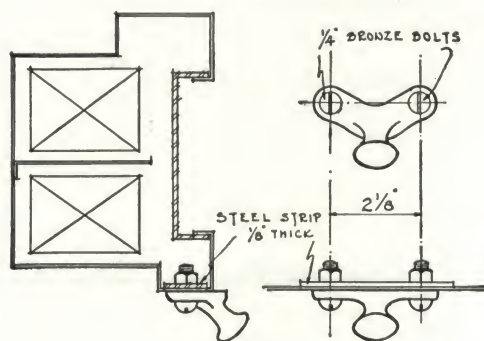


TYPE 1N
ONE PIECE
CAST BRONZE

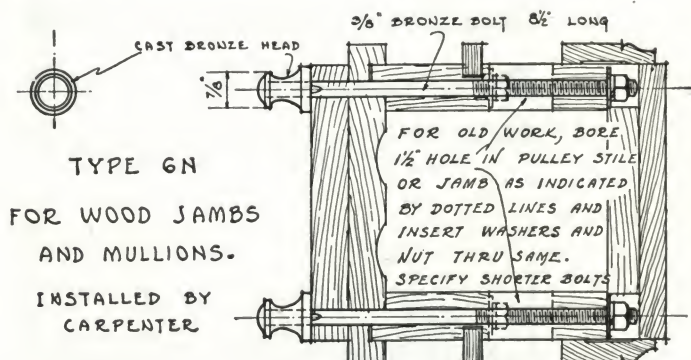
FOR MASONRY JAMBS
- INSTALLED BY MASON



TYPE 8N
FOR STEEL SASH JAMBS AND
MULLIONS. INSTALLED BY
STEEL SASH CONTRACTOR.



TYPE 8N
AS USED ON HOLLOW METAL
WINDOW FRAMES. INSTALLED
BY METAL WINDOW CONTRACTOR



TYPE 6N
FOR WOOD JAMBS
AND MULLIONS.
INSTALLED BY
CARPENTER

NOTE: ONLY ANCHORS FOR THE MOST COMMON TYPES OF CONSTRUCTION ARE SHOWN, BUT WE ARE PREPARED TO FURNISH ANCHORS TO SUIT ANY CONDITION.

IT WILL PLEASE US TO BE OF SERVICE TO YOU AT ALL TIMES.

Installation Details, Royal Window Safety Devices

WHITNER 2-ROPE SAFETY COMPANY

TELEPHONE
HARRISON 6337

638 South Clark Street, CHICAGO, ILL.

Originator and Manufacturer of 4-Head System Devices

Whitner-Chicago safety devices for window washers in specifications mean real safety. Our record of thirty-nine years without a casualty is ample proof. This record warrants recommending the 4-head system, assuring doubled safety through two heads on either side.

Description of Fixtures—In addition to using only the highest quality of virgin bronze, the fixtures are designed to eliminate breaking points. The heads are built close to the body on every fixture but still allow plenty of room for easy operation of the terminal. A "wrestler's" neck is used on Whitner-Chicago fixtures, being exceptionally thick. This eliminates snapping of heads. Right angle construction in places where a strain will exist is eliminated. Additional metal has been used to round out the sharp angles. The rounding connection where the neck is built upon the body will be noticed in particular.

Ask for complete catalogue.

Specifications—Furnish and install one Whitner-Chicago No. anchor on each side of window with anchor heads placed in vertical position placed at a height of 45 to 50 in. above the sill. Also furnish (quantity) Whitner-Chicago No. belts.



Established 1891



No. 1



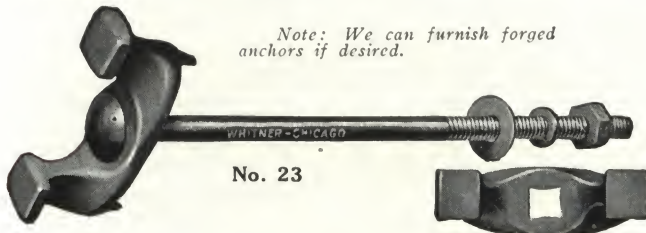
No. 26



No. 17M

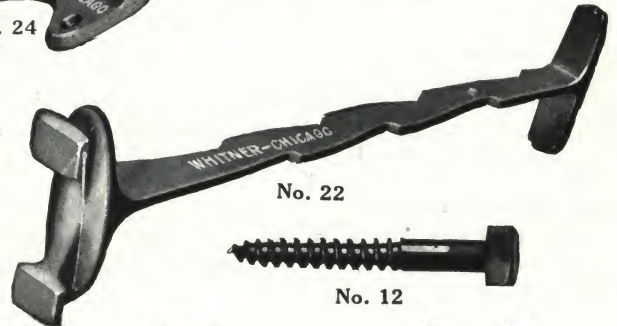


No. 24

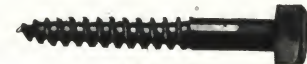


No. 23

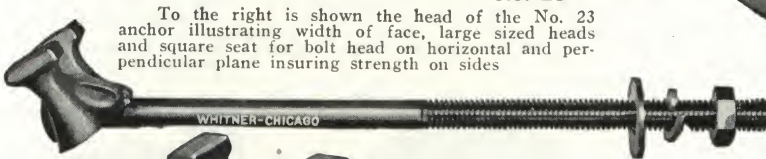
Note: We can furnish forged anchors if desired.



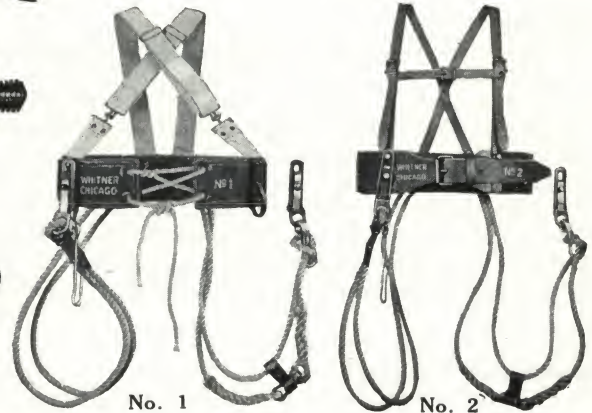
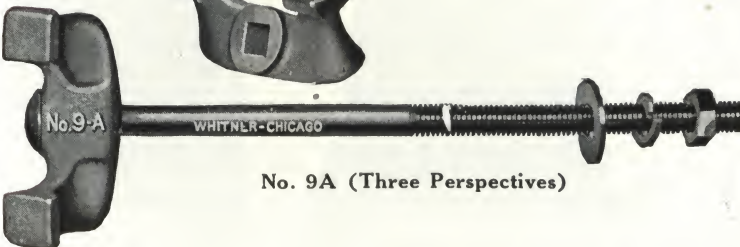
No. 22



No. 12



No. 9A (Three Perspectives)



No. 1

No. 2

SUMMARIZED TABLE OF WHITNER-CHICAGO FIXTURES

Anchor No.	Use	Length, in.	Height, in.	Width, in.	Weight, oz.	Detailed specifications
23 (10 1/4" bolt) 23 (8 3/4" bolt)	One anchor in each wood frame jamb and two in each mullion	11 1/8 9 1/8	2 7/8 2 7/8	1 1	10 1/2 9 1/2	Carpenter contractor bore 1/16-in. hole through staff bead and pulley stile in each jamb and mullion for each anchor.
9A (10" bolt) 9A (8" bolt)	One anchor in each wood window frame jamb and two in each mullion where the anchor head seat is on a 45° angle	11 9	2 3/4 2 3/4	1 1/8 1 1/8	11 1/4 10 1/4	
12	Two anchors in each wood frame jamb and four in each mullion where building code permits use of this rather than No. 23, No. 9M or No. 9A	3 3/8	9 1/16	9 1/16	1 1/2	Carpenter contractor bore two holes vertically for each two anchors 2 1/2 in. deep, 2 1/8 in. center to center in each jamb and mullion using 1/4-in. bits.
22	One anchor in each masonry jamb; brick reveal	10	2 3/4	3/4	10 1/4	Mason contractor install in masonry wall engaging joint back of second brick.
1	One anchor in each metal window frame jamb	13 1/16	5 1/16	1 3/8	4 3/4	Metal window contractor drill three holes vertically for each anchor, 2 1/8-in. centers for No. 1420 flat head machine screws. With hollow metal windows use 3/8x10-in. mild steel reinforcing bar drilled and tapped to fit anchor holes. When installing on steel frames, tap the frames, no reinforcing bar being necessary.
26	One anchor in each metal window frame jamb where anchor must be placed in a recess and No. 1 is not usable	13 1/16	5 1/16	1 5/16	4 3/4	
17M	One anchor in each steel window jamb	1 1/2	2 15/16	2 7/16	11	Metal window contractor drill and tap two holes horizontally for each anchor, for 1/16-in. round head brass machine screws, 1 3/8-in. centers for Lupton and 1 5/8-in. centers for Fenestra and Truscon Sash.
24	One anchor in each steel window jamb	1	2 15/16	2	5 1/4	Metal window contractor drill and tap two holes vertically for each anchor for 1/16-in. round head brass machine screws, 2 1/4-in. centers.

Belt No. 1—Heavy webbing reinforced with leather..... All belts 3 1/2x36 in. and equipped with best yacht silk manila rope with minimum average breaking point of 2,695 lb. All belts provide double safety rope feature of top service rope and bottom safety rope. All are adjustable as to waists, shoulder straps, and rope length.....
Belt No. 2—All leather with shoulder straps.....
Belt No. 3—All leather without shoulder straps.....

Furnished by contractor who furnishes and installs anchors

ANDERSEN FOUNDRY COMPANY

SASH PULLEY DIVISION of the ANDERSEN FRAME CORPORATION

Manufacturers of Andersen Noiseless Sash Pulleys

BAYPORT, MINN.

Product

NOISELESS SASH PULLEYS.

Noiseless Andersen Sash Pulleys

The exclusive features of the Andersen Noiseless Sash Pulley include the patented noiseless, wearproof axle bearing—an exclusive feature of the pulleys with which all Andersen Double Hung Window Frames are fitted; a specially designed housing to prevent the cord from slipping off the wheel, and reduce air leakage around the cord; and a tongue on the face of the pulley to reduce air leakage through the groove under the wheel.

Unlimited Guarantee

Every Andersen Noiseless Sash Pulley is guaranteed to be noiseless in operation and to function perfectly for an unlimited period.

Laboratory Tests

Tests made at the University of Minnesota of various makes of pulleys resulted as follows:

After tests equivalent to 186 years of ordinary wear, this Andersen pulley was in excellent condition. The engineer in charge stated that "at the end of the test, the bearing appeared to be as good as new" and "the pulley ran very quietly throughout." Of six other types of pulleys in this test, the most enduring operated perfectly less than a year and stopped at about 33 years. Copies of this test will be gladly furnished on request.

Absolutely Noiseless

The axle bushing of the Andersen Noiseless Sash Pulley is of hard white maple permanently saturated with a non-drying lubricant. This lubricant prevents swelling and shrinking with variations of temperature or humidity and it will not ooze or evaporate under 125° F.



TRADE-MARK

Specifications

Material—Cast gray iron.

Wheel—Machine turned.

Groove—Combination U-groove for cord or chain.

Axle— $\frac{5}{16}$ -in. diameter. Polished steel.

SIZES AND FINISHES

Diameter of wheel....	2 in.	2½ in.	2½ in.	3 in.	Finish
Face plate....	1x4½ in.	1½x5½ in.	1½x5½ in.	1½x6½ in.	
No.....	101	201	301	401	Face polished and entire pulley lacquered.
No.....	102	202	302	402	Electro brass plated housing; polished face; lacquered wheel.
No.....	103	203	303	403	Electro plated bower-barff housing; polished face; lacquered wheel.
No.....	104	204	304	404	Electro nickelplated housing; polished face; lacquered wheel.
No.....	105	205	305	405	Electro bronze plated housing; polished face; lacquered wheel.
No.....	106	206	306	406	Electro cadmium plated housing; polished face; lacquered wheel.
No.....	107	207	307	407	Polished sheet bronze face plate attached to lacquered housing. Lacquered wheel.
No.....	108	208	308	408	Polished sheet brass face plate attached to lacquered housing. Lacquered wheel.
No.....	109	209	309	409	Jet black lacquered housing and wheel; polished face.

Solid brass or plated wheels furnished on special order.

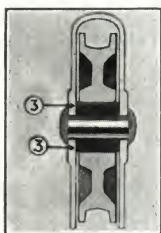
Pulleys individually wrapped and packed in boxes with screws to match finish.

The 100 Series will be furnished in any of the Andersen Master Window Frames except Frame No. 670. Any one of the 300 Series will be furnished in the No. 670 frame if desired.

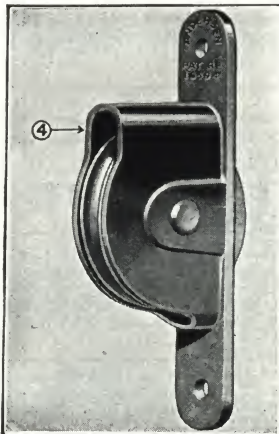
See Manufacturers' Index for catalogue of Frames.

Sample Pulleys Supplied

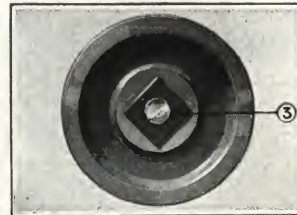
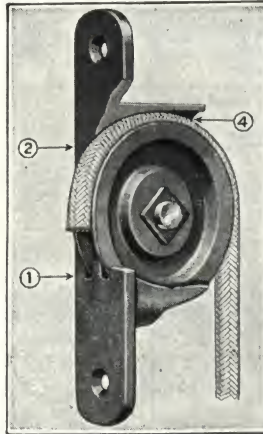
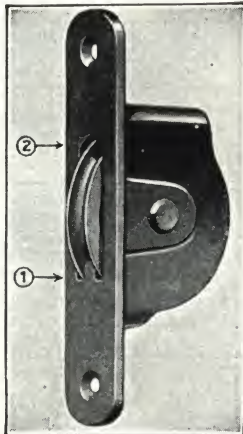
A sample pulley will be mailed on request.



Cross Section of Wheel



At Right and Center—Views of Pulley to Show Special Housing Design



Pulley Face Showing Maple Bushing

At Left—Cutaway View Showing Housing Features

Distinctive Features of Andersen Noiseless Pulleys

(1) Tongue to reduce air leakage through groove under wheel. Patent applied for.
(2) Specially designed housing to reduce air leakage above cord. Patent applied for.
Other patents pending.

(3) Hard maple noiseless and wearproof bushing. Patent re-issue number 16594.
(4) Specially designed housing to prevent the sash cord from slipping off the wheel or catching.

CALDWELL MANUFACTURING CO.

Sash Balances and Door Holders

MAIN OFFICE AND FACTORY

56 Industrial Street

ROCHESTER, N. Y.

BRANCH OFFICES

CHICAGO, ILL., 155 No. Union Street

PHILADELPHIA, PA., 525 Commerce Street

Products

Manufacturers of CALDWELL SASH BALANCES;
VERTICAL, JUNIOR and EMPIRE DOOR HOLDERS.
Also other Hardware Specialties.

Caldwell Sash Balances

Have been made by us for the past 41 years. They are made of the best material, by workmen thoroughly experienced in the art of producing sash balances with uniform tension, insuring a perfect counterbalance at all points of the sash.

Top Balances—Enable the architect to make the narrowest possible mullion, allowing the use of narrow trim, giving the effect of casements in rows of double hung sash.

Uniform Mortises—Cut at the mill, reduce cost of installing.

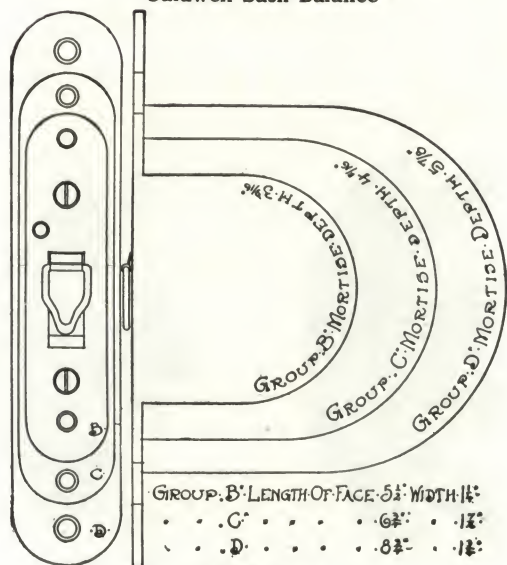
Quality and Durability—Proved by years of satisfactory service.



Side

Angle Top

Caldwell Sash Balance

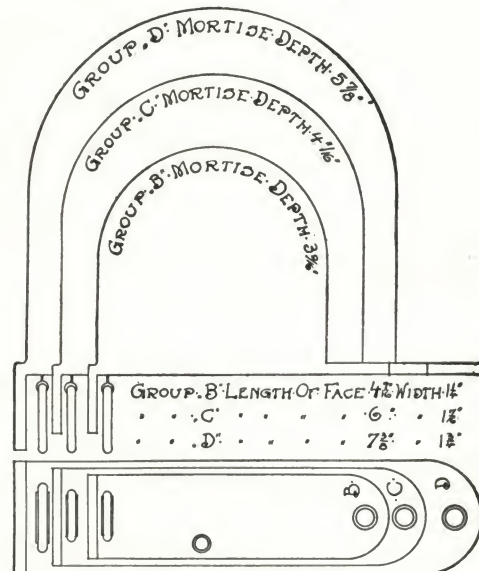


Side Balance

Measurements on outline are full size

Guarantee—Caldwell sash balances are guaranteed for 15 years.

Literature—Send for catalogue, "Suggestions for the Present Day Architect."



Top Balance for Mullion Windows

Measurements on outline are full size

Caldwell Vertical Door Holders

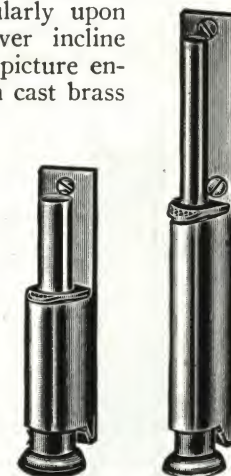
Of strongest construction; made in all finishes; have no screw ears.

A bracket affixes the holder immovably to the door, and gives strength at the base of holder where it is most required. Our *special large vertical door holder* with $4\frac{1}{4}$ -in. drop is recommended for use on heavy outside doors, particularly upon vestibule doors, which open over incline floors, such as theaters, moving picture entrances, etc. Large size made in cast brass and bronze metal only.

Pressers are made of cold rolled rods, $\frac{5}{8}$ -in. diam. The rubbers are the *original cup shape*, reinforced with hard leather gaskets, which prevent the rubbers from being cut and torn.



Rubber for Caldwell Vertical Door Holders
(Full size)



Regular Size $1\frac{1}{4}$ -in. Drop
Special size $4\frac{1}{4}$ -in. Drop
Caldwell Vertical Door Holders

CLEVELAND LOCK WORKS

FORMERLY COLUMBIAN LOCK DIVISION

Manufacturers of Sash Pulleys

1290 East 53rd Street
CLEVELAND, OHIO

Product

CLEVELAND SASH PULLEYS for double hung windows.

Material

Case—cast gray iron.

Wheels

Machine turned, cast gray iron, cast brass or bronze.

Grooves

Combination rounded grooves, suitable for cord or chain, regularly furnished. Double-square grooves for chain only are furnished when so ordered.

Axles

Cold rolled steel is standard. Brass or gunmetal when so ordered.

Bearings

Plain axle, roller bearing, ball bearing, bronze or steel bushings.

Faces

Cast iron, or with wrought bronze metal faces.

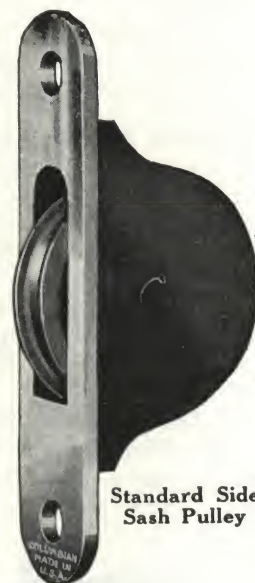
Standard Finishes

- 0—No finish—plain.
- 02—Polished and lacquered.
- 12—Bright brass.
- 13—Dull brass.
- 1—Bright bronze.

Overhead Pulleys

For complete specification and data on overhead pulleys, write for our catalogue.

To insure perfect pulleys, specify "Cleveland."



Standard Side Sash Pulley

Specification Data

- 2 -in. wheels for sash weighing up to 40 lb.
- 2 1/4 -in. wheels for sash weighing up to 100 lb.
- 2 1/2 -in. wheels for sash weighing up to 150 lb.
- 3 -in. wheels for sash weighing over 150 lb.

CLEVELAND SASH PULLEYS FOR DOUBLE HUNG WINDOWS

Cast Iron Faces				Wrought Bronze Metal Faces			
Catalog No.	Wheel size, inches	Axle size, inches	Face size, inches	Catalog No.	Wheel size, inches	Axle size, inches	Face size, inches
100	2	5/16	1 1/8 x 5	D-106	2	5/16	1 1/8 x 5
200	2 1/4	5/16	1 1/8 x 5	D-206	2 1/4	5/16	1 1/8 x 5
220	2 1/4	5/16	1 1/8 x 5 1/2	D-226	2 1/4	5/16	1 1/8 x 5 1/2
300	2 1/2	5/16	1 1/4 x 5 3/4	D-306	2 1/2	5/16	1 1/4 x 5 3/4
320	2 1/2	5/16	1 1/4 x 6	D-326	2 1/2	5/16	1 1/4 x 6
400	2 1/2 x 1/2	3/8	1 1/4 x 6	D-406	2 1/2 x 1/2	3/8	1 1/4 x 6
420	3 x 1/2	3/8	1 1/4 x 6 1/2	D-426	3 x 1/2	3/8	1 1/4 x 6 1/2



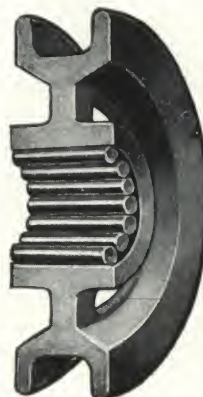
Combination Groove for Cord or Chain



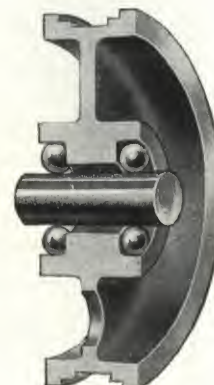
Double Square Groove for Chain only



Plain Axle



Roller Bearing



Ball Bearing

Grooves and Bearings

GRANT PULLEY AND HARDWARE COMPANY

Sash Pulleys and Casement Window Hardware

TELEPHONE CONNECTION Architects Building, 101 Park Avenue
NEW YORK, N. Y.

CALIFORNIA REPRESENTATIVES, GRANT PRODUCTS COMPANY, Builders Exchange, LOS ANGELES

Agents in all the principal cities of the United States and Canada, and our Name will be found listed in the Telephone Directories

Products

Manufacturers of SASH PULLEYS; ANTIFRICTION VERTICAL PIVOT LIFTS; ANTIFRICTION DRAWER SLIDES.

For Door Hangers and Bar Locks, see page of Grant Elevator Equipment Corp. in Manufacturers' Index.

Selling Agents for:

"Gem" ball bearing door hangers.

Details

Full size details of all our specialties will be sent on request.

"Grant" Overhead Pulleys

On account of additional pocket room gained by use of "Grant" pulleys, iron instead of lead weights can be used for heaviest plate glass windows, thus materially reducing cost. Frames are cut for "Grant" pulleys by regular pulley machine.

"Grant" overhead pulleys are also made for triple, quadruple and quintuple windows.

"Grant" Antifriction Vertical Pivot Lifts

The "Grant" antifriction pivot lift, when applied to sash pivoted top and bottom, can be quickly and easily opened for ventilation.

"Turner" (Patent) Antifriction Drawer Slide

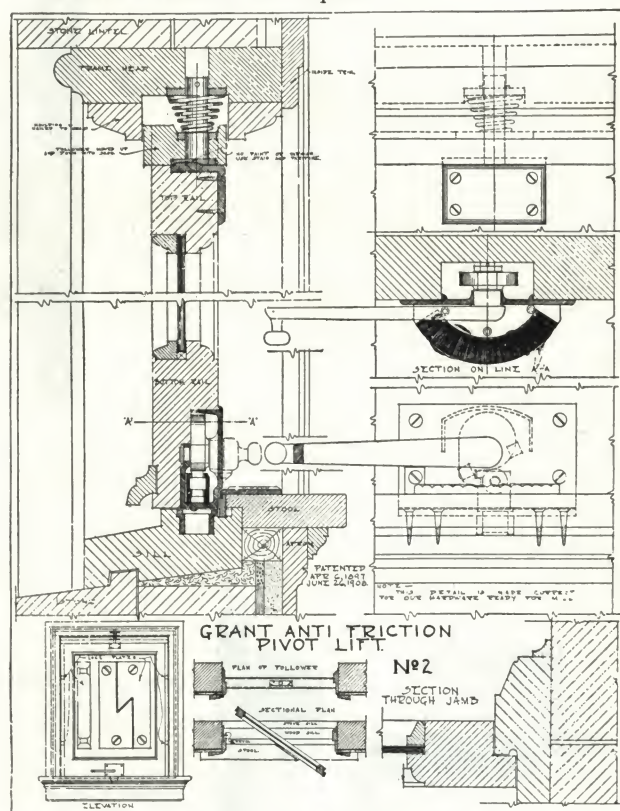
The "Turner" antifriction drawer slide and support are noiseless. When fitted with the "Turner" attachment a drawer cannot fall from the case when pulled out suddenly; nor can it sag, if heavily loaded, when opened to its limit.

"Gem" Antifriction Drawer Slides

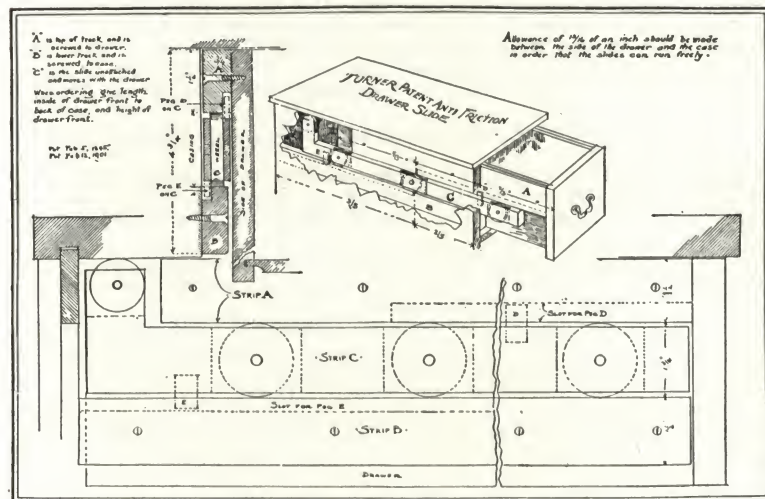
We now manufacture and sell the "Gem" antifriction drawer slides and supports that are made entirely of steel with the exception of the wheels which are fibre and are steel bushed. These slides take a space

of only $\frac{1}{2}$ in. on the side of the drawer and the operation of same is exactly like the "Turner."

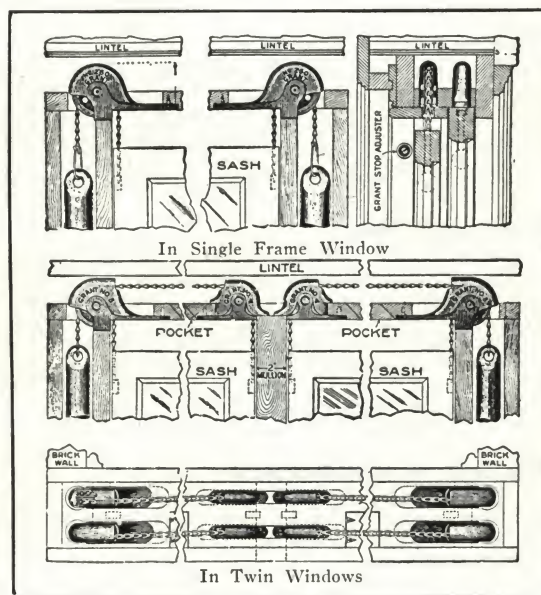
Details furnished on request.



Details Pivot Windows Equipped with "Grant" Antifriction Lifts



Details "Turner" (Patent) Antifriction Drawer Slides



Grant Overhead Pulley

PULLMAN MFG. COMPANY, INC.

Manufacturers of Unit Sash Balances

ROCHESTER, N. Y.

Products

PULLMAN UNIT SASH BALANCES for wood, hollow metal, steel or kalamein double hung sash.

Also Special Balances: Tandem, for extra heavy windows; Cabinet, for show and wall cases; Pressed brass, for marine work; Midget Balance, instantly adaptable to the pulley mortises and sash grooving in standard stock frames and sash.

Pullman Sash Balances More Economical Than Weights and Cords

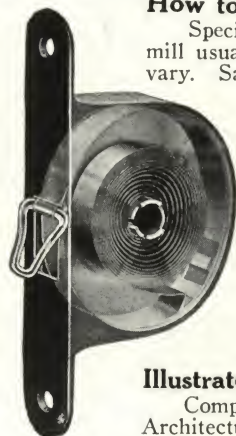
Expensive box frames, weights and cords are eliminated. Pockets for reaching weights are unnecessary—a big saving. Sash are grooved in one operation instead of two. Less lumber and labor required throughout. In some sections mill savings have been as high as \$2.00 per frame. In any location, however, this saving should be at least 95c.

Pullman Balances are installed at the rate of 10 to 15 minutes per window as compared with 30 to 45 minutes for weights and cords, shown by time tests on actual jobs. Experienced carpenters can install in 6 to 10 minutes.

Guaranteed for the life of the building against imperfect workmanship or material. Purchasers are fully protected. They are not penalized for breakage due to inexperienced workmen. Durable, the spring remains uniform in tension and does not require oiling. Installations of 40 years ago are working satisfactorily. Tight construction. No leakage of air as with pulley opening. Saves fuel bills.

Substantial savings are effected in freight and cartage and in handling to and on the job. Labor costs reduced to a minimum. Tonnage reduced 90%.

Unit Sash Balances
TRADE-MARK

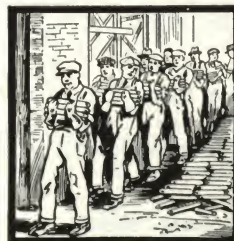


How to Order

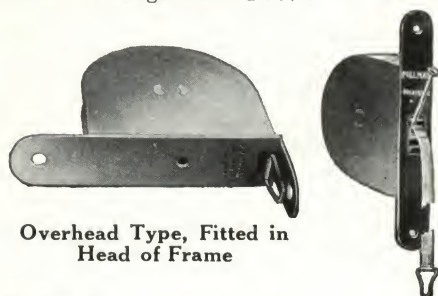
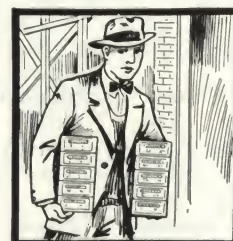
Specify exact weight by scales of each individual sash. The mill usually so marks the sash. Upper and lower sash often vary. Sash of the same dimensions likewise differ in weight. Therefore, never give weight of entire window. Be sure sufficient space is left for Balances. Use overhead type if no room in side jamb. Note the regular run of tape on following page for each size of Pullman Balance. If additional run of tape (i. e., travel of sash within a given opening) or extra length is required in order to locate balances higher up or further away from the sash than usually, or for unusually long, narrow sash, please consult us before ordering. Always send for dummy Balances for mortising purposes, supplied free of charge.

Illustrated Catalogue

Complete illustrated catalogue, "Standard Specifications and Architectural Details," may be had upon request.



Ten tons of weight replaced by one ton and ten men's work done by one man where Pullman Sash Balances are installed



Side Type, Fitted in Jamb

An ordinary nail inserted in Balance holds spring while tape is being attached to tape hook on the sash

Overhead Type, Fitted in Head of Frame

Finishes

All units have special rustproof finish. No additional protective coating is necessary. Finishes last indefinitely.

Brass, nickel, bronze, bower barff, verd antique or other architectural finishes can be readily obtained at a nominal additional cost. Special finishes should be clearly specified and sample of similarly finished hardware submitted if possible.

Types and Sizes

There are two types of Balances. Side pattern for standard use on jamb and Overhead or Top pattern for narrow mullions (see drawings on following page). Each pattern is made in three sizes, Units A, L and M, for the various weights of sash. Standard tape lengths are adequate for usual conditions. The longer tape of next size unit handles unusually long, narrow sash, i. e., use Unit L instead of A, or Unit M instead of L. (See table on following page.)

Note: Two Pullman Balances are required for each sash.

Principle of Construction

The Pullman Balance consists of a pressed steel casing enclosing a rustproof steel tape, wound on a revolving drum. Inside this drum is a spring of the finest clock steel, uniform in tension and temper.

Can be instantly installed or removed without disturbing stops, sash or frame by means of the loop in the end of the tape, which is hooked into the tape hook on the sash.

Guaranteed for the Life of the Building

When each sash is accurately weighed and our instructions are followed for putting them in, we guarantee our standard Balances to carry the sash perfectly during the life of the building, and we will repair or replace at our factory, free of charge, any broken or imperfect Balances.

Specifications

Insert the following clause in the Millwork section of the specifications:

All double hung windows are to be operated by Unit Sash Balances as manufactured by the PULLMAN MFG. COMPANY, INC., Rochester, N. Y. The stiles of sash shall be grooved at the mill in accordance with the PULLMAN MFG. COMPANY'S details. All boxings and weight pockets for window weights shall be eliminated and frames provided as detailed.

Insert the following clause in the finish Carpentry specifications:

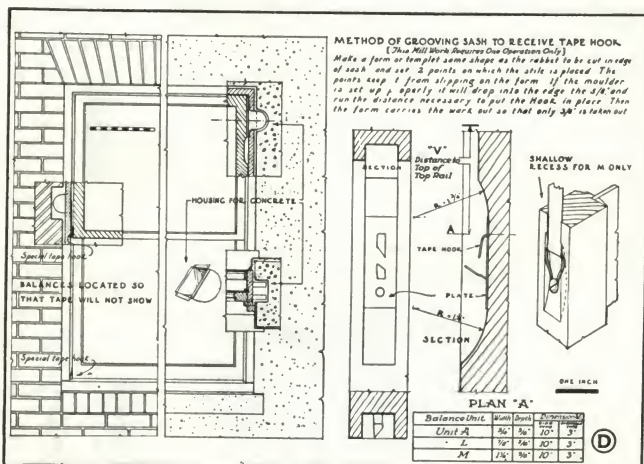
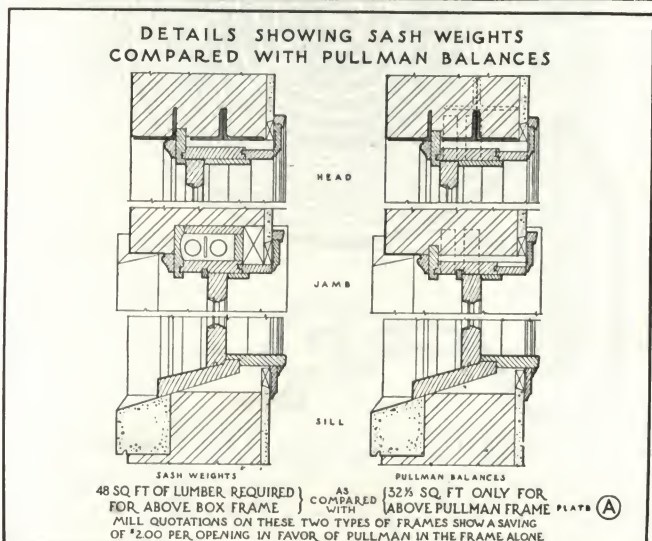
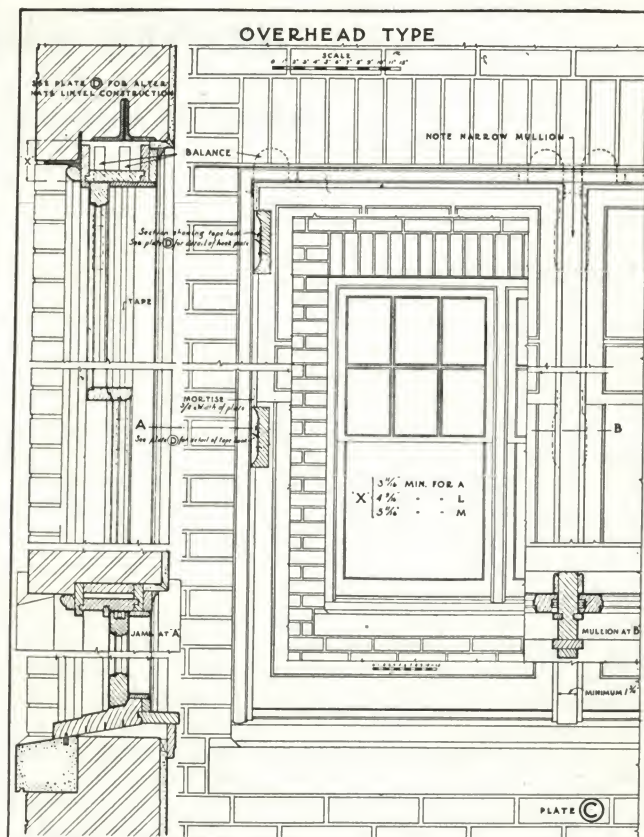
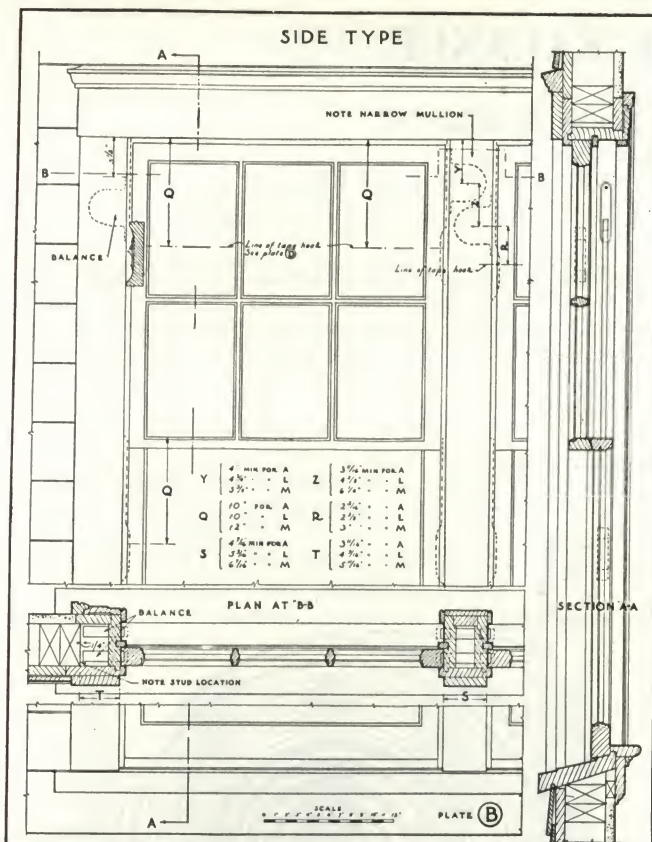
This contractor shall provide and install Unit Sash Balances as manufactured by the PULLMAN MFG. COMPANY, INC., Rochester, N. Y., on all double hung windows throughout.

The manufacturer's standard metal housing shall be provided by this contractor to the mason where frames are surrounded by poured concrete.

All Balances for windows throughout (state location) shall be Side Type and all Balances for windows throughout (state location) shall be Overhead Type.

All sash shall be accurately weighed by scales as soon as completed, and the correct size and tension of Balances shall be provided for the sash of varying weights as required by the manufacturer's guarantee so as to balance the sash perfectly at all points.

All face plates shall have manufacturer's standard finish, except those for windows (state location), which shall be (state finish required).



Center Installation, Metal Housing for Concrete Construction and Method of Grooving Sash to Receive Tape Hook

PRICES, ETC., OF PULLMAN UNIT SASH BALANCES

UNIT "A," FOR 4-LB. TO 29-LB. SASH Depth of Unit "A" Balance 3 1/4 in					UNIT "L," FOR 10-LB. TO 48-LB. SASH Depth of Unit "L" Balance 4 3/8 in.					*UNIT "M," FOR 24-LB. TO 105-LB. SASH Depth of Unit "M" Balance 5 1/8 in				
Balance No.	Weight of each sash, pounds	Length of tape, inches	Code word	Per set of 4 Balances for 2 sash	Balance No.	Weight of each sash, pounds	Length of tape, inches	Code word	Per set of 4 Balances for 2 sash	Balance No.	Weight of each sash, pounds	Length of tape, inches	Code word	Per set of 4 Balances for 2 sash
2-A	4 to 5	46	Aback	\$2.25	3-L	10 to 11	54	Label	\$3.65	10-M	24 to 26	60	Mace	\$7.35
3-A	5 to 7	46	Abel		4-L	12 to 13	54	Labor		11-M	27 to 29	60	Machine	
4-A	7 to 9	46	Abhor		5-L	14 to 15	54	Lace		12-M	30 to 32	60	Mackereel	
5-A	9 to 11	46	Abide		6-L	16 to 17	54	Lack		13-M	33 to 35	60	Madam	
6-A	11 to 13	46	Abject		7-L	18 to 19	54	Lactic		14-M	36 to 38	60	Madly	
7-A	13 to 15	46	Abjure	2.65	8-L	20 to 21	54	Lacona	4.05	15-M	39 to 41	60	Madonna	7.70
8-A	15 to 17	46	Abkari		9-L	22 to 23	54	Lactael		16-M	42 to 44	60	Magic	
9-A	17 to 19	46	Abhaze		10-L	24 to 26	54	Laddie		17-M	45 to 48	60	Magnate	
10-A	19 to 21	46	Ably		11-L	27 to 29	54	Lade		18-M	49 to 52	60	Magnet	
11-A	21 to 23	46	Aboard		12-L	30 to 32	54	Lading		19-M	53 to 56	60	Magnify	
12-A	23 to 25	46	Aboon	3.15	13-L	33 to 35	54	Ladle	4.60	20-M	57 to 60	60	Magnolia	8.80
13-A	25 to 27	46	Abox		14-L	36 to 38	54	Lady		21-M	61 to 64	60	Magpie	
14-A	27 to 29	46	Abrade		15-L	39 to 41	54	Lag		22-M	65 to 68	60	Mahogany	
					16-L	42 to 44	54	Laggard		23-M	69 to 72	60	Maiden	
					17-L	45 to 48	54	Lagging		24-M	73 to 76	60	Mail	
										25-M	77 to 80	60	Maintain	10.20
										26-M	81 to 84	60	Majestic	
										27-M	85 to 88	60	Major	
										28-M	89 to 92	60	Maker	
										29-M	93 to 96	60	Malady	
										30-M	97 to 100	60	Malice	11.90
										31-M	101 to 105	60	Malign	

Overhead Type Balances are priced same as Side Type.

Side Type is always sent unless Overhead Type is specified.

For details of special finishes, see paragraph on preceding page.

*Tape hook is not used with Unit "M."

GRAVES SASH BALANCE

MANUFACTURED BY
FRANK GRAVES SASH, DOOR & MILL CO.
 INCORPORATED

2000 Pasadena Avenue, LOS ANGELES, CALIF.

For Sale by Leading Hardware and Lumber Dealers or Write Us Direct for Information

Graves Sash Balance

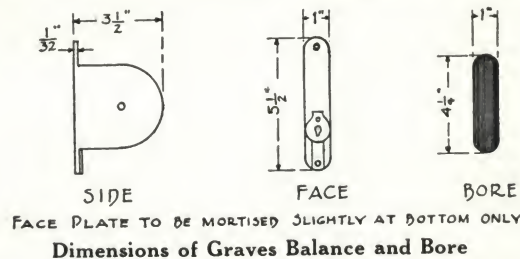
The Graves Sash Balance is a device which controls the sash in double hung windows and eliminates box frames, rattling weights, and chatter caused by loose fitting. It permits narrow mullions, narrow casing or plaster return.

The Graves Balance assures smooth operation and reduces the cost of installation. It has the *wire sash cable* consisting of seven twisted strands, each composed of seven strong wires. Can be used on windows equipped with any standard weatherstrip.

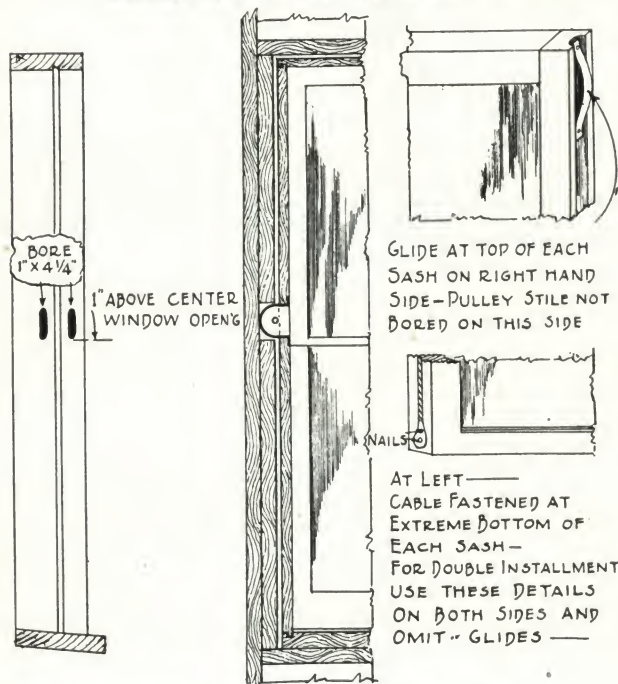
Installation

The Graves Sash Balance is installed in the pulley stile 1 in. above center of window opening. The bore required in the pulley stile is $1 \times 4\frac{1}{4}$ in. for all sizes of Graves Balance. A metal template is furnished for this or the frames may be bored at the mill.

Graves Single Installation—System Patent No. 1760226—Where each window is not larger than 3 ft. 6 in. x 6 ft. only one Graves Balance is used for each sash and is placed on the left side. On the right side of the sash at the top is placed the spring steel glide which absorbs any looseness and assures smooth operation.



Dimensions of Graves Balance and Bore



Details of Installation for Graves Sash Balance

Double Installation—For windows of larger size, up to 40 lb. per sash, two Graves Balances are used, one on each side of sash, and the glide is omitted.

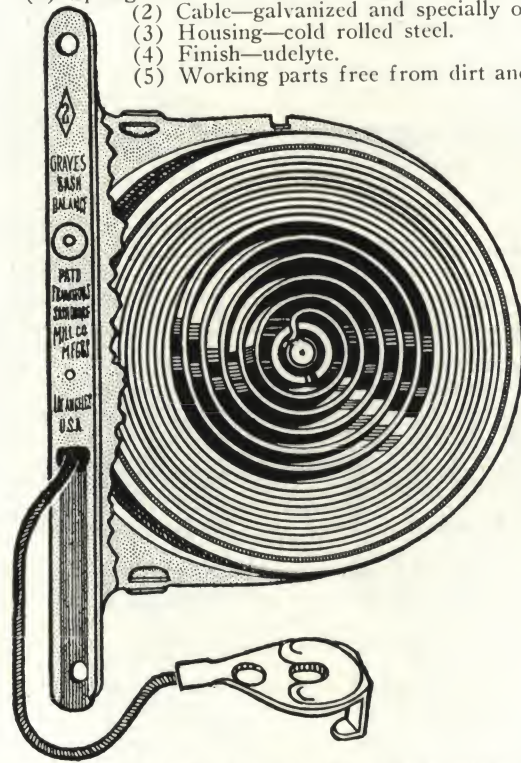
For sash weighing more than 40 lb. use tandem installation.

Details on request.

Specifications

The Graves Balance offers the following features:

- (1) Spring—blue steel clock spring.
- (2) Cable—galvanized and specially oil treated.
- (3) Housing—cold rolled steel.
- (4) Finish—udelyte.
- (5) Working parts free from dirt and rust.



TYPES OF GRAVES SASH BALANCES FOR VARIOUS SIZES OF SASH

Dimensions in feet and inches. Schedule based on 1 3/4-in. sash

Width, 1-6		Width, 2-0		Width, 2-4		Width, 2-6		Width, 2-9 1/2	
Hgth.	Type	Hgth.	Type	Hgth.	Type	Hgth.	Type	Hgth.	Type
2-0	1	2-0	1	3-0	3	2-6	3	3-0	4
2-6	1	2-6	2	3-6	3	3-0	3	3-6	4
3-0	1	3-0	3	4-0	4	3-6	4	4-0	5
3-6	2	3-6	3	4-6	5	4-0	4	4-6	5
4-0	2	4-0	3	5-1	5	4-6	5	5-1	6
4-6	3	4-6	4	5-9	6	5-1	6	5-9	6
5-1	3	5-1	5	6-5	6	5-9	6	6-5	7
5-9	4	5-9	5			6-5	7		
		6-5	6						
Width, 3-0		Width, 3-6		Width, 4-0		Width, 4-6		Width, 5-0	
Hgth.	Type	Hgth.	Type	Hgth.	Type	Hgth.	Type	Hgth.	Type
2-6	4	3-0	5	3-0	C	3-6	E	4-6	G
3-0	4	3-6	6	3-6	D	4-0	E	5-1	G
3-6	5	4-0	6	4-0	D	4-6	F	5-9	H
4-0	5	4-6	7	4-6	E	5-1	F	6-5	I
4-6	6	5-1	7	5-1	F	5-9	G	7-1	J
5-1	6	5-9	8	5-9	F	6-5	H		
5-9	7	6-5	F	6-5	G	7-1	I		
6-5	8	7-1	G	7-1	G				

Note: Numbered types for single installation requiring 2 balances and 2 glides for one double hung opening. Lettered types for double installation requiring 4 balances for one double hung opening. Types based on 1 3/4-in. sash. For 1 1/4-in. sash use next number or letter type.

For heavy plate glass windows weighing 3 1/2 lb. per sq. ft., and for hollow metal windows with wire glass weighing 4 lb. per sq. ft. use tandem installation. Details on request.

AMERICAN CHAIN COMPANY, INC.

GENERAL SALES OFFICE
BRIDGEPORT, CONN.

IN CANADA: DOMINION CHAIN COMPANY, LIMITED, NIAGARA FALLS, ONT.

DISTRICT SALES OFFICES
NEW YORK, N. Y. PITTSBURGH, PA. BOSTON, MASS. CHICAGO, ILL. PHILADELPHIA, PA. SAN FRANCISCO, CAL.

American Sash Chain

Ease of Operation—

American Sash Chain links are flat, giving a strap-like action, which is strong and flexible. Will run freely and noiselessly over the pulley, and will not kink.

Made of Copper-Bearing Steel—

Copper-bearing steel, highly rust-resistant, is used exclusively for the manufacture of American Sash Chain, assuring life as long as the sash.



American Bronze Sash Chain

Made from our own special mixture of hard bronze, adopted only after exhaustive tests proved it was the best alloy possible to produce for the purpose. It is positively non-corrosive.

Standard Size Fixtures for American Sash Chain

American Sash Chain Fixtures are quickly and easily adjusted. Made in copper finish only.

Coil springs provide a strong grip which cannot work loose. They are used in either one or two-hole sash. Furnished in three sizes: for $\frac{3}{4}$ -in., $\frac{7}{8}$ -in., and 1-in. bores.

No. 178 sash weight hooks eliminate cumbersome knots. They are easy to install and cannot loosen.

The type of fixture shown at right consists of four weight hooks, four sash rings, and four "U" pieces. No. 60 fixture should be used for No. 60 sash chain. No. 80 fixture is satisfactory for all the other sizes.



Coil Spring



No. 178 Hook



No. 60 No. 80 No. 100 No. 130 No. 250
No. 60 for double-hung sash not weighing over 100 lbs.
No. 80 for double-hung sash not weighing over 150 lbs.
No. 100 for double-hung sash not weighing over 250 lbs.
No. 130 for double-hung sash not weighing over 300 lbs.
No. 250 for double-hung sash not weighing over 400 lbs.

American Sash Chain Finishes

American Sash Chain is regularly furnished in the following finishes—coppered, hot galvanized, S.R.P., Hercules. These finishes are applied to the chain by special equipment which coats each link thoroughly and evenly.

The S.R.P. finish is a zinc coating having the appearance of sherardize. Hercules finished chain is first hot galvanized, then coppered, giving the appearance of bronze. It is an excellent substitute for bronze chain, at a considerable saving in price.

Packing

American Sash Chain is furnished on our own substantial steel reels, 500 feet to reel, two reels to case.



American Sash Chain

Acco No. 8 Sash Chain for Residences and Apartments

Operates Perfectly Over Any Cord Pulley—

Carpenters prefer Acco No. 8 Sash Chain because it is easier to install.

The same type of coil spring and weight hook is used as for American Sash Chain.

Home owners and prospective home buyers quickly recognize the advantages of Acco Sash Chain—it will not rot, nor will it cut on sharp pulley edges.

Acco No. 8 Sash Chain, like American

Sash Chain, is made of rust-resisting copper-bearing steel.

Acco No. 8 Finishes—

Furnished in three finishes—coppered, S.R.P., and hot galvanized.

Packing—

Acco No. 8 Sash Chain is packed in bags of 100 feet, with necessary attachments, enough for seven average double-hung windows.

Acco No. 8 Sash Chain can also be purchased in hardware stores in cartons, each carton containing sufficient chain with attachments for one double-hung window.



THE CHAIN PRODUCTS COMPANY

CLEVELAND, OHIO

DISTRICT SALES OFFICES

BALTIMORE, MD., HENRY KEDIEL & Co., 31 Calvert Street—Snow Building
BOSTON, MASS., WM. C. PICKERSGILL, 612 Statler Building
CHARLOTTE, N. C., ROSS SALES SERVICE, 16 South Poplar Street
CHICAGO, ILL., C. A. and G. W. PIPENHAGEN, 170 W. Chicago Avenue
DETROIT, MICH., GEO. E. QUIGLEY, INC., General Motors Building
LOS ANGELES, CAL., SANDS & CAMP, 1001 E. First Street

NEW YORK, N. Y., THOS. A. TROY & SON, 200 Varick Street
PHILADELPHIA, PA., T. B. HENDRICKSON & Co., 525 Commerce Street
ST. LOUIS, MO., J. J. HORAN & SON, 606 Oriol Building
ST. PAUL, MINN., P. R. STOWERS, 326 Endicott Building
SAN FRANCISCO, CAL., SANDS & CAMP, 7 Front Street
SEATTLE, WASH., GILLETTE & McLAREN, INC., 318 Occidental Avenue

WINNIPEG, CAN., D. A. McDONALD, 126 Lombard Street

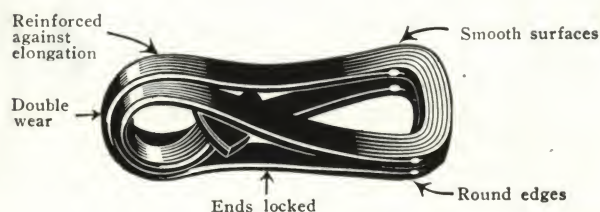
Hodell Sash Chain

Description—A revolutionary improvement in sash chain manufacture has produced a unique, patented type. Elimination of 60% waste in its construction brings cost to a level where it can be economically specified for every type of building.

In tensile strength tests, *Hodell* sash chain will be found to be from 10% to 15% stronger than the old style, stamped link pattern. It also possesses absolute uniformity of every link, freedom from improperly formed blanks common to stamped chain, smooth polished surfaces with all rounded edges.

Hodell sash chain was developed after an insistent demand by architects for a sash suspension that would eliminate those costly replacements of sash cord or ordinary flat link chain.

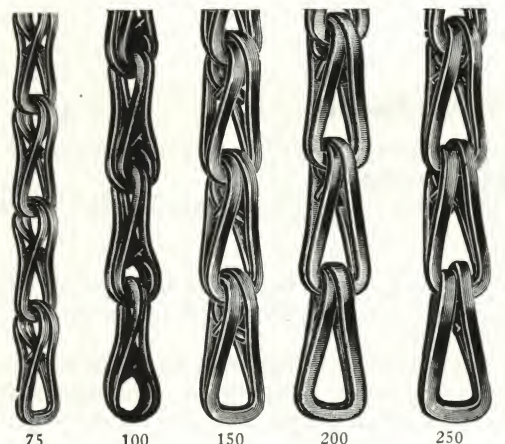
Hodell sash chain is made from a narrow ribbon of cold rolled polished metal, woven by automatic ma-



Enlarged Link, Hodell Sash Chain

chinery to the type of link illustrated above. The saving in material over the old method of blanking out links is utilized to purchase a higher grade stock.

Hodell sash chain is identical in length and outside diameter with ordinary sash chain. Fits standard pulleys and runs more smoothly than any other type. Wears twice as long because of double metal at eye.



Types of Hodell Sash Chain

Approval—*Hodell* sash chain is approved by the Underwriters' Laboratories, Inc.

Fittings—Standard type of fittings are supplied. Furnished regularly in two sizes, one for light and medium, the other for heavy and extra heavy sash.

Grades and Finishes—Bronze—*Hodell* sash chain is supplied in bronze and steel grades, the bronze grade including phosphor bronze and red bronze. Both of these grades are formed from a bronze stock of special analysis.

Steel—The steel grades are hot galvanized by the latest process, the best rust preventative known. The bright galvanized is a special and improved method of electroplating, a heavy zinc coating being applied, resulting in a silver bright finish.

Further Information and Co-operative Service

Send for specially designed folder adapted to standard classification of American Institute of Architects. Attractive sample display cards showing all sizes and grades and convenient data gladly sent to architects and builders.

THE CHAIN PRODUCTS COMPANY are also manufacturers of a complete line of Weldless Chain, including Bulldog, Samson, Cleveland, Noweld and Cepeco; Steel and Brass Wire Chains in 114 sizes and 8 finishes; also a full line of General Purpose Chains, S Hooks, Screw Hooks and special shapes in all varieties of flat and round wire.

If you have any chain problems, our Experimental Department is at your service.

Packing—*Hodell* sash chain is packed on 500-ft. reels with one or two reels to a case.



Hodell Sash Chain Is Shipped on All-steel Reels

PROPER SIZES, GRADES AND WEIGHTS OF HODELL SASH CHAIN FOR VARIOUS TYPES OF BUILDING CONSTRUCTION

	Light	Medium	Heavy	Extra Heavy
For double hung sash having plate glass area.....	Up to 6 sq. ft.	Up to 10 sq. ft.	Up to 15 sq. ft.	15 sq. ft. and upward
For sash weighing.....	Up to 60 lbs.	Up to 100 lbs.	Up to 150 lbs.	Over 200 lbs.
Federal, state, county, municipal buildings, banks, hotels, offices, libraries, residences (\$10,000 and up).....	125-B	175-B	275-B	400-B
Theaters, hospitals, railroad stations, schools, churches, high grade apartments, clubs.....	125-B or 100-R	175-B or 150-R	275-B or 225-R	400-B or 300-R
Mercantile buildings, apartments (4 to 6 suites), stores, residences (\$5,000 to \$10,000).....	100-R 100-HG or 100-BG	150-R 150-HG or 150-BG	225-R 200-HG or 200-BG	250-R 250-HG or 250-BG
Temporary construction, frame houses and stores, factories, mills.....	100-BG 75-BG, 75-C or 100-C	150-BG or 150-C	200-BG or 200-C	250-BG or 250-C

Note: The sizes of chain above recommended are intended to provide strength many times in excess of that required to handle the respective sizes of sash and will insure permanent satisfaction.

SAMSON CORDAGE WORKS

89 Broad Street
BOSTON, MASS.

Products

Manufacturers of BRAIDED COTTON CORD in all sizes and colors for all purposes, including SAMSON SPOT CORD, SAMSON WIRE CENTER CORD and other SASH CORDS.

Also manufacturers of Clothes Line, Ventilator Cord, Curtain and Shade Cord, Awning Line, Masons' Line, Dumbwaiter Rope, Arc Lamp and Trolley Cord, Signal Cord, Cotton Twine, etc.

Samson Cord

All cord bearing the trade-mark of Samson and the Lion is made of extra quality stock; is carefully inspected, and is guaranteed free from the rough braiding and finishing which destroy common cords so quickly.

The SAMSON CORDAGE WORKS manufactures several grades of sash cord, but the lower grades, made for competing trade in cheap work, do not bear the Samson trade-mark. They do not fill specifications for Samson cord, which is much more economical in the end.



TRADE-MARK

Samson Spot Sash Cord

Samson Spot Cord is made in one quality only, the best sash cord we can produce after forty-six years' experience. The colored spots are our trade-mark, used only with this extra quality. They serve as a means of identification after the label is removed.

Spot Cord will wear many times longer than metal devices or than the common cord, so often found on the market, made of inferior yarn roughly braided and poorly finished, causing early destruction by abrasion on the pulley.

Specifications—Architects' specifications should read:

"Windows to be hung with Samson Spot Cord; size of cord and size of pulleys to agree with manufacturer's list." (See lower left-hand corner of this page.)

Sample Cards—Sample cards, showing proper sizes for use with different weights and pulleys, will be gladly sent to architects and builders.

Samson Wire Center Sash Cord

Recommended for use in hanging heavy windows or where for any reason a metallic device is desired.

The cover is made of the same extra quality cotton yarn as used in Samson Spot Cord, with special steel wire center, manufactured under specifications for running over pulleys and of entirely different quality from ordinary wire.

The weight of the window is borne chiefly by the wire center, the cotton cover merely acting as a cushion, thus avoiding contact of metal with metal which causes wear and makes an unpleasant noise.

It is carried in mahogany color in two sizes: Nos. 8 and 10.

No. 8 is suitable for weights up to 30 lbs. if used with pulleys not less than 2 in. in diameter, or for weights up to 50 lbs. with pulleys not less than 2½ in. in diameter.

No. 10 for weights up to 75 lbs. if used with pulleys not less than 2½ in. in diameter, or for weights up to 100 lbs. with pulleys not less than 3 in. in diameter.



Samson Wire Center Sash Cord

Special Cords

Cords made to order for any purpose, in special braid, finish or color.

Territory

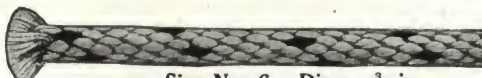
Samson Spot Cord and this company's other goods are sold all over the world, and are carried by dealers in all parts of the United States.

Catalogues

Send for catalogues and sample cards.

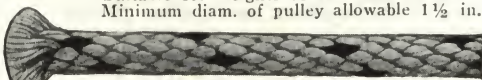
Samson Spot Sash Cord

The number indicates the diameter in 32nds of an inch. Usually put up in 100 ft. hanks, 1 dozen hanks in a package.



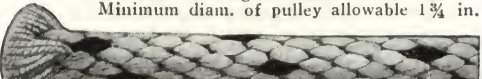
Size No. 6. Diam. $\frac{3}{16}$ in.

About 18 lbs. per doz.; about 66 ft. per lb.
Suitable for weights of less than 10 lbs.
Minimum diam. of pulley allowable 1½ in.



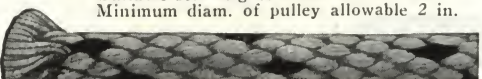
Size No. 7. Diam. $\frac{7}{32}$ in.

About 22 lbs. per doz.; about 55 ft. per lb.
Suitable for weights from 10 to 15 lbs.
Minimum diam. of pulley allowable 1¾ in.



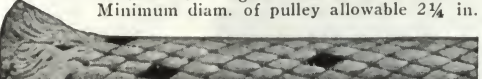
Size No. 8. Diam. $\frac{1}{4}$ in.

About 27 lbs. per doz.; about 44 ft. per lb.
Suitable for weights from 15 to 25 lbs.
Minimum diam. of pulley allowable 2 in.



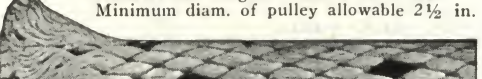
Size No. 9. Diam. $\frac{9}{32}$ in.

About 33 lbs. per doz.; about 36 ft. per lb.
Suitable for weights from 25 to 35 lbs.
Minimum diam. of pulley allowable 2¼ in.



Size No. 10. Diam. $\frac{5}{16}$ in.

About 44 lbs. per doz.; about 27 ft. per lb.
Suitable for weights from 35 to 45 lbs.
Minimum diam. of pulley allowable 2½ in.



Size No. 12. Diam. $\frac{3}{8}$ in.

About 60 lbs. per doz.; about 20 ft. per lb.
Suitable for weights from 45 to 60 lbs.
Minimum diam. of pulley allowable 3 in.

SILVER LAKE COMPANY

Manufacturers of Sash, Bell and Signal Cord

BRANCH OFFICES

NEWTONVILLE, MASS.

FACTORIES, CHATTAHOOCHEE, GA.

BRANCH OFFICES

NEW YORK, N. Y., 76 Reade Street
PHILADELPHIA, PA., 508 Market Street
CHICAGO, ILL., 20 West Kinzie Street
HOUSTON, TEX., 2409 Commerce Avenue

LOS ANGELES, CAL., 506 American Bank Building
SAN FRANCISCO, CAL., 604 Mission Street
SEATTLE, WASH., L. C. Smith Building
CHATTAHOOCHEE, GA.

Products

Manufacturers of "SILVER LAKE" SOLID BRAIDED WINDOW SASH CORD.

Also Railroad Bell, Trolley, Signal, Curtain and Shade Cord; Arc Lamp, Dumbwaiter and Transmission Rope; Mason's Lines and Clothes Lines, and all kinds of Solid Braided Cordage.

Description of Solid Braided Cordage

We are the pioneer manufacturers of solid braided cordage. "Silver Lake" cords have been used for the best work since 1868 and have become known as the standard. "Silver Lake" solid braided sash cord is made of the best quality of selected cotton yarn; twice doubled and twisted, and then braided on solid braiding machines of our own design.

Advantages—"Silver Lake" cord costs less per pound than linen and other fine fibers, and its weight is so much less that it costs less per foot than cords that are cheaper per pound. Cotton is the only fiber that will stand constant bending over a pulley; consequently a cotton cord is more durable than one made of linen or hemp. It varies in diameter by thirty-seconds of an inch, and is adapted to all styles and sizes of weights and pulleys. Our process of finishing takes up all the stretch, so that "Silver Lake" cords do not lengthen as they wear, but maintain the weight at its original height.

Ordinary twisted cords kink badly in unwinding from the hank, and a great deal of time is required to straighten them out. "Silver Lake" braided cord comes out smoothly and makes it possible to hang more sash in a given time than when ordinary cords are used. "Silver Lake" cord is smooth in finish and can not work in between pulley wheel and case, a fact that pre-

cludes all possibility of broken sash cords. Our shade cords are extremely handsome in appearance and do not fray and break.

Guarantee—Furthermore, we issue a certificate of guarantee protecting every architect who specifies "Silver Lake" sash cord against the breakage of same for a period of 20 years after installation.

Tests—Tests as made by the United States Government, Bureau of Standards, show that "Silver Lake" outwears many times chains and cheap cords. The hard braid and smooth finish also make it more fire resisting than chains.

Special Cords

All colors of wire center cord and a great variety of other braided cords for special purposes manufactured to order. Estimates promptly furnished on any sample sent to us. Anything in the way of a solid braided cord, in any color or design, may be had.

Sizes, Weights, etc.

The table gives the sizes and weights of cords, and the weight which each size will safely carry.

Territory

Our cords are in use the world over, and are carried by dealers throughout the United States.

Orders of any size promptly filled.

Trade-marks

All hanks of genuine "Silver Lake" cord are bound with our label, bearing our trade-mark. As an additional protection and means of identification, every foot of cord is stamped with our name. Cord not so marked is not genuine "Silver Lake."



Reproduction of "Silver Lake" Cord with Trade-mark and Name
Registered in U. S. Patent Office

SIZES, WEIGHTS, LENGTHS, ETC., OF "SILVER LAKE" CORD

Size No.	Diameter, in.	Weight per dozen hanks, lb.	Feet per pound, approximate	Minimum diameter, of pulley allowable, in.	Suitable for weights, lb.
6	$\frac{1}{16}$	18	66	$1\frac{1}{2}$	up to 10
7	$\frac{1}{8}$	23	52	$1\frac{3}{4}$	10 to 15
8	$\frac{1}{4}$	27	44	2	15 to 25
9	$\frac{3}{8}$	33	36	$2\frac{1}{4}$	25 to 35
10	$\frac{1}{2}$	44	27	$2\frac{1}{2}$	35 to 45
12	$\frac{3}{4}$	60	20	3	45 and up

Prices on application.

THE SMITH & EGGE MFG. CO.

Manufacturers of Chain

BRIDGEPORT, CONN

BRANCH OFFICES

NEW YORK, N. Y., FRANKLIN L. SHERIDAN, 258 Broadway
CHICAGO, ILL., E. C. KNUDSON, 40 So. Clinton Street

PHILADELPHIA, PA., H. A. TERRY, 527 Commerce Street
ST. LOUIS, MO., SEIDEL MFG. CO., 2665 Washington Avenue

Products

SASH CHAIN; CABLE CHAIN.

Sash Chain and Fixtures

"Red Metal" Sash Chain—

Seven sizes. Composed of a special solid bronze mixture, this is the universally accepted bronze sash chain used in modern construction.

"Red Metal"

REGISTERED TRADE-MARK



"Red Metal" Sash Chain—No. A, Actual Size

Size	Gauge, in.	For sash weighing, lb.
A	.054	300
A30	.049	250
1	.042	225
2	.035	150
0	.028	100
00	.035	80
35	.035	80

Steel Sash Chain—Seven sizes. Made of the best cold rolled steel, which gives it the finest appearance, greatest strength and wearing qualities of any steel chain on the market. This chain can be copper plated or sherardized as desired.



Steel Sash Chain—No. 1, Actual Size

Size	Gauge, in.	For sash weighing, lb.
A	.054	400
A30	.049	300
1	.042	250
2	.035	150
0	.028	100
00	.035	100
35	.035	100

"Giant Metal" Sash Chain

—Five sizes. Composed of a special phosphor bronze mixture, this type chain is for use in buildings of the highest grade. Tensile strength and durability can not be surpassed and our "Giant Metal" Sash Chain has no equal.

"Giant Metal"

REGISTERED TRADE-MARK



"Giant Metal" Sash Chain—No. 0, Actual Size

Size	Gauge, in.	For sash weighing, lb.
A	.054	400
A30	.049	300
1	.042	250
2	.035	150
0	.028	100

Chains for Light Weight Sash—Nos. 00 and 35 sash chains are made in "Red Metal," brass and steel and, while primarily designed for light weight windows, are also adapted for many other purposes where only a strain of 100 lbs. or less is required.

These chains are very popular with architects and contractors in apartment house and bungalow construction.

Steel chains can be furnished in any finish desired. Tensile strength, 250 lbs.



No. 00 Steel Sash Chain, Actual Size



No. 35 Steel Sash Chain, Actual Size

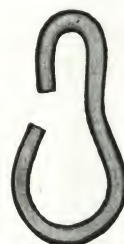
Brass Sash Chain—Seven sizes. This chain in brass has been put on the market by us through popular demand and is proving extremely popular for many uses other than for hanging sash. We recommend it as a very serviceable type of chain.



Brass Sash Chain—No. 2, Actual Size

Size	Gauge, in.	Size	Gauge, in.
A	.054	0	.028
A30	.049	00	.035
1	.042	35	.035
2	.035		

Fixtures—Various types, easily attached. Nos. 1, 22, 33 and 44 fixtures are for our regular sash chains; No. 00 for light weight chains.



No. 00 Hook



Nos. 33 and 44 Fixtures

No. 33 fixture for
7/8-in. hole in sash
No. 44 fixture for
3/4-in. hole in sash



Correct Method of
Attaching No. 1
Sash Fixtures

Cable Chain

Various sizes. Made in both copper and steel, these chains are especially recommended for use where a heavy weight is required, and are especially adapted for use on elevator or fire doors, safety gates, etc. Tensile strengths vary according to size of chain.



Cable Chain

Catalogues and Specification Sheets

Our latest catalogues or samples of chains will be mailed on request.

AUSTRAL WINDOW CO.

Architects Building, 101 Park Avenue
NEW YORK, N. Y.

Products

Manufacturers of AUSTRAL WINDOW HARDWARE for Austral Balanced Windows.

Applicability of Austral Window Hardware

Austral hardware is applicable to Austral wood, kalamein, rolled steel and hollow metal windows for public buildings, offices, schools, hospitals, libraries, etc.

The one-plane solid steel window equipped with Austral balance is designed for use in high grade buildings. See pages of International Casement Co., Inc.

Types of Austral Window Hardware

The types of Austral hardware supplied by this company and applied to Austral wood or metal windows are as follows:

For Application to Austral Wood Windows—

Type 2BN Hardware—A set consists of 2 balance arms, 4 sash guide pins, 2 parting strip bolts and screws for attaching. Standard finish, electrogalvanized.

Finish hardware consists of automatic solid bronze sash fast No. 200 (or malleable iron bronze plated sash fast No. 7200½) and 1 pair of solid bronze offset

pulls No. 300 (or malleable iron bronze plated pulls No. 7300½). Shade pulleys furnished when specified.

Type 2CN Hardware—A set consists of 2 balance arms, 2 sash guide pins, 2 spring sash guide pins, 2 parting strip bolts and screws for applying. Standard finish, electrogalvanized.

Finish hardware consists of 1 pair of solid bronze turnbuckles No. 400. Shade pulleys furnished when specified.

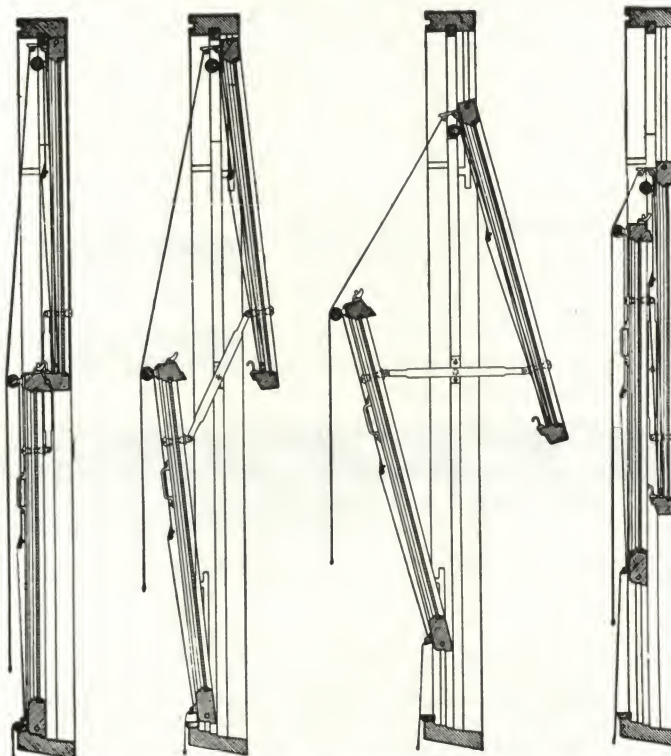
Advantages of Austral Windows

- (1) Ventilation without draft.
- (2) Absolute control of light.
- (3) Reversible for cleaning and reglazing.
- (4) Exterior awnings eliminated.
- (5) Plank frames only are used, increasing light area.
- (6) Austral mullions are half the width of those required for double hung windows.
- (7) Windows adjusted by slight pull on lower sash.
- (8) Extreme simplicity in construction and operation.

For Estimates

When ordering or writing for estimates, furnish width and height of masonry openings, thickness of sash, and information regarding finish of locks and pulls.

Catalogues, details and card models sent upon request.



Vertical Sections Through Austral Windows, Showing Sash in Various Positions

REED ROLLER BIT COMPANY

Manufacturers of Awco Window Hardware

HOUSTON, TEXAS

Product

SPECIAL HARDWARE for Double Hung Windows—Reversible Type. Made of solid brass and can be furnished in any finish.

General Description

Awco Window Hardware converts the ordinary double hung window into a window with many needed advantages of ventilation and inside cleaning. The development of this appliance grew out of the general demand of the building public for a simple appliance which would add all the different features of ventilation and inside cleaning, without sacrificing the fundamental simplicity of the standard double hung window.

Awco Window Hardware is applied to the standard double hung window sash and frame. The illustrations below show the various positions in which the sash can be placed after applying *Awco Hardware*.

Both sash slide vertically in the ordinary manner, as shown in Fig. 1. The lower sash can be tilted inward, as shown in Fig. 2, to give ventilation at the meeting rails and at the same time keep out rain and direct drafts. While the lower sash is in this position the top sash can either remain closed or can be pulled down to afford added ventilation at the top of the window.

Both sash can be tilted inward to position as shown in Fig. 3, to allow outside of sash to be cleaned from inside of the building. This position of sash also affords wonderful ventilation while deflecting the direct drafts.



Advantages

Awco Hardware is applied to the standard double hung window sash and frame. No special millwork necessary.

Windows equipped with *Awco Hardware* can be weatherstripped as cheaply and as efficiently as the ordinary window.

Same size hardware used for any size or thickness of sash.

Nothing to wear out or get out of order.

Outside of sash can be cleaned from inside of building.

Ideal ventilation. Maximum ventilation is afforded during rainy weather, full deflected ventilation at will.

Both sash slide up and down exactly like an ordinary window.

No interference with draperies or outside screens. No need to open or remove outside screens to clean windows.

Price within reach of every one.

Application

Hardware easily applied to double hung windows of any size or thickness. Instructions in each box of hardware.

Estimates

Prices and complete information sent upon request.

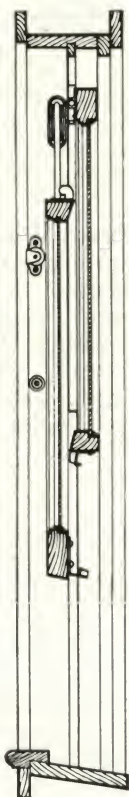


Fig. 1

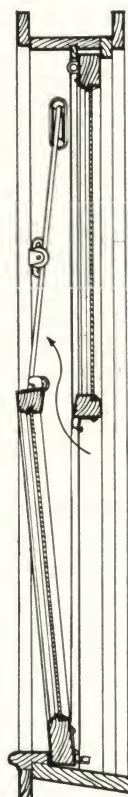


Fig. 2

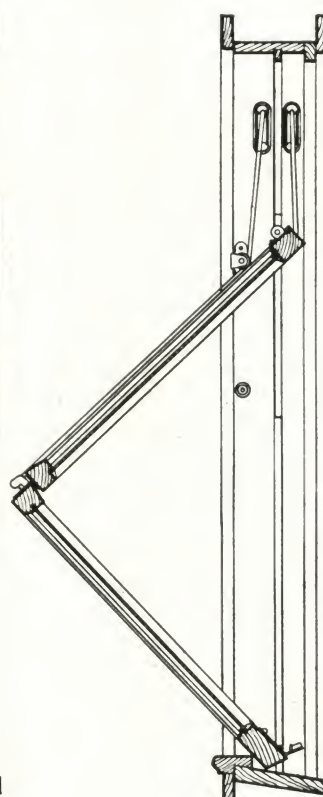


Fig. 3

Awco Window Hardware Applied to Ordinary Double Hung Window

GATES REVERSIBLE WINDOW CO.

Manufacturers of Patent Window Devices

PITTSBURGH, PA.

SALES AGENCIES IN PRINCIPAL CITIES

Products

GATES REVERSIBLE WINDOW FIXTURES for plank frame and double hung windows; GATES CASEMENT WINDOW FIXTURES; GATES VERTICAL PIVOT WINDOW FIXTURES.

Gates Reversible Window Fixtures

Where Used—For Plank Frame Windows—Suitable for use in schoolhouses, public buildings and factories and where 100% ventilation is desired.

For Double Hung Windows—Suitable for use in schoolhouses, office buildings, hotels, hospitals and residences.

Advantages—Windows equipped with Gates reversible fixtures, either double hung or plank frame, offer an enormous saving in cleaning, as both sides can be cleaned from inside the building. This not only saves time and expense, but eliminates the undesirable and dangerous feature of outside cleaning from the window sill with safety life belts.

Gates reversible fixtures in either double hung or plank windows, require no special construction of frame or sash. The sash are merely to be made 1½ in. narrower than the inside width of the frame.

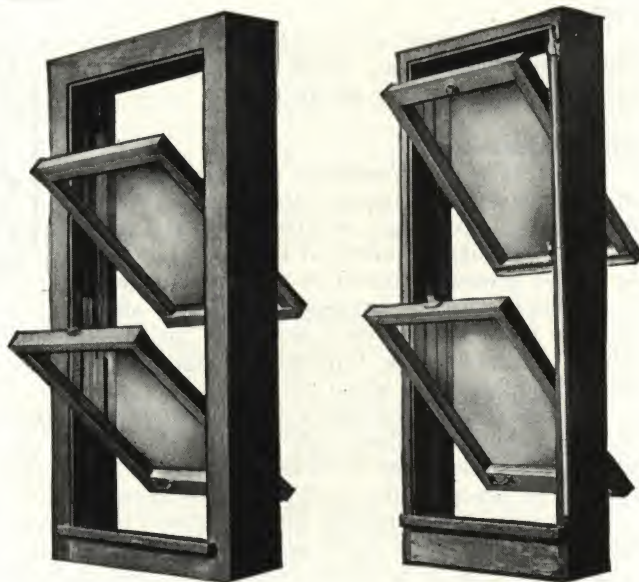
Plank frame windows in schoolhouses and factories have the added economical advantages of the elimination of space required for box frames, especially mullion windows. Also the cost of weights, cords and pulleys is eliminated.

Construction—Gates reversible fixtures consist of the following: A specially designed wood strip, of well seasoned hard maple, meshed into the vertical sides of sash in lengths equal to the sash. Between this strip and the frame attached to the jamb is a continuous metal strip of spring brass, which not only holds the maple strip firmly against the sash, preventing rattling, but also serves as a complete weatherstripping at the jamb. This metal strip is included in either plank or box frame windows as a part of our standard equipment.

When specified we furnish and install a weatherstripping at head, sill and meeting rail for double hung windows only, giving a complete airtight job at little added expense. This weatherstripping should be specified extra. Sash is hung on specially designed Gates pivot, securely attached to the sash, through the maple strip to jamb or frame of window, distributing the weight of sash directly to the jamb. Pivot controls sash at any degree of opening and holds it fast, whether open or closed.

Hardware—We will furnish and install finished window hardware (such as sash locks, lifts, pulls and poles) if desired, although regular hardware may be used.

Installation—A corps of expert mechanics is maintained to install Gates reversible fixtures anywhere in the



In Double Hung Window

In Plank Frame Window

Gates Reversible Fixtures

United States. This includes fittings and hanging sash as well as applying reversible fixtures. This fixes the responsibility for successful operation, insuring a perfect, satisfactory installation.

Gates Casement Window Fixtures

A perfect storm and weatherproof window sill for open-in casements. No special construction required for head, sill or jambs. Standard requirements include: Gates closure bar or sill and Gates bronze weatherstripping at head, sides and bottom. Finished hardware furnished and installed in addition, if desired.

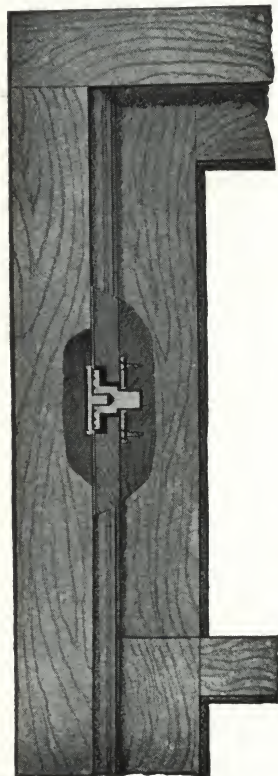
Gates Vertical Pivot Window Fixtures

A perfect storm and weatherproof window sill for vertical pivot windows. No special construction required for head or jambs. Standard requirements include: Gates closure bar with Gates reversible fixture at sill and follower strip at head. Gates reversible fixture at sill allows sash to open either right or left, holding it securely at different angles when open. Bronze weatherstripping furnished and installed in addition, if desired.

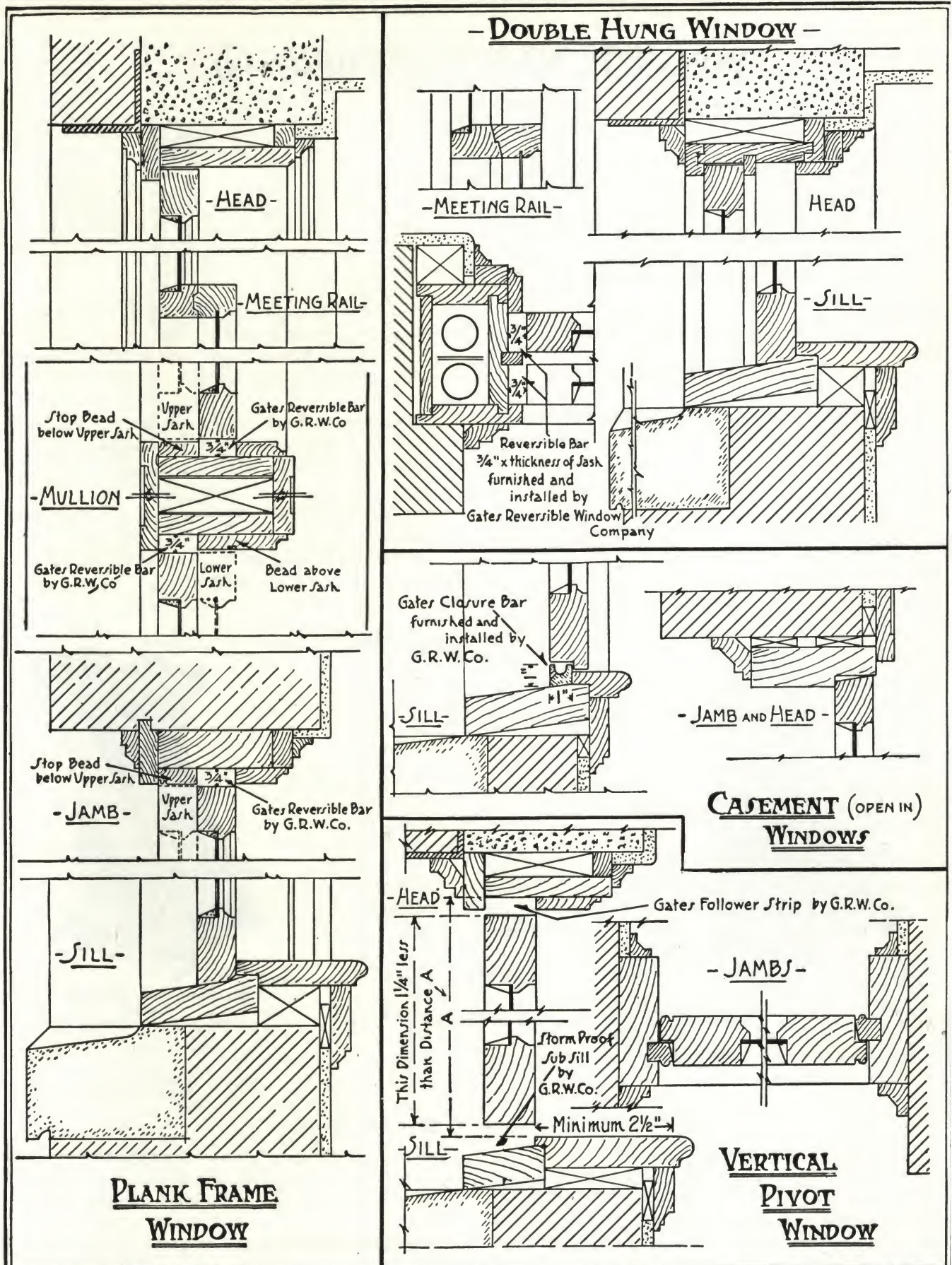
References

Senior High School, Ardmore, Pa.
St. Vincent's Home, Lansdown, Pa.
Friends Central School, Overbrook, Pa.
Elementary School, L and Lucerne Streets, Philadelphia, Pa.
George Washington School, Norristown, Pa.
Municipal Building, Tyrone, Pa.
Union Bank Building, Altoona, Pa.
Boys Catholic High School, Pittsburgh, Pa.
Westinghouse High School, Pittsburgh, Pa.
Carrick High School, Pittsburgh, Pa.
South Hills High School, Pittsburgh, Pa.
Adams Township High School, Sidman, Pa.
Mercy Hospital, Altoona, Pa.
Cochran High School, Johnstown, Pa.
High School and four Grade Schools, Wilkinsburg, Pa.

And a number of others.



Phantom View of the Gates Pivot



GATES WINDOW
DEVICES
WEATHER STRIPPING
HARDWARE

: GATES REVERSIBLE WINDOW CO. PITTSBURGH PA. :
FURTHER INFORMATION - F.S. & MILL DETAILS SENT UPON REQUEST

" ORGANIZED
FOR
SERVICE "

MONARCH MANUFACTURING CO.

Builders Hardware

2511-2525 Hart Avenue

DETROIT, MICH.

Products

The latest IMPROVED MONARCH FRICTION SASH CENTER.

MONARCH SELF-LOCKING VERTICAL SASH PIVOT.

The Latest Improved Monarch Friction Sash Center

Designed for use on wood or metal sash, this sash center is equipped with automatic friction and will hold the sash open at any desired angle without the use of a sash adjuster.

It can also be used on double hung windows with a hanging stile, allowing the sash to pivot as well as slide up and down.

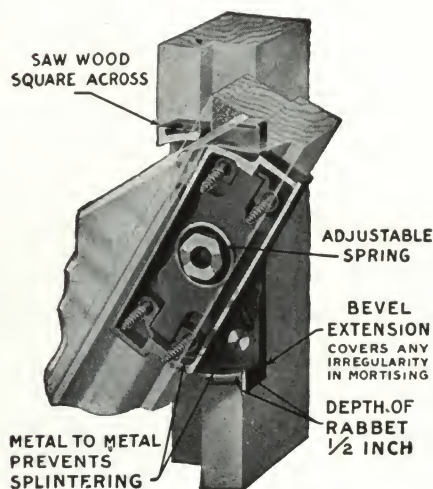
This feature permits the cleaning of both sides of the glass from the room side.

It is well adapted for use with inside or outside transoms and will hold the transom open at any desired angle without the use of a transom lift.

Advantages—It is easily applied and absolutely weathertight. The beveled extensions on the ends cover any defect in mortising and hold the pivot in correct position.

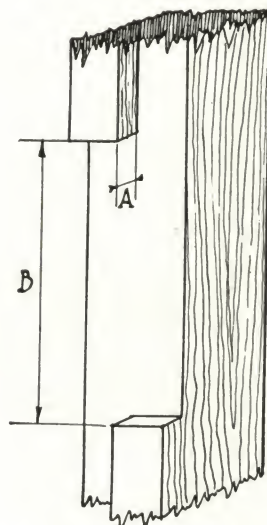
Sizes and Finishes—Made in 3 sizes; in cast iron, cast brass or cast bronze, any finish.

Directions for Applying—Directions for applying sash center packed with every set.



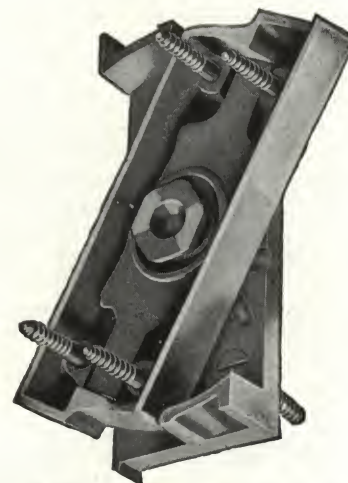
Detail Showing Sash Center Applied

Note: The adjustable tension on the friction spring and the mortise cut straight across the sash and hanging stile make it easy to apply and adjust to either wood or metal sash



Detail of Rabbet for Frame and Sash

A	1/2 in.	for all sash
B	4 1/2 in.	for 1 3/8 in. sash
B	4 5/8 in.	for 1 3/4 in. sash
B	4 3/4 in.	for 2 1/4 in. sash



Latest Improved Monarch Sash Center

Thickness of sash, in.	Cast iron	Cast brass or bronze
1 3/8	No. 140	No. 0140
1 3/4	No. 141	No. 0141
2 1/4	No. 143	No. 0143

Monarch Self-locking Vertical Sash Pivot

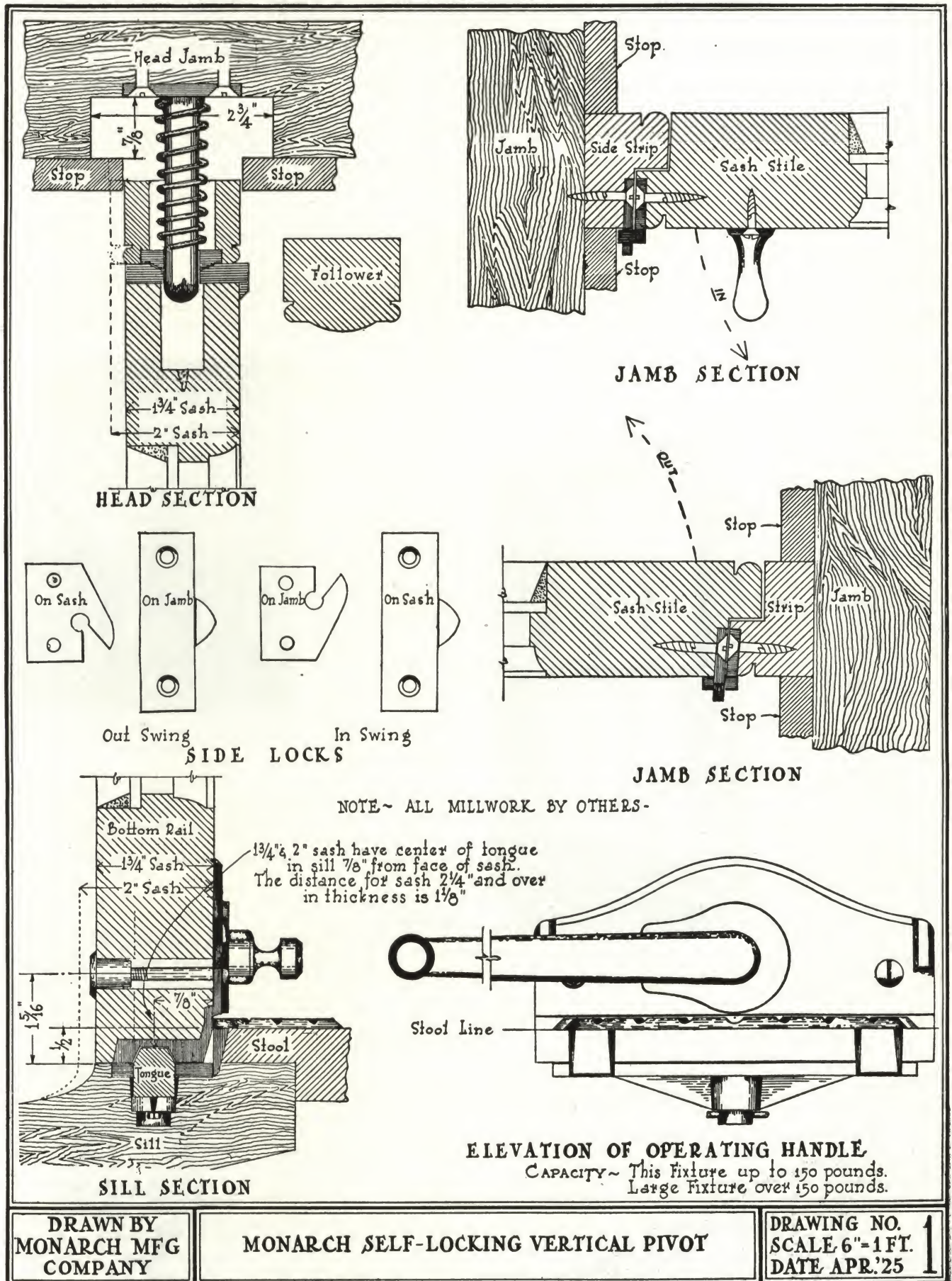
The Monarch Self-locking Vertical Sash Pivot consists of a top and bottom pivot and an operating handle. By means of the operating handle (located on the lower rail) the sash is raised clear of the sill rabbet and swung open.

The operating handle engages any one of a number of grooves in a metal disc applied to the stool and securely holds the sash in any desired position. When it is desired to close the sash the action is reversed and

a spring at the top pivot forces the sash down over a tongue in the sill making it both weatherproof and rattleproof. A catch provided at the jamb securely locks the window.

Capacity—This fixture is made in two sizes: smaller size fixture for use with sash up to 150 lb., larger size for sash over 150 lb.

Directions for Applying—Full directions for applying the fixtures are enclosed with each set.



THE WILLIAMS PIVOT SASH CO.

Reversible, Pivoted and Casement Window Equipment

CLEVELAND, OHIO

BRANCH OFFICES

NEW YORK, N. Y., WALTER T. VOEGE, Graybar Building
 PHILADELPHIA, PA., J. H. WINDELL, 1505 Race Street
 BOSTON, MASS., C. W. EATON CORPORATION, 11 Beacon Street
 PITTSBURGH, PA., J. R. COLCLOUGH, 1425 Dagmar Avenue
 BUFFALO, N. Y., JAMES P. HUNT, 333 Jackson Building
 CHICAGO, ILL., M. R. DUFFY, 1528 Tribune Tower

DETROIT, MICH., THE RAYL CO., 1233 Griswold Street
 ST. LOUIS, MO., SCHROETER BROS. HARDWARE CO., 810, 812, 814 Wash-
 ington Avenue
 CINCINNATI, OHIO, RICHARD F. STRONG, 206 W. Court Street
 MILWAUKEE, WIS., PHILLIP GROSS HARDWARE & SUPPLY CO., 216,
 218, 220 Third Avenue

GREENVILLE, S. C., JAMES McCABE, P. O. Box 573

CANADA, AIKENHEAD HARDWARE LIMITED, 17-21 Temperance Street, TORONTO

Products

WILLIAMS REVERSIBLE WINDOW EQUIPMENT for Double Hung and Plank Frame Windows.

WILLIAMS STORMPROOF SUBSILL for In-swinging Casement Windows.

WILLIAMS VERTICALLY PIVOTED WINDOW EQUIPMENT.

Adaptability

Williams double hung reversible window equipment is adaptable for use in office buildings, hospitals, hotels, schools—in fact, any place where good double hung wood windows are used.

The plank frame equipment (not sliding) is especially adaptable for schools.

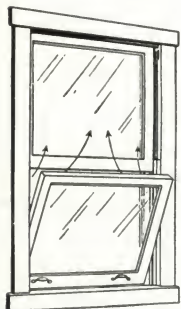
Advantages

Cleaning—

Outside of both sash may be cleaned from inside the room with the window closed. With the double hung type, all cleaning is done from the floor level. Much less time is required and cheaper help can be obtained than on outside cleaning. This reduced window cleaning cost alone will pay for the equipment in a few years and is an economic factor throughout the life of the building.

With the cleaner on the inside and the window closed, there is no physical discomfort nor apprehension on the part of the occupants of the room. In addition, in every day use, reversible window equipment provides ideal draftless ventilation.

Use in Hospitals—Williams reversible window equipment is particularly adapted for use in hospitals where draftless ventilation is of the utmost importance, and where patients must not be annoyed by cleaners climbing in and out of windows.



Showing Air Travel



Double Hung

Little or No Air Leakage—Tests for air leakage between the sash and reversible strip prove conclusively that the passage of air at this point is negligible. These tests were thorough and comprehensive—a copy will be gladly furnished on request.

Weatherstrips and Screens—Any standard type of weatherstripping may be used. Full or half length screens may be accommodated to the double hung type.

Plank Frame Windows—

Especially adapted for schools, eliminate weights, cords and pulleys as well as provide more weather-tight windows than the ordinary double hung window which is not weatherstripped. This type of reversible equipment also provides a greater light area on mullioned windows. Such items save in construction. Plank frame windows are economical.



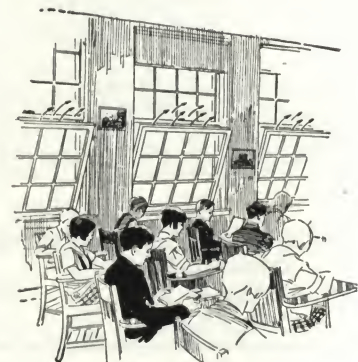
Hospital Window Being Cleaned from the Inside

Installation

A staff of expert mechanics is maintained to install Williams equipment. This service includes fitting and hanging of sash as well as the application of Williams equipment.

Responsibility

Because the installation is made by mechanics under the direct control of the home office, we can and do assume the responsibility for the proper operation of Williams equipment. This policy has been one of the strong factors in establishing this product during the past twenty-six years.



Draftless Ventilation

Williams Reversible Window Equipment

No special frame or sash construction is required for Williams reversible window equipment, the sash merely being made $1\frac{3}{4}$ in. narrower than the inside width of the frame. In the plank frame type, a plank frame is substituted for a box frame.

The double hung equipment retains all the features of a sliding window with the added advantage of permitting either sash to be completely reversed or tilted to any position. The plank frame equipment does not have the sliding feature.

The Williams equipment consists of:

Williams Corrugated Side Strip—A strip made of well seasoned hard maple, $\frac{7}{8}$ in. thick, of width equal to the thickness of the sash, and corrugated on the sash side. The sash is corrugated (by our mechanics) to meet the corrugations on the strip. The strip is attached to the sash by means of the:

Williams Truncated Cone Pivot—A reliable and effective pivot by which the weight of the sash is automatically used to draw the reversible strip and sash tightly together. The corrugations in the strip and sash are thereby firmly meshed and make a dependable weather-tight joint. This pivot also holds the sash in position when tilted.

Spring Rollers—In the back of the reversible strip is embedded a series of roller and spring devices. Acting against the jamb when the window is closed, these help keep the strip in snug contact with the sash, preventing the window from rattling and allowing the sash to slide freely.

Finishing Hardware—Standard locks, handles, sockets, and poles may be used with the double hung equipment. We do, however, recommend the use of our finishing hardware especially designed for the plank frame equipment.

References—Several thousand buildings have been equipped with Williams reversible fixtures. Some typical installations, with number and types of installations:

Double Hung

First National Bank, Detroit, Mich.—2914
Sacred Heart Seminary, Detroit, Mich.—1894
Indian Village Manor, Detroit, Mich.—1746
Ford Administration Building, Fordson, Mich.—456
University Hospital Group, Cleveland, Ohio—2659
St. Luke's Hospital, Cleveland, Ohio—1095
Mt. Sinai Hospital, Cleveland, Ohio—688
Hotel Cleveland, Cleveland, Ohio—1229
Penton Publishing Co., Cleveland, Ohio—532
Canterbury School, Cleveland Heights, Ohio—206
Hoover Co., North Canton, Ohio—1903
St. Anne's Hospital, Chicago, Ill.—642
St. Joseph's Hospital, Milwaukee, Wis.—1022
Hotel Ten Eyck, Albany, New York—529

Plank Frame

McKinley High School, Canton, Ohio—849
Senior High School, York, Pa.—611
Harding School, Woodlawn, Pa.—429
Girls' Catholic High School, Philadelphia, Pa.—786

Williams Casement Subsill

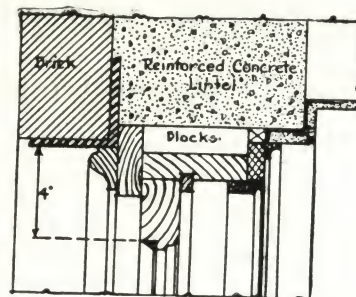
An absolutely stormproof subsill for the bottom of in-swinging casement windows. A heavy brass closure bar operates from the subsill into the bottom rail of the sash.

Illustrations and details will be forwarded on request.

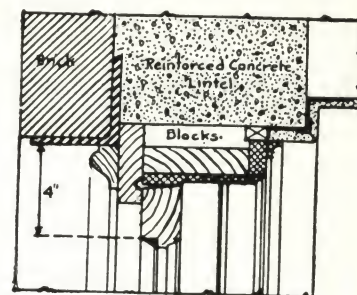
Williams Vertically Pivoted Window Equipment

For windows pivoted top and bottom, we furnish specially designed pivot castings in iron or bronze with our stormproof subsill at the bottom of the sash, and our corrugated strip at the top, to insure weathertightness.

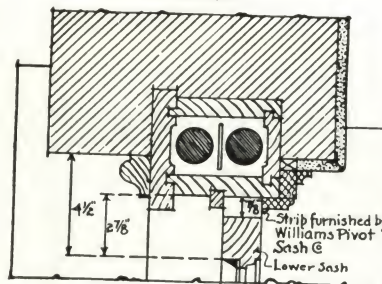
Illustrations and detailed information on request.



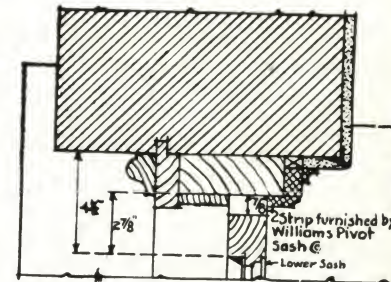
HEAD



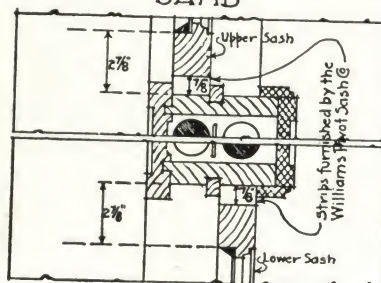
HEAD



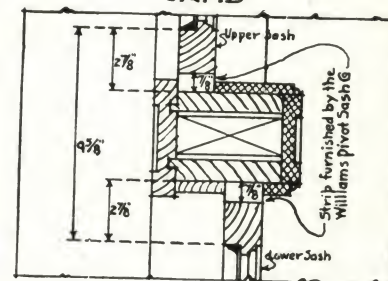
JAMB



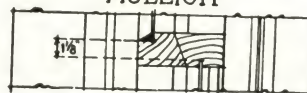
JAMB



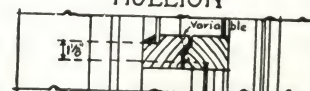
MULLION



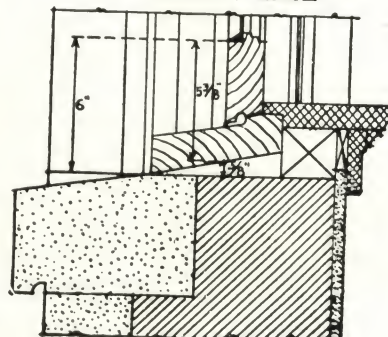
MULLION



MEETING RAIL

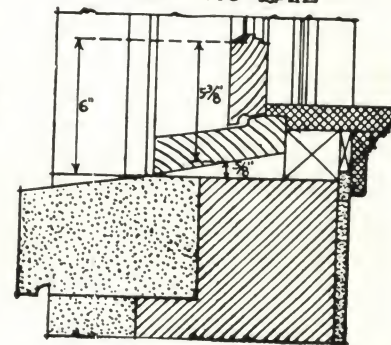


MEETING RAIL



SILL

Double Hung



SILL

Plank Frame

Details of Windows Equipped with Williams Reversible Window Fixtures

Full size or scale details sent on request

Specifications

Double Hung Type—All double hung wood sash to be equipped with reversible fixtures as manufactured and installed by THE WILLIAMS PIVOT SASH Co., Cleveland, Ohio. Said Company to fit and install all sash on which their fixtures are to be used.

Plank Frame Type—All window sash to be of the plank frame type and equipped with reversible fixtures as manufactured by THE WILLIAMS PIVOT SASH Co., Cleveland, Ohio. The contractor shall furnish all frames and sash. THE WILLIAMS PIVOT SASH Co. shall apply their strips to the sash, and they shall fit and place these sash in their respective openings. The hardware (locks, lifts, sockets and poles) for all windows equipped with Williams Fixtures shall be furnished and installed by them, and shall conform with the other hardware in metal and style of finish.

WONDER WINDOW CO.

Manufacturers and Installers of Patented Hardware for a Combined Casement and Double Hung Window

2730 St. George Court, CHICAGO, ILL.

LICENSEES FOR INSTALLATION IN ALL PRINCIPAL CITIES

THE WONDER WINDOW

Description

The Wonder Window is a patented 2 in 1 weatherproof, waterproof inswinging casement window and a regular double hung window installed in a standard box frame and equipped with special patented hardware.

Where Adapted

Its greater convenience, weather-proof and ventilating features make it the ideal installation for homes, schools, hospitals, institutions and every type of public and business building.

Advantages

Cleaning—Wonder Window can be easily cleaned from the inside and eliminates the hazard of window washing.

Shades and Drapes—Can be hung in the same manner as for double hung windows without causing interference in raising, lowering or swinging sash.

Ventilation—Wonder Window can be opened at top and bottom to provide any degree of ventilation desired.

Weatherstrip—Wonder Window is correctly weather-stripped throughout and is absolutely stormproof, insuring warmth and comfort in cold weather together with decided reduction in fuel costs.

Installations

The installation of the Wonder Window is done jointly by owner and WONDER WINDOW Co., or its Licensees, and the work is divided as follows:

By Owner—All frames must be furnished with pulleys and installed in correct locations. All sash, cords (or chains) and weights must be furnished and delivered to convenient location for installation by WONDER WINDOW Co.

All frames and sash are to conform to WONDER WINDOW Co.'s standard millwork details, except that the general design may be modified to harmonize with architectural design, providing the essential details required are left unchanged.

By Wonder Window Co.—All sash shall be fitted and hung, and the sash cord (or chains) and weights will be installed by this company. All standard hardware and special equipment will be furnished and installed by this company. Weatherstrips will be also furnished and installed by WONDER WINDOW Co.

Details—Frame and Sash

The frame is a standard type box frame made for a sash of minimum thickness of $1\frac{3}{4}$ in., and requires no special millwork.

The upper sash is standard check rail type counterbalanced in the usual manner with weights, cords (or chains) and pulleys. Height of sash should be approximately one-quarter the height of frame opening, but this height may be varied to meet requirements of architectural design.

The lower sash (singly or in pairs) are casements hinged on special butts. These butts are riveted to zinc channel slides which operate in metal track. The channels are counterweighted with weights, cords (or chains) and pulleys. Cords or chains are secured to the channel with special attachments.

Height of lower sash should be approximately three-quarters the height of frame opening. Height may be varied to



Typical Sash Grouping

meet requirements of architectural design. This arrangement permits the lower sash to be raised as an ordinary sash or raised to clear the window stool and swing in for ventilation and washing.

Details—Special Equipment

General—Each set of equipment consists of patented zinc channel slides and track, special butts riveted to channels, cord or chain attachments also riveted to channel, sash locks, sash lifts and metal weatherstrips.

Channel Slides—Made full height of lower sash and installed in tracks as shown on detail. An allowance of $\frac{1}{2}$ in. in length is made to permit beveling bottom to fit slope of window sill.

Tracks—Made full height of the frame opening. The outside track is fitted into saw cut in the parting strip and nailed to the pulley stile. Parting strip is secured in place with $1\frac{1}{2}$ -in. No. 6 flat head screws spaced approximately 18 in. on centers.

After sash cord (or chain) has been attached to the channel, the inside track is placed in position and nailed to the pulley stile at top and bottom. The inside track is covered by rebated stop which fits over projecting portion of tracks. Window stop secured in place by owner.

Butts—These are special 3-in. steel butts, of the half surface type, and are riveted to the channel so that the half surface can be readily secured to sash while in position in the opening.

Cord Attachment—Riveted to the back of the channel and can be used for either cord or chain.

Sash Locks and Lifts—Installed on each lower sash. The locks are placed near the strike stile and the lifts in the center of the bottom rail.

Finish of Hardware

The standard finish of the exposed hardware, such as butts, locks and lifts, is dull brass plated finish. Other standard finishes will be furnished at extra cost.

Weatherstrips

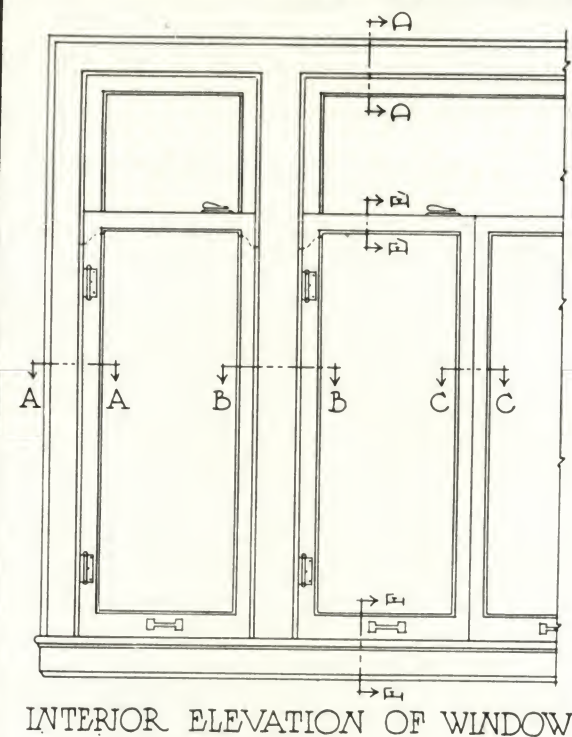
The Wonder Window is equipped with Burrowes metal weatherstrips furnished and installed by WONDER WINDOW Co. The following types of strip are installed:

Sill and top..... $1\frac{1}{2}$ -in. zinc rib strip
Sides of upper sash..... $1\frac{1}{2}$ -in. zinc corrugated rib strip
Check rail.....special bronze strip
Strike side of single lower sash..... $1\frac{1}{4}$ -in. spring bronze

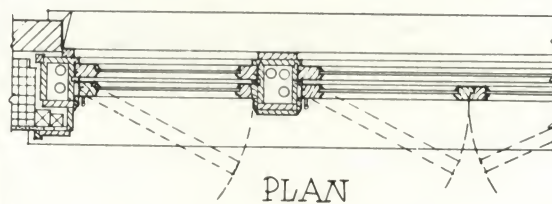
The side strips for upper sash are three-quarters of the height of frame opening so that the sash will be engaged with the rib in its lowest position.

Sizes and Set Numbers

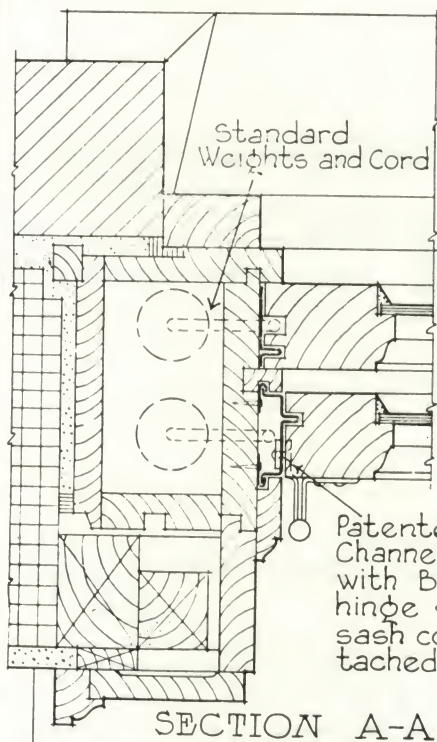
Set No.	Type	Height of lower sash, in.
12	Single casement	Up to 52
13	Single casement	52 to 72
14	Single casement	72 and up
24	Pair casement	up to 52
26	Pair casement	52 to 72
28	Pair casement	72 and up



INTERIOR ELEVATION OF WINDOW



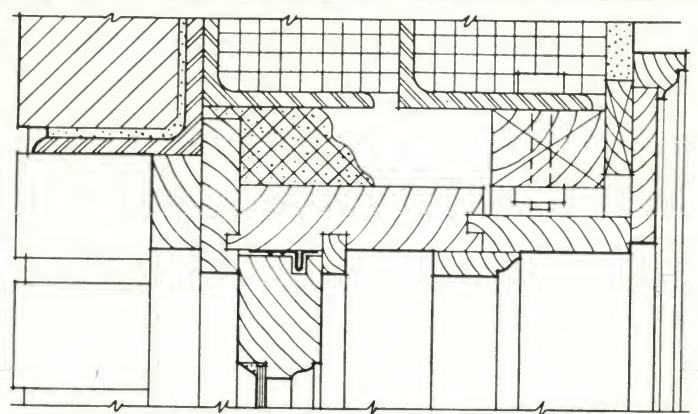
PLAN



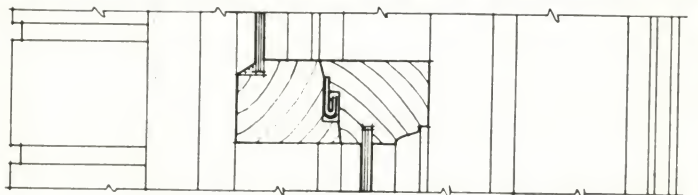
SECTION A-A

Standard
Weights and Cord

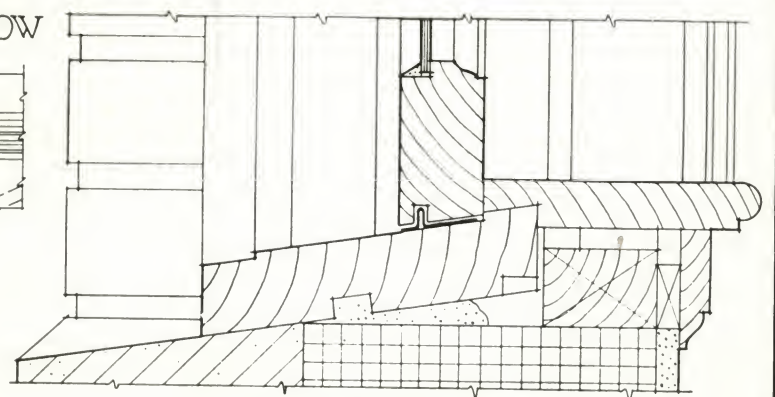
Patented Zinc
Channel Slide
with Butts at
hinge side and
sash cord at-
tached to back



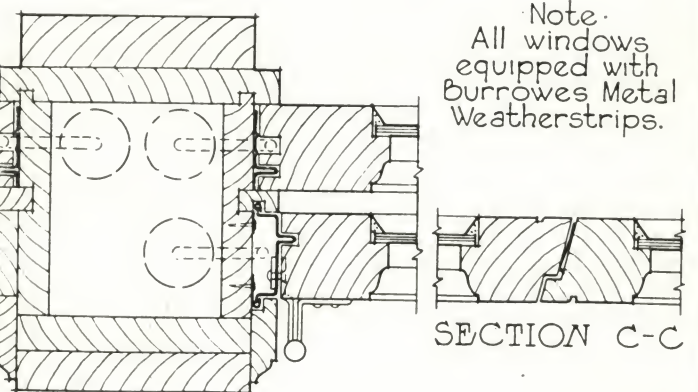
SECTION D-D



SECTION E-E

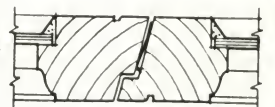


SECTION F-F



SECTION B-B

Note.
All windows
equipped with
Burrowes Metal
Weatherstrips.



SECTION C-C

Weatherproof
Sliding Casement
Windows

WONDER WINDOW DETAILS

THE CASEMENT HARDWARE CO.

Improved Hardware for Operating Out-swung Casement Windows

FACTORY AND GENERAL OFFICES

406 North Wood Street, CHICAGO, ILL.

BRANCHES

BOSTON, MASS., 120 Pearl Street

NEW YORK, N. Y., 101 Park Avenue (Exhibit, Architects Samples Corporation)

SAN FRANCISCO, CAL., 417 Market Street

Products

Exclusively Operating and Locking Devices specialized for out-swung casement and transom windows—steel and wood.

THROUGH-SCREEN (UNDER-SCREEN) CASEMENT OPERATORS: Worm Gear (Series 25), and Direct Acting Types (Series 7 and 24) for surface, flush or concealed installation. These devices control the casements entirely from inside of any type of insect screen.

OPERATOR and SCREEN UNITS for standard steel casements—Series 80.

CASEMENT STAYS—Self-locking, Positive ("Sliding"), Series 61.

TRANSOM OPERATORS, THROUGH-SCREEN and NON-SCREEN TYPES, for top hung windows.

CLEANING HINGES for wood casements—Series 70.

CONCEALED CASEMENT OPERATOR—Series 35.

Win-Dor Casement Hardware

Advantages, General—A complete line, gradually developed from intensive specialization on out-swinging casement problems, offering a solution appropriate to every construction and type of building.

Security—Positive, self-locking principle eliminates damage through carelessness of users, as well as from winds. This and other security features eliminate dangers to users and remove liabilities from building owners.

Convenience—Quick, simple action with reserve power makes casement operation of Win-Dor devices easy and natural for women.

Durability—Win-Dor devices are designed and tested to stand not only use, but abuse, under extreme operating conditions. Many Win-Dor installations are in good service after ten to fifteen years with no, or very minor, replacements.

Materials and Finishes—All steel or iron parts are furnished in rustproofed finishes only (cadmium or Parkerized). All devices also made in solid brass in all trade finishes.

Specialized Application—Win-Dor operators and stays are the only specialized or patent devices coordinated to the standard practice of steel casement manufacture and attachment. (See notes on final page.) They are equally advanced in their application to all desirable wood casement details.

Availability and Plant Capacity

Distributed for steel casements through leading steel window manufacturers with warehouse stocks and branches throughout the United States. (See final page.)

For wood and steel casements, stock and samples are available from over one thousand leading builders' hardware merchants. Display in permanent exhibit, Architects Samples Corporation, New York, N. Y.

Win-Dor products are manufactured in a modern day-light plant with capacity of over one million units per year.

Development and Research

A special department, staffed by experienced architectural engineers, constantly testing, designing and improving.

Architectural Service

An experienced department freely available for advice on casement screening and operating problems.

Technical Analysis of Duty and Safety Factors for Out-swung Casement Hardware

A brief analysis of these characteristics will give a sound basis for determining satisfactory solutions.

(1) **Wind Pressures as Related to Friction and Positive Holding Means**—Obviously, out-swung casement leaves are subjected to the full force of wind pressures, from which inward opening sash are generally protected. Friction devices may be set for the latter at very low resistance, convenient to operate, yet sufficient for the duty. Out-opening vents are subject to the full force of the wind, which may be calculated

Win-Dor

TRADE-MARK

as per wind pressure table from formula $P=0.033x(V)^2xA$. A friction resistance of 16 to 20 lb. (at center of swing leaf) is the limit which may be operated with reasonable convenience. It, therefore, appears that maximum friction will hold in average but

not in all wind velocities to be occasionally expected. Win-Dor Positive Operators and Stays, as shown on succeeding pages, are designed specifically for such duty, and when locked will hold any practical size casement without injury to such casement or itself, plus a large factor of safety. When operated, there is no resistance to work against and no racking strain on the casements.

WIND PRESSURE ON OUT-SWUNG CASEMENTS

Mi. per hr.	Wind pressure, lb.	
	6-light, 4.5 sq. ft.	8-light, 6 sq. ft.
15	3.34	4.46
20	5.94	7.92
25	9.28	12.38
30	13.37	17.82
35	18.19	24.26
40	23.76	31.68
50	37.13	49.50
60	53.46	71.28

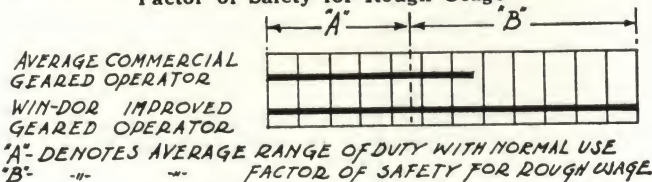
Note: For any constant velocity, puffy wind conditions and vacuums will cause much greater temporary pressures. Hence, occasional severe strains at moderate average wind velocities.

the positive lock will take hold at the slightest movement of the sash.

(3) **The Human Element as Related to Strength and Safety Factor**—Given a device (such as a geared operator), both positive and self-locking, proper design involves meeting not only probable wind pressures, but all conditions of actual use. This involves inevitable occasional abuse:

- (A) Leaving casements open in exceptional winds.
- (B) Abuse of workmen on building.
- (C) Abuse by servants, transients, or other careless users.
- (D) Attempts of intruders to jimmy or force sash.

Tests Made to Determine Average Normal Working Range and Factor of Safety for Rough Usage



The standards for Win-Dor strength and safety factors are set to meet these practical usage factors in all cases—and all Win-Dor devices are guaranteed adequate to every reasonable duty.

The data for these standards obviously are obtainable only from long and wide experience; in the case of Win-Dor, twenty-five years of constant improvement, from actual observation.

(4) **Weather Exposure as Related to Holding Means**—Out-swung casement holders are exposed to a variety of weather conditions which successful products must meet, if they are to endure. All Win-Dor operators and stays use bronze or brass, regardless of cost or competitive prices, wherever experience and tests indicate that corrosion or wear may seriously affect operation. The least expensive grades of Win-Dor may, therefore, be used with assurance not only in dry localities but in salt-air, sea-coast exposures, etc.

(5) **Convenience and Security of Operative as Related to Operating Means**—The locking handle itself cannot always provide convenient or even safe means of swinging an out-open casement, as at full opening, 90°, it will be from two and one-half to four feet from the operative—or inside wall.

Win-Dor Stays reduce the operating reach 12 inches.

Win-Dor Under-screen Operators eliminate it entirely.

Win-Dor Geared Casement Operators, Series 25 and 26

General—Win-Dor geared operators are not only sturdy and practical controlling mechanisms, but are so refined in design that they rank as first grade finish hardware, and can be used anywhere for surface installation. Their fine appearance makes concealment unnecessary, though such application can be readily made where desired.

Where Recommended—For all outswung casements of wood or steel which are to be screened.

Important Features—Bronze worm makes bearings self-cleaning and insures permanent easy working even under salt air exposure. All other moving parts also have bronze bushings and washers.

Quick Action—Only four turns of crank required for full 90 degree opening.

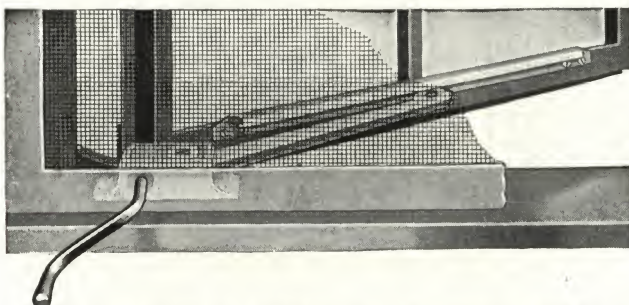
No Back Slip—Patent brake on worm prevents slipping.

Quietness—Careful manufacture, assembly and inspection produce close-fitting parts free from excessive play. Bronze take-up spring on sliding connection also prevents rattling.

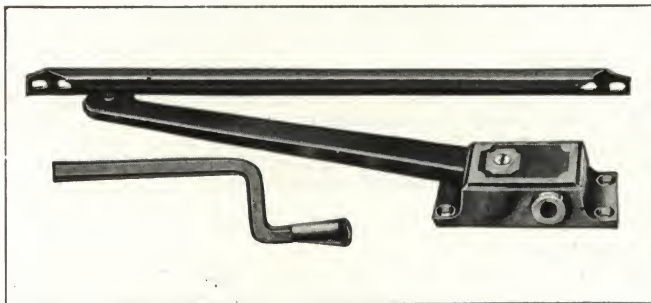
Standardized Application—These operators fit any stool with minimum of $2\frac{1}{4}$ in. between sash and screen (with wood casements this space may be reduced to $1\frac{1}{4}$ in.).

Strength—See test chart preceding page.

Steel Casement Application—Most leading manufacturers of steel casements furnish stock casements drilled and tapped for Win-Dor operators, or are prepared to furnish sash so prepared on order without extra cost. Series 25 and 26 operators fit same holes as Win-Dor Series 61 Stays.

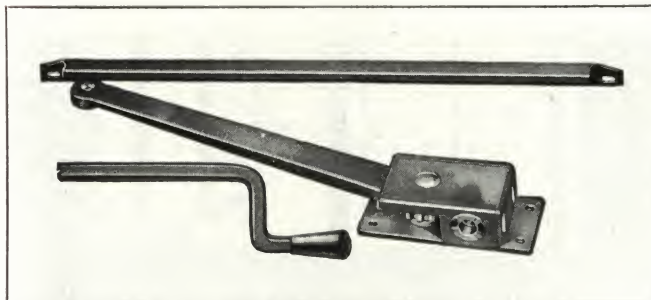


Win-Dor Series 25 Operator in Use Through Screen



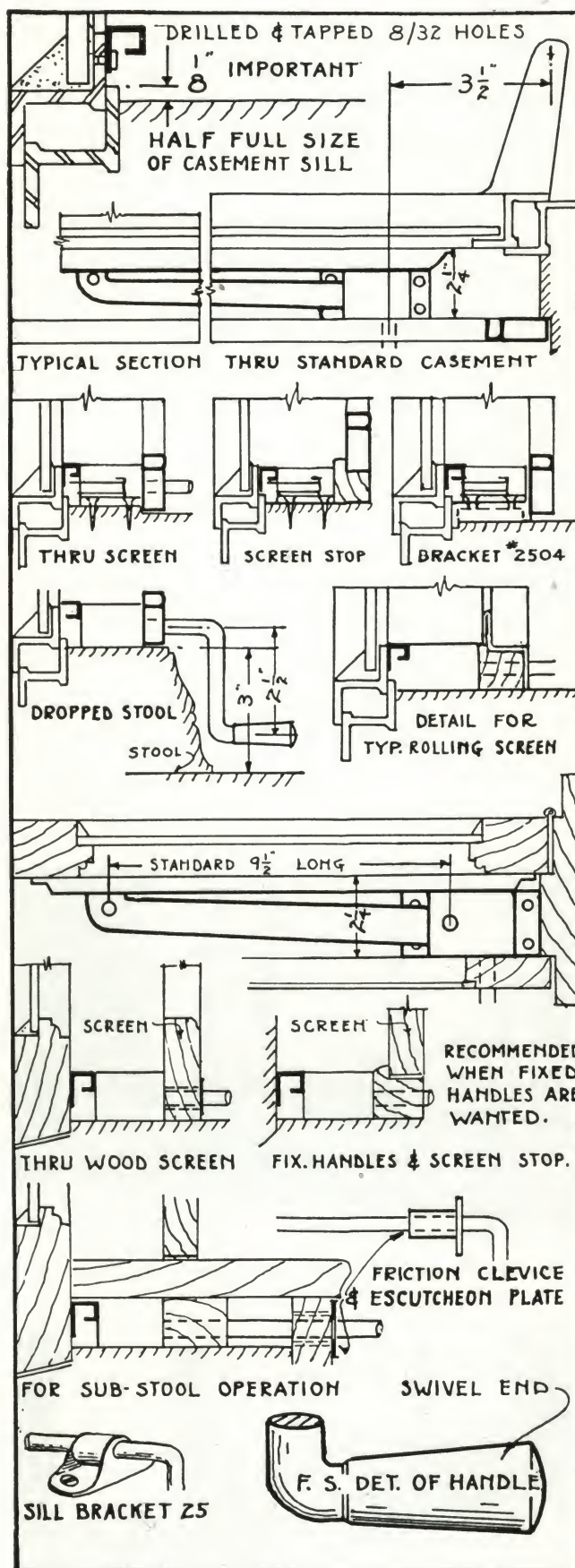
Win-Dor Series 25 Operator

Has cast gear housing and right and left enclosed mechanism on inside



Win-Dor Series 26 Operator

Has deep drawn metal housing and is reversible to right or left hand



Win-Dor Operator and Screen Unit, Series 80

The Win-Dor standardized casement operator and screen unit consists of Series 26 worm and gear type operator, concealed by a metal stool cover, and flat type screen, as furnished by THE CASEMENT HARDWARE CO., of Chicago.

Important Features—Worm-gear Operation—The finest type of Win-Dor thru-screen operators, as described on preceding page.

Quality Screens Standardized—The finest quality metal frame screens. Made in standard sizes and on an economical production basis.

Ventilators Only Screened—No unwieldy screens over fixed lights.

Easily Attached and Detached—For washing windows, or storage, the screens need not be maneuvered to clear any hardware as this is contained in metal stool.

100% Insectproof—Wire mesh is continuous, no openings are cut through the screen for hardware.

Detail Specification Data—Screen—A first quality top hung metal frame screen—provided with concealed pivot brackets—consisting of a heavy gauge steel frame strongly reinforced at corners, galvanized inside and out, and painted; together with the highest grade 16-mesh solid bronze wire in antique finish.

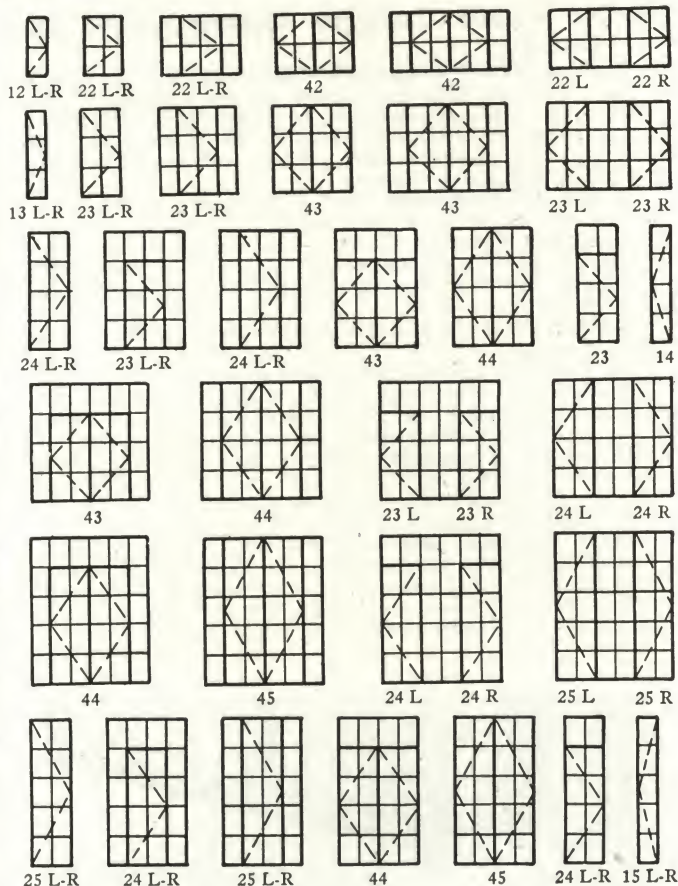
Operating Hardware—Win-Dor Series 26, reversible worm and gear type operator, provided with a solid bronze worm and bronze bushed gear, accurately machined and housed in an attractive drawn metal housing; parts of steel rust-proofed by means of parkerizing. No. 251 Handle. Special Win-Dor extruded section—easily fitted to all stool widths.

Metal Stool—A deep drawn metal stool of standard sizes to house casement operator. Made of 16 gauge copper steel, parkerized, and in addition painted on both sides. Provided with an upstanding lip for screen contact. Made reversible.

Locking Handles—Cast, flat type, locking handles of iron or bronze, provided with suitable brackets for convenient attachment, using standard drilling and tapping.

Note: Win-Dor combination operator and screen unit is adaptable to casement units of all standard makes.

Recent Improvements—Screen latches improved tight-wedging cam-action. Two latches instead of one on all four-light wide screens. Increased contact margins of screens head and stool. Gauge manufacture of metal stools to permit template installation.

**Nomenclature of Above Diagram**

With the development of an improved type of two-light wide screens, new simplified size and type designations are possible. One standard application now takes the place of three former types.

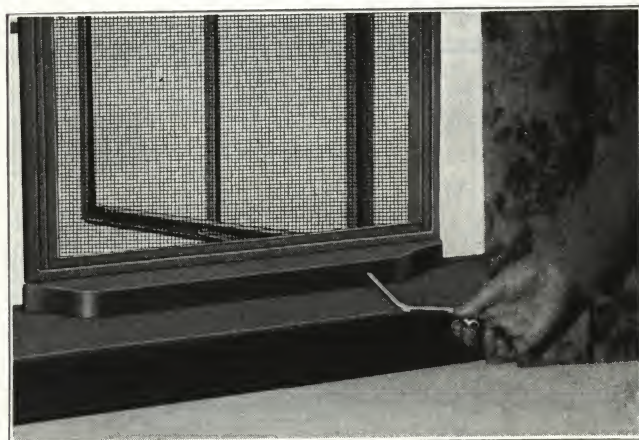
In other words, for any make of casement the standard two-light wide screen unit fits all single ventilators whether jamb-vented, center or side vented. Four-light wide units similarly apply to all casements of four-light width whether jamb or center vented. This effects great simplification of handling and installing.

With the new simplified practice, designation is made only of width, height and hand: (viewed from inside) first figure is number lights wide, second number lights high, thus No. 23-R, two lights wide, three high, single ventilator, right hand; No. 44 four lights wide, four high, double vent.

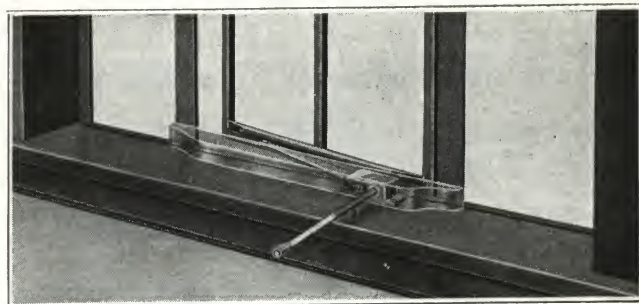
Note units cover actual ventilator areas only. See stock types above.

Clearances

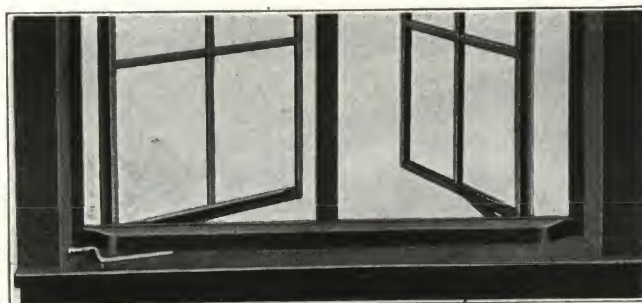
Ordinarily the entire inside face of frames should be available to provide ample clearance for screen, but a dimension of $\frac{5}{8}$ in. measured from toe or from section toward plaster line must be allowed as a *minimum* as screen units lap $\frac{1}{2}$ in. If working with such small clearances, plaster line or finishing mould must be absolutely straight and true. It is, therefore, recommended that whenever possible entire inside face of frame be unobstructed.



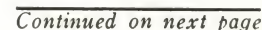
Win-Dor Casement Operator and Screen Unit Showing Convenient Method of Operation



Showing Method of Operator Installation in Connection with Metal Stool Cover



Application of Series 80 Unit on Double Sash

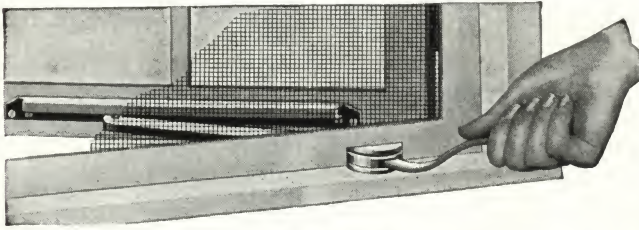


Win-Dor Operator, Series 7

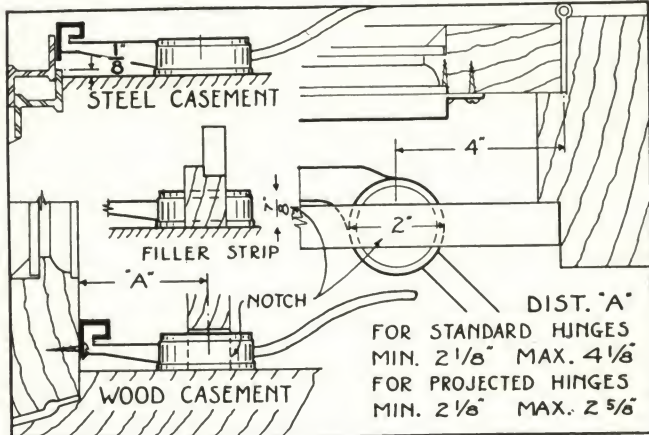
A direct acting operator. Not geared.

Where Recommended—For wood casements having ordinary butt hinges, particularly in private houses.

Operation—A slight downward pressure on handles releases the automatic lock and permits a swing of 90° with positive locking at 8 points. Handles detachable or permanently attached, as desired. Right and left handed. Steel or brass.

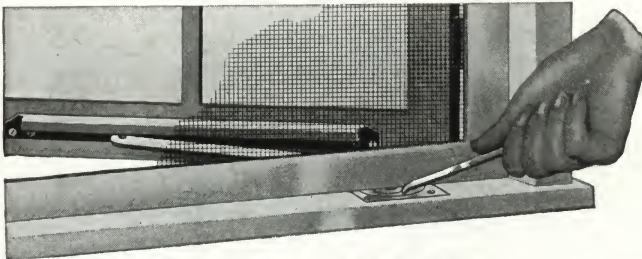
**Win-Dor Series 7 Operator**

Shown in use with ordinary wood (out-swung) casements. Note the application of operator in relation to sash and particularly to screen

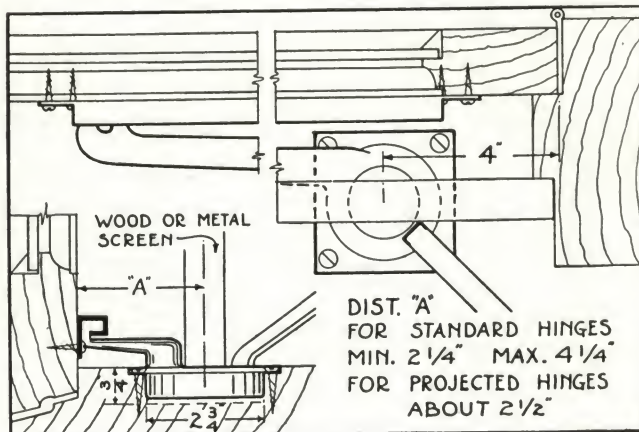
**Win-Dor Operator, Series 24-B**

A direct acting operator similar to Series 7 but designed to control wood casements with close-up hinges "under" rather than through the screen frame.

Operation—Same principle as Series 7 but pivot brought flush under screen. Handles detachable only. Right and left handed.

**Win-Dor Series 24-B Operator**

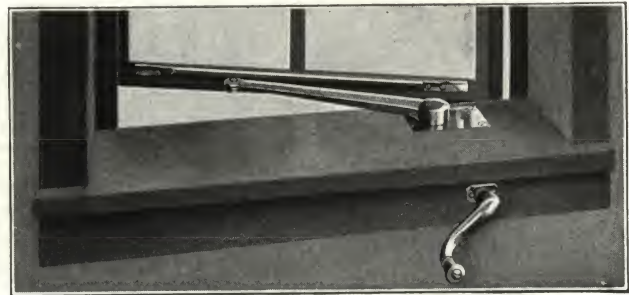
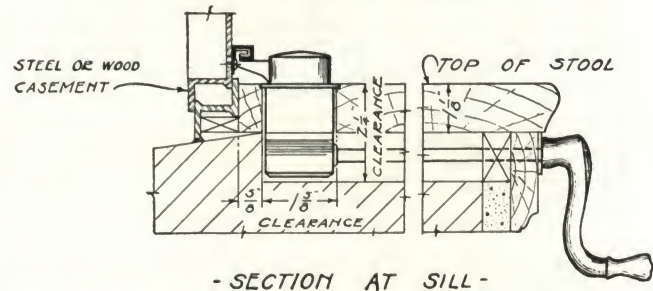
Shown in use with ordinary wood (out-swung) casements. Note this flush type operator makes unnecessary the notching of screens

**Win-Dor Concealed Operator, Series 35**

Where Recommended—An unusually fine piece of finish hardware for wood or steel casements. Eliminates surface application of crank handle over stool.

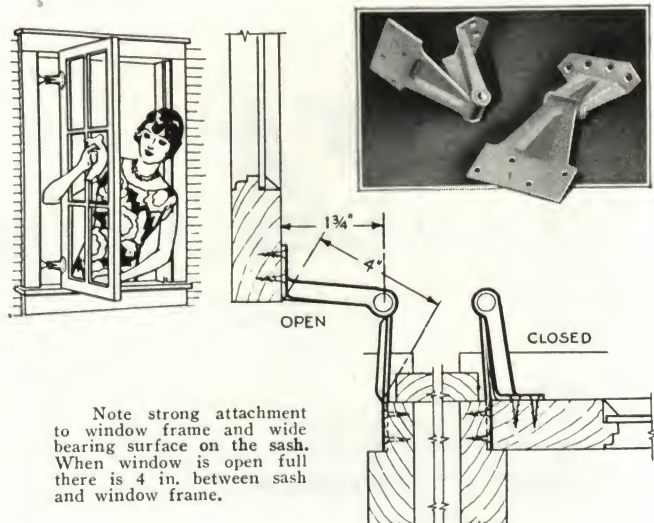
Construction—Compact, sturdy gear housing with Win-Dor bronze worm. Handsome surface pivot and arm. Bronze ornamental detachable crank handle.

Advantages—Any type of screen may be used without cutting frame and without interference. This operator is immediately accessible and overcomes the objection of concealed sub-stool installations, as mechanism may be entirely removed without affecting window trim.

**Win-Dor Series 35 Operator****- SECTION AT SILL -****Win-Dor Cleaning Hinge, Series 70**

Gives to wood casements the same type of projected swing that is general practice with standard steel casements. Particularly useful for single casements not otherwise accessible for washing from outside.

Co-ordinated with Win-Dor Operators—All Win-Dor thru-screen Operators and Series 61 Stays work with Series 70 Hinges the same as with standard close butts, giving opening of 90°.



Continued on next page

Win-Dor Casement Stay, Series 61

A simple, economical device which has all the best features of security and convenience except thru-screen operation.

Where Recommended—This Stay is widely used in large metropolitan buildings where screens are not used throughout.

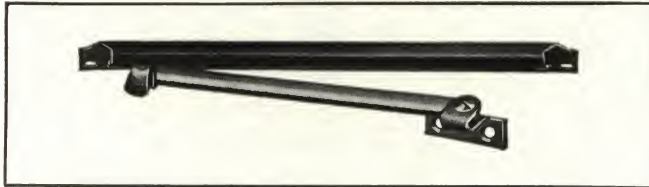
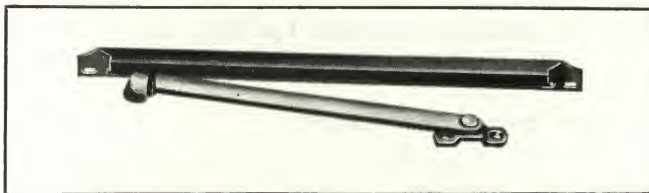
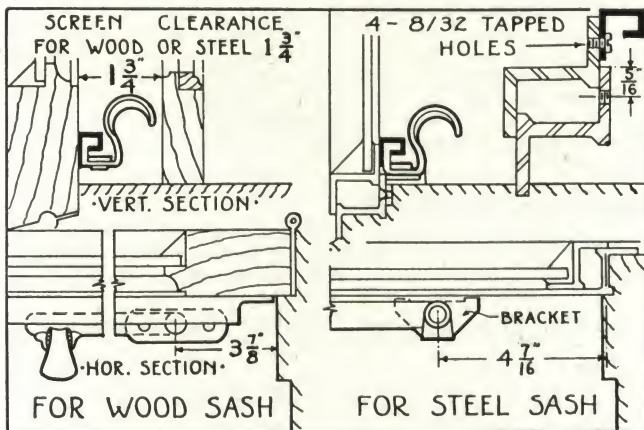
Advantages—Automatic Positive Locking—Rigidly engages sash wherever left open. Absolutely insures against breakage even with careless use.

Safety—The lift handle serves both to release the lock and swing the sash. This saves one foot in reach and eliminates stretching by users. Requires only one hand to operate.

Low Cost—Series 61 Stays cost no more than thumb-screw adjusters or friction devices.

**Win-Dor Series 61 Casement Stay**

Installed on steel casement with standard type "offset" or "cleaning" hinges. Note the short reach necessary for control of sash at full 90° opening. Release lift serves as operating handle

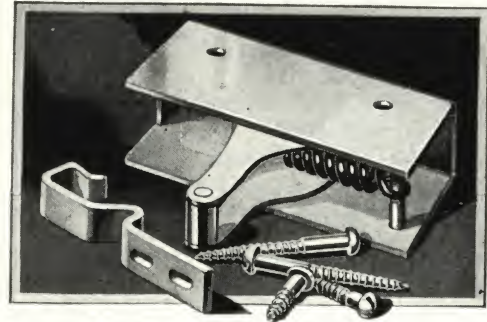
**Series 61 Stay with Typical Sill Bracket for Steel Casements****Series W-61 Stay with Stool Bracket for Wood Casements****Win-Dor Series 45 Top Closer**

Where Recommended—Essentially designed for out-swung wood or steel casement windows controlled with gear type operators. The Series 45 is equally efficient for use on in-swung sash, hinged transoms, screen doors and for many other purposes where tight tension contact is required.

Operation—Mechanically simple and completely automatic. Strong enough to overcome warping. Has a pull of 10 lb. Right or left-hand installation. No mortising.

Construction—Entire closer is contained in a neat smoothly finished metal housing size 3 1/2 x 1 1/2 x 1 in.

Finish—Rustproof cadmium, parkerized or solid brass.

**Win-Dor Series 45 Top Closer****Identification**

Win-Dor Devices are protected by patents, and though imitated, are not duplicated. The registered mark Win-Dor is stamped on all genuine fittings where it is inconspicuous when installed but available for protection of users. **Win-Dor**

Partial List of Recent Win-Dor Hardware Installations

Nurses Home, Farmingdale, New York, N. Y.
Jallade & McKenna, Architects
Eldorado Apartments, 91st Street and Central Park West, New York, N. Y.
Margon & Holder, Architects
Apartment House, 66th Street and Central Park West, New York, N. Y.
Schwartz & Gross, Architects
Garden Apartments, White Plains, N. Y.
H. G. Wiseman, Architect
Apartments, 38 to 58 East 10th St., New York, N. Y.
Helmle & Corbett, Architects
Hotel Montclair, 49th Street and Park Avenue, New York, N. Y.
Emery Roth, Architect
St. Moritz Hotel, 56 Central Park, South, New York, N. Y.
Emery Roth, Architect
Beaux Arts Apartments, 44th Street and East River, New York, N. Y.
Kenneth Murchison, Architect
Park Gables Apartment Building, Chicago, Ill.
Jas. F. Denson, Architect
A. J. Drexel Biddle Residence, Palm Beach, Fla.
Addison Mizner, Architect
Jos. Widener Residence, Palm Beach, Fla.
Treanor & Fatio, Architects
E. M. Statler Residence, Great Neck, L. I., N. Y.
Geo. B. Post & Sons, Architects
Southern Bell Telephone Exchange, Savannah, Ga.
Marye, Alger & Vinour, Architects
Tudor City Apartments, New York, N. Y.
Fred F. French Co., Architects
Veterans' Bureau Hospitals, Tucson, Ariz., and Alexandria, La.
U. S. Government
Duke University Buildings, Durham, N. C.
Horace Trumbauer, Architect
London Terrace Apartments, New York, N. Y.
Farrar & Watmough, Architects
St. John's Seminary, Kansas City, Mo.
O'Meara & Hills, Architects
Tuckaway Inn, Sewanee, Tenn.
E. L. Tilton and A. M. Githens, Architects
Gordon Lambert Residence, Brunswick, Ga.
Francis Louis Abreu, Architect
Maketewa Country Club, Cincinnati, Ohio
Kruckemeyer & Strong, Architects

HAGSTROM MANUFACTURING CO.

Special Hardware for Doors and Casement Windows

25 Maple Avenue, GLEN COVE, L. I., N. Y.

Products (Patented)

THREE-POINT LOCK for single door or casement.

FIVE-POINT LOCK for double doors or casements.

TWO-POINT LOCK for French Astragal Meeting Stile.

HANDLE LOCK and PUSHLOCK for standing leaf of double doors or casements.

AUTOMATIC BOTTOM BOLTS.

HAGSTROM SECRET DOOR LATCH.

HAGSTROM FRICTION CATCH.

LOCAL REPRESENTATIVE

Hagstrom Door and Casement Hardware

Hagstrom door and casement hardware is designed especially to prevent or overcome the warping of sash. It may be used on new or old sash, with absolute assurance of positive results. Both automatic and concealed.

Materials and Workmanship—Brass and bronze used exclusively.

Workmanship of the highest standard.

Hagstrom products are guaranteed in every respect.

Three-point Lock for Single Door or Casement

This lock consists of a mortise latch (bevel front) at the center and spring latches at the head and sill all operated simultaneously by turning the handle. The door is firmly fastened at three points by simply closing it, and opened by a turn of the handle.

Five-point Lock for Double Doors or Casements

The standing leaf is firmly fastened at the head and sill by simply closing it. The moving leaf is firmly fastened at the head, sill and center by a three-point lock. Both doors are opened by a turn of the handle on each door. A patented interlock prevents turning the handle on the standing leaf while the moving leaf is closed.

Note: The handle controlled lock No. 50 may be omitted and a pushlock No. 25 used on the standing leaf as described hereinafter.

Thumb Turn and Cylinder Lock—Three and five-point locks may be equipped with a thumb turn on the inside, or a thumb turn on the inside and key operated cylinder on the outside. *The lock casings are made to receive any standard make cylinders.* Hubs are set either square or diamond.

Two-point Lock No. 4200, for French Astragal Meeting Stile

Sash is firmly held to head and sill automatically. Latches are released by turn of handle. Face of lock is made concave to suit the rolling meeting stile. Width from depth of concave to center of spindle is $\frac{1}{8}$ in. Used with or without thumb turn.

Handle Lock No. 50 and Pushlock No. 25 for Standing Leaf of Double Doors or Casements

The operation of handle lock (No. 50) is explained above under heading "five-point lock."

The pushlock on the standing leaf is operated by pushing with thumb a recessed latch in the face of strike plate which releases the top and bottom bolts allowing leaf to be opened. With this type lock no handle is required on the standing leaf.

Handle lock (No. 550) and pushlock (No. 525) for standing leaf can be made to special order to fit any other manufacturer's lock on the active leaf.

Automatic Bottom Bolts

Where there is no threshold or where the doors and bolts must clear rugs the spring latch at the bottom is impractical, and we recommend using an automatic bottom bolt which is raised when the handle is turned and held flush with bottom of door when open. When door is closed the bottom bolt is released automatically by the action of a lever against the hinge jamb.

Hagstrom Furnishes No Trim

All three and five-point locks are furnished with strikes, top and bottom bolts, wire for operating them and $\frac{1}{4}$ -in. spring brass channel for covering the wire.

HAGSTROM MANUFACTURING CO. do not furnish any trim, such as butts, cylinders, lever handles, knobs or escutcheons. Any standard trim hardware to harmonize with the adjoining hardware may be used with these locks.

STANDARD SIZES OF CASEMENT HARDWARE—INCHES

Locks for active leaf						Locks for standing leaf					
No. 100 for cylinder			No. 200 for thumb turn No. 300 latch only			No. 50 handle lock			No. 25 pushlock		
Backset	Total depth	Height	Backset	Total depth	Height	Backset	Total depth	Height	Total depth	Height	
$\frac{3}{8}$	$1\frac{1}{16}$	$5\frac{1}{16}$	$\frac{3}{8}$	$1\frac{1}{16}$	$4\frac{3}{4}$	$\frac{7}{8}$	$1\frac{1}{16}$	$3\frac{9}{16}$	$1\frac{3}{8}$	$3\frac{1}{16}$	
1	$1\frac{3}{4}$	$5\frac{1}{16}$	1	$1\frac{3}{4}$	$4\frac{3}{4}$	1	$1\frac{3}{4}$	$3\frac{9}{16}$	.....	.....
$1\frac{1}{8}$	$1\frac{7}{8}$	$5\frac{1}{16}$	$1\frac{1}{8}$	$1\frac{7}{8}$	$4\frac{3}{4}$	$1\frac{1}{8}$	$1\frac{7}{8}$	$3\frac{9}{16}$	.....	.....
$1\frac{1}{4}$	2	$5\frac{1}{16}$	$1\frac{1}{4}$	2	$4\frac{3}{4}$	$1\frac{1}{4}$	2	$3\frac{9}{16}$	.....	.....
$1\frac{3}{8}$	$2\frac{1}{8}$	$5\frac{1}{16}$	$1\frac{3}{8}$	$2\frac{1}{8}$	$4\frac{3}{4}$	$1\frac{3}{8}$	$2\frac{1}{8}$	$3\frac{9}{16}$	.....	.....
$1\frac{1}{2}$	$2\frac{3}{4}$	$5\frac{1}{16}$	$1\frac{1}{2}$	$2\frac{3}{4}$	$4\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{9}{16}$	.....	.....
$1\frac{5}{8}$	$2\frac{7}{8}$	$5\frac{1}{16}$	$1\frac{5}{8}$	$2\frac{7}{8}$	$4\frac{3}{4}$	$1\frac{5}{8}$	$2\frac{7}{8}$	$3\frac{9}{16}$	.....	.....

All locks furnished with larger backset to order. Backset is figured from lower step of rabbet.

Combination of Locks

Cylinder lock No. 125 with pushlock; No. 150 with handle lock.
Thumb turn No. 225 with pushlock; No. 250 with handle lock.
Latch only No. 325 with pushlock; No. 350 with handle lock.
No. 525 pushlock to suit other manufacturers' locks.
No. 550 handle lock to suit other manufacturers' locks.

Hagstrom Hardware Suitable for Metal Sash

Hagstrom Three and Five-point Locks are also adaptable for metal sash.

Hagstrom Secret Door Latch

A new concealed latch for secret doors and panels. When door is closed no hardware is visible. No push button is used.

Simple in Operation—To close push lightly on the door; to open push hard. Door moves $\frac{1}{8}$ in. When pressure is removed door swings open. If door must be operated from both sides a handle to pull the door is placed on the back. On tightly fitting panels it is sometimes necessary to use auxiliary springs to overcome the effect of vacuum. Shrinking or swelling of the door does not affect operation as long as the door swings free. Latch may be applied to right or left-hand doors without changing mechanism.

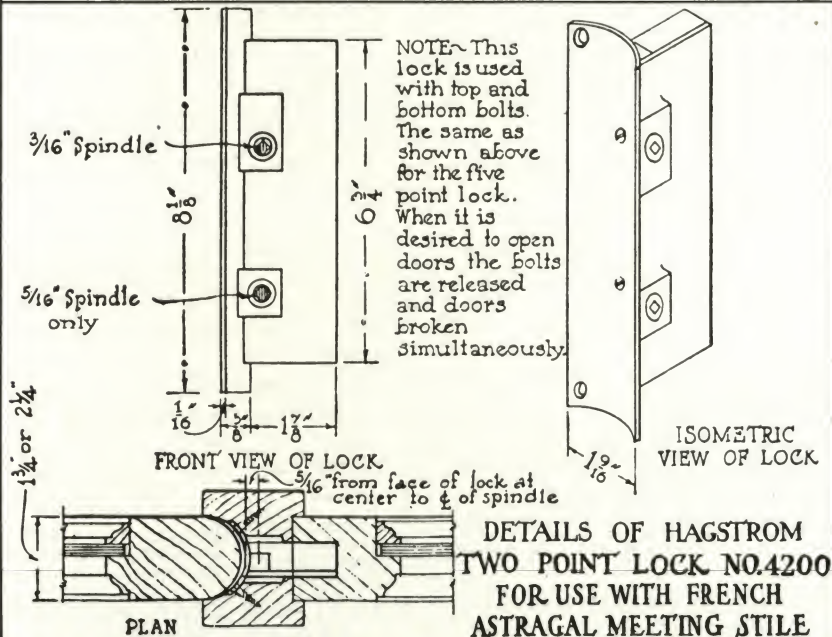
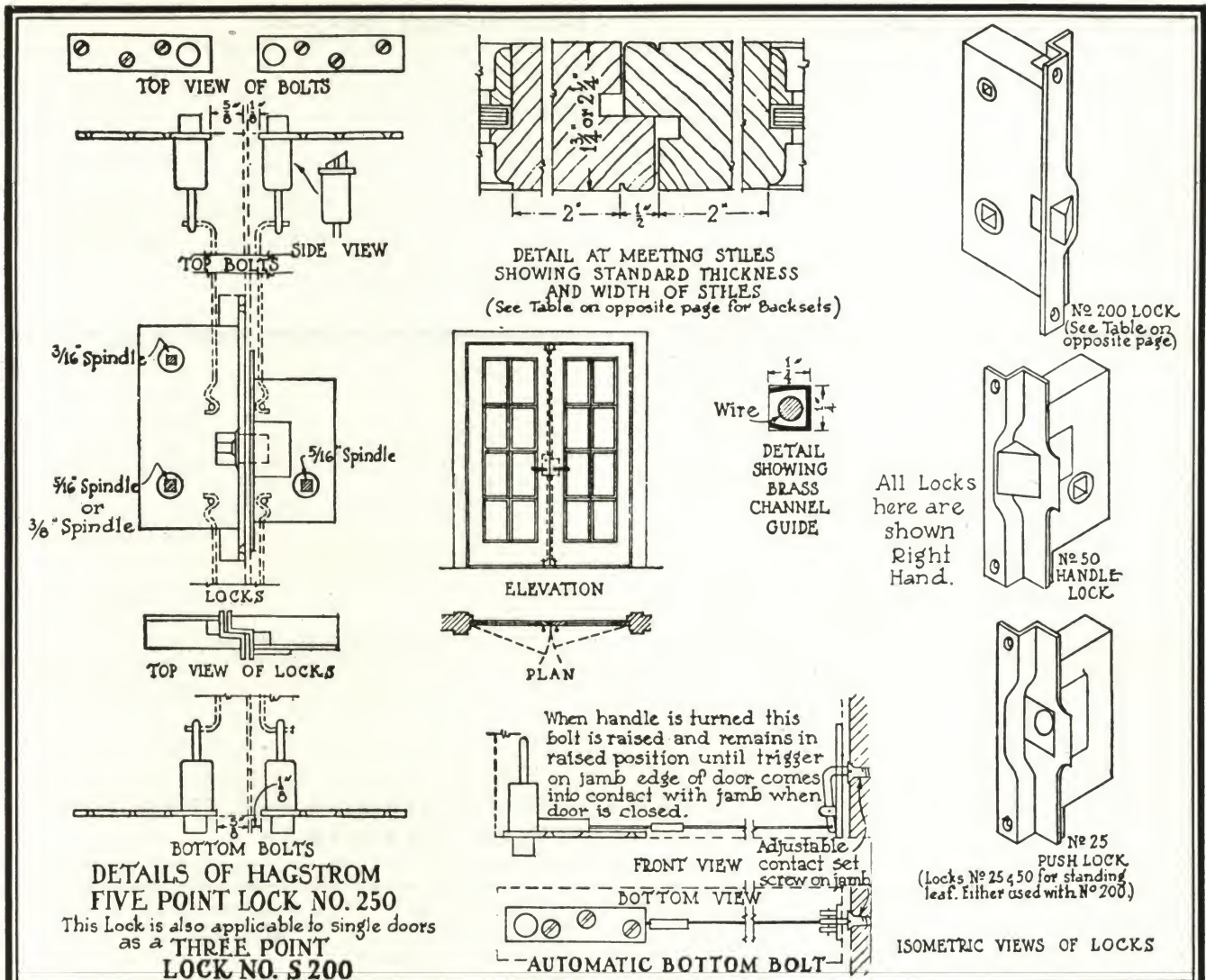
Easily Applied—By screwing on the door stop. May be let in if desired. Channel strike furnished, is screwed on door without cutting. If channel strike is objectionable, flat strike can be supplied.

Hagstrom Friction Catch

Designed for cupboards, cabinets, closets, wardrobes, refrigerator doors, in fact, anything on hinges. Made in three sizes—Nos. 10, $10\frac{1}{2}$ and 11. Nos. 10 and $10\frac{1}{2}$ are designed for small doors in cupboards, medicine closets, cabinets, small refrigerator doors, etc. No. 11 is designed for wardrobe doors, casement windows, screen doors, etc.

This catch prevents warping of new doors, and doors already warped are, by its action, drawn back to normal.

It prevents rattling of doors and hinged windows. It prevents the entrance of dust, by holding doors and windows tightly closed. Remains effective even after door has shrunk considerably.



HAGSTROM
HARDWARE
IS ALSO MADE
FOR
SURFACE
APPLICATION

HAGSTROM
M'FG. CO.

DETAILS OF HAGSTROM DOOR
AND CASEMENT HARDWARE

PLATE 1

Hagstrom Light Trap Lock

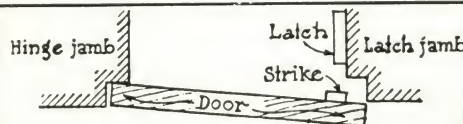
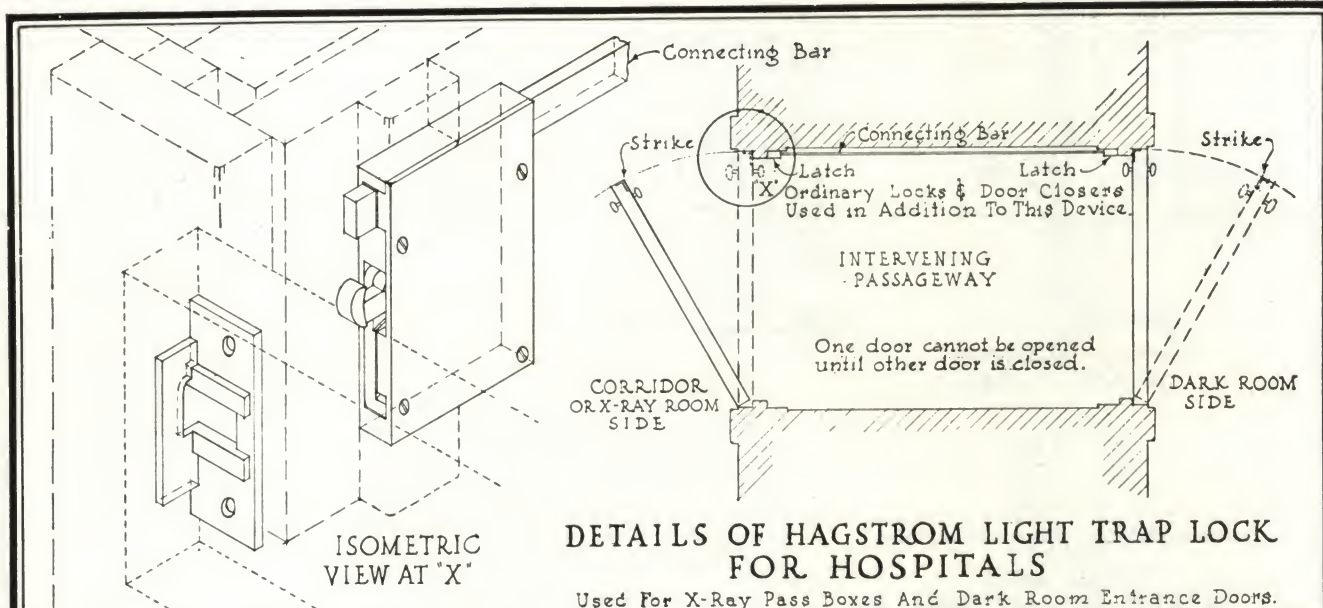
This automatic locking device prevents both doors connecting corridor or X-ray room and dark room from being opened at the same time.

When one door is opened, this Hagstrom Lock, through its connecting bar, locks the other door securely. Not until the opened door is closed tightly does the connecting bar shift to release the locked door. As soon as this door is opened, the opposite one is locked immediately.

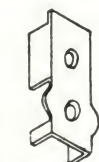
In addition to this device, ordinary locks and door closers are used.

Hagstrom Secret Door Lock

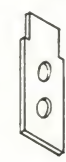
An easily operated lock designed for secret panels and doors opening outward. When panel is closed, no part of this lock is visible. The lock, itself, is set in the jamb; the strike in the panel, flush with the inside. The key, which is thin, is inserted between the panel and jamb. Key inserted at point A and raised to point B, as shown on the detail, unlocks door. Adjustment of trigger C with bolt pressed back renders lock inoperative and cabinet accessible without key. Readjustment of trigger C releases tongue so that when door is closed it locks automatically.



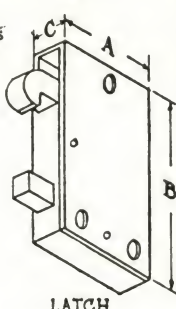
This latch may be applied to either right or left hand doors without changing mechanism. If hook strike is objectionable, flat strike can be supplied.



CHANNEL STRIKE

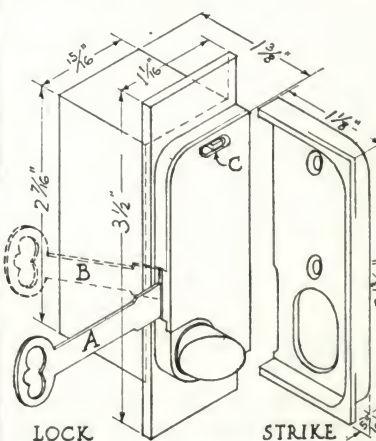


FLAT STRIKE

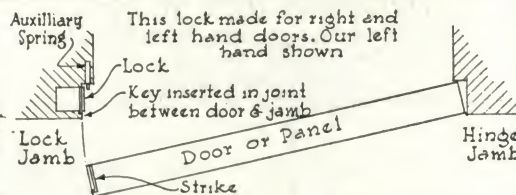


LATCH

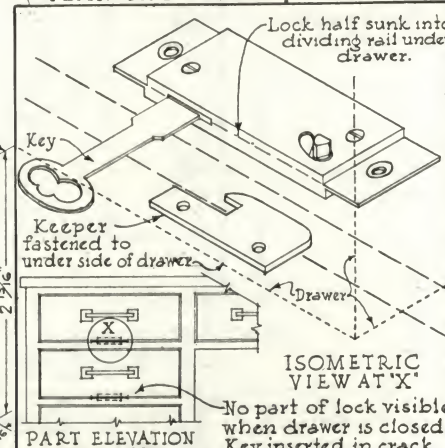
-NOTE-
When door is in closed position no part of lock is visible.
Key inserted at A and raised to B unlocks door. Adjustment of trigger C with bolt pressed back renders lock inoperative and cabinet accessible without key. Readjustment of trigger C releases tongue so that when door is closed it locks automatically.



HAGSTROM NO. 7 SECRET DOOR LOCK



PLAN SHOWING APPLICATION



HAGSTROM DESK DRAWER SECRET LOCK

HAGSTROM
M'F'G. CO.

DETAILS OF HAGSTROM
LIGHT TRAP LOCK AND SECRET LOCKS

PLATE 2

ANDREW HOFFMAN MFG. CO.

Casement Window Hardware

616 Straus Building, CHICAGO, ILL.

DISTRIBUTERS IN ALL LARGE CITIES

Products

SLIDING CASEMENT HARDWARE FIXTURES.

IMPROVED CREMONE BOLT, pages 7 and 8.

IMPROVED CASEMENT FASTENER, page 6.

Also manufacturers of Ceiling Light Sash Fixtures; literature on request.

For Ideal School Map and Display Rail, see Manufacturers' Index.

SLIDING CASEMENT HARDWARE FIXTURES

Description—Hoffman Casement Fixtures (United States and foreign patents) are for outward or inward opening windows up to a maximum size of 2 ft. 2 in. x 7 ft. per sash. They support the sash entirely from the head and they are not hinged to either jamb, which method provides many advantageous features.

Advantages—(1) The sash are firmly attached to the frame at the top by brass rollers engaging in a metal channel track, and at the bottom by guide blocks on a metal angle track.

(2) Top support prevents binding from swelling sash because sufficient clearance is left at the sill without affecting weathering.

(3) Stops both inside and outside at the jambs and three butts prevent warping and aid weathering.

(4) All cleaning is done from inside.

(5) The windows are weathertight.

(6) Ventilation. By slightly opening the window, a flue is created that draws out at the top all impure air which is automatically replaced with fresh air at the bottom without any direct draft.

(7) The sashes may be opened to any position up to the entire size of the frame at either jamb or at any point between the jambs and need no adjusters because one sash acts as a stay or brace to the other.

(8) The windows are designed by the architect and specified under carpentry or millwork the same as any other window. This company furnishes hardware only.

(9) Sash in series may be used in frames of any width omitting all mullions, providing head is securely bolted to lintel to prevent sagging. (We have a special detail sheet suggesting several methods of head support.)

(10) Sash in even numbers may be $1\frac{3}{8}$, $1\frac{3}{4}$, or $2\frac{1}{4}$ in. thick. Single sash or sash in odd numbers must be $1\frac{3}{4}$ or $2\frac{1}{4}$ in. thick. Hardware for inward opening sashes is made for sash in pairs only.

Adaptability—Hoffman Casement Fixtures are strong and serviceable, will outlast ordinary window hardware, installation is simple and because windows so equipped combine all good features of all other types

of windows they are adapted for typical use in any building, public or private.

Hardware Furnished—The fixtures are packed in complete sets containing all necessary hardware for sash in pairs or for single sash. Track is included up to 2 ft. for each sash. Wider sash require extra track.

Grades and Prices—All prices net f.o.b. Chicago. Distribution through agencies. Stock finish: dull brass.

No. 1—Galvanized tracks; galvanized top hangers with brass wheels; galvanized bottom guides with brass swivel pins; *plated steel* butts, fasteners and handle. Stay arms for single sash, galvanized. For pairs of sash, per set—\$5.00. For single sashes, per set—\$4.50. For cremone bolt (steel) add \$1.00.

No. 2—Same as No. 1 excepting butts, fasteners and handle are solid brass, tumbled finish (not hand polished). For pairs of sash, per set—\$7.00. For single sashes, per set—\$6.00. For cremone bolt (brass) add \$1.50.

No. 3—Same as No. 2 excepting that sill track is *solid brass*, and butts, fasteners and handle are *solid brass*, hand polished. For pairs of sash, per set—\$9.00. For single sashes, per set—\$8.00. For cremone bolt (brass) add \$1.00.

No. 4—All parts *solid brass*. For pairs of sash, per set—\$12.00. For single sashes, per set—\$10.50. For cremone bolt (brass) add \$1.00.

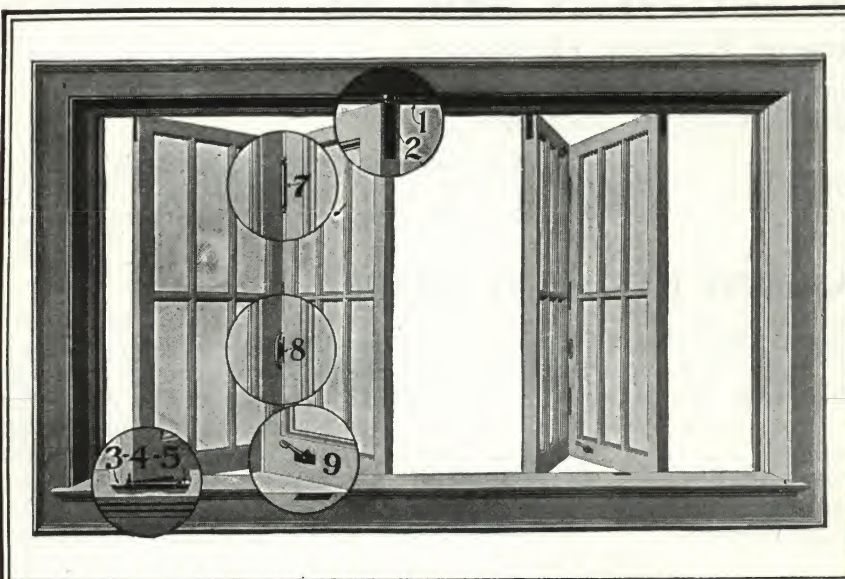
Also additional grades for both outward and inward opening windows.

Information Required with Orders—(1) Exact width of opening *jamb to jamb* (not between stops); (2) number of sash in each opening; (3) if single sash are used, state whether they swing to the right or left when facing them from inside the room. (4) Give the grade of hardware and the finish desired. (5) Sash thickness and approximate height is desirable, but not necessary. (6) State if Cremone bolt is wanted.

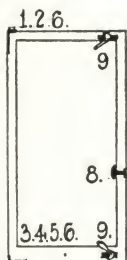
Specification Form—All window frames and sash shall be milled according to details and the contractor shall exercise particular care to set the frames perfectly level and square and shall bolt the head to the lintel at intervals not exceeding 4 ft. wherever the span is greater than 4 ft. The sash shall be hung with Hoffman Casement Fixtures (here insert grade number) as manufactured by the ANDREW HOFFMAN MFG. Co., 616 Straus Building, Chicago, in exact accordance with details and directions furnished by the manufacturers.



Theodore Roosevelt Junior High School, San Diego, Cal.

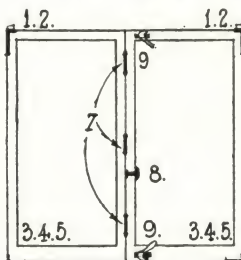


PERSPECTIVE SHOWING HARDWARE APPLIED



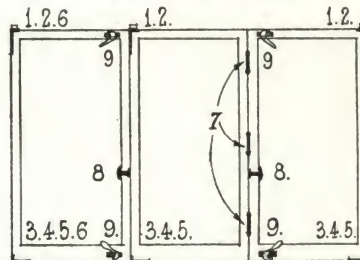
SINGLE

Single Unit



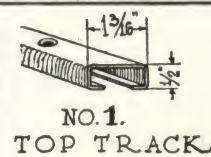
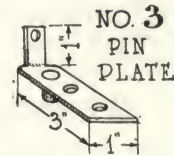
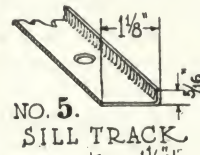
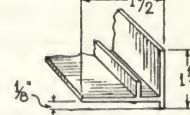
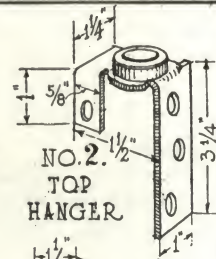
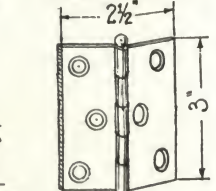
DOUBLE

Double Unit

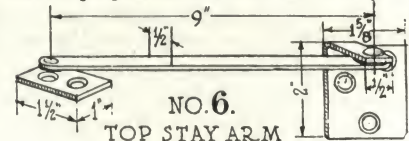
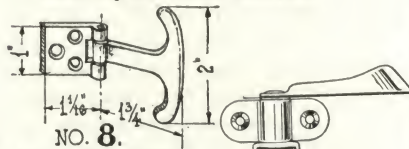


TRIPLE WINDOW

Single Unit Double Unit

NO. 1.
TOP TRACKNO. 3
PIN
PLATENO. 5.
SILL TRACKNO. 10 SILL TRACK
(inswinging casements)NO. 2.
TOP
HANGERNO. 4.
GUIDE BLOCK

NO. 7. HINGE

NO. 6.
TOP STAY ARM
FOR SINGLE SASH
Bottom Stay Arm similar, reversedNO. 8.
HINGED HANDLE
FOR EACH SINGLE
AND DOUBLE UNIT

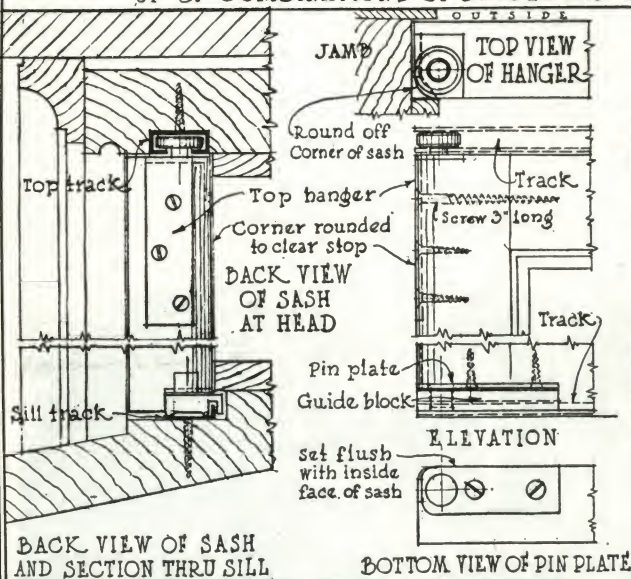
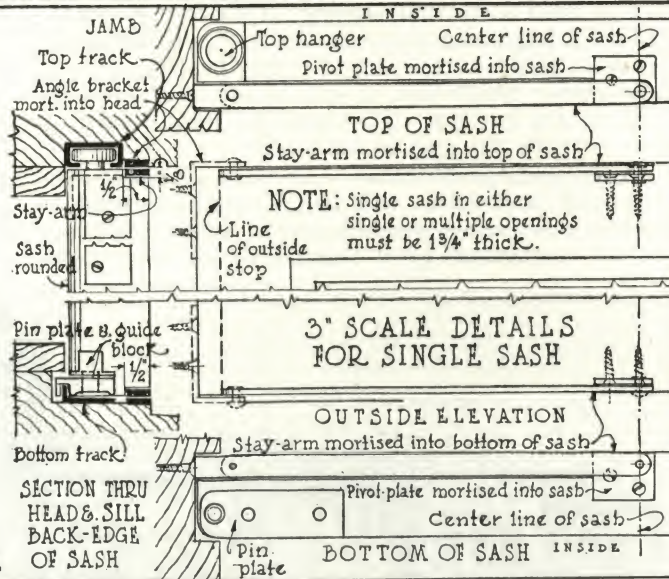
NO. 9 FASTER

KEY PLANS AND ELEVATIONS

SHOWING OPERATION OF VARIOUS COMBINATIONS OF SASH

NOTE: WHEN THERE ARE MORE THAN THREE SASH, THEY ARE MADE UP OF COMBINATIONS OF DOUBLE AND SINGLE SASH UNITS.

DETAILS OF HARDWARE

BACK VIEW OF SASH
AND SECTION THRU SILLSECTION THRU
HEAD & SILL
BACK-EDGE
OF SASH3" SCALE DETAILS
FOR SINGLE SASH

OUTSIDE ELEVATION

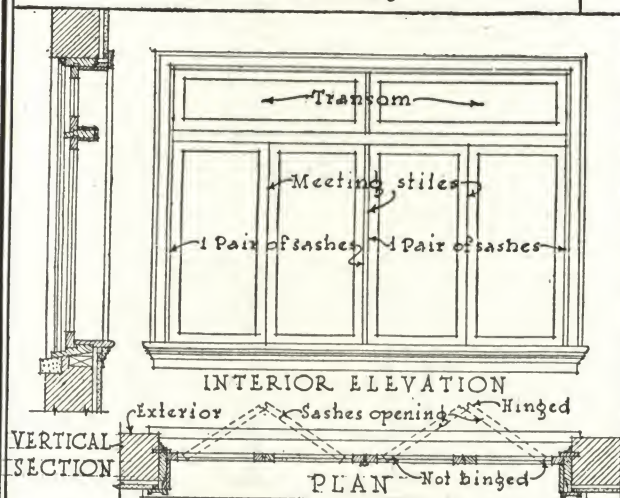
BOTTOM OF SASH

DRAWN BY
SWEET'S CATALOGUE
SERVICE, INC.DETAILS OF HOFFMAN CASEMENT HARDWARE
ANDREW HOFFMAN MFG. CO.SCALE 3" = 1'-0" DRWG
EQUALS 1'-0" DATE-AUG. 27 1

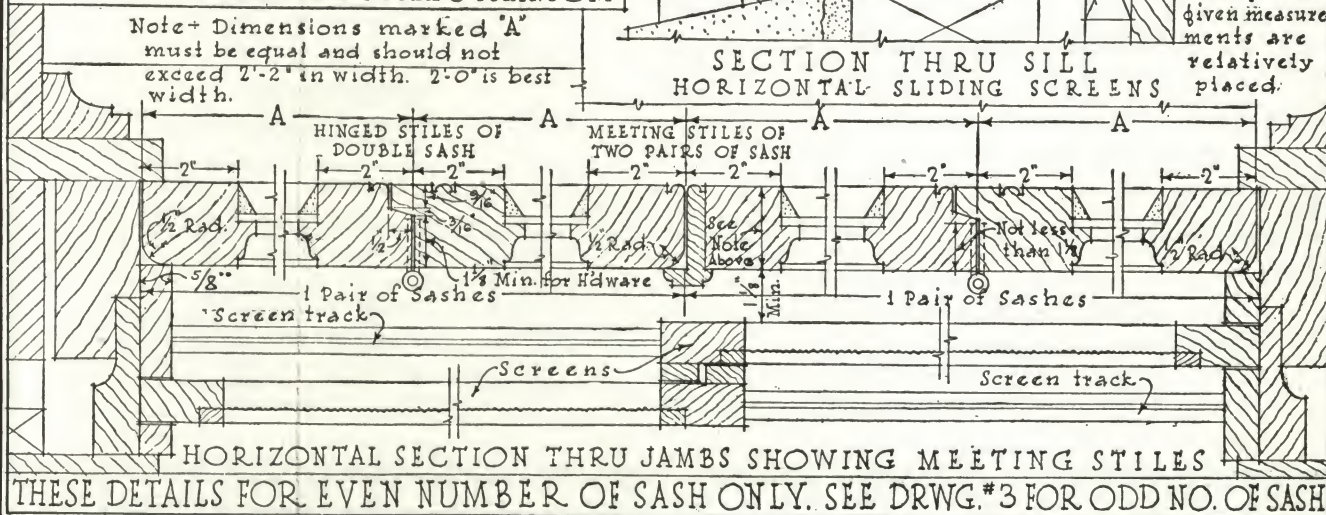
In wide openings frame head should be supported at least every 4 ft. and wood sills anchored down every 4 ft. For suggestions see upper right-hand corner following page.



HOFFMAN CASEMENTS INSTALLED IN PORCHES



1/4" SCALE DETAIL OF FOUR SASH WINDOW WITH MEETING STILE & TRANSOM



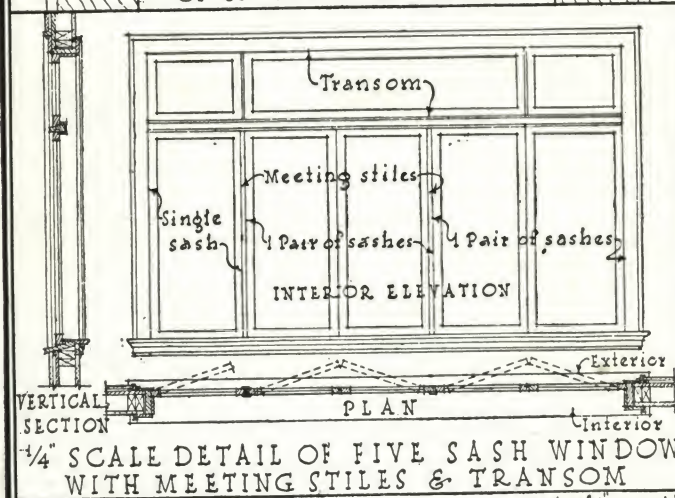
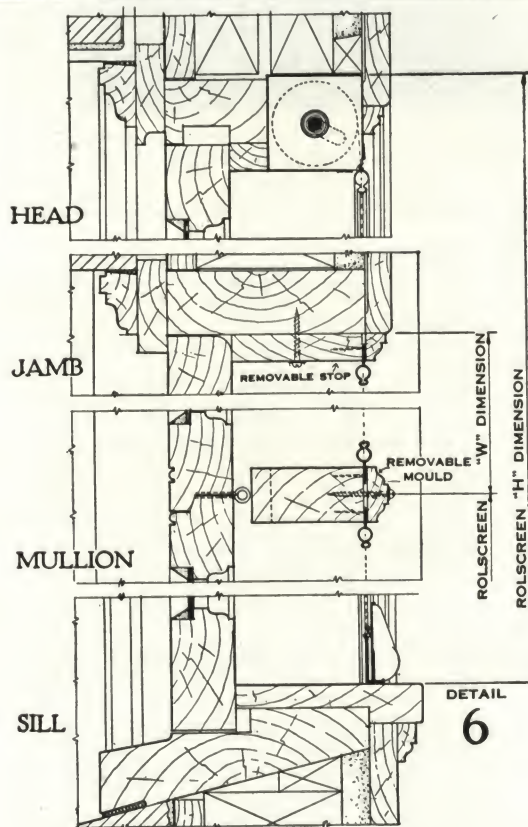
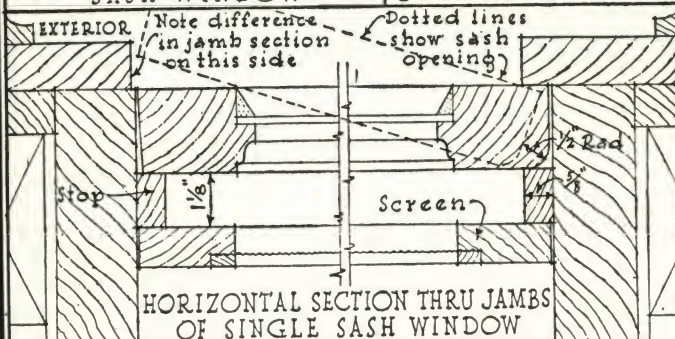
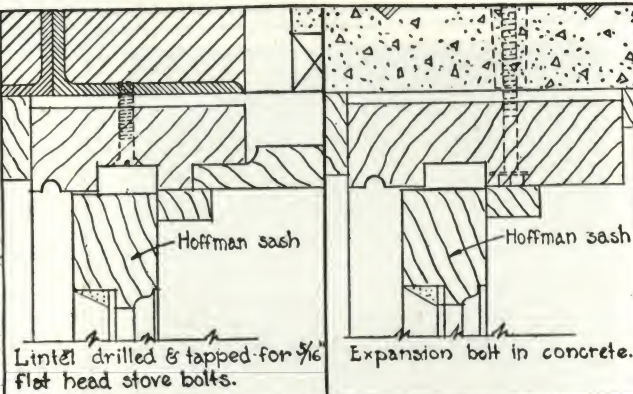
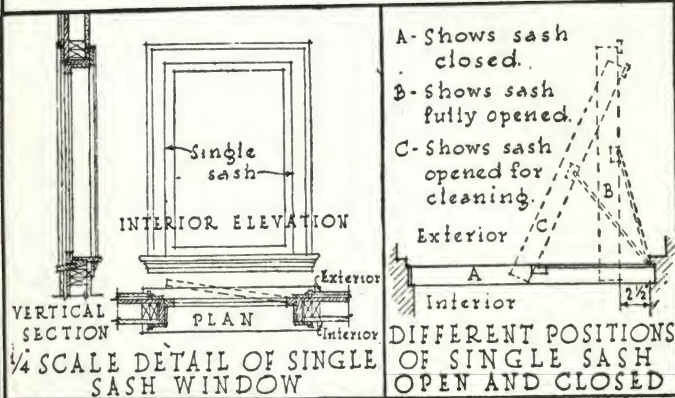
THESE DETAILS FOR EVEN NUMBER OF SASH ONLY. SEE DRWG. #3 FOR ODD NO. OF SASH

DRAWN BY
SWEET'S CATALOGUE
SERVICE, INC.

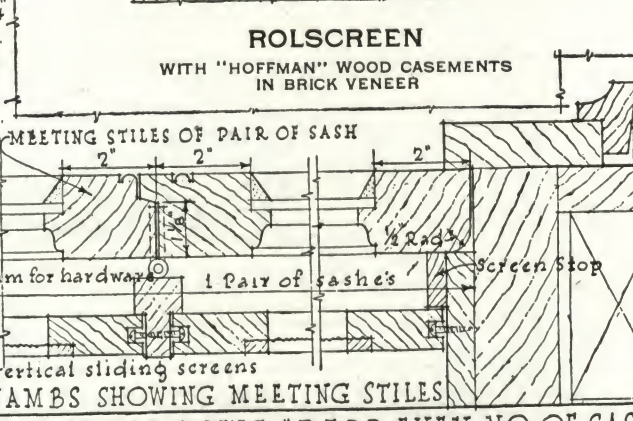
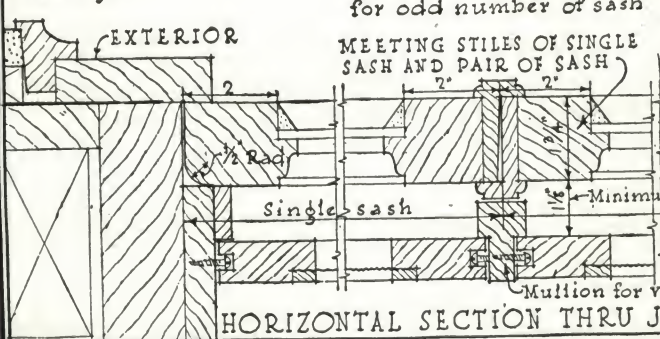
DETAILS OF MILLWORK FOR HOFFMAN CASEMENTS
AS INSTALLED IN MASONRY WALL

SCALE 1/4" & 3/8" DRWG
EQUALS 1'-0" DATE JULY 20 2

In wide openings frame head should be supported as shown at right—or equivalent. In wide openings wood sills should be anchored down every 4 ft.



NOTE- For detail of meeting stiles of two pairs of sash see drawing #2. Sash can be 1 3/8", 1 1/4" or 2 1/4" thick for even number of sash. Sash must be 1 1/4" thick for odd number of sash.



THESE DETAILS FOR ODD NUMBER OF SASH ONLY. SEE DRWG. #2 FOR EVEN NO. OF SASH

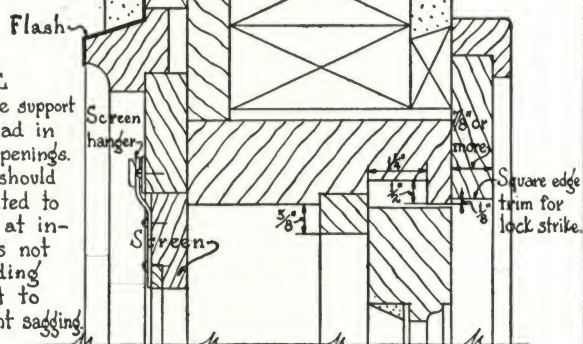
DRAWN BY
SWEET'S CATALOGUE
SERVICE, INC.

DETAILS OF MILLWORK FOR HOFFMAN CASEMENTS
AS INSTALLED IN FRAME WALL

SCALE 1/4" & 3/4"
EQUALS 1'-0"
DATE JULY 20 3

NOTE

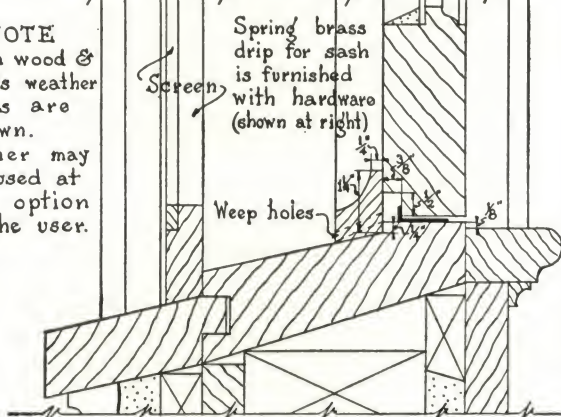
Provide support for head in wide openings. Head should be bolted to lintel at intervals not exceeding 4 feet to prevent sagging.



• HEAD •

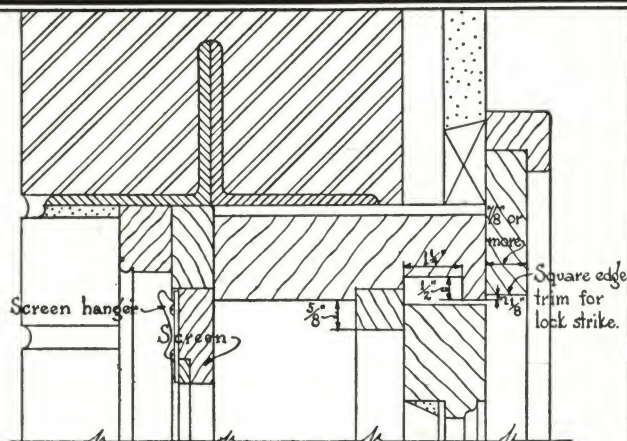
NOTE

Both wood & brass weather bars are shown. Either may be used at the option of the user.

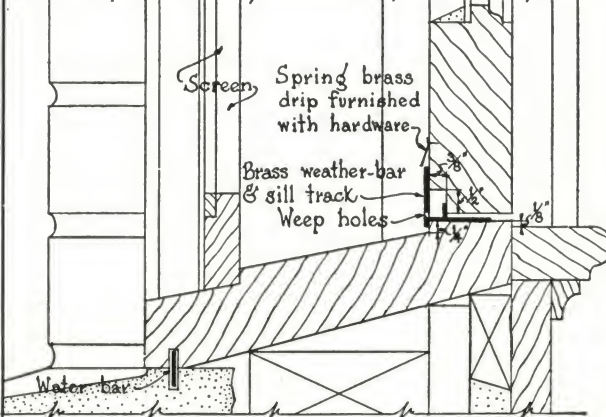


• SILL •

VERTICAL SECTION-STUD WALL



• HEAD •

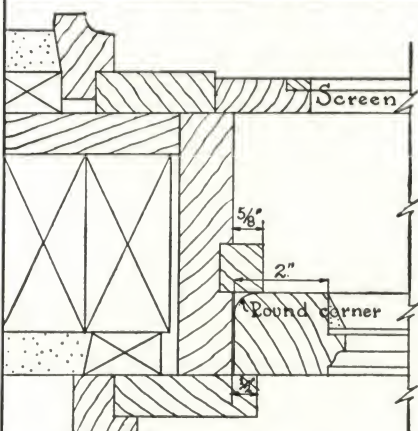


• SILL •

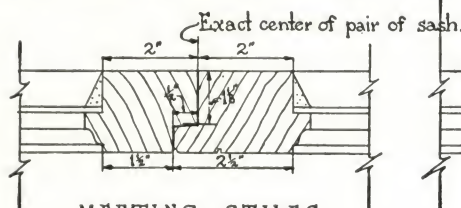
VERTICAL SECTION-MASONRY WALL

NOTES

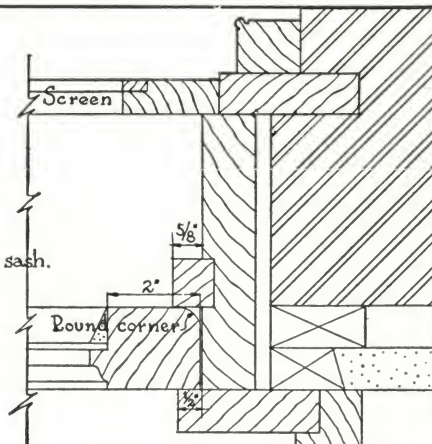
Maximum size 2'2" X 7'0" per sash. Fixtures for sash in pairs only. Allow as much space as possible between sash & screen to permit convenient cleaning.



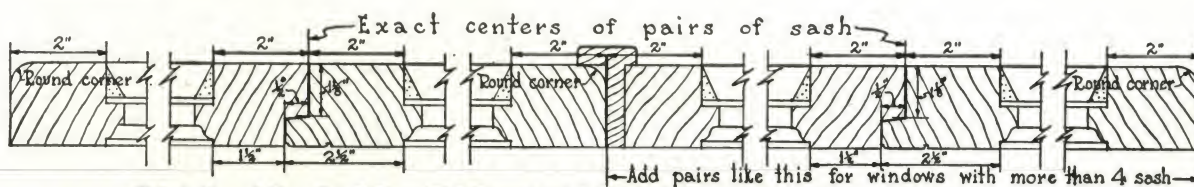
JAMB-STUD WALL



MEETING STILES FOR PAIR OF SASH



JAMB-MASONRY WALL



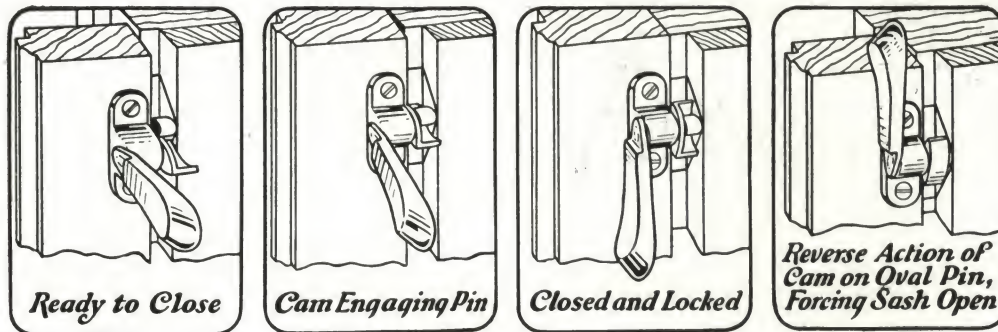
PLAN OF SASH FOR MULTIPLE SASH OPENINGS

MILLWORK DETAILS FOR HOFFMAN CASEMENTS INWARD OPENING
SCALE 3" EQUALS 1'0"

JUNE-30-1923

HOFFMAN GRIPLOX CASEMENT FASTENER

Employing a new principle in casement fasteners



It Grips and Locks

Double Acting—It Closes and Opens.

Hoffman GripLox is our latest development in casement fasteners. It will tightly close even a warped window and will force open a jammed window. This double action is secured through the motion of a cam acting upon an oval pin. Hoffman GripLox first grips and pulls the window closed and then locks it securely. A sturdy cam begins to engage the pin while the window is still partly open, and further turning of the handle closes and locks it, secure from rattling. The action is reversed when the window is being opened, the cam engaging the opposite side of the oval pin and actually forcing the window open sufficiently far to break the sticking due to paint, to swelling, or to tight weatherstripping.

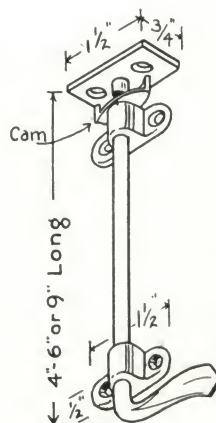
We believe that this double-action casement hardware is the only type yet developed that will stand the strain of opening and closing tightly weatherstripped windows.

Hoffman GripLox, with its large bearing surfaces and properly calculated strains, will wear for many years. It is made in cast brass, in wrought brass, and in plated wrought steel.

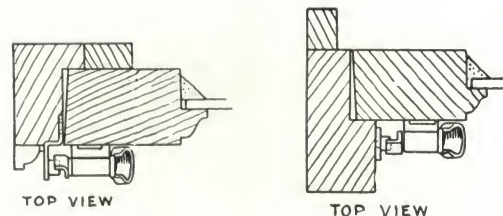
Griplox Surface Bolt

For Inswinging and Outswinging Casements, French Doors, and Bed Closet Doors.

The GripLox surface bolt is designed to complete the line of GripLox Fasteners. It works on the same principle. This surface bolt has eliminated all the troubles so long associated with ordinary surface bolts. The user need only to turn the handle, and the sash is drawn shut and tightly locked. Due to the leverage of the handle, the bolt turns easily and without binding. There is never any doubt as to whether the sash is really locked. There is no question of the bolt properly meeting the strike, even though the sash or door may be warped or shrunken. There is no unsightly wear on visible parts. There are no bearings or rivets to become loose. Made of cast brass or plated steel, in 4, 6, and 9-in. lengths.



**GRIP LOX
SURFACE BOLT**



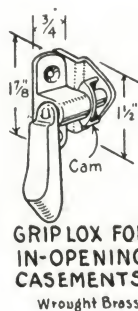
TOP VIEW

TOP VIEW



**GRIP LOX FOR
OUT-OPENING
CASEMENTS**

Wrought Steel Brass Plated



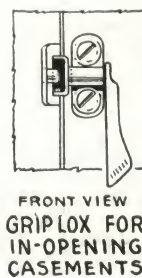
**GRIP LOX FOR
IN-OPENING
CASEMENTS**

Wrought Brass

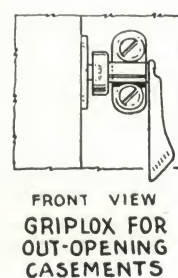


**GRIP LOX FOR
IN-OPENING
CASEMENTS**

Cast Polished Brass
Strike also for Out-Opening Casements



**FRONT VIEW
GRIPLOX FOR
IN-OPENING
CASEMENTS**



**FRONT VIEW
GRIPLOX FOR
OUT-OPENING
CASEMENTS**

COMBINATION CREMONE BOLT

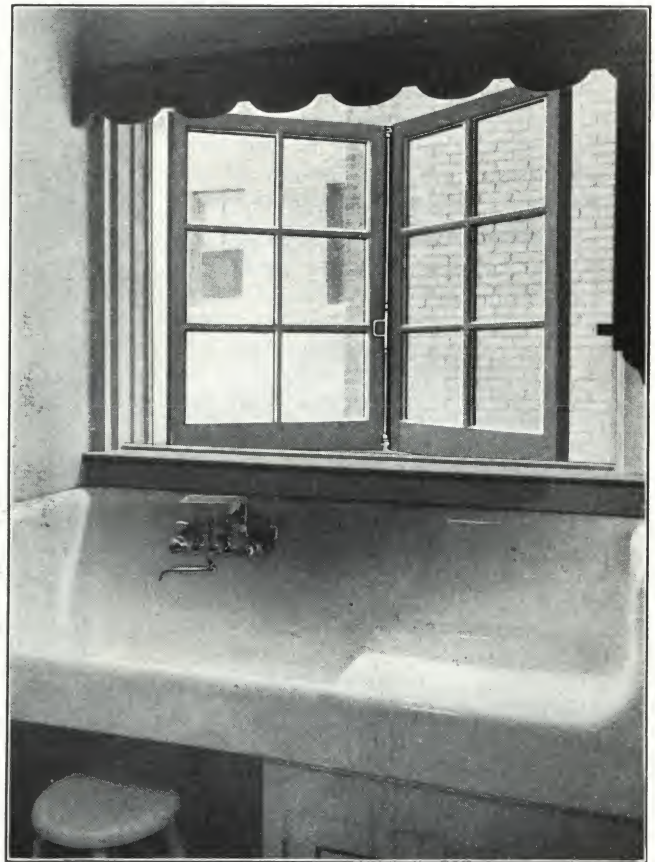
For Hoffman Sliding Casement Windows—Used on Outswinging Only

The Hoffman Combination Cremone Bolt combines the functions of hinges, fasteners, and pull handle, and is especially designed for use with outswinging Hoffman Sliding Casement windows. It makes use of the GripLox principle which is explained on a preceding page.

The Hoffman Sliding Casement Windows, when equipped with this combination cremone bolt, are drawn in tightly and locked top and bottom in one operation by a quarter turn on a handle located at a convenient height above the floor.

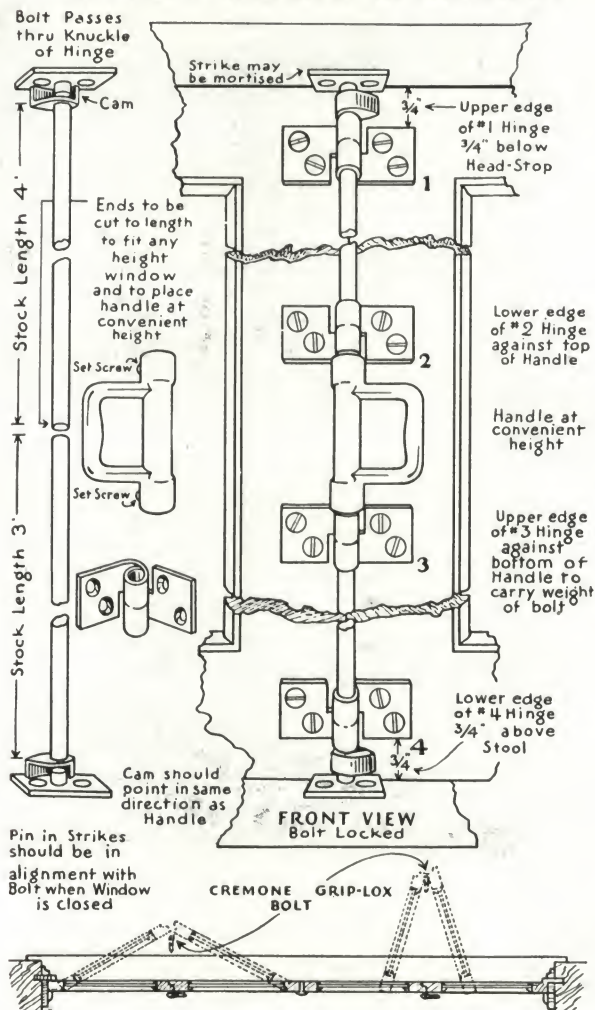
This combination bolt consists of cams, operating on the GripLox principle, at the top and bottom of rods which are joined in a cast bronze handle, the whole assembly being supported by brackets which also act as hinges for the casements.

The use of this full length bolt makes the window easy to open or close, simplifies ventilation control, and closes the window so tightly as to make it weatherproof even in exposed positions.



A Pair of Outswinging Sliding Casements

COMBINATION CREMONE GRIP LOX BOLT WITH HOFFMAN SLIDING WINDOWS



Especially when windows are difficult to reach, as over a sink (see illustration) or over a radiator, is the unique ease of operation of the Hoffman Sliding Casement Window and combination bolt appreciated.

The advantages realized by the use of the Hoffman Combination Cremone Bolt are summed up in these points:

- (1) A positive horizontal force is applied to the sash, drawing them in tightly, even though they may be warped or heavily weather-stripped.
- (2) The mechanism is simple and positive with no gears to wear or get out of order.
- (3) There is no disfiguring wear on visible surfaces due to the fact that the bolt does not slide vertically through sleeves.
- (4) The bolt is stocked in 7-ft. lengths and may be cut down on the job to any size, to fit even the shortest windows. The installation is very simple; there is no mortising necessary and the hack-sawed ends of the rods are concealed within the handle.
- (5) The price is very moderate.

The Hoffman Combination Cremone Bolt is made of solid brass or plated steel. The bolts are stocked with a 4-ft. upper section and a 3-ft. lower section. The stock bolt therefore may be used on casements up to 7 ft. high, and the handle may be placed as much as 4 ft. below the top of the sash.

GRIPLOX CREMONE BOLTS

For Single and Double Casements

Hoffman Cremone Bolts overcome the usual obstacles to easy closing and secure locking of inswinging or outswinging casements by use of the Grip-Lox principle. For explanation of this principle see GripLox fasteners on a preceding page.

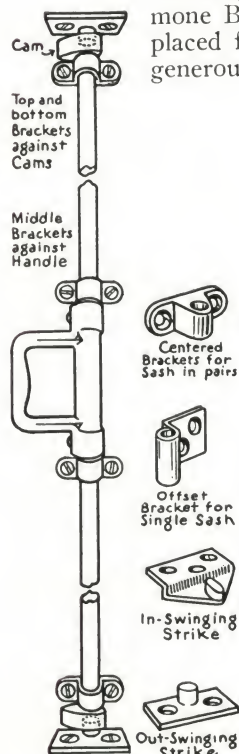
On Double Outswinging Casements

—With rabbeted meeting stiles—see upper illustration—the cremone bolt is applied to the sash that has the outer rabbet projection. When the other sash is closed first, the cremone bolt draws both sash tightly shut, top and bottom at once, by a quarter turn of a handle at a convenient height above the floor.

On Double Inswinging Casements

—With rabbeted meeting stiles, one bolt applied to the sash that has the inner rabbet projection will clamp both sash shut. If, as in the lower right illustration, the meeting stiles are not rabbeted or fitted with an astragal, a bolt is applied to each sash. Notice that the unlocked sash is warped at the top. This warped sash is easily and tightly closed with the Hoffman Cremone Bolt.

On Single Casements—Inswinging or outswinging. By attaching the Hoffman Cremone Bolt with offset brackets, the handle is placed far enough from the side jamb to give generous clearance for the fingers.



**CREMONE
GRIP LOX BOLT**



**Double
Outswinging
Casements**



Single Outswinging Casements



Above:
Double Inswinging Casements

The stock length of the bolt is 7 ft. It is easily cut down on the job to fit any window. Installation is simple and no mortising is required.

HASKELL & HATCH COMPANY

Apexeon Operator-Screen Unit for Metal Casement Windows and Apexeon "Lifetime" Flat Screens

47 Union Avenue, Jamaica Plain Station
BOSTON, MASS.

THE APEXEON UNIT, A CASEMENT OPERATOR AND SCREEN COMBINATION

This modern Apexeon Unit was designed to meet the need of a dependable, easy means of operating and locking outside-opening casement windows from within, without removing or opening the screen.

This unit, simple in construction and free from unnecessary and awkward hardware, solves satisfactorily the threefold problem that has long troubled architects, builders and home owners:

First—How to operate metal casement windows easily and hold them in any position firmly, without using an unsightly array of hardware.

Second—How to avoid admitting insects when opening, closing or locking such windows.

Third—How to screen them to the greatest advantage.

The Apexeon Unit, due to its unique construction and operation, satisfies these three requirements completely and economically. It permits the casement to be operated and locked from within and with little effort. In addition, it gives a strong, corrosion-proof screen that will last indefinitely.

Right:

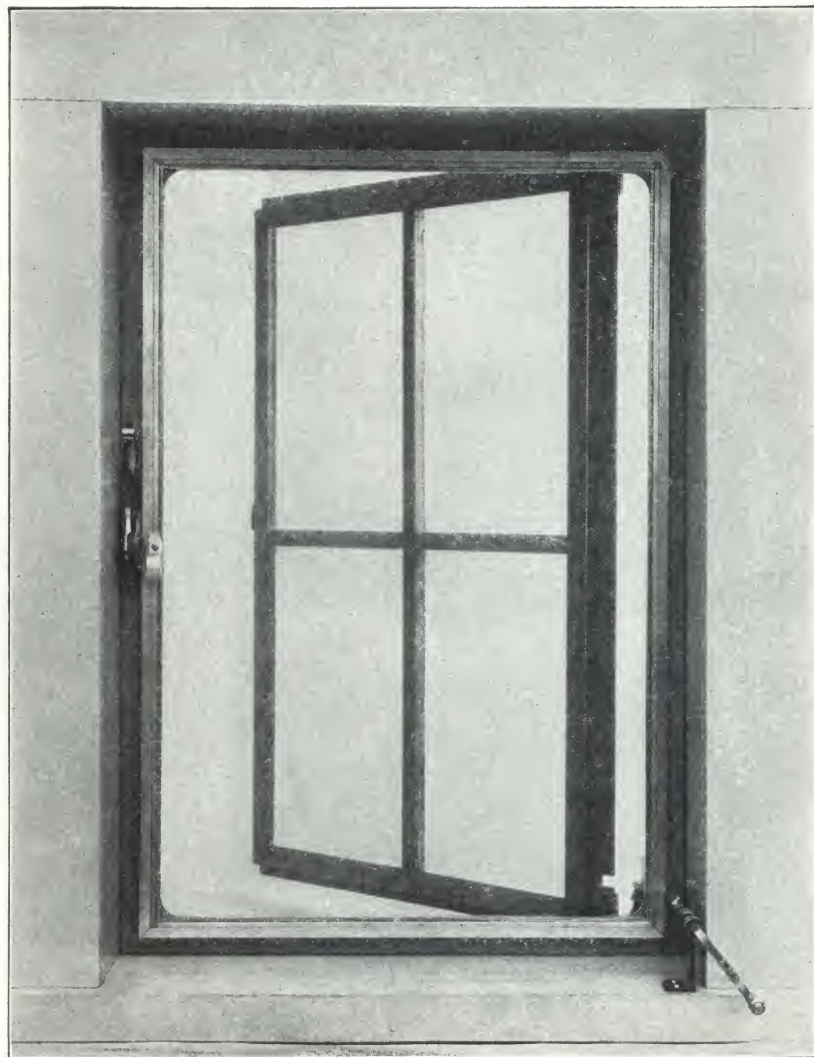
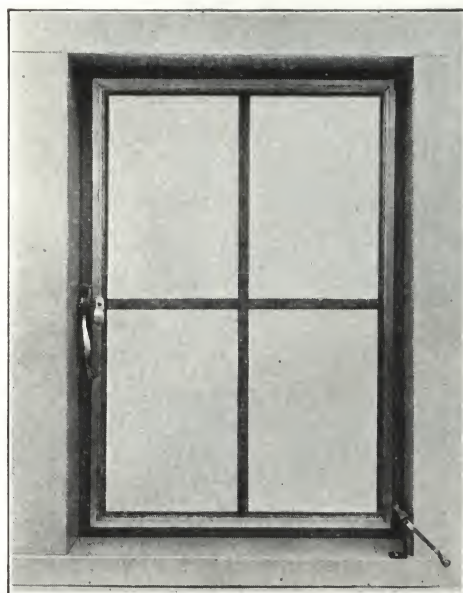
Apexeon Operator-Screen Unit

Its operator, at the lower right corner of the frame, has been turned to hold the window half open

Below:

The Same Apexeon Operator-Screen Unit

Window has been closed by simply turning the operator. It is locked tight against frame by Apexeon Latch on left of frame



THE APEXEON INVISIBLE CASEMENT OPERATOR

This truly remarkable device is revolutionary and fills a long-felt need.

Its powerful but simple mechanism (vise-like in action) moves the window easily and smoothly and holds it firmly in any position. Dust and dirt cannot obstruct it. There is nothing to bend, break, get out of order or wear out. It is as strong as the hinge itself and as effective as any lock. The metal casing protects it from the weather.

At no point do two corrosive metals touch. It may lie idle for months and still work smoothly.

It is literally *invisible* from the inside. All that shows is the small spindle which projects through the casement. The handle is like the key of a clock. It may be left in place or laid aside when not in use.

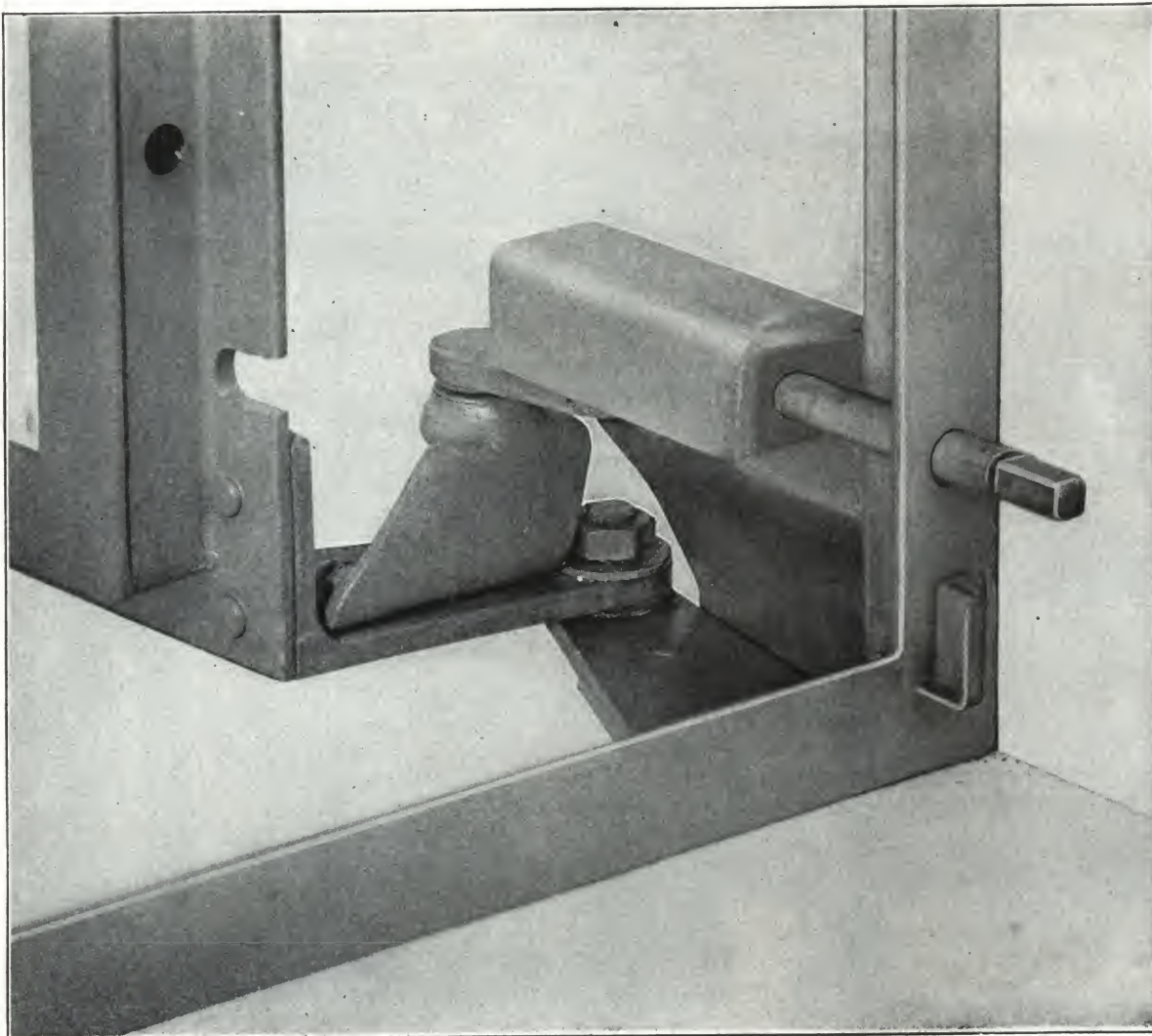
The Apexeon Operator itself is attached to the extension hinge on the *outside* of the window and vir-

tually becomes a part of it. It is applicable to all standard makes of casements with this type of hinge.

Thus the window may be opened or shut without even touching the screen and insects have no chance to get in during the operation.

But the Apexeon Operator has a wider field of usefulness than as an aid in excluding insects. Whether screened or not, windows must be opened and shut. *Convenience* and *sightliness* are always important while *safety* is a matter of no small consequence. Where Apexeon Operator is installed there is no reaching out of a window and no danger of accident.

In spite of its conspicuous advantages, the Apexeon Operator is so moderate in cost that there is no reason why every metal casement window should not be equipped with one.



Apexeon Window Operator

Window has been opened by the operator and the handle removed

APEXEON LATCHES

Even if the window can be closed without disturbing the screen, insects are bound to be trapped between them. If the screen must then be moved in order to *lock* the window (as is usually the case), these insects are sure to be released *inside*.

Why defeat the one purpose for which screens are installed by allowing this to occur?

Apexeon Inside Latches eliminate this difficulty.

Where one of these is installed, the screen need *never* be touched—except to remove it. And when that becomes necessary it may be done in an instant without effort. This is due to our simple method of attaching the screen to the casement.

Inside Pull-tight Latch

This latch is provided with our single-vent unit. The finger projecting through a slot in the casement picks up the window and *pulls* it so tightly closed that it is proof against wind and weather.

The handle is unobtrusive. In fact, it is distinctly ornamental. It may be had in any finish desired and does away with the usual iron locking handle on the window.

Handleless Through-screen Double Latch

Provided with our double-vent single-screen unit and is unique, simple and effective.

The spindle of this latch projects about half an inch through a small hole in the center of the screen. This spindle is the exact size of that on the Invisible Operator, $\frac{1}{4}$ in. square.

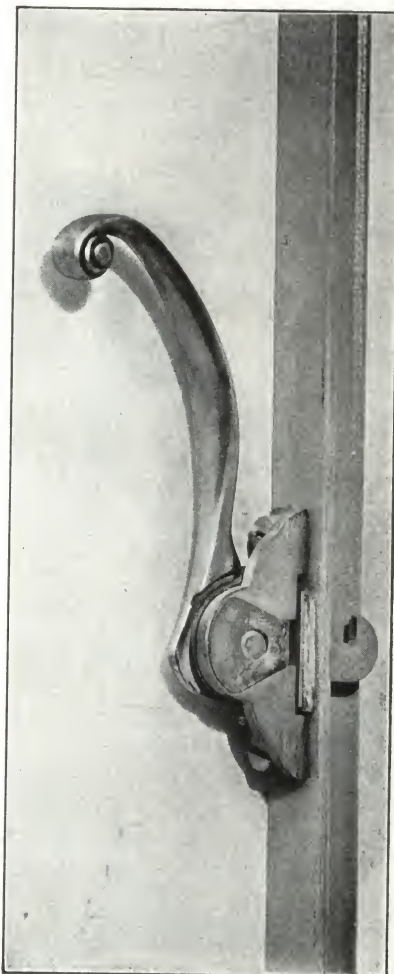
Since *two* operators come with unit (each having its own detachable handle or key), means of turning the latch are always at hand and no permanent handle is required. There is, therefore, nothing to mar the surface of the screen.

An inconspicuous detachable handle may be had if desired but is obviously not needed.

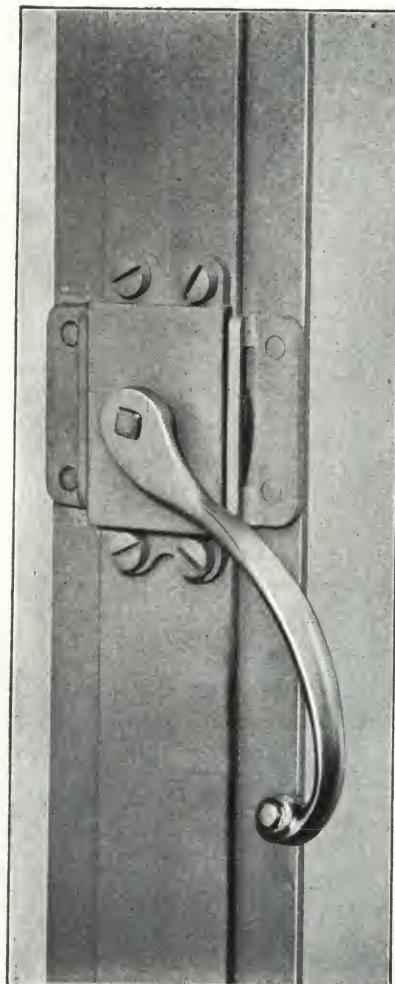
Without the obstruction of a permanent handle the screen may be easily removed: the spindle slips smoothly through the hole. There is absolutely no chance for insects to enter.

The latch itself is compact and strong. It occupies only the width of the casement frame and locks both windows or either one separately.

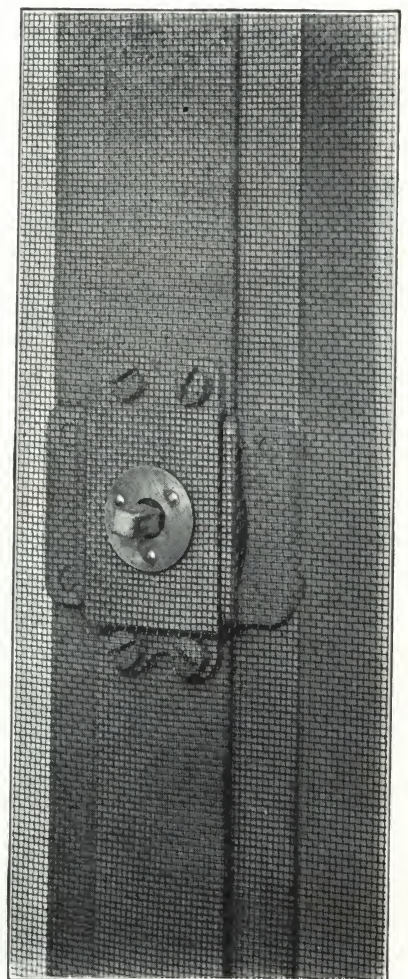
In this case also the customary iron locking handles are omitted.



Apexeon Inside Pull-tight Latch
Release position



Apexeon Double Latch with Detachable Handle
Shown without screen



Apexeon Double with Handle Removed
Shown with screen in place

APEXEON ALL-METAL "LIFETIME" SCREENS

The all-metal "Lifetime" Screens provided as a part of our operator-screen units are produced in our own factory under our own patents and embody distinctive features of great value.

The slender, graceful frames make them acceptable in the most refined surroundings.

Made of *solid* metal, joined at the corners by our own patented method, they defy all abuse short of actual violence.

They are so designed as to yield the necessary strength and rigidity from the least possible amount of material and are, consequently, remarkably *light*.

Because they are so small, they obstruct almost no light and are very *inconspicuous*.

Being solid (and consequently proof against corrosion from within) they will literally "last a lifetime." Screening is high-grade 16-mesh rustless bronze. These screens are attached to the casement in the simplest manner imaginable and are easily and quickly moved.

The spline of pure aluminum which locks the wire-cloth into the frame may be easily removed if rewiring becomes necessary. Instead of having to be pried out of the groove in the frame, the spline may be *pushed* out at the ends through the little hole in each corner of the frame and then drawn out. Bending cannot injure it. The same spline can always be used again. Apexeon

Screens are, therefore, truly and readily rewirable. (See illustration on following page.)

Apexeon Screen No. 1—Solid Steel

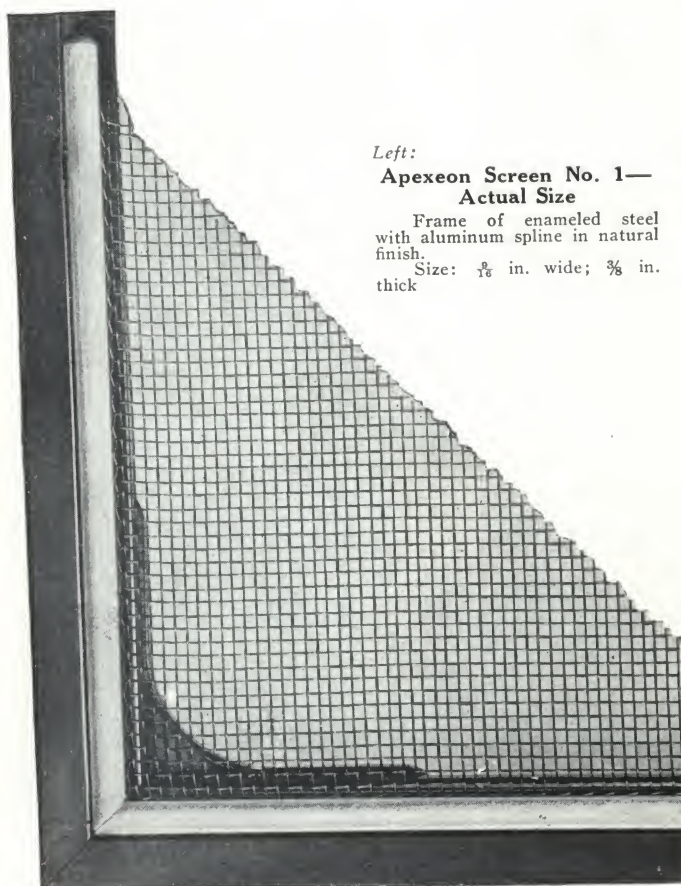
This may be termed our "standard" casement screen because it meets the demand of the majority as to price without any sacrifice of efficiency or beauty.

It is finished in any color desired and, unless otherwise specified, the aluminum spline which locks the wire-cloth in place is left in its natural silvery color—thus imparting a very rich refined effect. Since aluminum does not rust, it retains its new appearance permanently.

Apexeon Screen No. 2—Solid Duralumin

This screen is necessarily somewhat more expensive than steel but has the advantage of being as *strong* as steel and as *light* as aluminum. It is these properties that have resulted in the adoption of duralumin in the construction of aircraft, a fact of no little significance in connection with window screens.

Being non-corrosive, this frame is ordinarily left in the natural color of the metal with a beautiful satin finish. There is an atmosphere of richness about it that is satisfying whether it blends or contrasts with its surroundings. A durable finish can be applied to duralumin if colors are desired, but, because it is so pleasing in appearance, we recommend the natural finish.



Left:

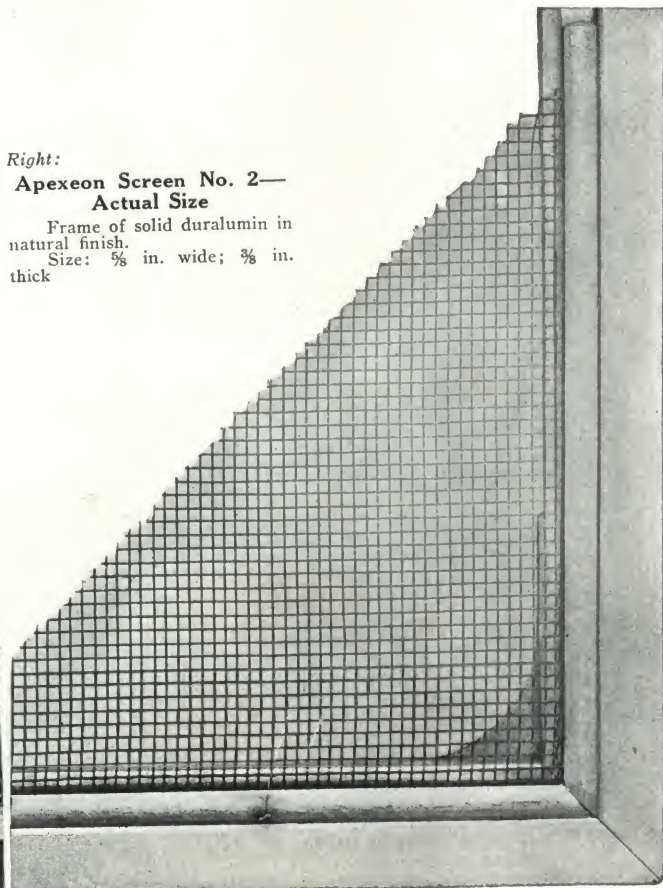
Apexeon Screen No. 1— Actual Size

Frame of enameled steel
with aluminum spline in natural
finish.
Size: $\frac{1}{8}$ in. wide; $\frac{3}{8}$ in.
thick

Right:

Apexeon Screen No. 2— Actual Size

Frame of solid duralumin in
natural finish.
Size: $\frac{5}{8}$ in. wide; $\frac{3}{8}$ in.
thick



Installation of the Apexeon Unit

No preparation is required for the installation of the Apexeon Operator-Screen Unit, except by the casement manufacturer. There is literally nothing for architect or builder to think of or do in this connection.

When the Apexeon Unit is specified it appears on the job as an accessory to the casement which has been prepared at the factory to receive them. It does not touch or depend upon anything else and is supplied by the casement manufacturer.

This means no diagrams or instructions to give or follow. No trying to make various parts fit. Nothing to plan for except the sizes of the openings and what casement is to be used. The rest is taken care of by the casement manufacturer and ourselves.

Cost of Apexeon Unit

In spite of the outstanding advantages it offers, the Apexeon Operator-Screen Unit is so moderately priced that it is available for any thoroughly good job.

How to Specify

In Order to Secure the Apexeon Operator-Screen Unit on Metal Casement Windows—Simply specify: Metal casement windows to be equipped with Apexeon Operator-Screen Unit as manufactured by the HASKELL & HATCH COMPANY of Boston, Mass. Add to this the type of Apexeon screen desired.

Or: Metal casement windows to be equipped with operating device employing screw and traveling nut type of mechanism attached to lower hinge with spindle projecting through a hole in the casement. Latch or locking device applied on inside of casement with finger projecting through casement, engaging keeper on the window and operating through a cam action on handle with spring attachment for holding window screen in position. Both operator and latch to be so adjusted as to obviate the necessity of disturbing the screen at any time.

Flat screen of rewirable type, 16-mesh bronze, with solid metal frame (steel or duralumin) attached to casement by means of brackets on casement on side away from holding spring on latch.

APEXEON "LIFETIME" OUTSIDE FLAT SCREENS

Although the screens already described are appropriate for *all* types of windows, we manufacture, in addition, what may be termed a super-screen which we strongly recommend for outside installation. This flat screen insures permanent satisfaction and freedom from trouble on double-hung or inside opening casement windows. It is especially recommended for the screened-in porch. Consequently a *complete* screening job can be done with Apexeon Screens.

Apexeon Screen No. 3

The frame is *solid* duralumin with genuinely welded corners which are actually stronger than the sides. Since duralumin weighs only one-third as much as steel or bronze, the advantages of solid construction are obtained without sacrificing lightness. These solid frames cannot be injured if accidentally dropped on

corners or edges. There is no thin metal to bend out of shape.

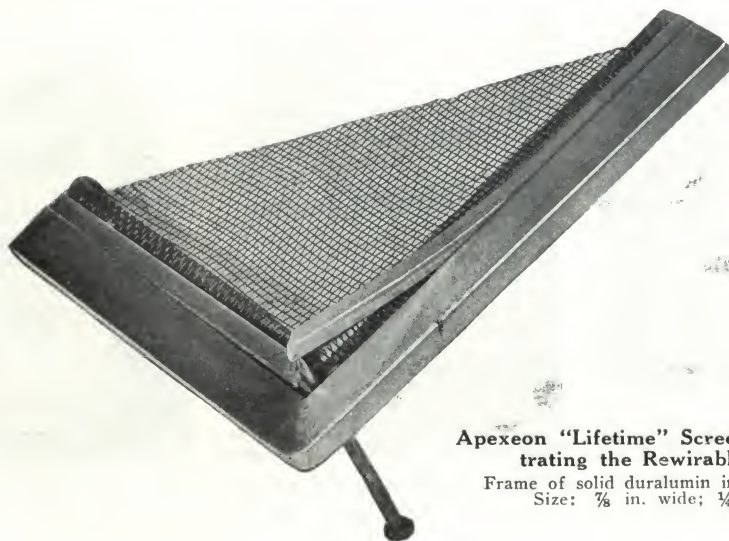
Since the frames of all Apexeon Screens are solid, they are installed in channels on outside positions. Our channels are pure aluminum. No chance of rusting, swelling, shrinking or warping. The screen always slides smoothly.

Since aluminum and duralumin do not rust or corrode, these screens may be left in place all of the time without fear of injury.

This screen is ideal for double sliding installation because it is so thin. The outside width of the double channel is only $\frac{3}{4}$ in.

These screens are not cheap in the ordinary sense but are truly economical and most appropriate for a strictly fine outside installation.

Dimensions: $\frac{7}{8}$ in. wide; $\frac{1}{4}$ in. thick.



Apexeon "Lifetime" Screen No. 3—Illustrating the Rewirable Feature

Frame of solid duralumin in natural finish.
Size: $\frac{7}{8}$ in. wide; $\frac{1}{4}$ in. thick

PARKER-REGAN CORPORATION

HARDWARE DIVISION

Manufacturers of Casement Hardware

593 Market Street
SAN FRANCISCO, CALIF.

FACTORY: OAKLAND, CALIF.

Products

SEMI-REVERSIBLE FIXTURES
FOR CASEMENT SASH.

REVERSIBLE TRANSOM FIXTURES.

CASEMENT CRANK OPERATORS, for reversible casements, transoms, awning type sash.



Semi-Reversible Fixtures for Casement Sash

"Casewin" Semi-Reversible

Casement Fixtures are used where the highest standard of workmanship is required and in the finest of buildings and homes. Made in brass or steel.

Adaptability—Can be adapted to any form of casements, single, double or triple without mullions, being particularly designed for average type and size casements.

Advantages—Casements hung with our "Casewin" Reversible Fixtures operate easily and smoothly and can be easily cleaned from the inside of the room. Heavy sash of recommended sizes are held firmly and very securely without sagging. In operating the sash there is a feeling of firmness and strength.

Casement adjusters and butts are unnecessary.

The sash require no notching at the corners for the reverse position when sash and frames are made as per our detail sheet. It is a simple matter for the carpenter to attach the sash and frame plates as the fixture is of the two-unit type, and the sash and frame plates are attached independently. This feature permits the sash to be removed from the frame at any time by simply taking out the four screws which fasten the sash and frame plates together, instead of all the screws in the tracks as is true of the unit type fixture.

The brass slide shoes of these fixtures are fitted with a special patented latch spring feature for holding the sash in various opened positions firmly and rigidly against wind pressure.

The springs do not serve as a drag or frictional means of holding the sash, as they engage in slots in the tracks and act as a spring latch, or catch, which greatly prolongs the life of the springs and makes them practically everlasting.

Grades

Hardware as manufactured by the Hardware Division of the PARKER-REGAN CORPORATION is known as "Casewin" Quality Hardware for use where the highest standards of workmanship are required for the finest buildings and homes.

"Casewin" Quality Hardware

As the hardware is a vital part of a casement window we take pride in the quality of the "Casewin" line of casement hardware which we offer the building world. In the designing and manufacture of "Casewin" Hardware it has been our aim to supply the trade with casement hardware that will meet the requirements of the most fastidious architects and builders who demand the best obtainable.

"Casewin" Hardware represents the result of years of experience in the designing and manufacture of this class of merchandise, and embodies the highest standards of workmanship and materials.

A casement window equipped with "Casewin" Hardware possesses all the essential features to be desired in the finest of buildings and homes.

"Casewin" Hardware is manufactured by the Hardware Division of the PARKER-REGAN CORPORATION in their Oakland, California, factory. The reputation gained by the PARKER-REGAN CORPORATION in its years of manufacturing and distributing throughout the markets of the world, stands back of every item manufactured in its hardware division.



California Residence Equipped Throughout with "Casewin" Reversible Fixtures



Sash Can Be Reversed to a Convenient Position for Cleaning Both Sides of Glass



Apartment House Equipped with "Casewin" Automatic Casement Adjusters

Fixtures are entirely concealed in the sash when closed.

Sash can be placed in any suitable position to either direct refreshing breezes or deflect disagreeable winds without the loss of proper ventilation.

Will not rattle or slam in the wind.

The track portion of fixtures fit up tightly against the head and sill which eliminates any open space or dust pocket.

Construction—Our fixtures are made of the finest of materials, rolled to our specifications. The tracks, sash plates and arms are of steel and are parkerized which is a nationally used rustproofing process.

All other parts, such as the slide shoes, rivets and pivot washers are of high grade brass and are non-corrosive.

The friction springs are of phosphor spring bronze.

These springs are securely held in the slide

shoes so that there is no possibility of their coming out or working loose.

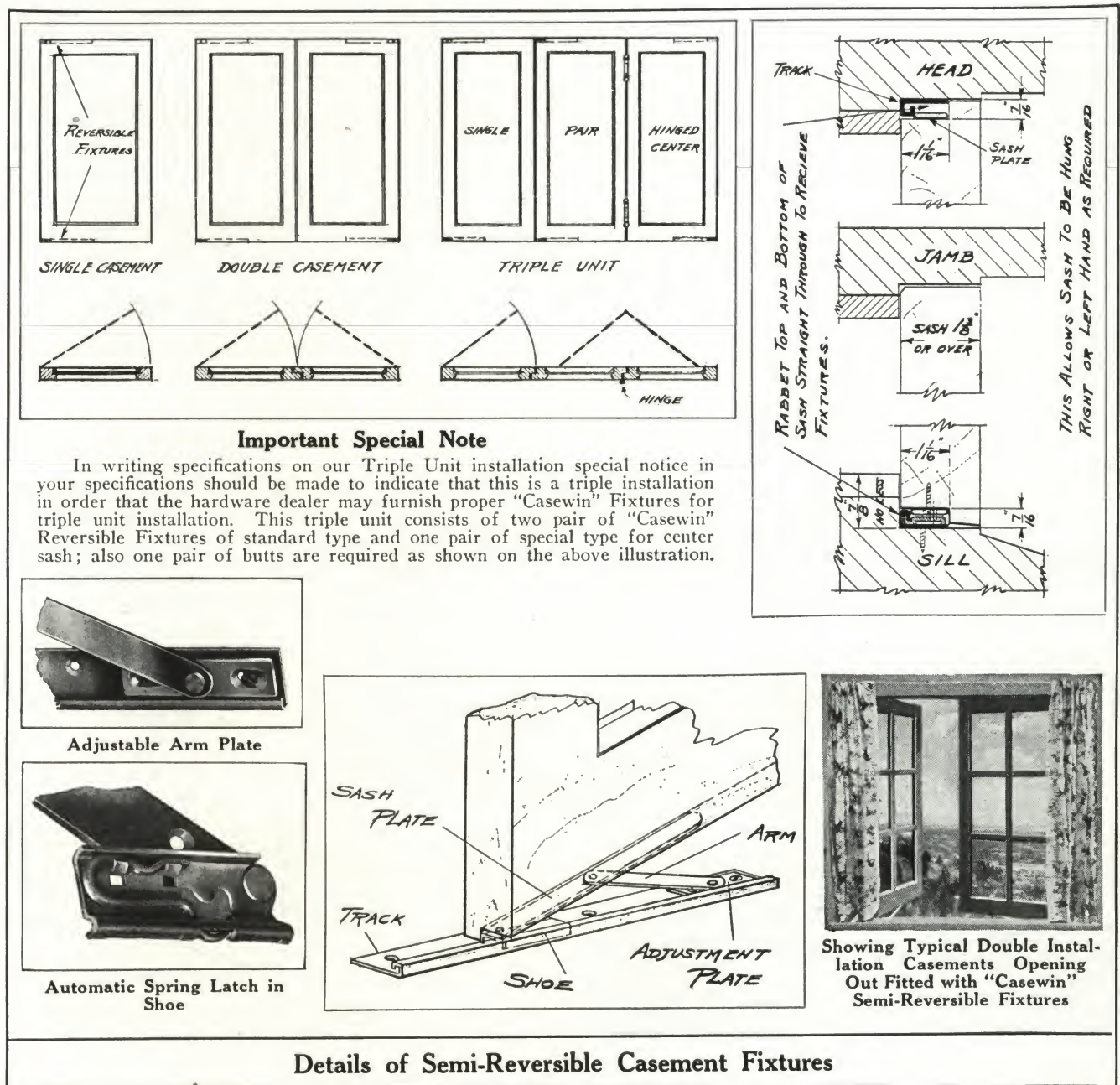
"Casewin" Fixtures are built to withstand all ordinary usage, and when properly installed will give perfect satisfaction for the life of the building.

Screens—All types of inside screens can be used on this type of reversible casement window.

Costs—Considering the quality of "Casewin" Fixtures, plus the labor saving features due to ease of installation, the cost to builders is most attractive.

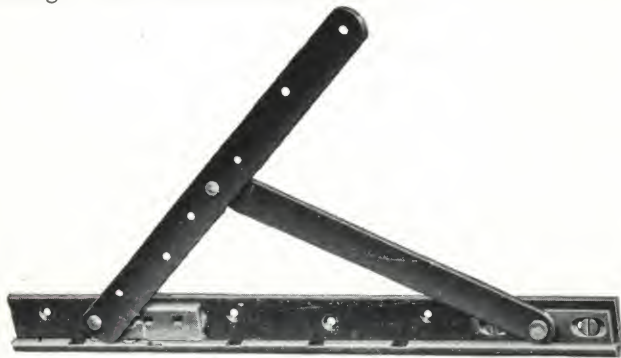
"Casewin" Heavy Construction Spring Latch Type Semi-reversible Fixtures with Adjustable Arm Plate

The "Casewin" Spring Latch Type Fixture is recommended for sash sizes from 11½ to 30 inches wide and up to 5 feet 6 inches high.



Adjustable Arm Plate

The adjustable arm feature assures ease and proper fitting of sash in the installation.



Heavy Construction Spring Latch Type

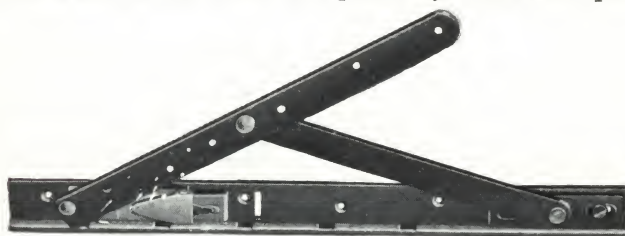
Shown as it appears unattached to the sash. Note sturdy construction and compact design

SPECIFICATIONS—"CASEWIN" SEMI-REVERSIBLE CASEMENT FIXTURES

Stock No.	Length of fixtures, in.	Recommended sash sizes for 1 3/8 or 1 3/4-in. thickness	Materials	Standard stock finishes	List prices per pair or one set
103	11 3/8	Widths from 11 1/2 to 24 in. Heights up to 5 ft. 6 in.	Shoe and rivets brass Other parts steel	Brass parts natural Steel parts parkerized	\$2.15
104	13 3/4	Widths from 14 to 30 in. Heights up to 5 ft. 6 in.	Shoe and rivets brass Other parts steel	Brass parts natural Steel parts parkerized	2.30
113	11 3/8	Widths from 11 1/2 to 24 in. Heights up to 5 ft. 6 in.	All parts solid brass	Natural dull brass	3.65
114	13 3/4	Widths from 14 to 30 in. Heights up to 5 ft. 6 in.	All parts solid brass	Natural dull brass	4.00

"Casewin" Reversible Transom Fixtures

For transoms opening in or out. Attention is called to the rigid construction of our special spring stop attachment, which is securely riveted to the shoe. This special stop-device has a two-fold purpose. As the transom is opened, this automatic spring stop drops into a slot in the track and positively limits the open-



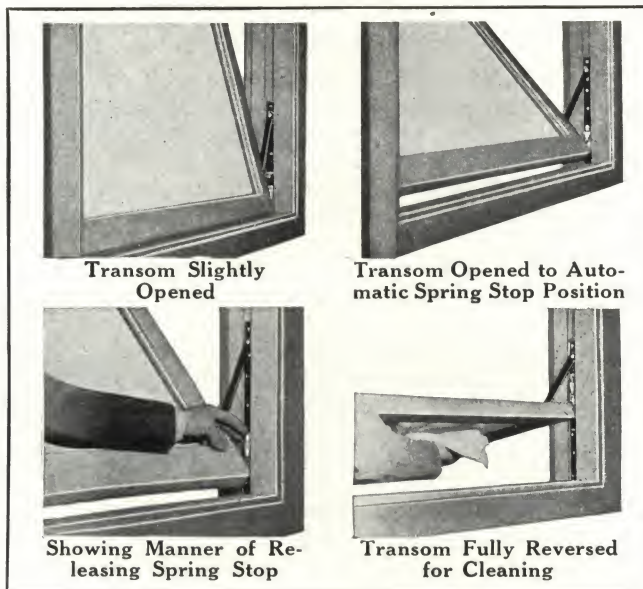
"Casewin" Reversible Transom Fixture

Heavy construction spring stop type with adjustable arm plate



Los Angeles County Hospital, Los Angeles, Cal.

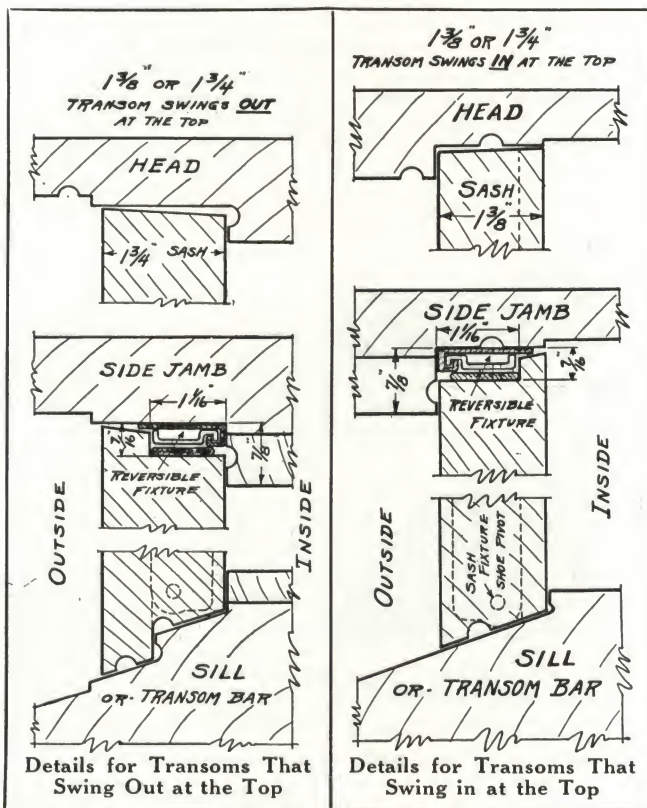
"Casewin" transom fixtures used throughout this building on all transoms



ing of the transom without the use of chains. By releasing the spring stop, the transom can be easily reversed for cleaning.

SPECIFICATIONS—"CASEWIN" REVERSIBLE TRANSOM FIXTURES

Stock No.	Length of fixtures, in.	Recommended transom sizes for 1 3/8 or 1 3/4-in. sash	Materials	Standard stock finishes	List prices per pair or one set
123	11 3/8	Widths—18 to 60 in. Heights—11 1/2 to 24 in.	Shoes and rivets of brass Other parts steel	Brass parts natural Steel parts parkerized	\$2.50
124	13 3/4	Widths—18 to 72 in. Heights—14 to 36 in.	Shoes and rivets of brass Other parts steel	Brass parts natural Steel parts parkerized	2.65
133	11 3/8	Widths—18 to 60 in. Heights—11 1/2 to 24 in.	All parts solid brass	Natural dull brass	4.25
134	13 3/4	Widths—18 to 72 in. Heights—14 to 36 in.	All parts solid brass	Natural dull brass	4.55



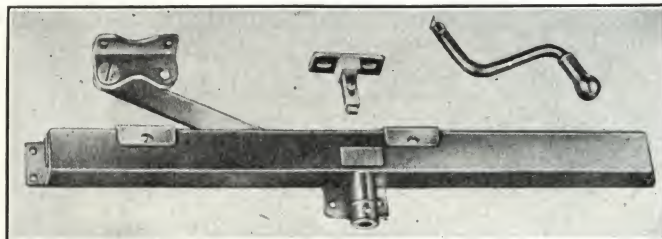
"Casewin" Casement Crank Operators

Made for *crank, pulley, or chain and sprocket* control, embodying rack and pinion type movement. Designed for use in combination with reversible type fixtures and not hinges or butts. Adaptable to all sizes of outswinging sash. Where insect screens are placed on inside of window sash may be

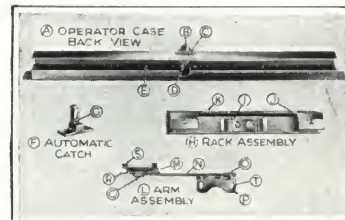
operated without disturbing screen. A particular feature is that sash is automatically locked in any open or closed position. Cranks may be fixed or detachable, by use of setscrew on operator crank hub. One size operator accommodates all sizes of sash and is reversible for right or left-hand operation.



Reversible Casement partly open, screen removed, showing automatic catch on sash



Crank type with rack and pinion control
"Casewin" Casement Operators



Disassembled Operator with crank detached

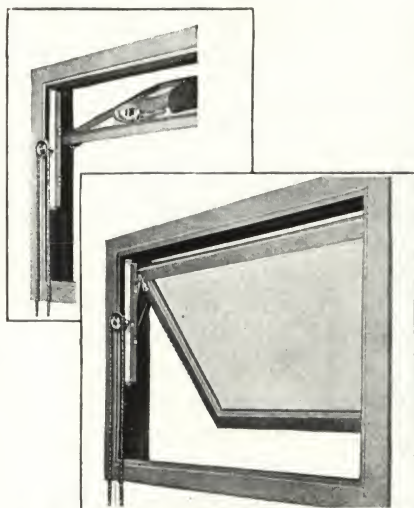
SPECIFICATIONS "CASEWIN" CASEMENT CRANK OPERATORS

Stock No.	Length over all, in.	Width, in.	Height, in.	Materials	Stock finishes	List price, each
700	17½	1¾	1½	Steel with brass slides, etc.	Parkerized	\$6.50
701	17½	1¾	1½	Steel with brass slides, etc.	Cadmium and brass plated	6.85
702	17½	1¾	1½	All-brass	Dull brass	8.80

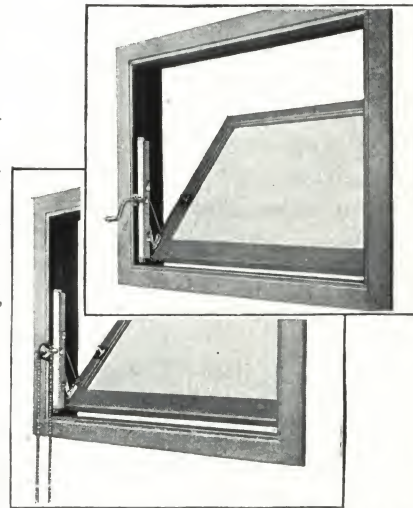
Cranks—Sprockets—Chain

Crank No.	Dimensions, in.		Material	Stock finishes	Recommendations	List price, each
	A	B				
Cranks No. 720	2¾	11½	Steel	Parkerized	Without knob	\$0.50
Cranks No. 730	2¾	11½	Steel	Cadmium and brass plated	Without knob	.60
Cranks No. 740	2¾	11½	Brass	Dull brass	With knob	1.00
Sprocket No. 750			Brass	Dull brass	With 2¼-in. shaft	Prices and details on application
Chain No. 760			Heavy brass	Dull brass	Specify number feet wanted	Prices and details on application

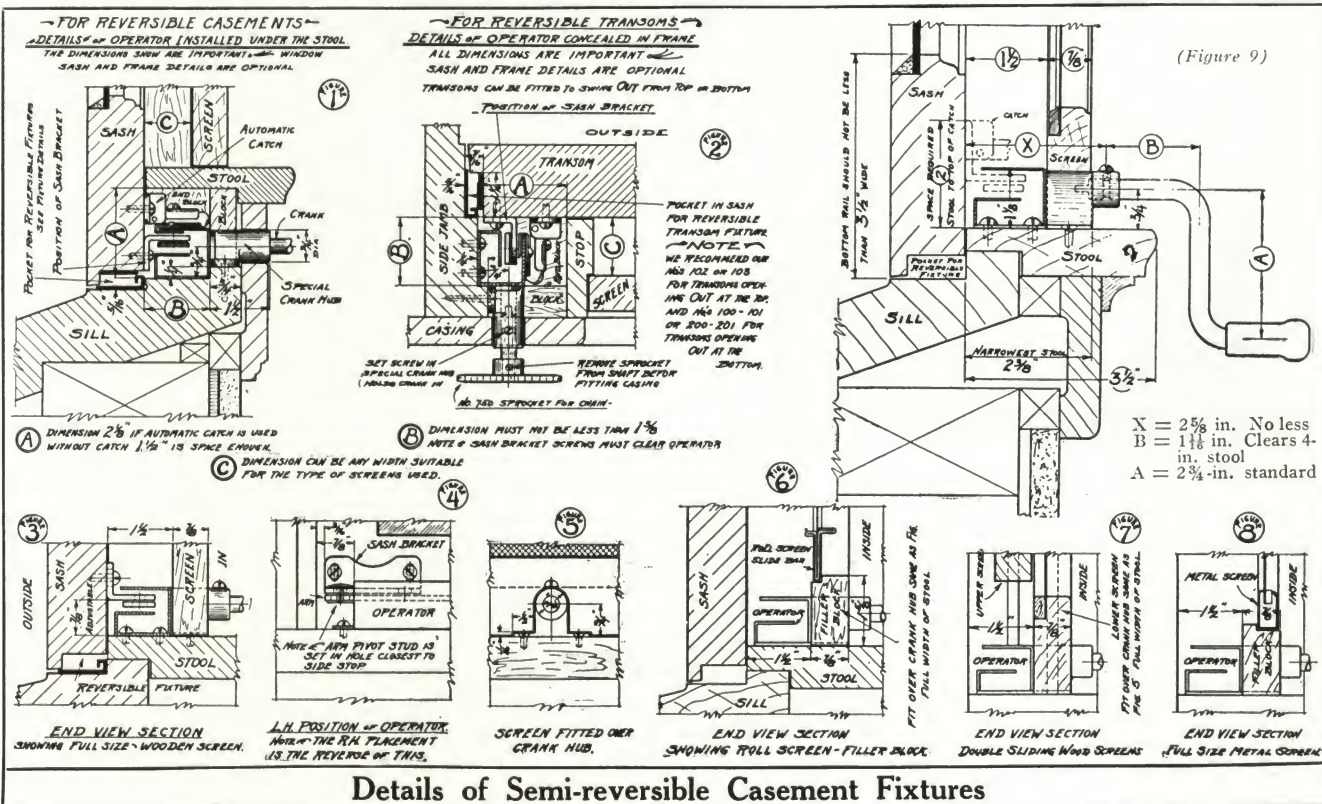
NOTE: Dimension (B) 11½ in. is standard, clears 4 in. stool. Wider stools require special lengths.



Reversible Transom Opening Out at Bottom
Showing position of operator with chain and sprocket method of regulating opening



Reversible Transom Opening Out at the Top
Upper cut shows crank control and lower cut chain and sprocket method



G. F. S. ZIMMERMAN CO., INC.

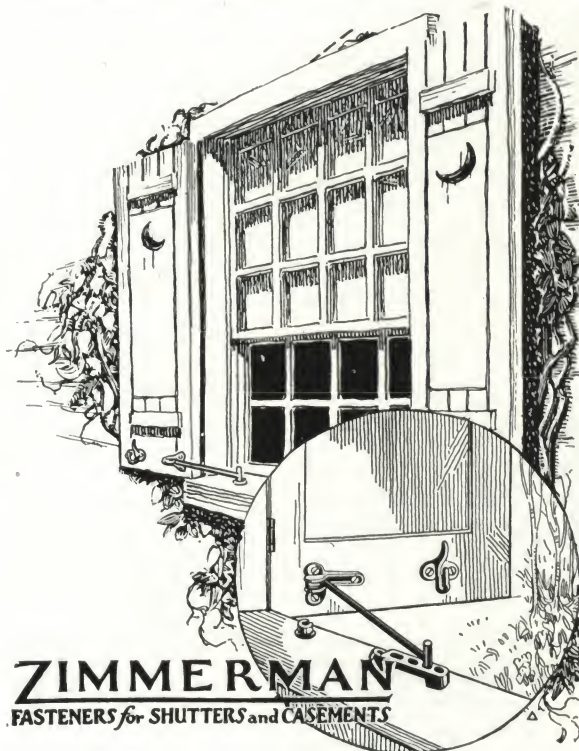
Manufacturers of Fasteners for Shutters and Casements

FREDERICK, MARYLAND

ZIMMERMAN FASTENERS MAKE SHUTTERS USEFUL AS WELL AS ORNAMENTAL

Zimmerman Fasteners make shutters conveniently useful by locking them positively, without rattle, in the closed position as well as wide open, back against the wall, and in various intermediate positions. And they can be changed from one position to another quickly and conveniently.

With the head of the adjusting bar in the single hole sill cup, the shutter is held back against the wall with no possible rattle. The holes of the sill plate permit holding the shutter in various bowed positions. Placing the adjusting bar through the C-loop on the shutter with the head of



the bar in one of the holes in the sill plate locks the shutter closed so that it can not be opened from without.

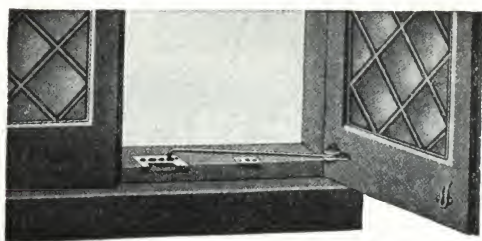
Made of iron and steel, they do their work efficiently for the lifetime of the house.

Furnished either galvanized or in black enamel. They are often painted to match the shutters.

Simple in construction and operation.

Inexpensive, strong and efficient.

Zimmerman Fasteners are often used as casement operators. Sill fixtures to mortise flush into the sill are supplied specially for this purpose when specified.

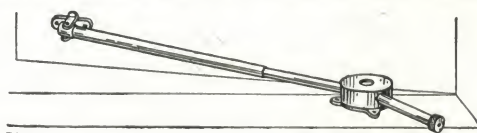


RETAIL PRICE LIST, ZIMMERMAN FASTENERS, PER DOZEN PAIRS

Width of shutter, in.	Size of bar length required, in.	Shutter fasteners	
		Black	Galvanized
12 or less	7	\$ 9.00	\$12.00
13	9	10.00	13.00
14 or 15	10 3/4	11.00	14.00
16 or 17	12	12.00	15.00
18 or 19	14	13.00	16.00
20 or 21	16	14.00	17.00
22 or 23	18	16.00	20.00
24 or 25	20	17.00	21.00
26 or 27	22	19.00	23.00
28 or 30	24	20.00	24.00

ZIMMERMAN IMPROVED CASEMENT ADJUSTORS

Zimmerman Improved Casement Adjustors, made of strong brass tubing and brass castings, operate on the sill, through inside screens where desired. A slight

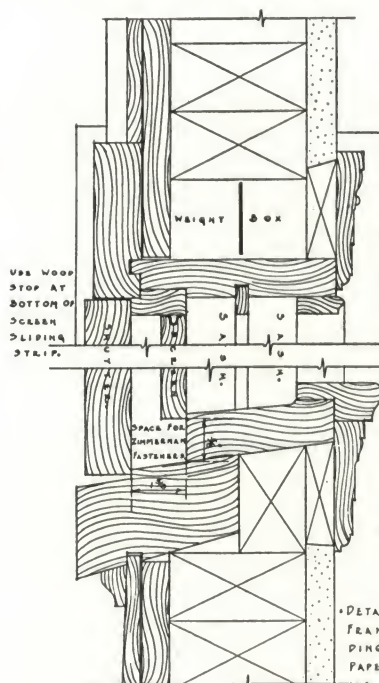


Zimmerman Improved Casement Adjustor
Retail price, \$2.00 each. Solid brass

turn of the locking nut on the end of the handle releases or engages the friction cap and permits movement of the window by swinging the handle.

JAMB - SECTION -

①



USE ZIMMERMAN FASTENERS TO CON-
TAIN OUTSIDE SHUTTERS
MADE BY
THE G. F. S. ZIMMERMAN CO.,
FREDERICK, MD.

FASTENERS REQUIRED
FOR VARIOUS SHUTTERS.

SHUTTERS. FASTENERS.

12" WIDE	T. LONG.
15" -	8" -
14" OR 15" WIDE	10" -
16" OR 17" -	12" -
18" OR 19" -	14" -
20" OR 21" -	16" -
22" OR 23" -	18" -
24" OR 25" -	20" -
26" OR 27" -	22" -
28" OR 29" -	24" -

SPACE REQUIRED
FOR FASTENERS.

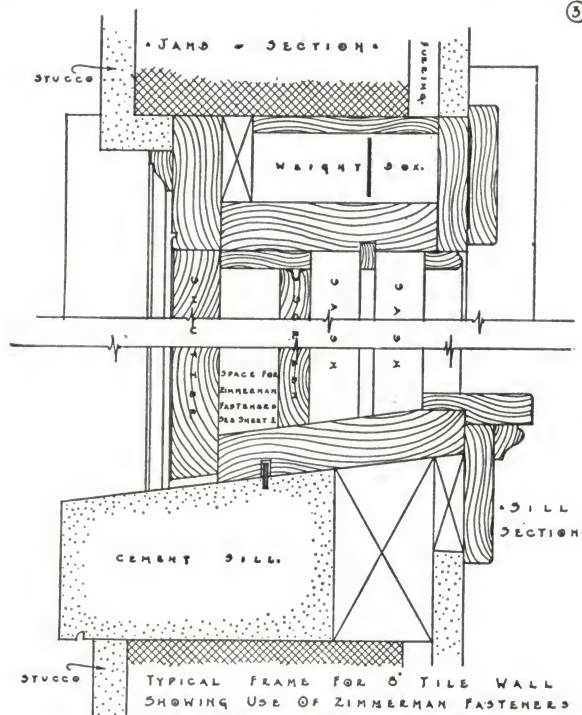
7 TO 14" INCLUSIVE	- 1 3/4" - 1 3/4"
16" AND 18"	- 1 3/4" - 1 3/4"
20" TO 24" INCLUSIVE	- 2 1/4" - 2 1/4"

DETAIL OF DOUBLE BOX
FRAME FOR 2'-4" STUP-
PING, WITH SHEATHING,
PAPER & WEATHER BOARD-
ING OUTSIDE; PLASTER
INSIDE, SHOWING SCREEN
& BLINDS OUTSIDE OF SASH.

SILL - SECTION -

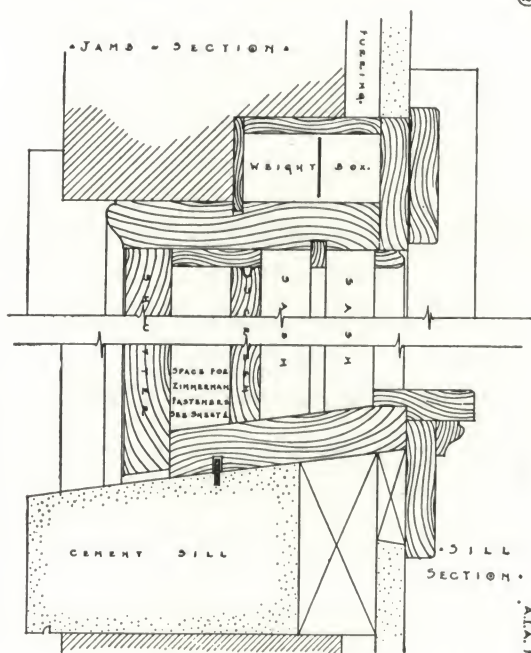
JAMB - SECTION -

③



TYPICAL FRAME FOR 8" TILE WALL
SHOWING USE OF ZIMMERMAN FASTENERS
WITH SCREEN OUTSIDE OF SASH. MADE
BY THE G. F. S. ZIMMERMAN CO., FREDERICK, MD.

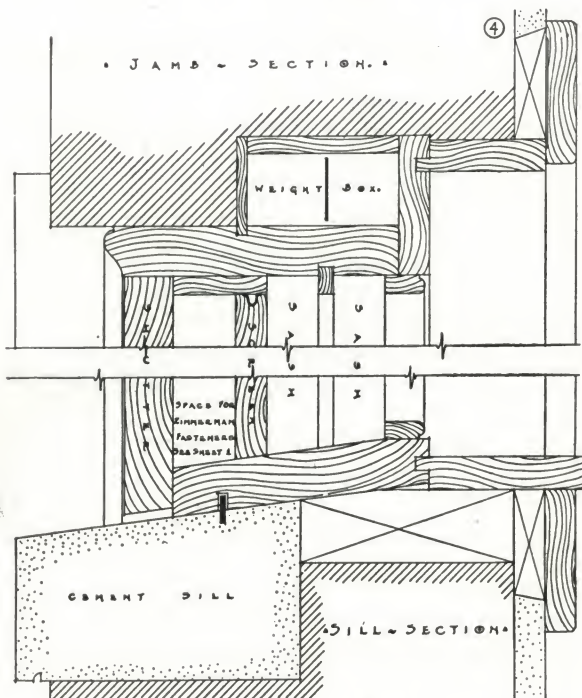
②



TYPICAL FRAME FOR 8" BRICK WALL
SHOWING USE OF ZIMMERMAN FASTENERS
WITH SCREEN OUTSIDE OF SASH. MADE
BY THE G. F. S. ZIMMERMAN CO., FREDERICK, MD.

A.T.A. FILE NO. 2122

④



TYPICAL FRAME FOR 15" BRICK WALL
SHOWING USE OF ZIMMERMAN FASTENERS
WITH SCREEN OUTSIDE OF SASH. MADE
BY THE G. F. S. ZIMMERMAN CO., FREDERICK, MD.

Drawings of the above, drawn one-half actual size, printed on 8 1/2 x 11-in. sheets of onion skin paper, that can be used as tracings, will be sent free upon request.

Zimmerman Shutter Fasteners, by a special detail, can be used with full length outside screen or storm sash. Full-size detail will be sent upon request.

DETAILS OF ZIMMERMAN FASTENERS

UNITED SPECIALTIES MFG. CO. LTD.

Manufacturers of Casement Window Hardware

RICHMOND HILL, NEW YORK, N. Y.

Products

For the past 24 years this Company has devoted its entire efforts to the manufacture of fine casement window adjusters. The result of this specialization has been the production of a most complete line of casement, door and transom adjusters and includes the following items:

CASEHOLD ADJUSTERS in many types and sizes; CONCEALED TRANSOM ADJUSTERS; CONCEALED WINDOW or DOOR ADJUSTERS; CONCEALED and SURFACE TYPE DOORHOLDERS; DOUBLE ACTING ADJUSTERS for Lavatory Windows; CASEMENT STAYS; CASEMENT FASTENERS; CASEMENT BOLTS; SHUTTER TURNBUCKLES, etc.

Quality

United adjusters are known from coast to coast for their superior performance and high quality workmanship and finish.

Specially Constructed Fittings

We solicit details of conditions which require special construction of our products.

Specifications

In specifying designate article by name and size. All hardware dealers have our complete catalogue, prices and data pertaining to all fittings listed. Special finishes to match other hardware can be promptly furnished.

CASEHOLD ADJUSTERS SIX SIZES

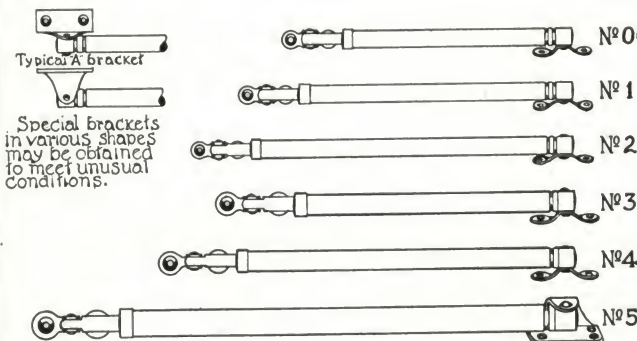
PATENTED

TYPE "C"

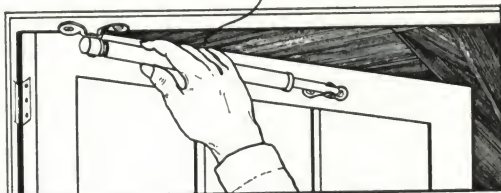
FOR ARCHED DOORS AND TRANSOMS

With six different sized adjusters to choose from proper attention may be given both to appearance and strength.

Each size is adjustable—therefore any opening from the smallest Casement to the Traffic Door or French Window may be properly filled and the resistance accurately set.



Rotation of the barrel provides easy regulation of the degree of resistance yet it cannot be entirely loosened or made too stiff to operate efficiently.

EASY ADJUSTMENT

MAY BE INSTALLED EITHER AT TOP OR BOTTOM.

CONSTRUCTION

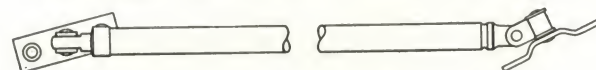
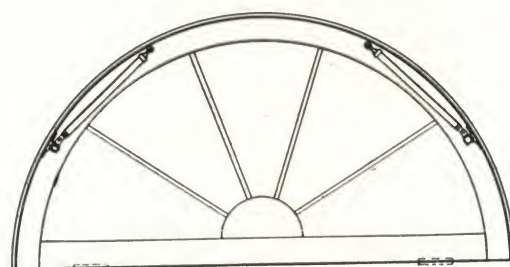
Tube, rod, and brackets are made of solid brass. The friction element is similar in general principle to an expansion bolt with a steel spring interposed to add flexibility and take up possible wear. The friction shoes upon which the action and life of the adjuster depend are of die-cast babbit metal and in operation are forced into contact with the inner wall of the tube. This design not only permits a fine degree of adjustment but provides the greatest possible friction area.

Self Lubricating
No oil or grease is used; therefore the resistance does not vary in extremes of temperature.

SIZES	LENGTH INCHES CLOSED	LENGTH INCHES EXTENDED	DIAMETER	SIZE OF WINDOW
0	8½	12½	½	12×30
1	9½	15½	½	15×36
2	11	18	½	20×48
3	10	15½	¾	20×72
4	12	19½	¾	30×60
5	15½	26	¾	42×84

Fool Proof

The adjustment feature will not permit entire loss of friction or a tension too tight for easy operation.

**MADE IN ALL SIZES**

Universal joints at both pivot centres enables the Casehold Adjuster to be used on curved headed doors or windows. It is also suitable for semi-circular or arched transoms.

TYPE "D"

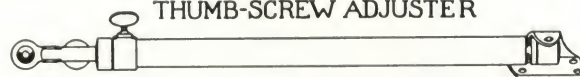
FOR DOOR OR CUPBOARD STOPS

This fitting is similar in appearance to the standard Casehold Adjuster; in place of friction, however, it is free-sliding. A coil spring is provided to act as a shock absorber when the full limit of opening is reached.

It is suitable for any hinged opening where it is desirable to prevent the travel past a pre-determined point. Made in all sizes.

TYPE "E"

THUMB-SCREW ADJUSTER



As illustrated this is a telescopic thumb-screw type adjuster it has no friction but is equipped with a cushion spring as in Type D.

It is used to limit the opening, or to hold the door or window rigid in any position.

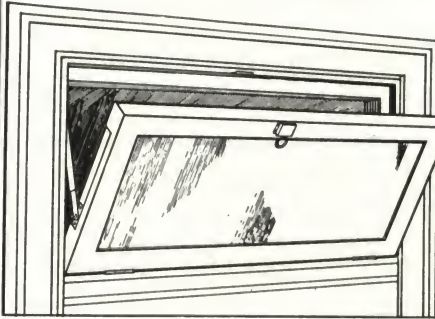
UNITED SPECIALTIES
MANUFACTURING CO. LTD.
RICHMOND HILL NYC

DETAILS SHOWING APPLICATION &
OPERATION OF UNITED ADJUSTERS

MAKERS OF CASEMENT
WINDOW HARDWARE
SINCE 1910

CONCEALED TRANSOM ADJUSTER

PATENTED



ADVANTAGES.
Governed control
the transom will
not "drop open"—
an even pressure
is required to
move it.

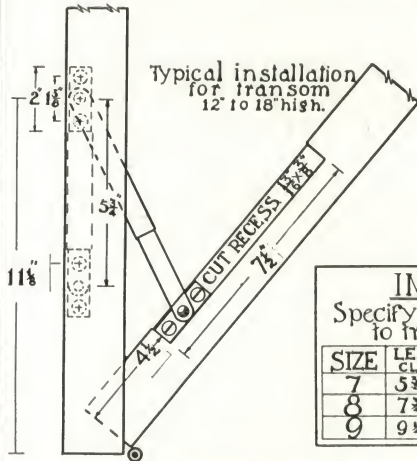
Safety limit
the opening is lim-
ited to about 40°.

Adjustable—
the friction can
be regulated to
exactly counter-
balance the drop-
ping weight of
the transom.

Inconspicuous
the entire fitting
is concealed.

Three sizes—
the largest or
smallest transom
may be thus
controlled.

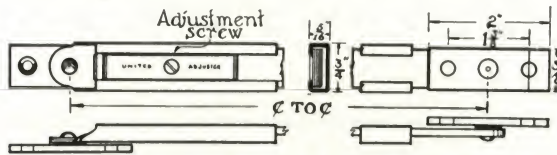
For steel transoms
this adjuster
has been adop-
ted as standard
equipment.



IMPORTANT

Specify size according
to transom height.

SIZE	LENGTH CLOSED	LENGTH EXTENDED	TRANSOM HEIGHT
7	5 3/8"	7 1/2"	12 to 18"
8	7 3/8"	11"	18" to 24"
9	9 1/4"	14"	24" to 36"



CONCEALED TRANSOM ADJUSTER

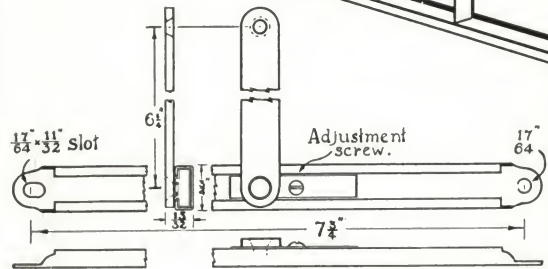
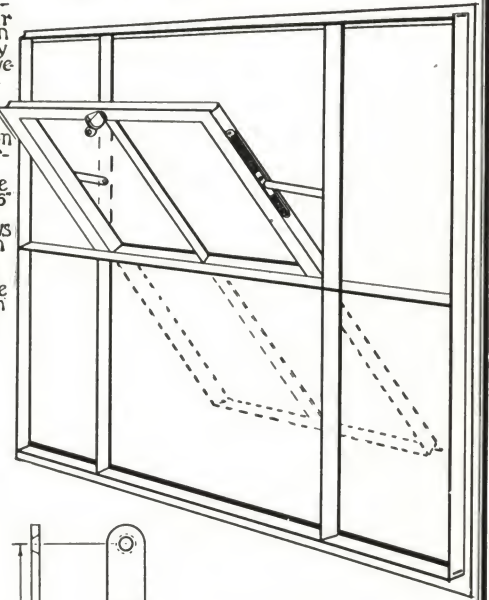
PATENTED

TYPE "M"

The Type M ad-
juster is similar
in construction
and differs only
in the pivotal move-
ment of the arm.

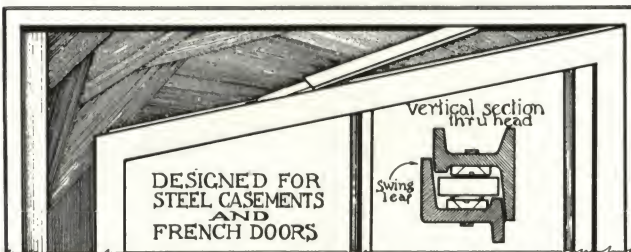
It is especially
designed for
steel construction
where the clear-
ance between
sash and frame
is less than 3/16"

The drawing shows
installation on
centre-pivoted
steel sash—it is
equally effective
on top or bottom
hung transoms.



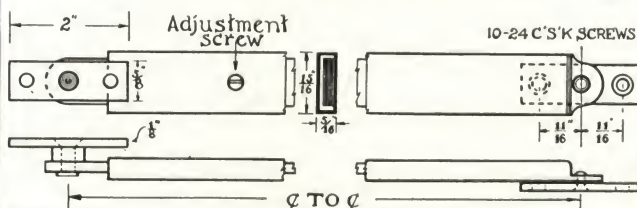
CONCEALED CASEMENT ADJUSTER

PATENTED

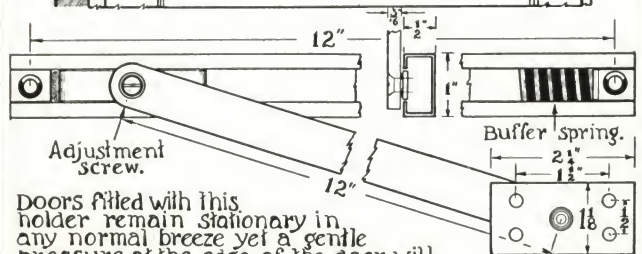
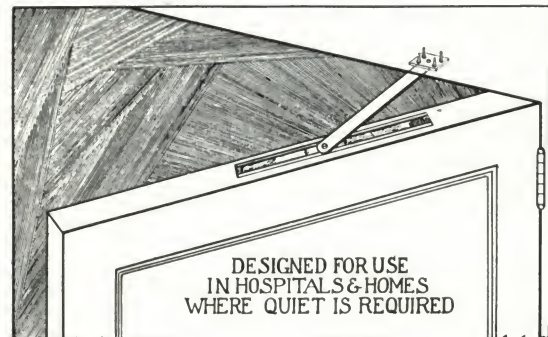


MADE IN TWO SIZES

No K12—9 7/8" CLOSED. 16" EXTENDED FOR CASEMENTS 18" to 30" WIDE
No K13 12" " 20" " " FRENCH DOORS



CONCEALED DOOR-HOLDER



Doors fitted with this
holder remain stationary in
any normal breeze yet a gentle
pressure at the edge of the door will
move it—noiselessly.
This holder may be adjusted to any desired degree
of resistance; it imparts but little strain to the
hinges and at the limit of opening a cushion
spring is provided to prevent any possible jar or noise
Made in solid brass or bronze only.

UNITED SPECIALTIES
MANUFACTURING CO. LTD.
RICHMOND HILL NYC

DETAILS SHOWING APPLICATION &
OPERATION OF UNITED ADJUSTERS

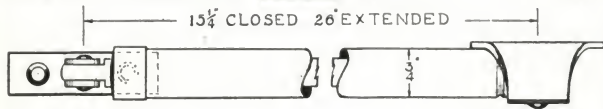
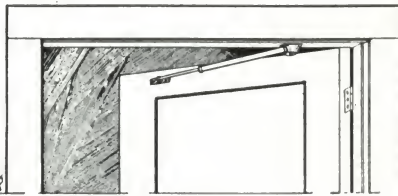
MAKERS OF CASEMENT
WINDOW HARDWARE
SINCE 1910

TUBULAR DOOR HOLDER

PATENTED
TELESCOPIC FRICTION TYPE

FEATURES

Surface application.
Fine adjustment.
Self lubricating.
Inconspicuous.
Used inside or outside.
Shock absorbing spring.



The Tubular Door-holder is recommended for use on Traffic Doors where it is not practical to use the Concealed Doorholder.

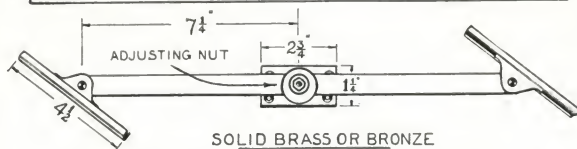
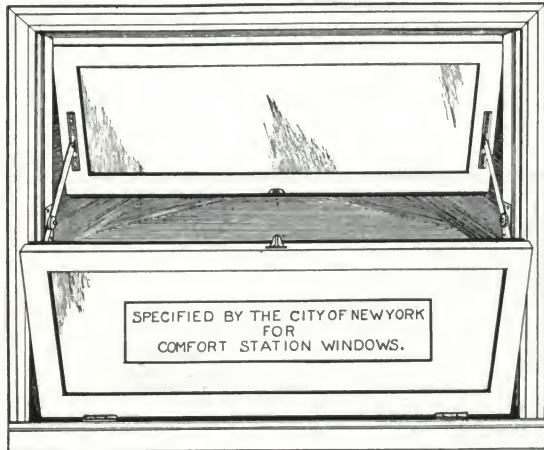
As shown it is screwed or bolted to both door and frame and, where required, back plates are furnished with the bolts.

This holder may also be applied on the reverse side of the door; in this case T.D.H. Type A should be specified.

Adjustment is obtained by rotation of the barrel.

UNITED BALANCED ADJUSTER

PATENTED
FOR LAVATORY AND LIGHT SHAFT WINDOWS



The United Balanced Adjuster is designed to control pairs of sash that are top and bottom hinged as shown on the drawing.

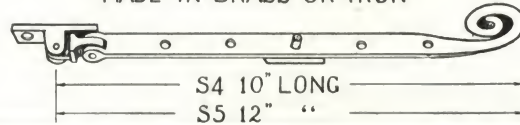
Such windows not only provide full ventilation; they also ensure privacy as direct vision through the opening is prevented.

The Balanced Adjuster has an adjustable friction pivot to hold the sash from idle movement yet they may be opened or closed without effort.

Full limit of opening is 30 degrees.

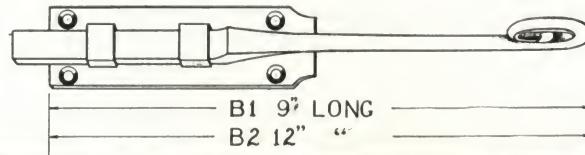
UNITED CASEMENT STAY

MADE IN BRASS OR IRON

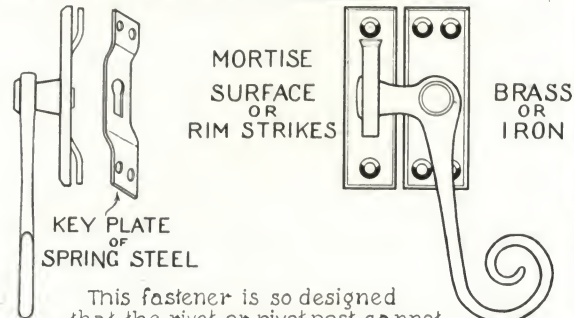


CASEMENT WINDOW BOLTS

MADE IN BRASS ONLY



CASEMENT FASTENERS TYPE F1



This fastener is so designed that the rivet or pivot post cannot become loose. The key plate shown above is compressed as the four screws which secure the fastener to the sash are tightened; thus constant friction is maintained between the rivet head and handle. It is also reversible for either right or left hand.

UNITED SHUTTER TURNBUCKLE

SPRING & DESIGN PATENTED

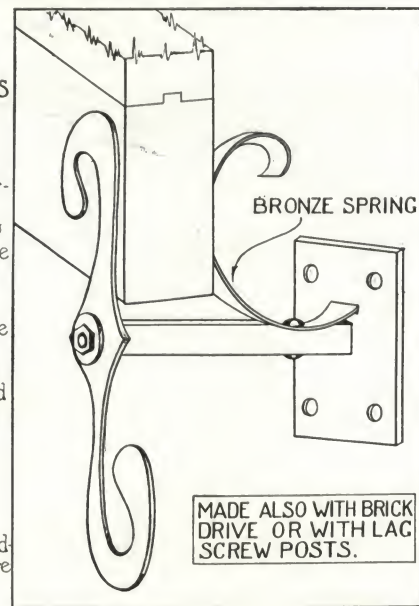
AN IMPROVED TURNBUCKLE WITH NEW AND EXCLUSIVE FEATURES

The United Shutter Turnbuckle is characterized by the bronze back-spring which is an exclusive and fully patented feature.

This spring is made of flat phosphor spring bronze and is designed to hold the shutter firmly against the turnbuckle to prevent rattle.

Finish
Art black - all iron parts are Cadmium plated before finishing coat is applied.

Made also in solid brass or bronze.



UNITED SPECIALTIES
MANUFACTURING CO. LTD.
RICHMOND HILL NYC

DETAILS SHOWING APPLICATION &
OPERATION OF UNITED ADJUSTERS

MAKERS OF CASEMENT
WINDOW HARDWARE
SINCE 1910

E. T. RYAN IRON WORKS INC.

Manufacturers of Concealed Transom Operators and Automatic Door Releases

TELEPHONE
STADIUM 3418

9-35 Braintree Street
(ALLSTON STATION), BOSTON MASS.

Products

RYAN AUTOMATIC DOOR RELEASE for Fire Doors of schools, hospitals and public buildings.

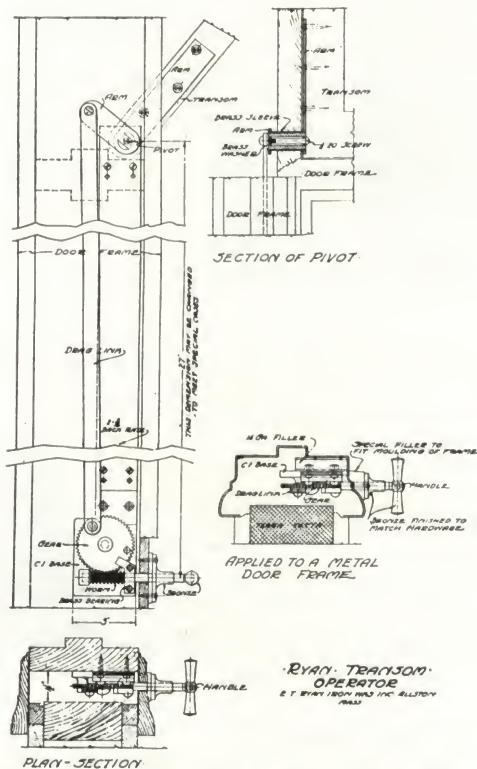
RYAN CONCEALED TRANSMOM OPERATOR for installation in Steel or Wood Door Casings.

Also Ornamental Iron and Bronze; Wrought Iron Specialties.



Ryan Concealed Transom Operator (Patent Pending)

The Ryan Concealed Transom Operator may be installed in wood or steel door casings, to operate



Detail of Ryan Concealed Transom Operator

transoms of any size, either top, bottom or center pivoted.

Details—The only visible parts are the bronze handle and escutcheons. The handle operates and automatically locks the transom at any desired opening up to 45 degrees and is guaranteed to open and close the heaviest transom at the slightest turn of the handle.

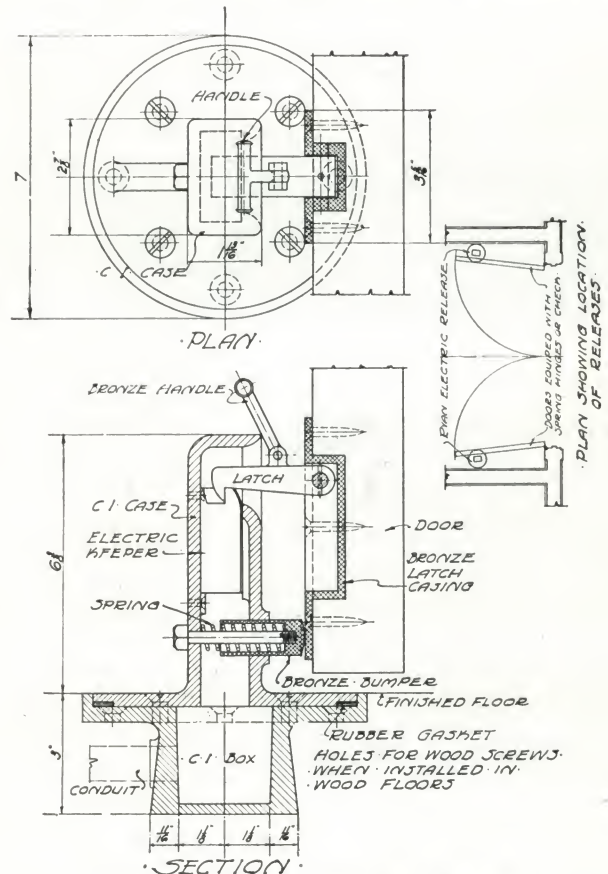
Construction—Built of cold rolled steel; bronze base plates and bushings; gear and worm are machine cut. Cold rolled steel parts are in gray duco finish.

Twenty-year Guarantee—We guarantee to assume any expense involved, due to any fault of the Ryan Concealed Transom Operator, over a period of twenty years. In extraordinary conditions, where our standard transom operator cannot be used we will alter the operator to meet conditions.

Net Price—\$7.00.

Ryan Automatic Door Release (Patent Pending)

The Ryan Automatic Door Release may be installed on doors opening at either 180 or 90 degrees. It was primarily designed for use on fire doors of schools, hospitals and public buildings and will automatically close all fire doors throughout the building when the fire alarm is rung, or when a sprinkler head goes off. It will allow the



Detail of Ryan Automatic Door Release

fire doors to be left open if so desired for ventilating, or any other purpose.

Details—The device allows the door to function as an ordinary swinging door, or it may be held open by engaging the latch with the keeper, and may be closed again by hand by disengaging the latch. If the fire alarm rings, all doors that may, at that time, be in open position will automatically be released and closed by either spring hinges or door checks.

Construction Features—The Ryan Automatic Door Release is built absolutely foolproof and watertight. The special bronze bumper will eliminate slamming and noise. The installation is simple and inexpensive.

Approval—The device has the approval and indorsement of school boards and has already been installed in public schools.

Net Price—\$25.00.

GLYNN-JOHNSON CORPORATION

Manufacturers of Door Holding Equipment

LAPORTE, INDIANA

ARISTOCRAT OVERHEAD DOOR HOLDER AND SHOCK ABSORBER

The Aristocrat Overhead Door Holder and Shock Absorber is an attractive, neat and unobtrusive device specially designed for entrance vestibule and exit doors.

In addition to its mechanical precision, it has an exclusive hold open feature. Doors can be held open at any angle up

to 125°. Also prevents doors from swinging beyond a given point.

An encased shock absorber of recoil action absorbs the slam, eliminating stress and strain on the door or loosening of butt plates.

This device will also work with overhead door checks or closers.

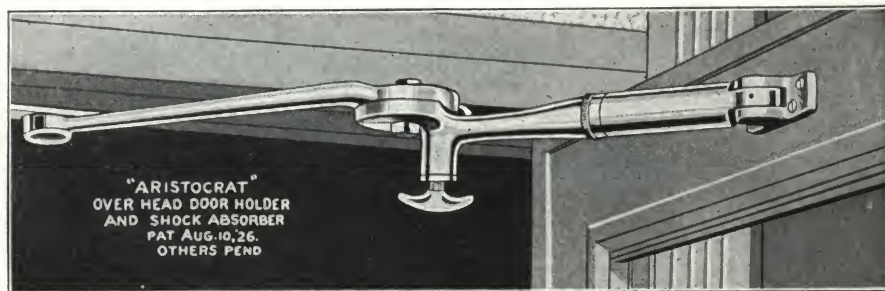
Holders can be furnished without hold open adjustment if desired.

Cast bronze bearings and fittings with rustproof, triple-plated, malleable arms. Polished or brushed—bronze or brass. Special finishes on request. Also manufactured of cast phosphor bronze.

Type 01, for narrow doors up to 28 in. wide.

Type 02, for doors from 30 to 36 in. wide.

Type 03, for doors over 36 in. wide.



HERCULES DOOR HOLDER



Any door will stay where you want it when you use the Hercules. No springs or mechanisms to get out of order. Self-adjusting, troubleproof and silent in operation. Easily operated by raising or lowering tip of holder with foot. Threaded-in rubber tip acts as a non-skid shoe which grips floor surface. Will not cut ring in floor or mar floor coverings. Tips can be replaced without removing holder from door.

Made of cast bronze or brass, polished or satin finish; in three sizes.

Type No. 3, for light inside doors with ½ in. or less floor clearance.

Type No. 4, for doors with 2 in. or less floor clearance.

Type No. 5, for doors with 3½ in. or less floor clearance.

Size numbers indicate inches of arm length.

The cross section illustrates the threaded-in feature of the Hercules rubber tip non-skid shoe. The ample shoulder acts as an additional support to prevent the tip from being forced or kicked out of the holder. The tip may be easily renewed without removing the device. The threaded-in rubber tip is an exclusive Glynn-Johnson feature.



(Patent Pending)

SEMI-AUTOMATIC DOOR HOLDER AND BUMPER

A door holder and bumper of sturdy bronze construction. Semi-automatic in its operation and serves as a door holder

or bumper at the will of the operator. Has an encased brass plunger which absorbs the shock of a slamming door. The extension on the bottom of the hook acts as a strike plate. This holder will not twist or turn out of alignment.

Supplied with ½-in. diameter steel stud and expansion shield or mounting block for embedding in concrete. Also furnished with 6 in. riser base for doors swinging over a step.

Cast bronze or brass; polished or satin finish.

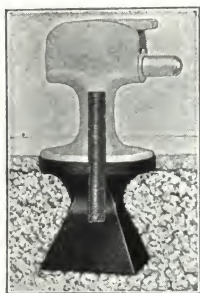
Types—Door Holders for Concrete Floors—Type F-9: height, 3¼ in.; height to center, 2½ in.; width over all (hook

engaged), 3¼ in.; base diameter, 2¾ in. Equipped with ½-in. steel stud and expansion shield.

Type F-10: height, 5 in.; height to center of plunger, 3½ in.; width over all (hook engaged), 4½ in.; base diameter, 5 in. Equipped with ¾-in. steel stud and double expansion shield. Weight, 6 lb.

For Wood Floors—

Type F-8: height, 3¼ in.; height to center of plunger, 2½ in.; width over all (hook engaged), 3¼ in.; base diameter, 2¾ in.



**Type F-9CB
Concrete Mounting
Block**

Height, 3½ in.
Base diameter, 2¾ in.
To be inserted in concrete



**Type F-9R6
Special Base Riser**

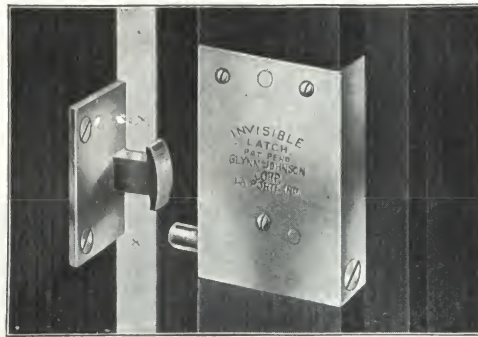
Height 6 in.
Base diameter 6 in.
To be used for special installations where the door swings over a step

INVISIBLE LATCH

The Invisible Latch is designed for neatness of trim, eliminating knobs and pulls. Gives quick, lively action and is so designed that it may be fitted to all types of secret doors and panels. Wall space that has not been utilized heretofore now can be made to provide more closet or compartment space—Give More Room—for any number of articles without showing any hardware to mar the appearance of the panel.

The Invisible Latch will operate in any position, left or right-hand, top or bottom. It may be set in flush or on top of stop, or bottom of shelf. Manufactured of cast brass.

With the template, which is supplied with each device, accurate installation of the invisible latch is assured. It is absolutely jamproof, having only two moving parts, with

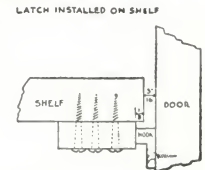
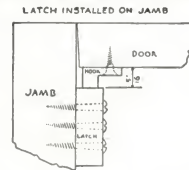
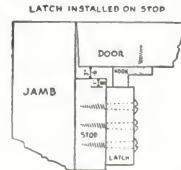
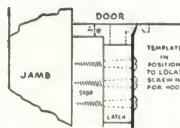
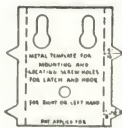
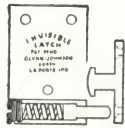


plunger action free and independent of the locking and releasing feature. It is not affected by shrinking or swelling of doors or panels so long as the door can be opened and shut. The door or panel, on which it is installed, moves but $\frac{3}{8}$ in. to release.

For regulating the tension of the plunger, to accommodate various sizes and weights of doors and panels, a screw at the back of the latch (shown in the illustration) regulates the action. To operate, simply a light push locks it—a slightly harder push releases the latch.

Type A: for the smallest panels up to cabinets and closet doors. Height, $1\frac{1}{8}$ in.; width, $1\frac{1}{4}$ in.; thickness, $\frac{1}{8}$ in.

Type B: for installation on medium and large doors. Height, $2\frac{3}{8}$ in.; width, $1\frac{1}{4}$ in.; thickness, $\frac{1}{2}$ in.



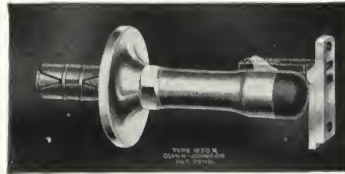
DOOR HOLDERS AND BUMPERS WITH STRIKE PLATE HOOKS

These attractive, new and graceful designs provide door bumpers and holders of greatest efficiency and long life.

A glance at the illustration of Type F-20 shows the supporting feature of the "prop" design, which means rugged strength and absolute rigidity. There is no side thrust, because when functioning as a holder there is a straight forward pull, no breaking of hooks. As a bumper there is a straight forward contact. The shock is quietly absorbed by the exclusive feature of the threaded-in, loss-proof rubber tip.

The special designed hook plate does not protrude, and when not engaged acts as a strike plate, protecting the door.

Type W-20 also shows how effectively the above features are incorporated in the wall type door bumper and holder.



Wall Type W-20 and W-20x



Floor Type F-20 and F-20x

Wall Type W-20 and W-20x—Projection, over-all length, $3\frac{1}{2}$ in.; over-all length with hook engaged, 4 in.; base diameter, $2\frac{3}{8}$ in.

Type W-20, wood screws.

Type W-20x, for stone. Equipped with $\frac{1}{8}$ -in. steel stud and expansion shield. Strike plate and hook: height, $2\frac{1}{8}$ in.; width, 1 in.; thickness, $\frac{3}{8}$ in.

Threaded steel studs of any length can be furnished for anchoring through marble.

Cast bronze or brass; polished or satin finish. Special finishes on request.

Floor Type F-20 and F-20x—

Height, 3 in.; height to center of bumper, $2\frac{3}{8}$ in.; base, $2\frac{7}{8} \times 2\frac{1}{2}$ in.

Type F-20, wood screws.

Type F-20x, for concrete. Equipped with $\frac{1}{8}$ -in. steel stud and double expansion shield. Strike plate and hook: height, $2\frac{1}{8}$ in.; width, 1 in.; thickness, $\frac{3}{8}$ in.

Cast bronze or brass; polished or satin finish.

DOOR STOPS AND BUMPERS (WALL TYPE—FLOOR TYPE)

Both of these neatly designed door stops and bumpers are ruggedly constructed for longest life and most satisfactory service and are built to provide proper anchorage where it is most needed. Equipped with an exclusive threaded-in rubber tip with shoulder support, preventing loss by being kicked or pulled out.

The cross section illustrates the threaded-in rubber tip feature. An ample shoulder acts as an additional support to prevent the tip from being forced or kicked out of the device.

It eliminates the common annoyance on ordinary devices where tips are merely pinned, snapped or glued on. The

threaded-in rubber tip is an exclusive Glynn-Johnson feature.

Wall Type—Projection, $2\frac{3}{4}$ in. Type WB-3, wood screws.

Type WB-3x: $\frac{1}{8}$ -in. steel stud and expansion shield. Cast bronze or brass; polished or satin finish.

Regular type wall bumpers with threaded-in rubber tip furnished in all lengths.

Floor Type—Type FB-18, wood screws; height, $2\frac{1}{8}$ in. Type FB-20 wood screws;

height, $3\frac{1}{4}$ in. Type FB-20x: height, $3\frac{1}{4}$ in.;

equipped with $\frac{1}{8}$ -in. steel and double expansion shield.

Cast bronze or brass; polished or satin finish.



Wall Type WB-3



(Patent Pending)



Floor Type FB-18

INTERFERING TWO-DOOR ROLLER BUMPER

For installation when two doors open back to back to prevent interlocking or clashing together and marring the knobs or door handles. It also serves to close an interfering door.



Made of cast bronze or brass, polished or satin finish. Rubber roller equipped with brass bushing.

Type RB-4: length, 4 in. over all.

Type RB-7: length, 6 in. over all.

For information on complete line of door holding devices, write factory

THE CONDOR COMPANY

Manufacturers of Concealed Door Closers

58 Sutter Street
SAN FRANCISCO, CALIF.

The Product

A door check that is concealed from view and operates satisfactorily has for years been the wish of architects and constructors of fine buildings. Such a door check is the Condor. It is invisible—does not mar the beauty of the room—does not collect dust. It can be installed in many places where the overhead check cannot be used satisfactorily, such as doors with round tops, half doors, wickets.

Advantages

It Is Concealed from

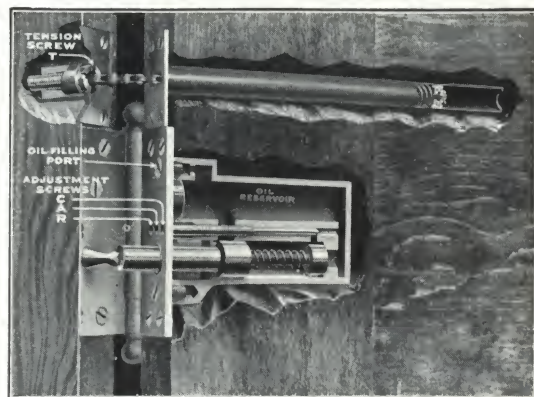
View—Both check and closer fit into the door stile, consequently are entirely concealed from view when the door is closed.

It Is Sturdy and Will Last—An endurance test under normal conditions and under the supervision of Robert W. Hunt & Company, showed a successful operation of over 300,000 times without breakdown, repairs or adjustments.

It Is Readily Installed by a Carpenter—It is easily adjusted for varying conditions.

Price—The price is in line with other closers.

Successful Operation—The Condor Check may be installed in any type of metal or wood door having sufficient width of stile, and will operate successfully under practically all draft conditions.



Phantom View of Installation and Operation Details

Operations of the Condor Door Closer

The action of the Condor Check is positive and the adjustment is simple. Any degree of closing speed may be obtained by a slight turn of either or both adjustment screws "C" and "A." The door is under checking control through an arc of from 64° to 84° of opening, depending upon the size butt used. As either of these angles is the normal opening of a door in general use, the door is under checking control practically at all times. If the door should

be opened beyond this limit and released, the force of contact between piston and stud is absorbed by the action of "C" passage, after which the "A" passage functions until the door closes. It is advisable to use the small butt if possible for each model, as wider control is obtained. Doors equipped with the Condor Check may be operated to the full 180° opening.

New Installations

In new installations it is advisable to have the doors mortised both for the check and closer, at the factory. Templates are furnished by THE CONDOR COMPANY for this purpose.

Additional Information

For catalogue and other descriptive literature, together with prices, name of nearest distributor and other information, address home office as above.

DIMENSIONAL DATA FOR CONDOR CLOSERS

Model	Min. thickness wood door,	Dimensions of body of check, in.			Size of butt, in.	To match butt, in.	Min. width of stile, in.	Dimensions of closer, in.		Each check is supplied with a specially drilled ballbearing butt and all necessary screws. Brass or bronze finish is supplied at list price. Other finishes may be had at slight additional cost.
		Length	Height	Width				Diameter of tube	Length of tube	
A	1 1/8	3 1/4	2 7/16	1 3/16	4 x 3	3 x 3	3 5/8	Spring hinge	9 15/16	
B	1 3/8	3 3/4	2 3/4	1	4 1/2 x 3 1/2	3 1/2 x 3 1/2	4	1 1/16	9 15/16	
B-1	1 3/8	3 3/4	2 3/4	1	4 1/2 x 4	4 x 4	4	1 1/16	9 15/16	
C	1 3/4	3 7/8	3 1/8	1 1/8	5 x 4	4 x 4	4 1/2	1	9 15/16	
C-1	1 3/4	3 7/8	3 1/8	1 1/8	5 x 4 1/2	4 1/2 x 4 1/2	4 1/2	1	9 15/16	
D	2 1/8	4 3/4	3 7/8	1 3/8	6 x 5	5 x 5	5 1/4	1 5/16	13 11/16	

Model A for light half doors.

B and B-1 for light full door and metal 1/2 and 3/4 doors.

C and C-1 for standard office doors.

D for heavy doors.

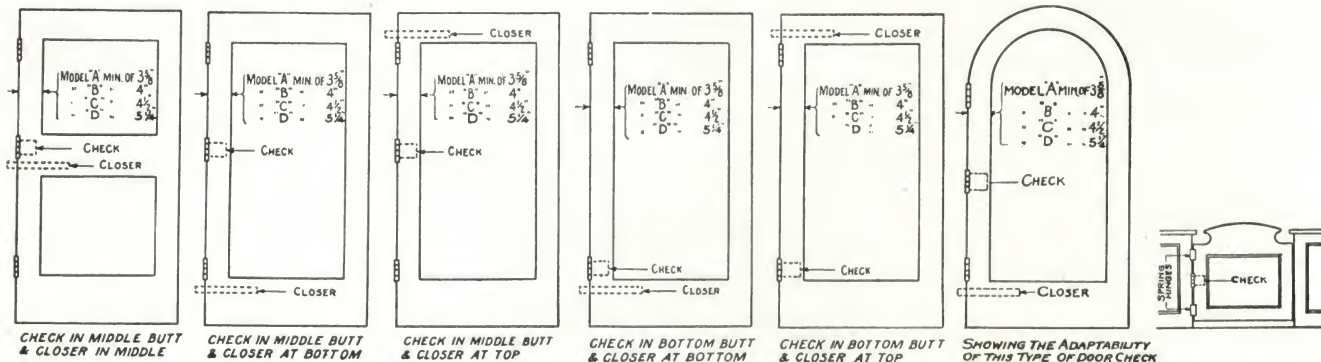


Diagram of Doors Showing Various Methods of Installing

NORTON DOOR CLOSER CO.

DIVISION OF THE YALE & TOWNE MANUFACTURING CO.

Manufacturers of Norton Door Closers

2900-2918 North Western Avenue
CHICAGO, ILL.

BRANCH OFFICES AND REPRESENTATIVES

DENVER, COLO., WM. H. CLARK, Interstate Trust Building
LOS ANGELES, CAL., W. H. STEELE Co., 302 East Fourth Street
NEW YORK, N. Y., NORTON DOOR CLOSER Co., 46 Warren Street

PHILADELPHIA, PA., H. S. HENDRICKSON, 1015 Chestnut Street
SAN FRANCISCO, CAL., NORTON DOOR CLOSER Co., 667 Howard Street
SEATTLE, WASH., ROBERT F. BEVERS, 521 30th Avenue, South

Products

NORTON DOOR CLOSER (with or without Holder Device).

NORTON FUSIBLE LINK DOOR CLOSER (for fire doors).

NORTON TELEPHONE and COUPON BOOTH DOOR DEVICES.

NORTON SLIDING GATE CLOSER for SLIDING GATES and DOORS.

NORTON AUTOMATIC FRICTION SASH and DOOR HOLDERS.

NORTON SCREEN DOOR CLOSER.

Organization, Facilities and Distribution

The NORTON DOOR CLOSER Co. has specialized in the design and manufacture of door closers for more than 50 years. The experience gained over this long period of time and the organization that has been welded together is an assurance of continual leadership in the door closer field.

A thoroughly modern one-product plant with a daily capacity large enough to assure immediate filling of the

largest orders. Throughout the United States are branch offices and representatives for the distribution of Norton Closers.

Service

A service department is maintained which is available at all times for advice and consultation. Should an architect desire special information relative to door closers, the NORTON DOOR CLOSER Co. will be pleased to send one of its representatives. *In cases of need, door closers and brackets are designed and built special.*

Upon request, after Norton Closers are installed, a special inspection by a competent man, who thoroughly understands closers, latches, etc., will be made.

Guarantee

The NORTON DOOR CLOSER Co. guarantees its door closers for two years. If closers are used of the proper size to handle the doors, the company guarantees the perfect working of the closers, and any defects in workmanship and material will be made good.

Norton Door Closer of the Rack and Pinion Style

The Norton Door Closer operates by a rack and against a head of liquid. It can be used on either pinion—the rack, a double headed piston, moving side of the door and the spring mechanism is reversible. When used on the hinge side of door, the closer is placed on door; if used on opposite side of door, it is necessary to have a bracket to hold the closer. (Various brackets shown on second page following.)

The Norton Door Closer embodies several distinctive features both in construction and operation.

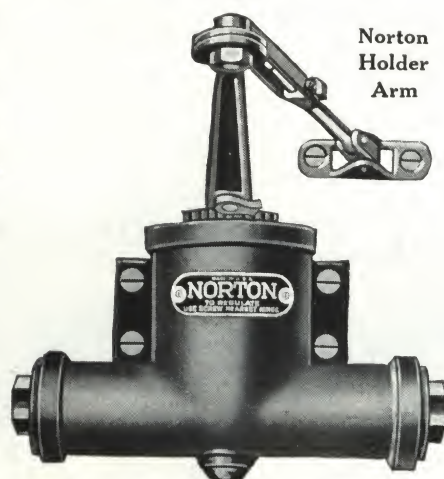
Exclusive Construction Features—

Steel Piston Rack—The piston rack is made of steel, eliminating all possibility of warping and binding, which frequently occurs if made of cast iron. The wear is also reduced to a minimum assuring long life and perfect checking control

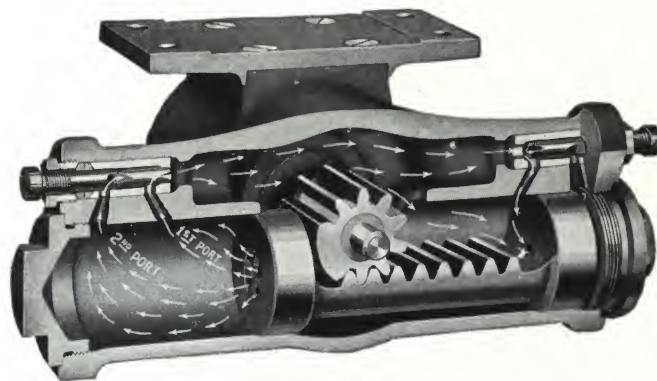
under all conditions. *The Norton Door Closer is manufactured with a steel piston rack.*

Steel Attachment Plate—Another unique feature of the Norton is the method of construction of that part of the closer which is fastened to the door. Instead of being made of gray iron, cast as an integral part of the shell and consequently easily broken, this part of the Norton Closer is made separately from the shell of *drop-forged steel* which has great strength and will not break.

Steel End Plugs—The end plugs used to seal the ends of the piston, or liquid, chamber, are made of steel. This allows of great precision in their manufacture and eliminates the possibility of defects such as exist when they are made of gray iron. *Norton Closers never leak at this point.*



Norton Door Closer



Liquid Chamber

Operation of the Norton Door Closer—

Absolute Control—Norton Closers absolutely control the door from the start to the finish of closing, maintaining an even speed and allowing no headway to be suddenly checked. This full control can only be obtained with a rack and pinion type of closer and is necessary to reduce the strain on the hinges to a minimum.

Two Speeds in Closing—A two-speed control that allows for one speed of the door to within a few inches of the jamb and another speed right at the latch. The first speed is adjustable from two seconds to two minutes and the second speed giving either a quick release to overcome a stiff electric latch or extra quiet closing as is needed in hospitals, etc.

Back Check—The Norton Closer can be arranged to check the opening movement of the door when necessary to prevent it from slamming against a wall, or in a battery of doors to prevent slamming where the doors open back to back.

Holder Device—

The Norton Automatic Holder Arm eliminates all floor stops, hooks, blocks or other devices used for holding the door open. It is located at the joint of the arms and is used in conjunction with the Norton Door Closer. The device may be adjusted to hold the door in any desired position. It is positive in action and may be released by a slight push or pull on the door.

Illustration—

The illustration above shows how this positive control of the door by a Norton Closer is obtained. In closing the door up to the latch, the liquid escapes through the first port. In closing at the latch the liquid

escapes through the second port—both ports controlled by one regulating screw.

Table of Sizes—

Norton Closers are made in six sizes to suit different size doors and different draft conditions. The following recommendations are for regular conditions. When considerable wind pressure has to be overcome a size larger closer than specified should be used.

Size A—For light inside doors.

Size B—For doors 2 ft. 6 in. x 7 ft.

Size C—For inside doors 3 ft. x 7 ft.

Size D—For heavy inside or light outside doors not over 3 ft. x 7 ft.

Size E—For heavy outside doors not over 3 ft. x 7 ft.

Size F—For extra heavy outside doors.

Special Finishes—

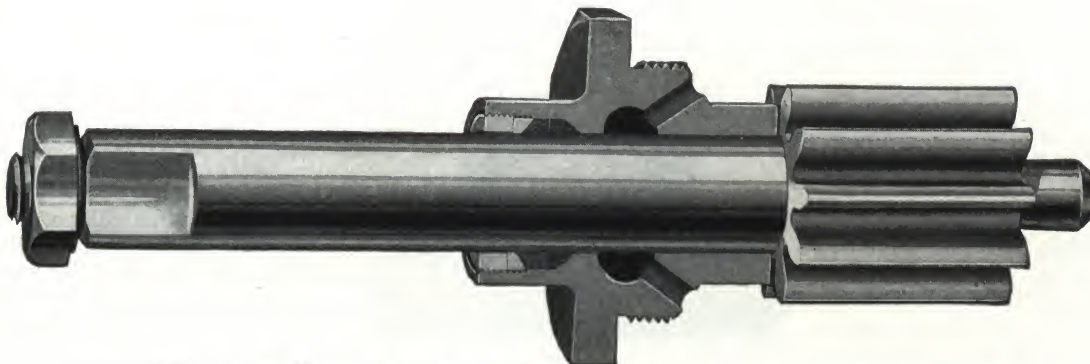
All closers are regularly furnished in a gold bronze finish. They can be supplied in a maroon bronze, silver bronze, or a dead black finish at no additional cost.

Closers can be furnished on a special order in any finish desired to conform with that of the remaining items of hardware.

Improved Design Shaft and Packing Nut—

There are five objects to be obtained in this shaft and packing nut used in the 1930 Model Norton Door Closer.

- (1) To prevent liquid from escaping from the liquid chamber to spring chamber.
- (2) To reduce friction on the shaft.
- (3) To get a long bearing to prevent wear.
- (4) To provide lubrication for the shaft.
- (5) To be able to adjust packing to take up the wear.



Improved Design Shaft and Packing Nut Used in the 1930 Model Norton Door Closer

Fusible Link Door Closers

Norton Fusible Link Door Closers Style No. 1— Fusible link closer for use on doors that swing on hinges. Approved by National Board of Fire Underwriters' Laboratories.

The three larger sizes of Norton Closers—sizes D, E, and F—are used with the addition of hold open arms and an auxiliary spring. The auxiliary spring has two functions: first, to hold door open at angle of about 100°; second, when fuse link breaks, to increase shutting power at latch. Both main and auxiliary springs are adjustable and can be so set that in usual door operation ordinary spring power can be used. Upon fire causing link to fuse, the leverage of the arms is changed increasing the closing power at the latch

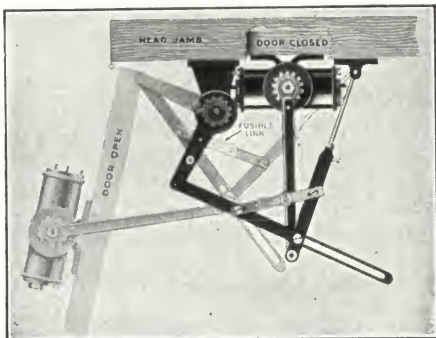
by 10 lb., insuring closing of door and engaging of latch.

The fusible link is placed in the doorway where it would get the most heat in case of fire. The link fuses at 160° F. and the door is immediately closed.

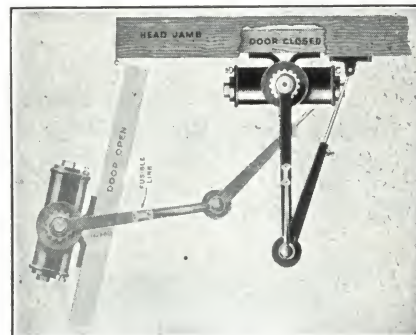
The fusible link closer can be attached to hinged side of door only.

In ordering, specify size and hand of door.

Style No. 3—Norton Closers, size C, D, E and F with holder arm, and the addition of fusible link for use on hinged doors, opening on angle not over 100°. Link fuses at 160° F. and door closes immediately. Can be used on hinged side of door or on opposite side from hinge with bracket, turning arms upside down.



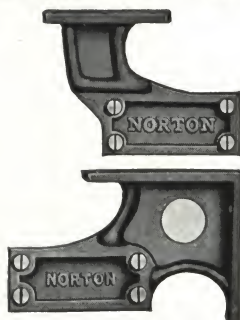
Style No. 1



Style No. 3

Norton Brackets for Use When Closer Is Used on Side of Door Opposite Hinge

Soffit Bracket—Used where there is room on overhead jamb. This bracket places closer in the proper position.



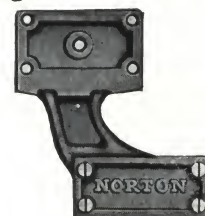
Corner Bracket—Used where door has to open 180° or when headroom is low.



Adjustable Bracket—For circular top doors when closer is placed on opposite the hinge side of door.



Flush Bracket—When soffit (or jamb) is not wide enough to use soffit bracket.



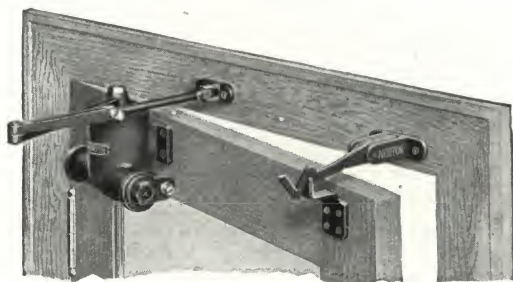
Offset Bracket—For circular top door when closer is placed on the hinge side of the door.



Special Brackets—Special brackets made to order.

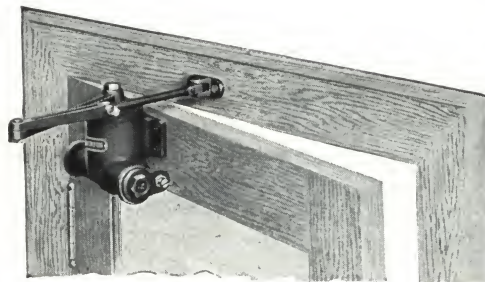
Norton Telephone and Coupon Booth Door Devices

Door Holder—Will hold door open about 4 in. Bracket on door and balanced latch attached to casing about 4 in. from edge of door. To operate, open door slowly until latch engages bracket. To release, open door. Regular B closer to be used.



Norton Booth Door Holder Used with Regular B Closer

Combination Door Holder and Closer—Regular B closer used with holder built in. Will close the door to within 4 in. of the latch and hold it in that position for ventilation. When booth is in use, the door can be pulled shut.



Norton Door Closer with Holder Built In

Norton Sliding Gate Closer for Sliding Gates or Doors

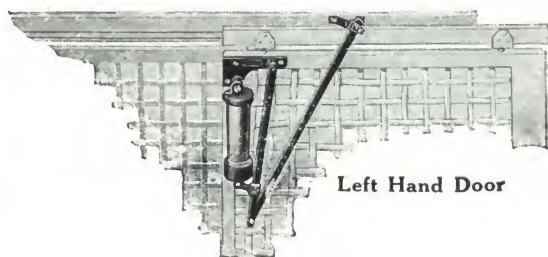
A positive closer for sliding doors, such as bank cage grill doors where it is necessary for door to close and lock every time it is opened.

Made in two sizes, right and left hand, black finish.

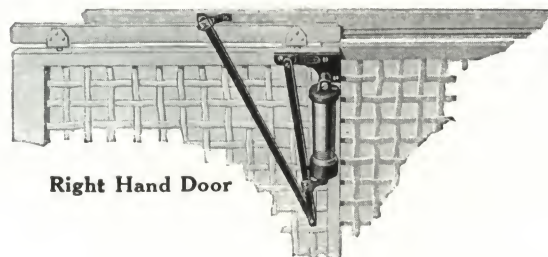
No. 1, for light grille gates, 2 to 3 ft. wide.

No. 2, for doors and heavy bar gates, 2 to 3 ft. wide.

In ordering, give size of closer, width and hand of door, style of track.



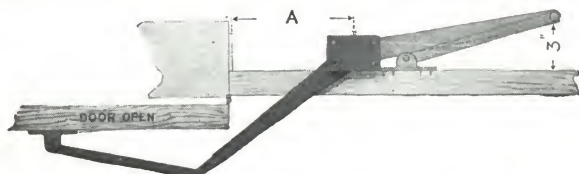
Left Hand Door



Right Hand Door

Norton Automatic Friction Sash and Door Holders

Sash Friction Stay No. 0—Used on casement windows not over 2 ft. wide. Can be installed either at the top or bottom and either right or left hand. Regular finish is sherardized. Distance A is $4\frac{1}{2}$ in.



Door Holder and Friction Stay

Door Holders No. 1 and No. 2—For use on hinged windows and light doors. No. 1, for windows and small doors 2 ft. wide; No. 2, for windows and doors 3x7 ft. Finished in Norton maroon bronze.

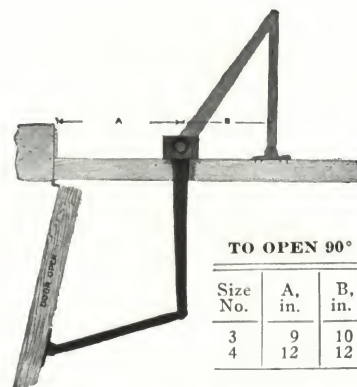
To open 90° , A will be 6 in. for No. 1 and 9 in. for No. 2. To open 180° , A will be $4\frac{1}{2}$ in. for No. 1 and 6 in. for No. 2.

In ordering give size and hand of door.

Garage Door Holders No. 3 and No. 4—For garage doors only. Made right and left hand.

No. 3 for door 4x8 ft.; No. 4 for doors up to 5x10 ft. Finished in Norton maroon bronze.

In ordering garage door holders give size and hand of door.



Garage Door Holder Nos. 3 and 4

TO OPEN 90°

Size No.	A, in.	B, in.
3	9	10
4	12	12

Norton Holder Arm with Soffit Post Bracket

Holder for use on standing door of a pair of doors to match and look like operating door with regular holder arm attached to a soffit post bracket. Can

be furnished to apply on hinged side of door if desired.

In ordering, give size and hand of door. Also state if bracket is to be used.



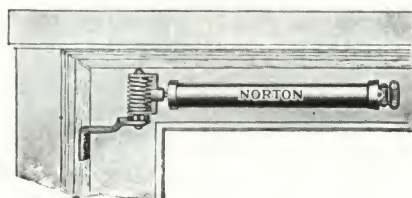
Holder Arm with Soffit Post Bracket



Door with Holder Arm—Door with Closer

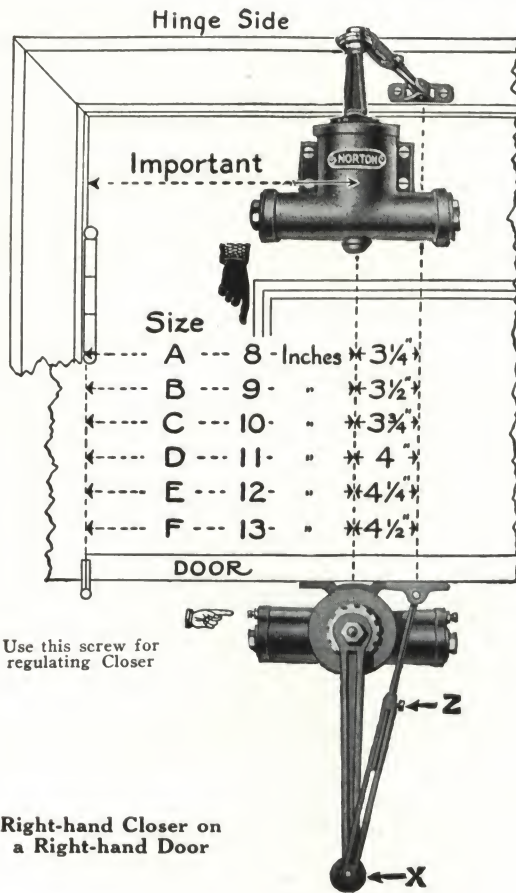
No. 4 Norton Screen Door Closer

Door closer specially designed for light screen doors. Can be used where space between door is only 2 in. Used on either side of door without change of brackets. Adjustable spring. Right or left hand. Can be installed or removed in few minutes.



No. 4 Norton Screen Door Closer

**How to Install the Norton Door Closer on Doors That Open 100° Only—
For Regular and Holder Arm Closers**



First—

(1) Screw the closer on the door high enough so the arm will clear the door in opening, and out the correct distance from hinge as shown or, if a bracket is used, screw it to the overhead jamb as close as possible to the door and out the correct distance.

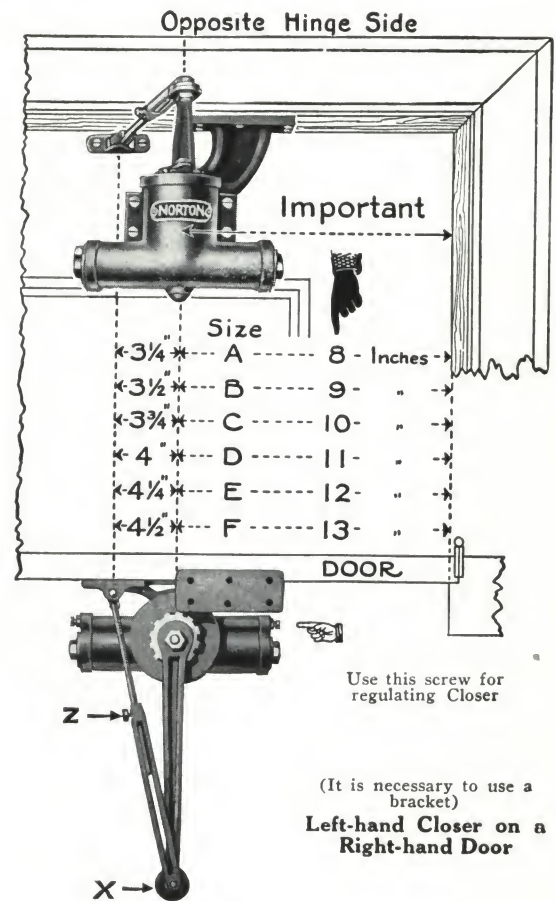
(2) Screw the fore arm shoe to the casing, or door, the correct distance as shown.

(3) Place arm on shaft. If universal holder arm is used, on a right-hand closer adjusting nut "X" should be on underside of arm. If left-hand closer, adjusting nut "X" should be on top. Leave the main arm at right angles to the door when closed and tighten setscrew "Z."

(4) Screw the nut down *tight* on top of shaft.

Second—

Wind the spring 6 or 7 notches except for doors opening out when 3 or 4 notches will suffice. *Be sure spring is not wound wrong way.* For right-hand closer wind spring anticlockwise. Left-hand closer wind spring clockwise. The *hand* of a closer can be determined by the position of the coil hooks at the back of the cover.



(It is necessary to use a bracket)

Third—

(1) *To regulate closing, use only the screw nearest the hinge of the door.*

(2) Turn this screw in several turns, leaving screwdriver slot in a vertical position, until door comes to a solid stop, about 6 in. from the jamb. Then turn the screw just a little either to the right or left until the speed is right at the latch.

Note: If door still closes too rapidly, one or two complete turns, leaving the screw adjusted as above (Third, No. 2), will correct this.

Fourth—

To adjust arm, open door to where it is to stop and tighten nut "X." A push or pull on the door will set or release the arm.

Fifth—

To change the hand of a closer remove arm, ratchet and cover. Turn the spring over. Revolve the shaft or spindle one-half turn. Replace parts. Replace holder arm as per directions above. (First, No. 3.)

NORTON LASIER COMPANY

Manufacturers of Door Closers

466 West Superior Street
CHICAGO, ILL.

DISTRICT OFFICES

BOSTON, MASS., C. E. HARRIS Co., 120 Pearl Street
CLEVELAND, OHIO, THE GESING BROTHERS Co., 1037 Terminal Tower Building
DALLAS, TEX., J. H. NORTH, 1002 Woodlawn Avenue
DETROIT, MICH., R. A. BRUCE, Detroit-Leland Hotel
MEMPHIS, TENN., U. G. OWEN, 130 No. McLean Street

TORONTO, CANADA, TORONTO LOCK & MFG. Co.

NEW YORK, N. Y., NEYLON-SMITH Co., 200 Varick Street
OMAHA, NEB., S. M. HAWKINS, 2820 No. 33rd Street
PHILADELPHIA, PA., R. C. KRATZ, 830 Perry Building
PORTLAND, ORE., J. C. HERTSCHE, 443 Sherlock Building
ST. LOUIS, MO., Z. G. SHAW, Claridge Hotel
SAN FRANCISCO, CAL., B. R. BLACKBURN, 163 Second Street

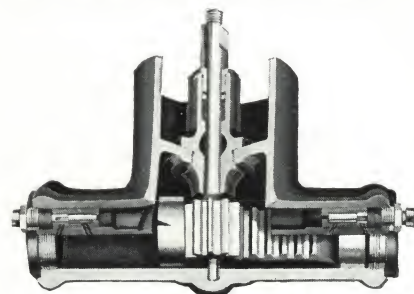
Product

L. C. N. DOOR CLOSERS—a complete line of closers, including Overhead Types, Concealed Floor Types, and Screen Door Types in a complete range of sizes and finishes.

Construction and Operation

L. C. N. Door Closers represent the most advanced developments of the NORTON LASIER COMPANY. The president of this Company, L. C. Norton, invented the first of all door checks in 1880 and has devoted each year since to developing and perfecting door closers of all types. The present-day L. C. N. Closer sums up all that this long experience has proven correct.

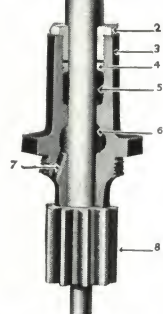
The outstanding features of L. C. N. Overhead Closers are clearly illustrated in the accompanying sectional views. The coil, made from special analysis high carbon steel, exerts a powerful closing force against a liquid cushion which acts as a checking medium. The coil is designed with a large outside and inside diameter, giving more power and flexibility. It is wound on an extra large ratchet sleeve, allowing all parts of the coil to begin work the instant the door starts to open. This prevents breakage and greatly increases the life of the spring.



Sectional View of Closer

Showing large spring housing, sturdy rack and pinion construction, and three-point bearing

two complete turns of the screw automatically place the closer in proper adjustment. The opening speed can also be controlled by means of the opposite regulating screw in connection with the double headed piston.



Detail of Shaft, Pinion, Bearings and Packing

The shaft (1) is of triple-bearing frictionless design, highly polished, and will last for the life of the closer. The packing (5) is placed between the shaft bearing nut (3) and a large bearing below it. It is held tight by the packing gland nut (4). An air chamber (6) controls excess liquid. The liquid flows back to piston chamber through outlet (7). The pinion (8) and rack are made of high grade steel with heavy cut teeth.

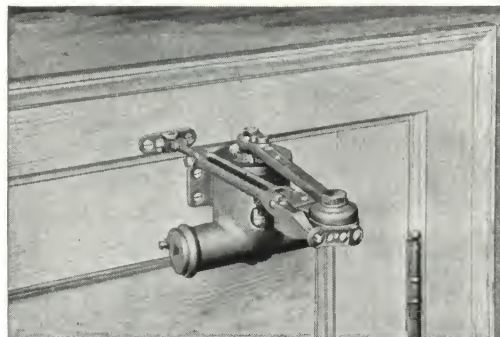
The hold-open feature, located at the ends of the arms, is exceedingly simple to operate and has no springs to break or lugs to wear out. It is designed on the cam principle and built on a center line. The closer is universal, and uniform in appearance for right or left-hand doors, making it foolproof.

The general design of the closer has been worked out so that it presents a very pleas-

ing appearance to the eye. The finish is a two-coat lacquer, guaranteed to resist rust, and is easily kept clean. The materials contained in the makeup of this closer are of the highest quality and the workmanship is of the best.

Types and Finishes

L. C. N. Closers are made in both overhead and concealed types. Included in the overhead line is the L. C. N. Telephone Booth Closer which closes the door to within 4 in. of the latch. The overhead closer is also made within a fusible link as illus-



Fusible Link Closer

trated. The L. C. N. Concealed floor level door closer has fulfilled a long felt want from an architectural standpoint. It is entirely concealed in the floor and is a powerful and efficient device for closing and controlling single and double acting doors. The general principle of the concealed closer is similar to that shown in the sectional view of the overhead closer.

Finishes of the L. C. N. Overhead Closer include gold bronze, silver bronze, dead black, bronze plate (polished and unpolished), nickel plate, statuary bronze, genuine bower barff, and special finishes to match samples submitted.

Concealed closers are furnished with exposed parts in all standard hardware finishes.



Standard L.C.N. Overhead Closer with Hold-open Feature

Thoroughly Tested

L. C. N. Closers have been adopted as standard equipment throughout in some of the architectural landmarks of America—such as the Penobscot Building, Detroit, Terminal Tower Building, Cleveland, Board of Trade Building, Chicago, and other prominent buildings.

Data and Service

The L. C. N. Catalog contains complete description and data covering sizes, types, and prices. All contract installations will be adjusted by our service department. Closers are positively guaranteed to operate and control doors satisfactorily for two years. Regular type is tested and approved for fire doors by National Board of Fire Underwriters' Laboratories. Our nearest representative will be glad to supply facts and any special data you may require.

THE OSCAR C. RIXSON COMPANY

Manufacturers of Rixson Floor Checks, Hinges and Casement Hardware

CHICAGO, ILL.

REPRESENTATIVES

ATLANTA, GA., LUKE SEAWELL, 144 Spring St., N. W.
LOS ANGELES, CALIF., JOHN M. FREEMAN, 912 East Third St.
NEW ORLEANS, LA., FRED J. ALLEN, 202 Balter Bldg.

NEW YORK, N. Y., GEORGE PARROT, 101 Park Ave.
PHILADELPHIA, PA., JOHN H. JARVIS, 608 Otis Building
WINNIPEG, CANADA, D. A. McDONALD, 126 Lombard St.

The Company and Its Reputation

For more than 25 years THE OSCAR C. RIXSON COMPANY has been engaged in the manufacture of improved mechanisms in builders' hardware, including floor checks, door checks, casement hardware, hinges, etc. These products have been specified and used on thousands of jobs, ranging from the moderate cost residence to the largest and most expensive types of apartment, hospital, hotel, office and monumental buildings.

Rixson Hardware Represents Quality and Practicability

The best obtainable materials are used in the manufacture of Rixson Hardware Specialties, many of which are protected by patents. Their quality and the ease with which they are installed at the job, make them welcome to both the architect and the contractor. Rixson records of long lived service assure you of that dependability which other users know so well.

Rixson Service to Architects

Representatives of THE OSCAR C. RIXSON COMPANY are fully qualified and willing to furnish every possible assistance and co-operation to architects, builders, etc. You are invited to make use of this co-operation.

Our Engineering, Designing and Service Departments at the home office are also at your disposal and



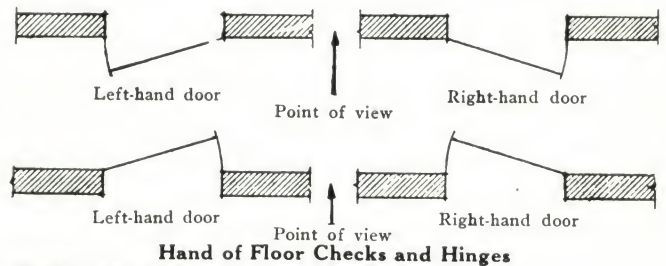
will gladly assist in the solution of special problems.

The Purpose of This Catalogue

In the following pages THE OSCAR C. RIXSON COMPANY presents concise information concerning the Rixson Floor Checks, Door Stays and Holders, Hinges and Casement Hardware. This information is presented in such manner that both detail drawings and specifications may easily be prepared therefrom, with a good idea of cost of items desired.

The Hand of Doors

In handing Rixson devices we have established the following rule: facing a door swinging away from you—if it opens to the right hand it is a right-hand door—if it opens to the left hand it is a left-hand door. See diagram below.



GENERAL INDEX

Specification Data for Floor Checks.....	Plate 1
Floor Checks and Closers.....	Plates 2 to 9
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Single Acting, Center Hung Type.....	Plates 5, 6 and 7
Double Acting, With and Without Automatic Hold-open Feature	Plates 8 and 9
Architectural Bronze and Aluminum Thresholds	Plates 10 and 11
Door Stays and Holders.....	Plate 12

Concealed Transom Operators.....	Plates 13 and 14
Hinges	Plates 15, 16 and 17
Adjustable Ball	Plate 15
Friction	Plate 16
Olive Knuckle	Plate 17
Casement Hardware	Plates 18 to 22
Casement Holders	Plate 18
Casement Operators	Plates 19 to 22

COMPARATIVE LIST OF SYMBOLS RELATING TO STANDARD FINISHES

United States standard	Description of finishes	Rixson			Corbin	Lockwood	Norwalk	Penn	Russwin	Sargent	Reading	Yale
		Steel	Brass	Bronze								
USP	Primed for painting.....	FS										
US1B	Japanned, bright black.....				J	JF				J	DJ	Jap.
US1D	Japanned, dead black.....				D	Z					GL	
US2G	Galv'd electro.....	F2			A or L	13 1/2					31	AZ10
US3	Brass or brass plated, bright.....	F4P	AP		EA	13	G	Gal	G	B	37	AY22
US4	Brass or brass plated, dull.....	F5P	A1P		KA	43	IB	PB	10	OB	37	AY21
US5	Brass or brass plated, oxidized.....	F6P	A6P		SKA	51	K	DB	9C	OE	33	AX28
US6	Brass or brass plated, oxidized, sanded.....	F6PS	A6PS		R	7 1/2	HK3	BS7L	O9C	RD	24	CZ27
US8	Antique copper mottled, bright.....	F12P	A12P	B12P			O	AC	7 1/2	AB or ASB		
US9	Bronze or bronze plated, bright.....	F7P		BP	B or N	1		PBZ	11	OP	1	BZ10
US10	Bronze or bronze plated, dull.....	F1BP		B1P	DB	34	DB	DBZ	11D		7	BY22
US11	Bronze or bronze plated, oxidized.....	F8BP		B8P	HB	23	DB3	DBZR	11C	O6P	221	BY21
US12	Bronze or bronze plated, oxidized, sanded.....	F8BPS		B8PS	SHB	36 1/2		BZ57L	O11C	RP	223	BX13
US14	Nickel plated, bright.....	F14P	A14P	B14P	E	5	NP	PN	4	N	80	NZ10
US15	Nickel plated, dull.....	F15	A15	B15	DE	90	DN	DN	14	LN or LSN	77	NY10
US16	Nickel plated, sanded.....	F15S	A15S	B15S	SE	5S		NS		RN	78	NX10
US18	"Rustproof" black.....	F3			F	31	RI	RP	46	BB	87	FX80
US19	Dull black plated, oxidized, sanded.....	F13S	A13S	B13S	KF	6	HW	IRP	47	BN	87 1/2	FX90 or
US20	Statuary bronze.....	F9P	A9P	B9P	KB	38	2	PBZ4	2	A	2	BX80
US20A	Statuary bronze, dark.....	F10P	A10P	B10P	LB	2	2D	BBZ6	2D	A3B	2	BY25
US21	Statuary bronze, sanded.....	F9PS	A9PS	B9PS	SKB	38S	H2	BZ54L	O2	RA	2 1/2	BY65
US22	Verd antique.....	F16PS	A16PS	B16PS	V	85	VA	V	36	V2A or V	94	BX25
US23	Silver plated, oxidized, dull.....		A32PS	B32PS	KS	72	S3	DSR	8C	VS	42	SV52
US24	Gold plated, dull.....		A34PS	B34PS	DG	80	T	DG	19	G	57	GY10
US25	Nickeline, white metal, bright.....				NK	95	NM	Nickeline	44	EM		NZ40
US26	Bright chromium plated.....			B19P	CR		CP	BCH	24	CM		DZ10
US26D	Dull chromium plated.....			B19PS	CPDull		DCP	DCH	34	DCM		DY10
	Old iron and old iron plated.....	F18P	A17P	B17P								

The above list of finishes represents a fair comparison of the different manufacturers. When exact finish is wanted specify symbol of finish desired and submit sample.

RIXSON SINGLE AND DOUBLE ACTING FLOOR CHECKS

For nearly a quarter of a century this Company has been successful manufacturers of floor checks and consequently Rixson Floor Checks have become a by-word wherever a closing device is considered for the better class of entrance, vestibule and interior doors. To substantiate the above it is only necessary to consider the thousands of office buildings, monumental structures, stores of all kinds, from the most pretentious to the ordinary, as well as the countless thousands of residences where Rixson Floor Checks are on duty at all times closing doors innumerable

times daily without the slightest attention. This bears witness to the "In-built Quality" of Rixson Products.

As types of buildings change and new conditions present themselves this company is always found studying these changed conditions trying to meet them with "Rixson Quality" Products. This company will never present an article not measuring up to "Rixson Standard" and even though a device becomes obsolete we will always endeavor to maintain a service on it. This should be considered when specifying as it assures permanent satisfaction.

NOTE: Architects are urged to specify by name and number assuring Genuine Rixson Products.

A SUGGESTED SPECIFICATION FOR FLOOR CHECKS

(1) All exterior and vestibule double acting doors shall be provided with Rixson Double Acting Floor Check—

No. 30 for doors not over 2 ft. 10 in. wide.

No. 40 for doors not over 3 ft. 6 in. wide.

(2) Interior double acting doors unless otherwise mentioned shall be provided with Rixson Double Acting Floor Check—

No. 10 for doors not over 2 ft. 8 in. wide.

No. 15 for doors not over 3 ft. wide

(Where hold-open feature is wanted.)

No. 12 for doors not over 2 ft. 8 in. wide.

No. 16 for doors not over 3 ft. wide.

(Where doors are not wanted with hold-open feature.)

(2A) Interior double acting doors as called for on plans and in details shall be provided with Rixson Double Acting Floor Check No. 30.

(This specification for interior doors subject to severe use or of such size that Nos. 10-12, 15-16 would not be suitable.)

(3) All exterior and vestibule single acting doors shall be provided with Rixson Single Acting Floor Check—

No. 20, 120 or 21 as called for in details for doors not over 2 ft. 8 in. wide.

No. 25, 125 or 26 as called for in details for doors not over 3 ft. 6 in. wide.

(4) All exterior and vestibule doors shall be provided with Rixson Door Stay and Holder No. 38 in bronze metal of correct size.

(5) All interior single acting self-closing doors shall be provided with Rixson Single Acting Floor Check—

No. 18 or 18½ (as required by detail) for ordinary doors not over 3 ft. wide.

(6) Interior single acting self-closing doors as called for on plans and in details shall be provided with Rixson Single Acting Floor Check—

No. 20 or 21.

(This specification for doors over 3 ft. wide or subject to severe use where No. 18 or 18½ would not be suitable.)

Note: See Plates Nos. 10 and 11 for Architectural Bronze and Aluminum Thresholds designed for use with Rixson Floor Checks.



SPECIFICATION DATA FOR FLOOR CHECKS

Plate 1

SINGLE ACTING FLOOR CHECK

NO. 18—OFFSET TYPE (PATENTED)

For Interior Doors

Note: No. 18 recommended for use with interior, single acting, self-closing doors not over 3 ft. wide.

For interior doors over 3 ft. wide or doors subject to severe use, Rixson Single Acting Floor Check No. 20 is recommended.

This check is patterned after the Rixson Nos. 20 and 25 Single Acting Floor Checks which have proven their ability to furnish highly satisfactory service for entrance and vestibule doors over a period of many years. (See following page.)

Like the larger (Nos. 20 and 25) models, the No. 18 check is built of the best grade forgings, castings, etc., and offers equally satisfactory service in operation.

Special pivot No. 19 should be specified as an intermediate pivot for doors 8 ft. high or over. Segment head doors require special pivot No. 19 in place of regular top pivot.

See illustrations below for construction details, dimensional drawings, etc.

PRICE LIST RIXSON NO. 18 SINGLE ACTING FLOOR CHECK

No.		Each
18	With dull or polished brass or bronze floor plate and malleable iron top pivot and steel arm cap primed for paint.....	\$21.00
18	With dull or polished brass or bronze floor plate, bronze top pivot and arm cap.....	24.00

For ordinary plated finishes, except as noted below, add \$1.00.

For chromium and verd antique, add \$3.00.

For white metal floor plate, top pivot and arm cap, add \$3.00.

Gold and silver plating, price on application.

For No. 19 pivot in addition to regular top pivot, add \$5.00.

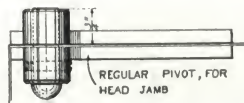
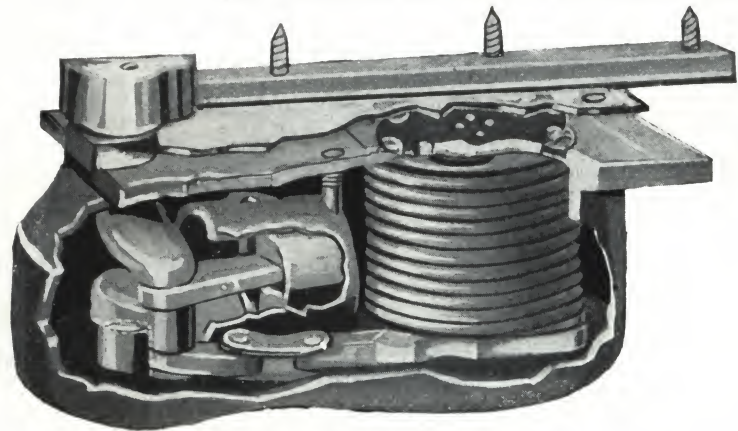
No. 19 pivot furnished in place of bronze top pivot for segment head doors at no additional cost.

The above prices include cement blocks.

Dull brass furnished unless otherwise ordered.

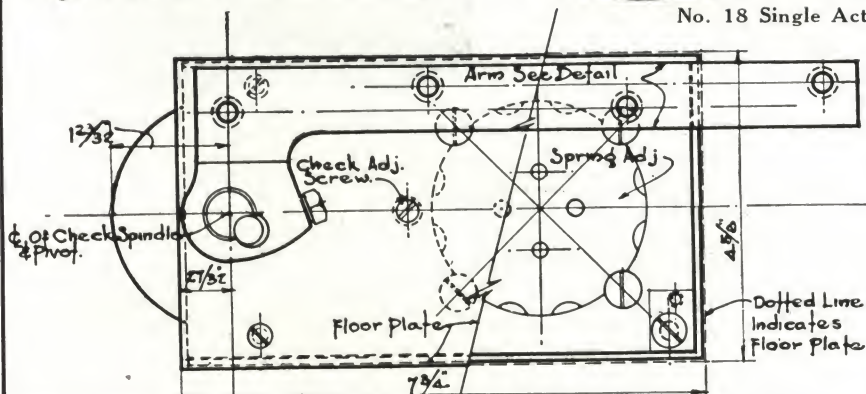
See plate No. 1 for suggested specification for floor check.

When ordering state hand. (See first page regarding hand.)

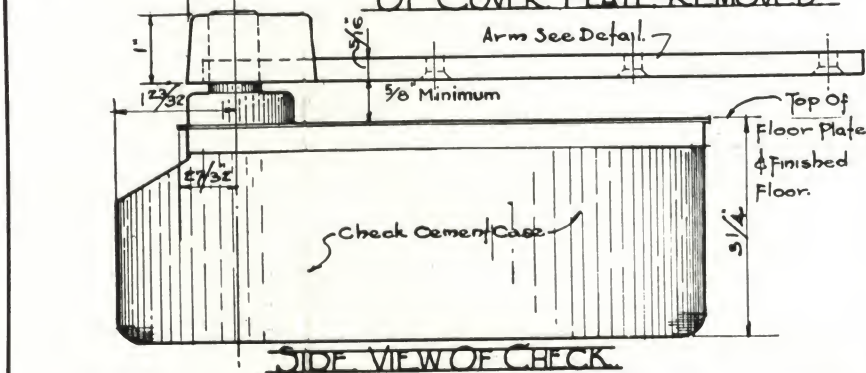


Regular Top Pivot for No. 18 Check

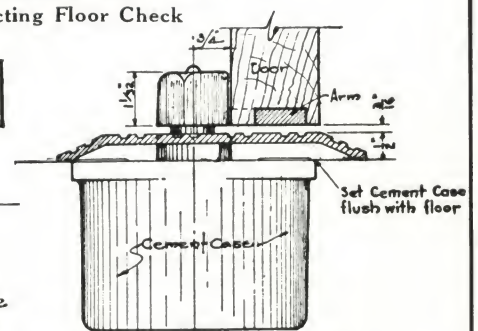
No. 18 Single Acting Floor Check



PLAN OF CHECK WITH PART OF COVER PLATE REMOVED

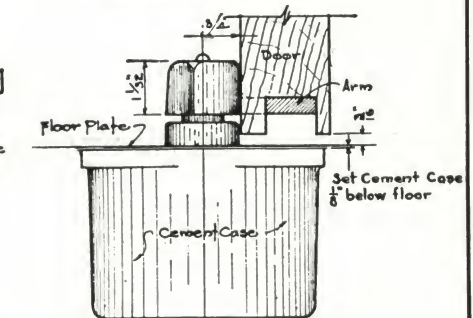


SIDE VIEW OF CHECK



METHOD OF INSTALLING CHECK WITH RIXSON THRESHOLD

Note: For further details on thresholds see Drawing T-5-6-700



METHOD OF INSTALLING CHECK WITH FLOOR PLATE

RIXSON
COMPANY

FLOOR CHECK—SINGLE ACTING—OFFSET TYPE
For Interior Doors

Plate 2

SINGLE ACTING FLOOR CHECKS

NO. 20 AND NO. 25—OFFSET TYPE (PATENTED)

For Entrance and Vestibule Doors

Note: No. 20 is recommended for use with exterior and vestibule single acting doors not over 2 ft. 8 in. wide. Also used for the heavier and larger interior doors for which Nos. 18 and 18½ are not suitable.

No. 25 is recommended for exterior and vestibule single acting doors not over 3 ft. 6 in. wide.

Rixson Single Acting Floor Checks Nos. 20 and 25 permit entrance and vestibule doors to open all the way back (180 degrees) and will close the doors from that point. To meet varying conditions the spring power is adjustable (see drawing below) so as to secure any desired spring tension. The whole device is filled with Rixson Checking Fluid, which has high lubricating qualities and will not freeze at 40 degrees below zero. The top pivot is made of special, tough, hard bronze and the pivot-bolt is of case-hardened steel.

Should the door drag on the threshold or on the head jamb, the connection between the drop-forged steel arm on which the door rests and the spindle of the device is such that the door can be raised or lowered at any time. The value of this adjustment feature is readily appreciated.

Cast metal doors weighing 475 lb. have been mounted on this floor check with entire satisfaction because the weight of the door comes on a drop-forged and case-hardened steel spindle which is supported in the device on ten ¼-in. ball bearings which run in a case-hardened ball race.

Special pivot No. 19 should be specified as an intermediate pivot for doors 8 ft. high or over. Segment head doors require special pivot No. 19 in place of regular top pivot.

PRICE LIST RIXSON NOS. 20 AND 25 SINGLE ACTING FLOOR CHECKS

No.	Description	Each
20	For vestibule doors and for outside doors not over 2 ft. 8 in. x 8 ft. dull or polished brass or bronze.....	\$30.00
25	For large vestibule doors and for outside doors not over 3 ft. 6 in. x 8 ft. dull or polished brass or bronze.....	38.00
19	Intermediate pivot.....	4.50

For ordinary plated finishes other than noted below, add \$1.00.

For chromium and verd antique, add \$3.00.

For white metal floor plates and pivots, add \$4.00.

Gold and silver plating price on application.

Above prices include cement cases and regular top pivot or No. 19 pivot in place of regular pivot.

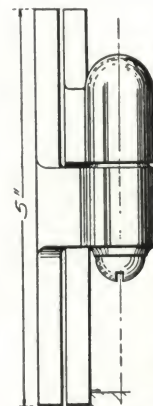
Packed with wood screws unless otherwise ordered.

Finish, dull brass unless otherwise specified.

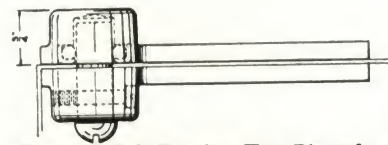
See Plate No. 1 for suggested specification for floor checks.

In ordering state hand wanted. (See first page regarding hand.)

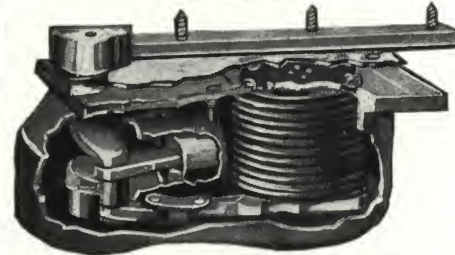
Can be supplied with Hold-open feature when so ordered. State degree of Hold-open.



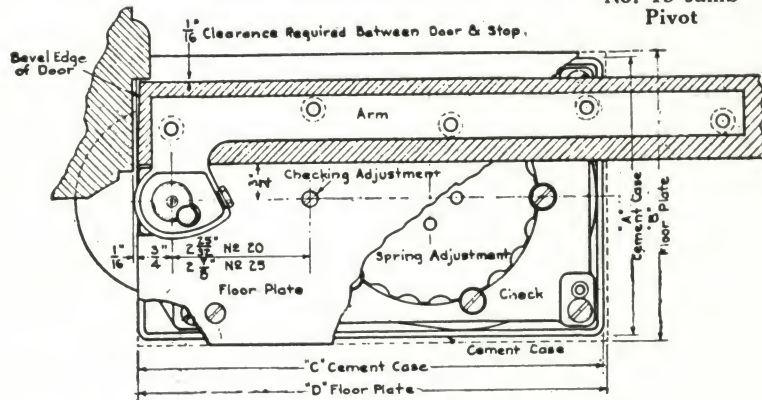
No. 19 Jamb
Pivot



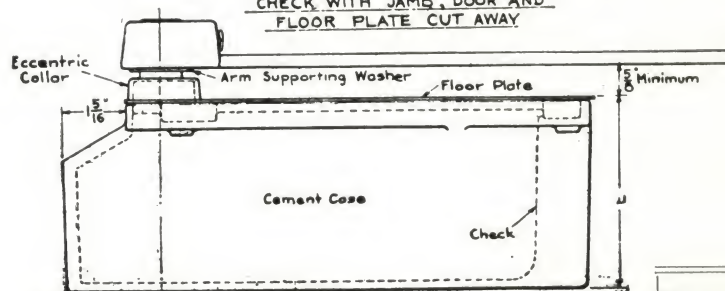
Regular Ball Bearing Top Pivot for
Head Jamb



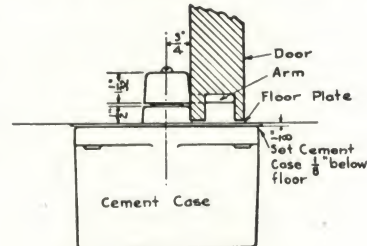
Nos. 20 and 25 Single Acting Floor
Checks



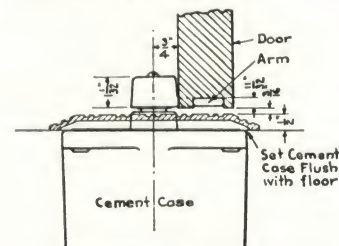
CHECK WITH JAMB, DOOR AND
FLOOR PLATE CUT AWAY



BLUE PRINT TEMPLATES FURNISHED ON REQUEST



METHOD OF INSTALLING CHECK
WITH FLOOR PLATE



METHOD OF INSTALLING CHECK
WITH RIXSON THRESHOLD

DIMENSION IN INCHES

	A	B	C	D	E
No. 20 Check....	5	5 1/4	8 1/2	8 1/2	3 5/8
No. 25 Check....	5 5/8	6 1/4	9 1/8	9 7/8	4 1/4

RIXSON

FLOOR CHECKS—SINGLE ACTING—OFFSET TYPE
For Entrance and Vestibule Doors

Plate 3

SINGLE ACTING FLOOR CHECKS NO. 120 AND NO. 125

OFFSET TYPE (PATENTED)

For Entrance and Vestibule Doors

On heavy doors and on doors where the vertical adjustment afforded by the regular No. 20 and No. 25 floor checks is not desirable Rixson No. 120 and No. 125 serves a very definite purpose as the door cannot drop down on the spindle of the check and ride on the threshold. The spindle of floor checks No. 120 and No. 125 is tapered as in the single acting floor checks Nos. 21 and 26 and double acting floor checks Nos. 30 and 40 and a specially designed arm fits snugly upon it. The entire weight of the door must rest upon the spindle of the check.

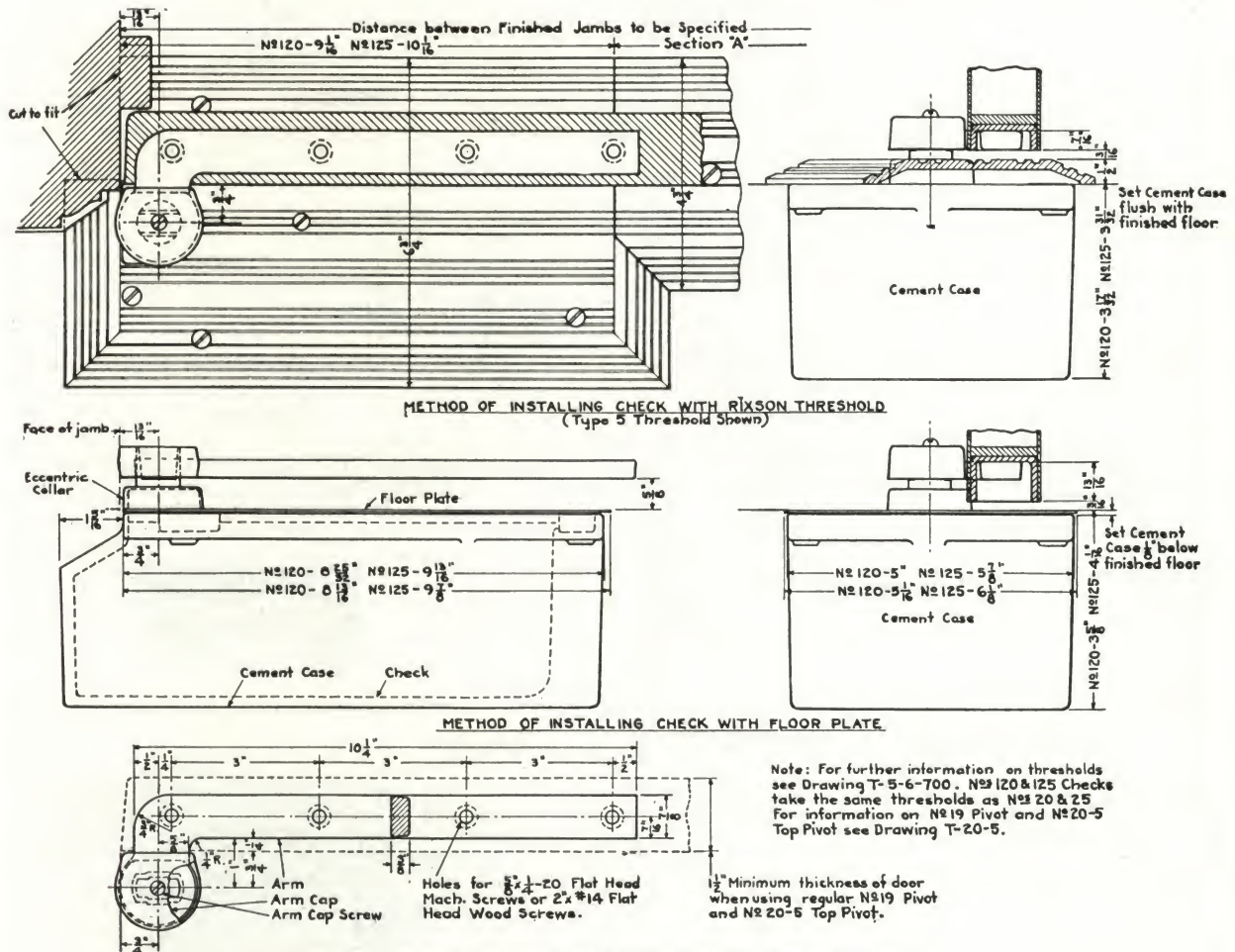
The regular ball bearing top pivot as furnished

with No. 20 and No. 25 floor checks (see Plate 3) is used with these checks and when advisable the Rixson Intermediate Pivot No. 19 (Plate 3) can be used but the pivot pin must be retracted so that no part of the weight of the door rests upon it.

When regular top pivot is used this check is also suitable for doors of a minimum thickness of $1\frac{3}{8}$ in. When No. 19 side pivot is used minimum thickness of door can be $1\frac{1}{2}$ in.

Price same as No. 20 and No. 25, respectively.

Can be supplied with Hold-open feature when so ordered. State degree of Hold-open.



BLUE PRINT TEMPLATES FURNISHED ON REQUEST

RIXSON

FLOOR CHECKS—SINGLE ACTING—OFFSET TYPE
 For Entrance and Vestibule Doors

Plate 4

SINGLE ACTING FLOOR CHECK

NO. 18½—CENTER HUNG TYPE (PATENTED)

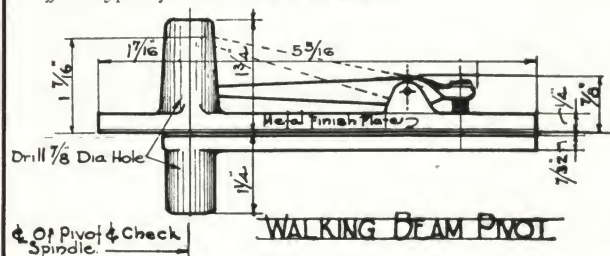
For Interior Doors and Office Rail Gates

Note: No. 18½ is recommended for use with interior single acting, self-closing doors not over 3 ft. wide.

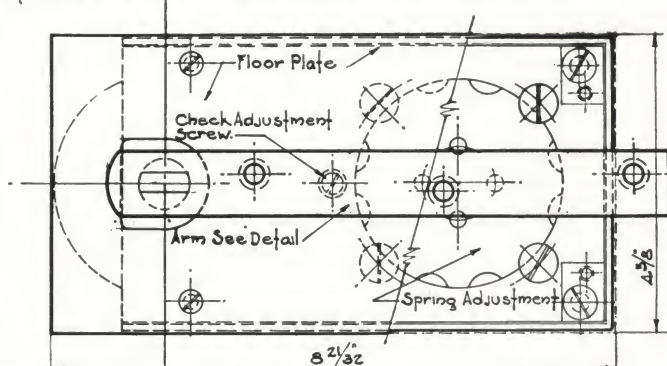
For interior doors over 3 ft. wide or doors subject to severe use, Rixson Single Acting Floor Check No. 21 is recommended.

The center hung arm design of No. 18½ check eliminates all hardware from either face of the door.

This check is identical in construction to the Rixson No. 18 Single Acting Floor Check (Offset Type) except that it has a centering arm and pivot for use on doors where the offset type of check is not desirable.

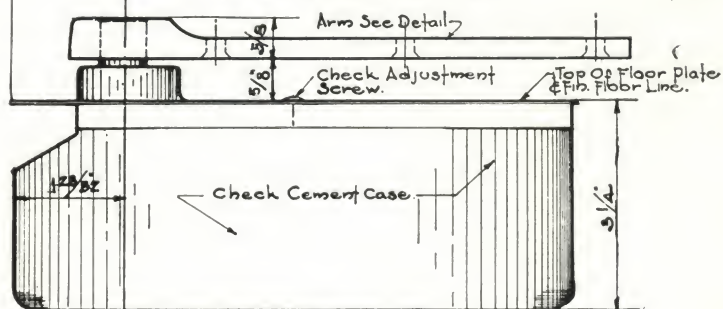


WALKING BEAM PIVOT

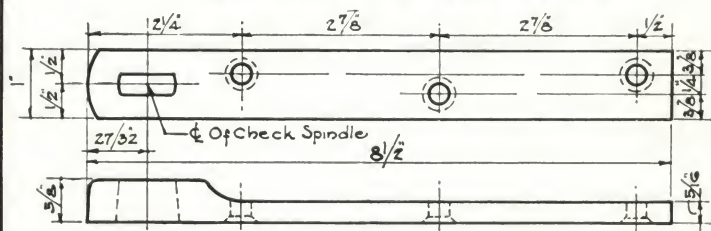


PLAN OF FLOOR CHECK

With Part Of Floor Plate Cut Away



SIDE VIEW OF FLOOR CHECK



DETAIL OF ARM

For Office Rail Gates—When ordering for use on office rail gates, prefix the letter "G" to the No. 18½, so that the special bronze rail gate top pivot and arm will be furnished without additional charge. (See detail G-10 treatment, Plate 8.)

PRICE LIST RIXSON NO. 18½ SINGLE ACTING FLOOR CHECK

No.	Description	Each
18½	In dull or polished brass or bronze finish.....	\$21.00
G-18½	In dull or polished brass or bronze finish.....	24.00

For ordinary plated finishes except as noted below, add \$1.00.

For chromium and verd antique, add \$3.00.

For white metal floor plate and pivot, add \$3.00.

Gold and silver plating, price on application.

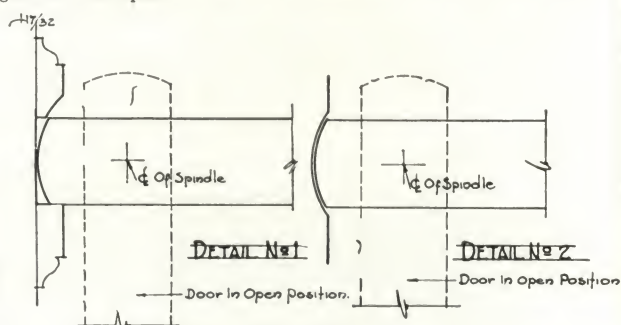
Dull brass furnished unless otherwise ordered.

The above prices include cement box.

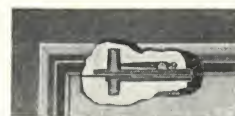
When ordering state hand. (See first page regarding hand.)

See plate No. 1 for suggested specification for floor check.

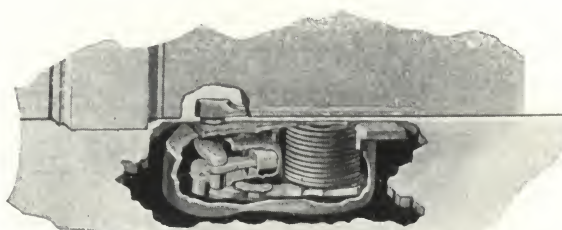
Can be supplied with Hold-open feature when so ordered. State degree of Hold-open.



Details Nos. 1, 2 and 3 Are Suggestions for Detailing Doors Using Center Hung Type Single Acting Floor Checks



Walking Beam Top Pivot



No. 18½ Single Acting Floor Check

RIXSON

FLOOR CHECKS—SINGLE ACTING—CENTER HUNG TYPE
For Interior Doors

Plate 5

SINGLE ACTING FLOOR CHECKS

NO. 21 AND NO. 26—CENTER HUNG TYPE (PATENTED)

For Entrance and Vestibule Doors

Note: No. 21 is recommended for use with exterior and vestibule single acting doors not over 2 ft. 8 in. wide. Also used for the heavier and larger interior doors for which Nos. 18 and 18½ are not suitable.

No. 26 is recommended for exterior and vestibule single acting doors not over 3 ft. 6 in. wide.

Rixson Single Acting Floor Checks Nos. 21 and 26 are suitable for use with entrance and vestibule doors opening to ninety degrees, and for doors without mullions, as shown by drawings below.

By the use of this type of floor check the usual projecting knuckles of the bottom arm and top pivot are eliminated and the floor plate centers under the door.

Floor plates of Nos. 21 and 26 are made to

extend back over the depressed portion of cement case and can be cut to fit jamb at the job.

Operating mechanism is the same as in our Nos. 20 and 25, respectively, the only difference being in the manner of application.

PRICE LIST RIXSON NOS. 21 AND 26 SINGLE ACTING FLOOR CHECKS

No.	Description	Each
21	Dull or polished brass or bronze.....	\$30.00
26	Dull or polished brass or bronze.....	38.00

For ordinary plated finishes except as noted below, add \$1.00.

For chromium and verd antique, add \$3.00.

For white metal floor plate, add \$3.00.

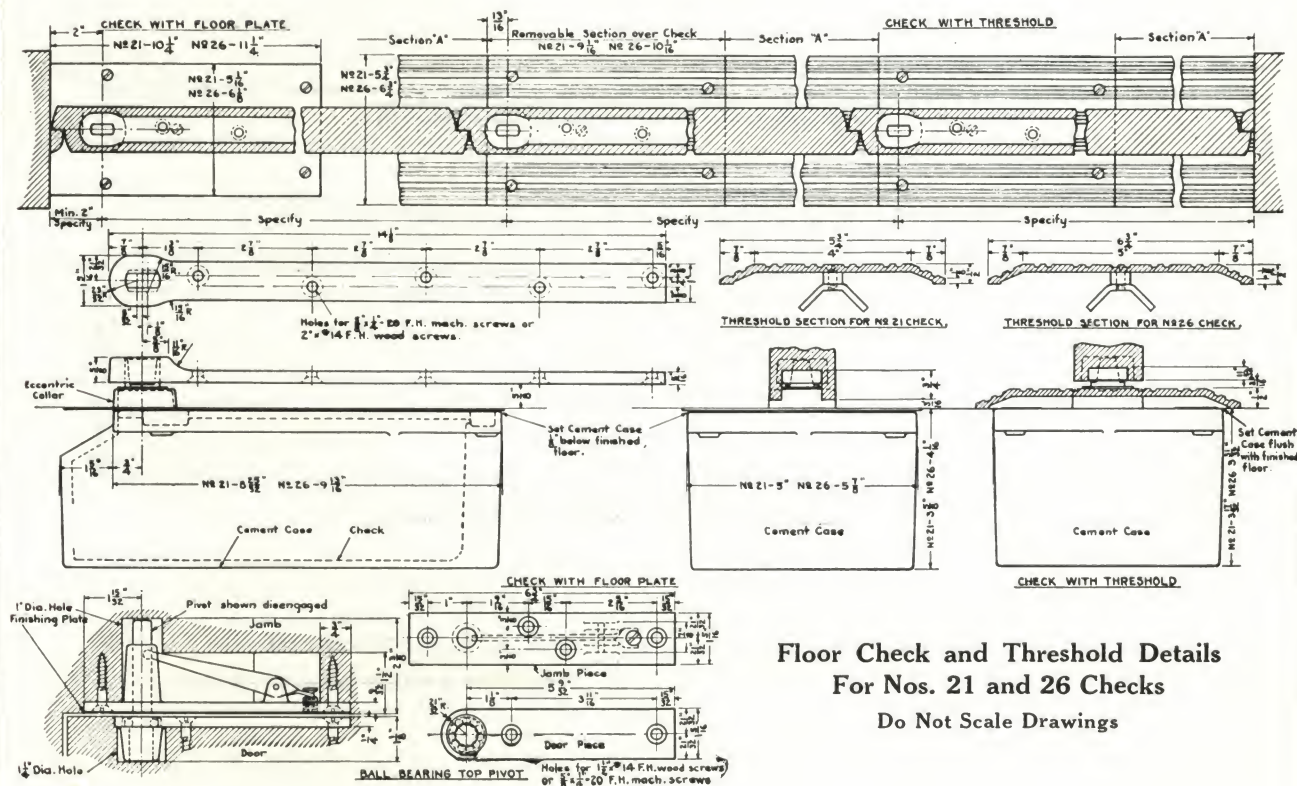
Gold and silver plating, price on application.

The above prices include cement cases.

When ordering state hand. (See first page regarding hand.)

See Plate No. 1 for suggested specification for floor checks.

Can be supplied with Hold-open feature effective at 90 degrees when so ordered.



Floor Check and Threshold Details
For Nos. 21 and 26 Checks
Do Not Scale Drawings

RIXSON

FLOOR CHECKS—SINGLE ACTING—CENTER HUNG TYPE
For Entrance and Vestibule Doors

Plate 6

SINGLE ACTING FLOOR CHECKS NO. 21 AND NO. 26

CENTER HUNG TYPE (PATENTED)

For Entrance and Vestibule Doors Hung Back to Back

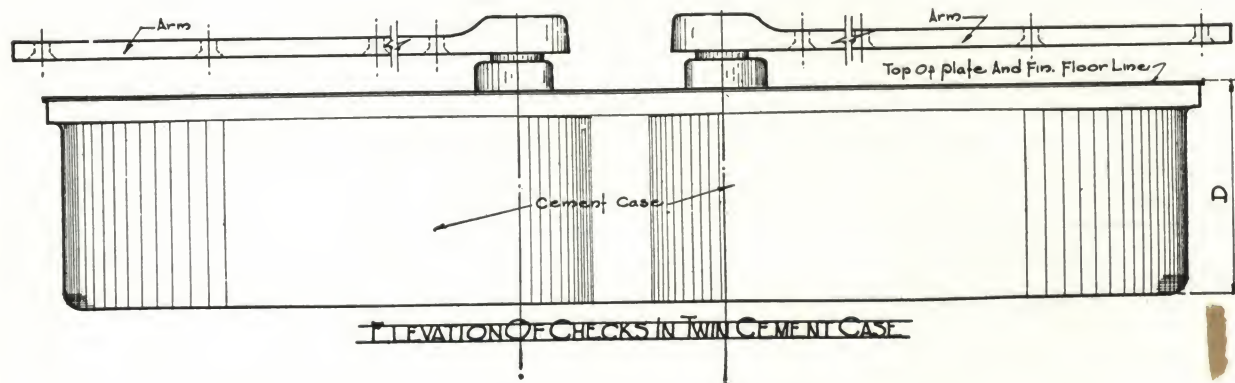
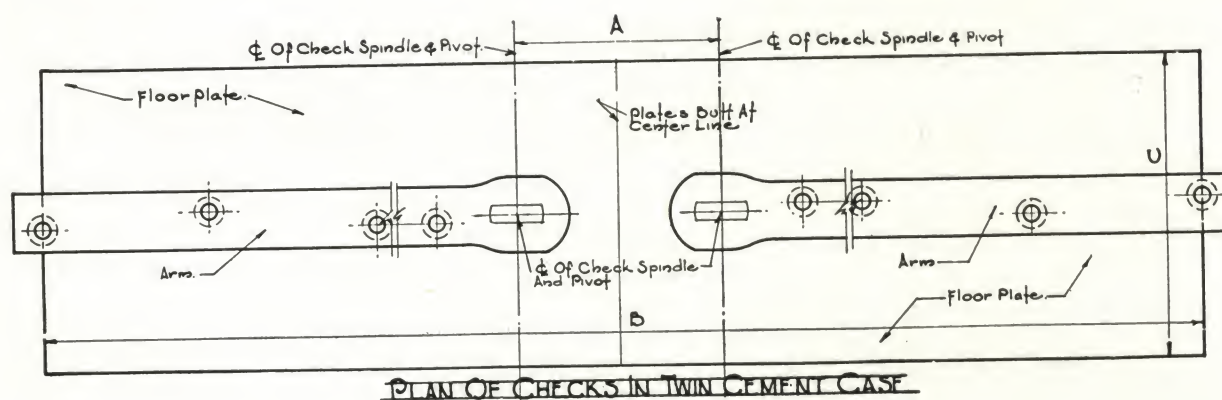
On doors hung back to back without mullions Rixson No. 21 and No. 26 single acting center hung type floor checks with twin cement cases give greater opening width between doors at right angles: a feature very important on theatres, office and public buildings. Installation is very simple. Rabbets and stops can be designed the same as for regular No. 21

and No. 26 floor checks depending on layout of doors.

Due consideration must be given to clearance required for push and pull bars.

Price same as regular No. 21 and No. 26.

Can be supplied with a Hold-open feature effective at 90 degrees when so ordered.



DIMENSIONS FOR NO. 21 AND 26 FLOOR CHECKS IN TWIN CEMENT CASE
Dimensions in Inches

	A	B	C	D
Check No. 21....	3½	20	5½	3½
Check No. 26....	3½	22	6½	4½

BLUE PRINT TEMPLATES FURNISHED ON REQUEST



FLOOR CHECKS—SINGLE ACTING—CENTER HUNG TYPE
For Entrance and Vestibule Doors

Plate 7

DOUBLE ACTING FLOOR CHECKS

**NO. 10 AND NO. 15 WITH AUTOMATIC HOLDER (PATENTED)
NO. 12 AND NO. 16 WITHOUT AUTOMATIC HOLDER (PATENTED)**

For Interior Doors and Office Rail Gates

Note: For interior, double acting doors not over 2 ft. 8 in. wide, we recommend:

*No. 10 where hold open feature is desired;
No. 12 where hold open feature is not desired.*

For interior, double acting doors over 2 ft. 8 in. wide but not exceeding 3 ft. in width, we recommend:

*No. 15 where hold open feature is desired;
No. 16 where hold open feature is not desired.*

For interior, double acting doors over 3 ft. wide, or interior doors subject to severe use, Rixson Double Acting Floor Check No. 30 is recommended.

Rixson Double Acting Floor Checks Nos. 10, 12, 15 and 16 have been specially designed for pantry doors, gates in office railings, etc. They permit the door to swing in both directions, yet bring it quietly to rest at center without rebound or "flip-flap."

Nos. 10 and 15, when door is opened to 90 degrees, automatically hold the door in that position so that no door holder is required. Nos. 12 and 16 correspond in all respects to Nos. 10 and 15, respectively, *except* that they do not have the automatic door holding feature.

We recommend either brass or bronze natural color finish for floor plates. A cast iron floor box, which we call "cement case," must be used when the check is set in masonry floor. Cement case is furnished only when ordered.

For Office Rail Gates—When ordering for use on office rail gates, prefix the letter "G" to the number (i.e., G-10, G-15, etc.) so that the special bronze rail gate top pivot and arm will be furnished without additional charge. (See detail of G-10 treatment, below.)

PRICE LIST RIXSON NOS. 10, 12, 15 AND 16 DOUBLE ACTING FLOOR CHECKS

No.	Description	Each
10	With automatic holder } For Inside Doors up to 2 ft. 8 in.	
12	No automatic holder } wide	\$15.00
15	With automatic holder } For Inside Doors up to 3 ft.	
16	No automatic holder } wide	18.00

Cement case, fits all four sizes \$1.00.

Above prices are for dull or bright brass or bronze.

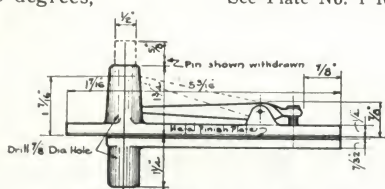
For any ordinary plated finish except as noted below, add \$1.00.

For chromium and verd antique, add \$2.00.

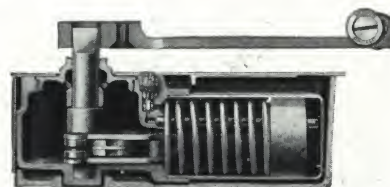
For white metal, add \$2.50.

Gold and silver plating, price on application.

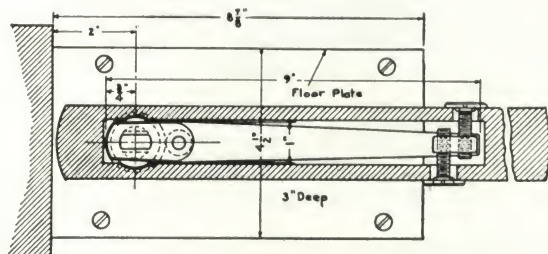
See Plate No. 1 for suggested specification for floor checks.



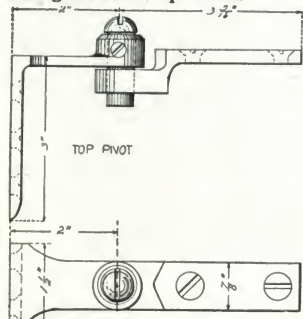
Walking Beam Top Pivot



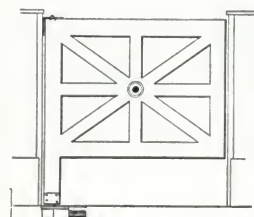
Nos. 10, 12, 15 and 16 Double Acting Floor Checks



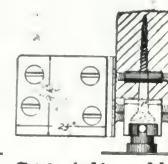
Plan of Floor Check



G-10 Top Pivot



Elevation



G10 Adjustable Bottom Shoe

JUNIOR DOUBLE ACTING FLOOR CHECK

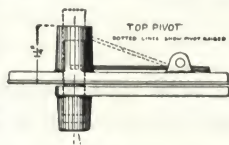
For Light Interior Doors Only

Note: Rixson Junior is recommended for use with light interior double swing serving doors not over 2 ft. 8 in. wide.

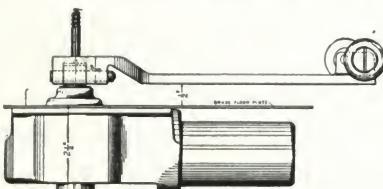
Rixson Junior has been developed for operating the double swing serving door to pantry or dining room in the moderate cost home. For this service on light doors Rixson Junior will give the same satisfactory service as the larger floor checks, at a considerable saving in cost. Rixson Junior permits the door to swing in both directions, closing it gently without any rebound or "flip-flap."

All wearing parts are of case-hardened steel and are immersed in a lubricating liquid which also serves to check the closing speed of the door. The checking action is regulated by a needle valve which is accessible through the floor plate. An unusually durable compression spring provides the closing power.

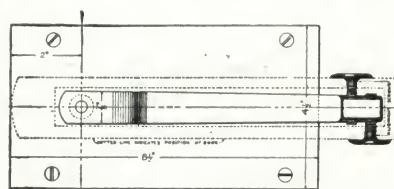
Furnished With or Without Automatic Door Holder—When opened to right angle the Rixson Junior will automatically hold the door in that position until released by a slight push. This eliminates the necessity of a separate door holder.



Top Pivot



Elevation of Junior Check



Plan of Junior Check

There are some doors which it is desirable to have "self-closing" at all times; Rixson Junior can be supplied *without* the hold-open feature when desired.

Price is the same for either style.

PRICE LIST RIXSON JUNIOR DOUBLE ACTING FLOOR CHECK

No.	Description	Each
Junior	Dull or polished brass or bronze.....	\$10.00

Ordinary plated finishes except as noted below, add \$1.00.

Chromium and verd antique, add \$2.00.

White metal, add \$2.50.

Gold and silver plating, price on application.

Dull brass furnished unless otherwise ordered.

Cement case, \$1.00.

A cast iron floor box, which we call "cement case" must be used when the check is set in masonry floors. Furnished on order only.

RIXSON

FLOOR CHECKS—DOUBLE ACTING
For Interior Doors

Plate 8

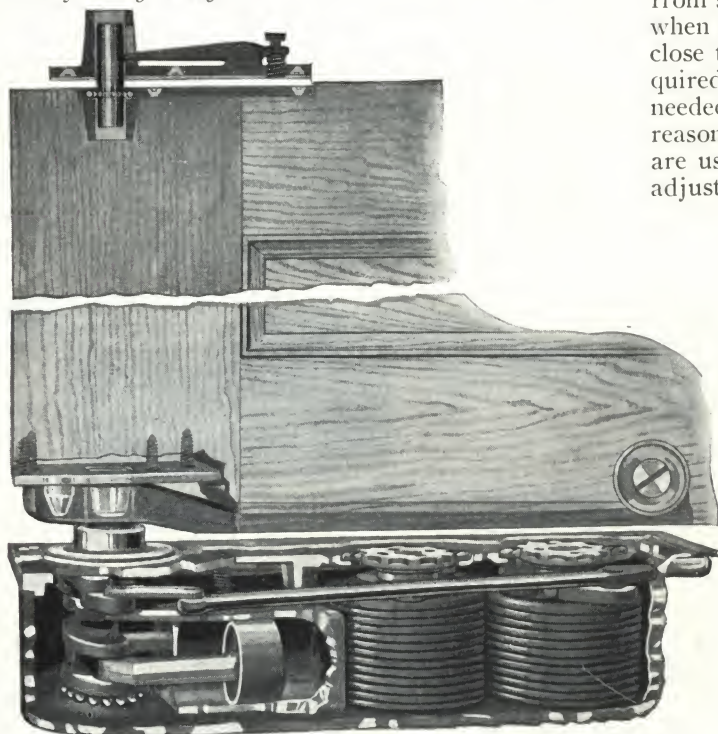
DOUBLE ACTING FLOOR CHECKS

NO. 30 AND NO. 40 (PATENTED)

For Entrance and Vestibule Doors

Note: No. 30 is recommended for use with exterior and vestibule double acting doors not over 2 ft. 10 in. wide. Also used for interior doors subject to severe use, or of such sizes that Nos. 10, 12, 15 and 16 checks would not be suitable.

No. 40 is recommended for exterior and vestibule double acting doors not over 3 ft. 6 in. wide, or on doors subjected to very strong draughts.



Rixson Nos. 30 and 40 Double Acting Floor Checks

Rixson Double Acting Floor Checks Nos. 30 and 40 are designed with two springs and two checks for the following reasons: due to the inrush of air on windy days it takes a great deal of spring power to close the door after it has been opened inward, but it takes very little checking resistance to keep the door from slamming because the wind acts as a check; but when the door is opened outward, the wind tends to close the door, so that very little spring power is required, but a great deal of checking resistance is needed to keep the door from slamming. For these reasons two springs and two checking mechanisms are used in this design, each spring and check being adjustable independently.

The spindle, links and other parts subjected to wear are of drop-forged steel and case hardened. The spindle runs on $\frac{1}{16}$ -in. steel balls and the whole device is filled with our non-freezing checking fluid which possesses high lubricating qualities.

We recommend either brass or bronze, natural color finish for floor plates.

PRICE LIST RIXSON NOS. 30 AND 40 DOUBLE ACTING FLOOR CHECKS

No.	Description	Each
30	For outside doors not over 2 ft. 10 in. x 7 ft. 6 in.....	\$44.00
40	For outside doors not over 3 ft. 6 in. x 7 ft. 6 in.....	60.00

For ordinary plated finishes except as noted below,
add \$1.50.

For chromium and verd antique, add \$3.00

For white metal, add \$4.50.

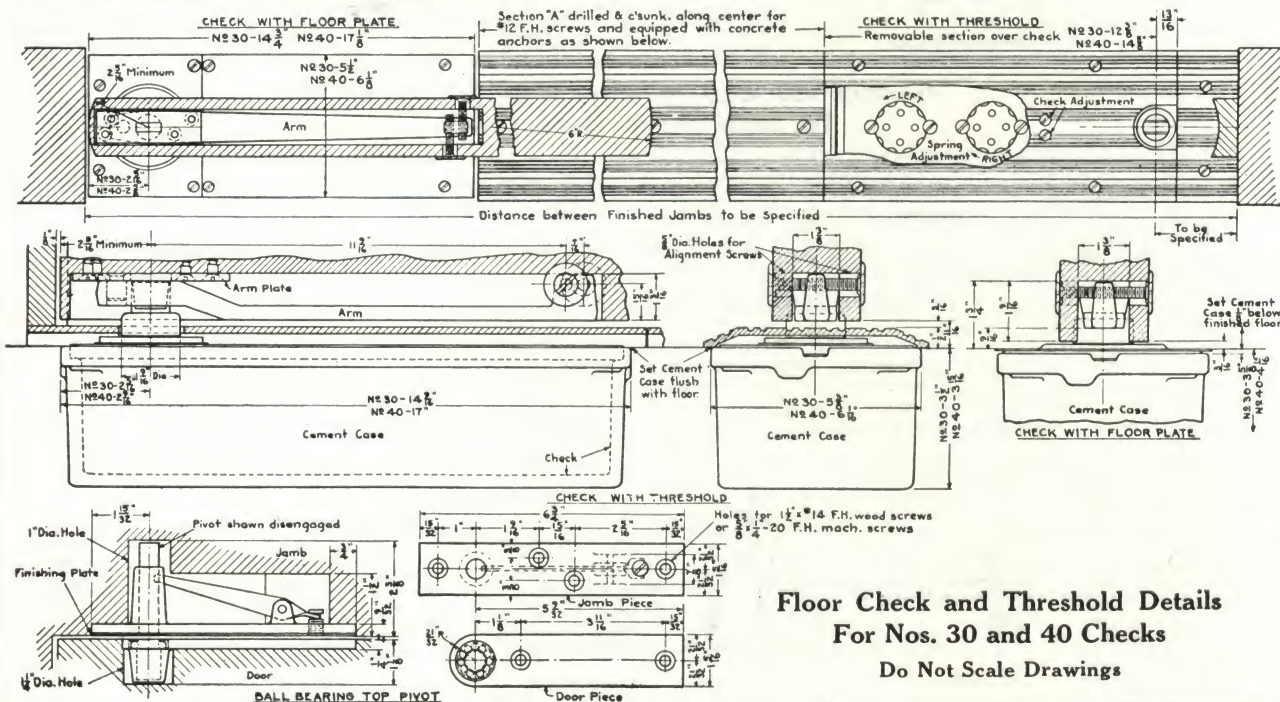
Gold or silver, price on application.

Above prices include cement case.

Dull brass furnished unless otherwise ordered.

Use No. 40 on doors subjected to heavy draughts.

See Plate No. 1 for suggested specifications for floor checks.



Floor Check and Threshold Details For Nos. 30 and 40 Checks

Do Not Scale Drawings



FLOOR CHECKS—DOUBLE ACTING

For Entrance and Vestibule Doors

Plate 9

ARCHITECTURAL THRESHOLDS OF RIXSON DESIGN

BRONZE

ALUMINUM

EXTRUDED (PATENT PENDING)

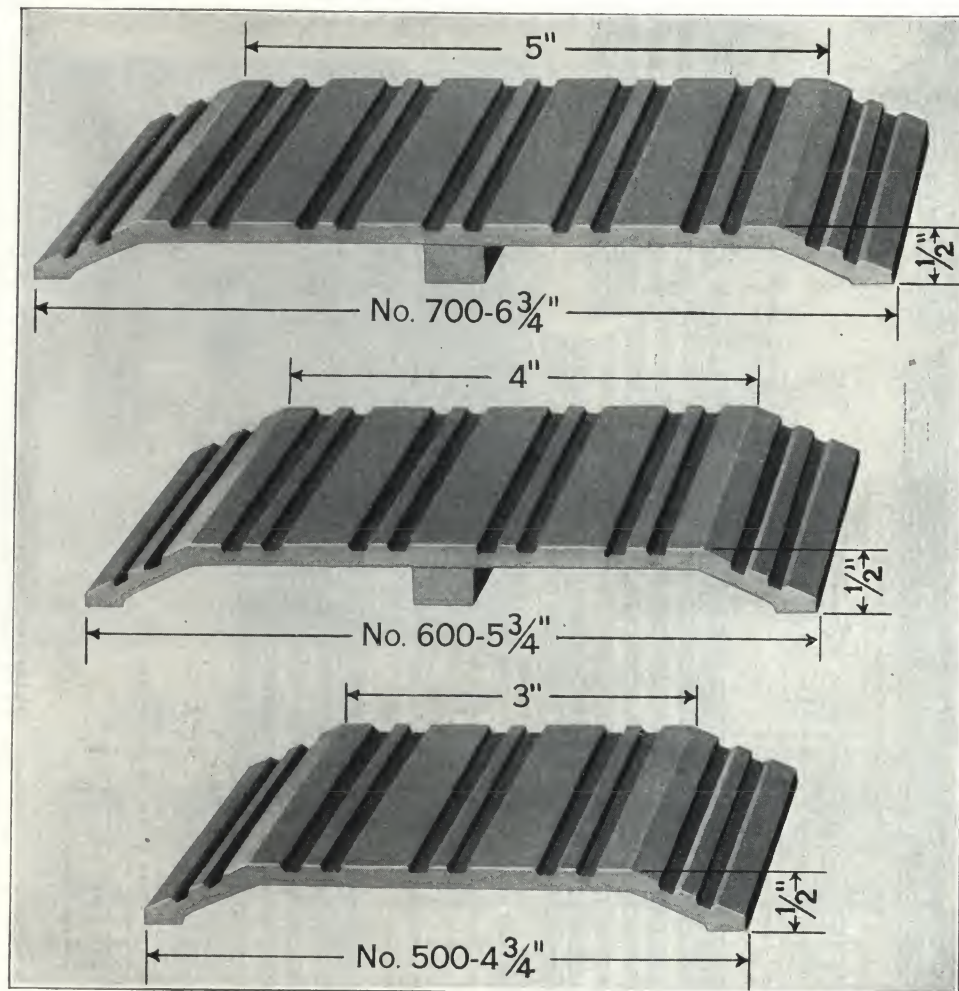
A symmetrically pleasing design of threshold adapted for use with Rixson Floor Checks or where floor checks are not used.

When considering thresholds and floor checks it is essentially logical to specify Rixson Floor Checks and Rixson Thresholds by number and

type assuring the utmost in satisfaction and quality.

This Company, being the most successful manufacturers of floor checks and with the longest experience, is eminently qualified to furnish thresholds as an installation integral with floor checks.

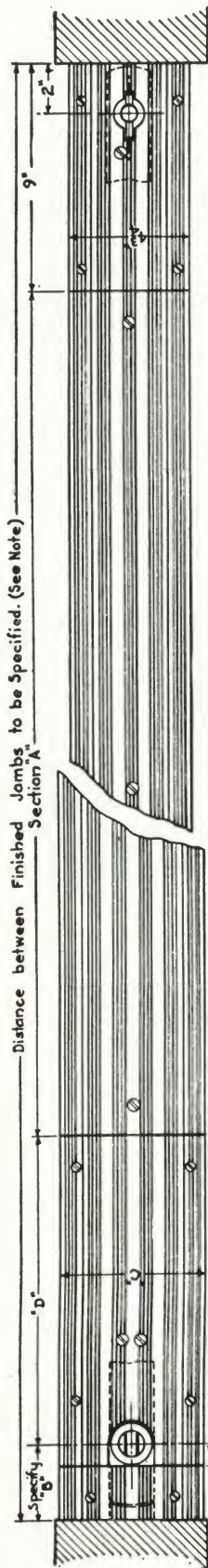
NOTE: See page 12—Plate 11 for details of thresholds for use with Rixson Floor Checks



The Pleasing Design of Rixson Threshold Should Guarantee Its Use Also Where Floor Checks Are Not Required

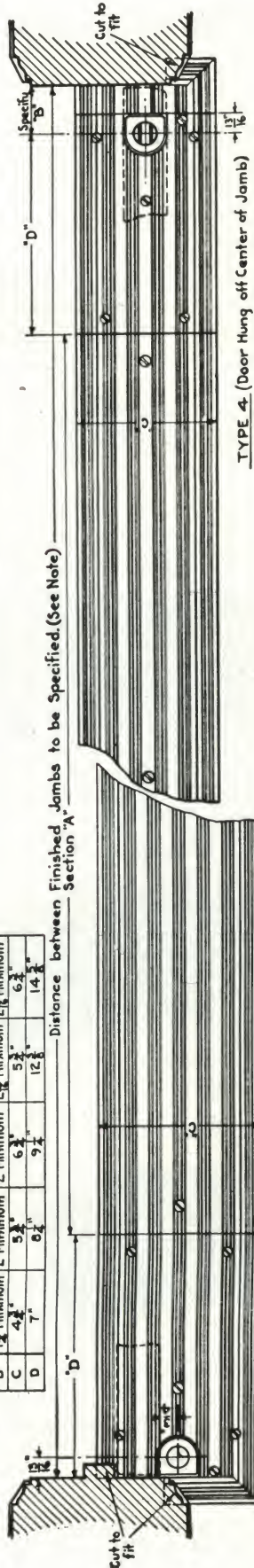
ARCHITECTURAL THRESHOLDS OF RIXSON DESIGN
Extruded (Patent Pending)

Plate 10



TYPE 2 (Door Hung at Center of Jamb)

JUNIOR	10	12	15	16
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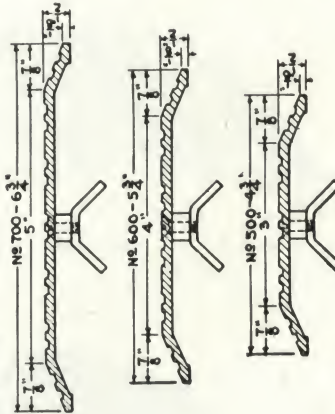
TYPE 3 (Door Hung off Center of Jamb)

B	18 1/2"	21"	26"
C	4 1/2"	5 1/2"	6 1/2"
D	7"	8 1/2"	9 1/2"

TYPE 5 (Door Hung off Center of Jamb)

B	18 1/2"	21"	26"
C	4 1/2"	5 1/2"	6 1/2"
D	7"	8 1/2"	9 1/2"

SECTION "A"
When specified with Concrete Anchors — is drilled & sunk along center screws.
When specified with Wood Screws — is drilled & sunk along each edge for 1 1/2" x #12 Oval Head wood screws.



THRESHOLD DETAILS FOR USE WITH RIXSON FLOOR CHECKS

TYPE 5 (Door Hung off Center of Jamb)

B	20"	25"
C	6 1/2"	6 1/2"
D	9 1/2"	10 1/2"

IMPORTANT
The EXACT DISTANCES BETWEEN FINISHED JAMBS (not door stops), and between CHECK SPINDLES and FINISHED JAMBS must be specified. We are NOT RESPONSIBLE if the length ordered does not fit the opening. In setting thresholds, the floor checks and cement cases should be at hand. The entire assembly should be blocked up in the door opening so that the check spindles are properly located and the sections of threshold line up perfectly.
When pouring concrete floors openings should be left between jambs so that checks and threshold may be grouted in accurately after the finished jambs are in place.

CAUTION

Template drawings are revised from time to time. We are not responsible for difficulties arising from the use of obsolete drawings. Always request our latest print for each installation.

DO NOT SCALE DRAWINGS

RIXSON

ARCHITECTURAL BRONZE AND ALUMINUM THRESHOLDS OF RIXSON DESIGN

Extruded (Patent Pending)

Plate 11

DOOR STAYS AND HOLDERS

NO. 38 AND NO. 39 (PATENTED)

For Holding Doors Open

Note: We recommend Rixson (No. 38) (No. 39) Door Stay and Holder for all exterior and vestibule doors.

Because of the special release feature embodied in the No. 38 holder damage cannot result to either door or holder when the door is thrown open violently or forced shut without releasing the thumb turn.

The curved spring arms of Rixson Door Stays and Holders furnish a shock absorbing action when the door is opened, relieving the strain on the hinges. Entrance doors to public buildings, roof doors opening against brick reveals, etc., require the protection this device affords.

Made in two styles, as follows:

No. 38 only holds the door open when a thumb piece "E" is turned. (See Fig. 1.)

No. 39 holds the door open automatically; it has a wedge shaped stationary block that engages spring arms "B" when the door is pushed open. It is released by a slight pull.

Heavy traffic doors, or doors made of soft wood, should have anchor piece "C" attached with bolts through door. (See Fig. 2.)

PRICE LIST RIXSON DOOR STAYS AND HOLDERS
NOS. 38 AND 39

Size, in.	Suitable for doors of following widths	Price, each		
		Steel		Phosphor bronze
23	2 ft. 2 in. to 2 ft. 5 in.	Electro gal. or black rustless	Gal. and painted statuary bronze	\$ 8.00
27	2 ft. 6 in. to 2 ft. 9 in.	\$4.60	\$5.00	8.50
31	2 ft. 10 in. to 3 ft. 2 in.	4.75	5.20	9.00
36	3 ft. 3 in. to 3 ft. 8 in.	5.00	5.50	10.00
		5.50	6.00	

Bolts with nuts and washers for anchor piece "C," add to list for steel \$0.15.

Add to list for bronze \$0.30.

Plating on phosphor bronze only, finishes B8P to B14P, add to list \$1.50.

Chromium plate on phosphor bronze only, add to list \$3.00.
Packed 2 in a box with screws.

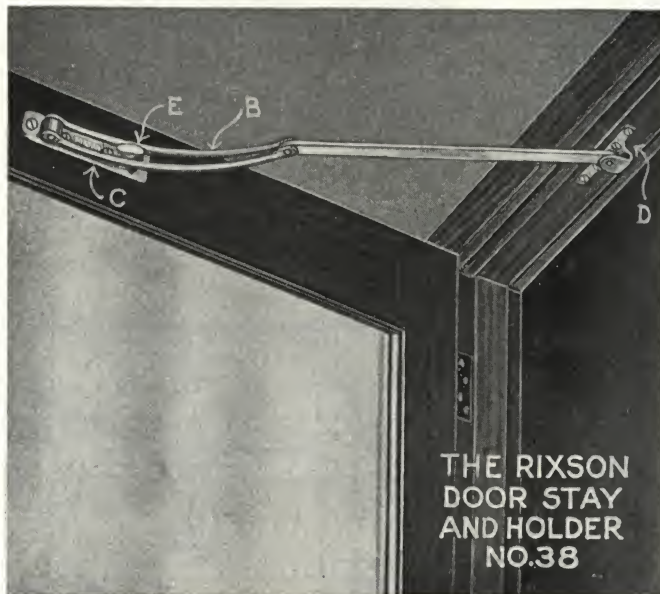


Fig. 1

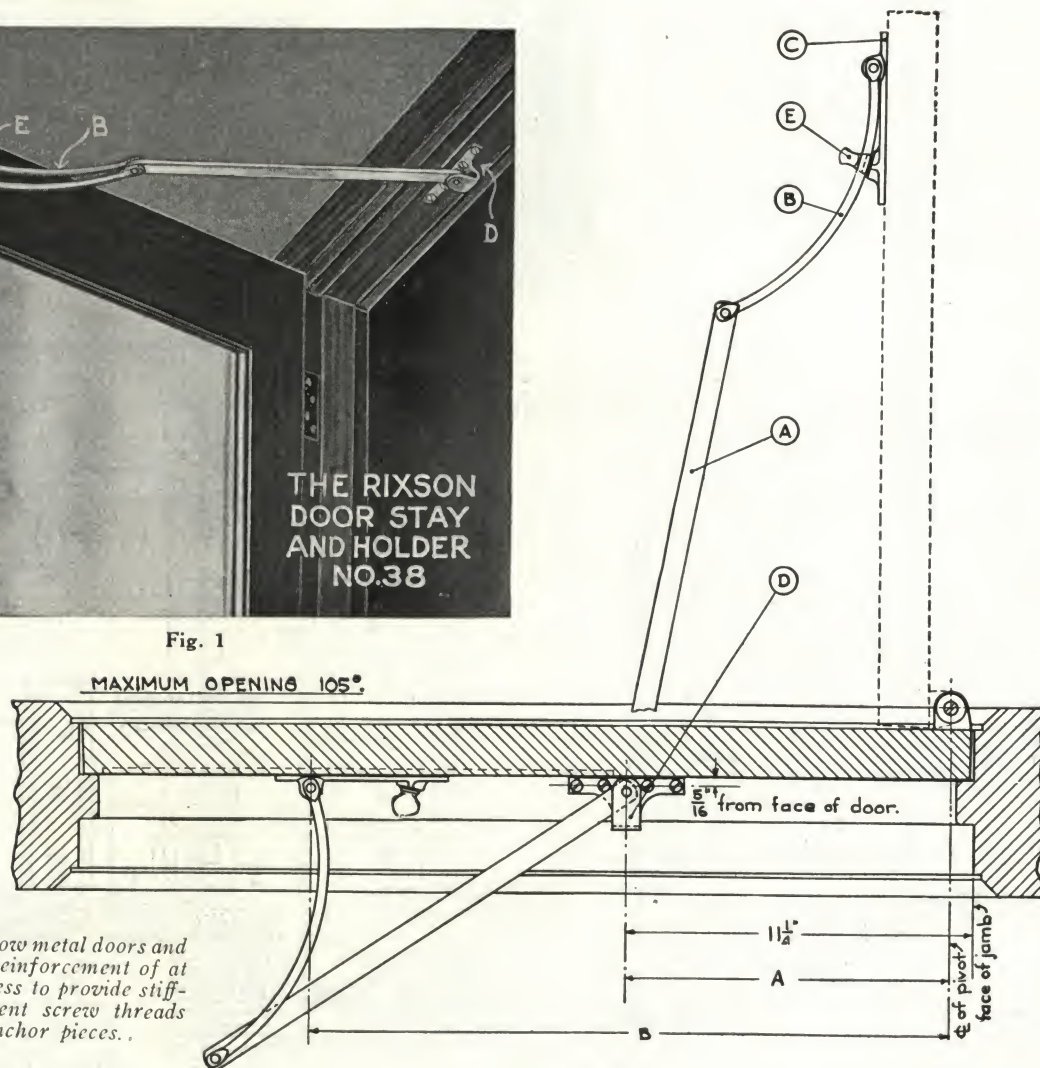


Fig. 2

Note: Hollow metal doors and trim require a reinforcement of at least 3/8\"

RIXSON

DOOR STAYS AND HOLDERS
For Exterior Doors

Plate 12

CONCEALED TRANSOM OPERATOR NO. 48 (PATENTED)

Rixson Concealed Transom Operator No. 48 is used for operating transoms over interior doors in hotels, hospitals, office and public buildings, etc. *It is not recommended for operating transoms in exterior walls.* No hinges are required when this device is used.

Made of cold rolled steel, with all bearings bronze bushed and all steel parts electrogalvanized. Operating handle is cast brass or bronze. The simplicity of the construction is shown in Fig. 8; the efficiency of a screw mechanism, as employed in this operator, is so well understood that further description is unnecessary.

No. 48 will operate bottom hung transoms (see Fig. 8) and also top hung or center pivoted transoms.

The handle can be located in any position on the casing by blocking out the jamb (at screws E-E) at the lower end of the operator. The upper end of jamb must not be blocked out.

Bending plate F and rod C does not interfere with the proper operation, as this adjustment is provided for in the construction of the operator.

Fig. 8 shows a left-hand operator.

The length of the operator is governed by the height of the door. Installations for center pivoted and top hung transoms must also take into consideration the height of the sash. For doors 7 ft. high, with bottom hung transoms, we carry in stock operators 2 ft. 3 in. long from center of pivot to center of handle; this locates the handle about 5 ft. from the floor, a location which has been found very practicable, as handles located lower than this have been known to catch and tear the clothing of passersby.

Instructions for Detailing

Round the lower edge of transom sash, hinged at bottom, as shown in typical installation, or detail the transom as shown. The upper edge of transom sash, hinged at top, requires similar detailing.

Detail indicates method of forming rebate and shows offset arm required for center pivoted transom sash.

Use offset sash arm on top or bottom hung transom when sash is placed an inch or more back from edge of jamb, or where construction will not permit arm, shown in Fig. 8, to be screwed into place.

Top or bottom hung transom sash should not exceed 2 ft. 0 in. in height.

Minimum height for center pivoted transom sash not less than 3 ft. 0 in.

The jamb on which the operator is mounted should be set $1\frac{1}{4}$ in. from the back.

PRICE LIST

No extra charge for operators up to 3 ft. 6 in. long.

Prices given are for operator complete with T handle.

	Each
Complete with T handle in in brass or bronze metal, dull or bright.....	\$7.00
For plated but not sanded finishes, except as noted below.....	7.50
For sanded and plated finishes, except as noted below.....	7.80
For chromium	8.50

Gold and silver plating, price on application.
Weight standard length, 6 lbs.

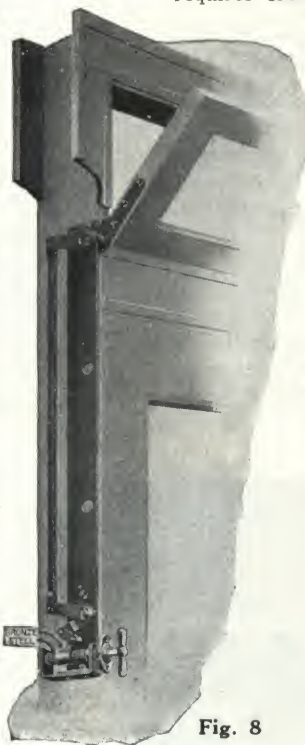
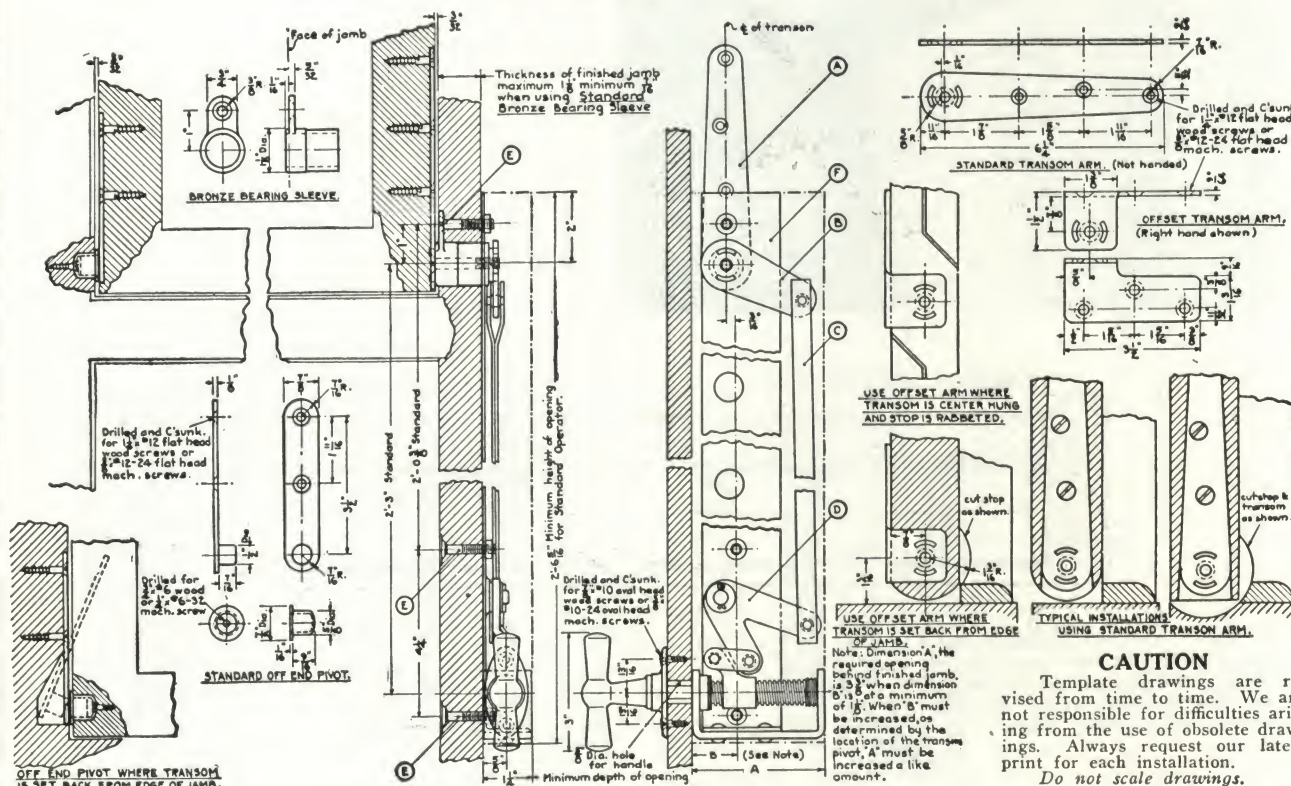


Fig. 8



CAUTION

Template drawings are revised from time to time. We are not responsible for difficulties arising from the use of obsolete drawings. Always request our latest print for each installation.
Do not scale drawings.

RIXSON

TEMPLATE DETAILS FOR
CONCEALED TRANSOM OPERATOR No. 48

Plate 13

CONCEALED TRANSOM OPERATOR NO. 50

(Patents Pending)

Designed particularly for use in metal partitions where space is limited and action must be positive. Mechanically correct and of the usual high standard of Rixson quality, this device is recommended for the most exacting specification and will render the utmost in satisfaction.

A very efficient screw and sector mechanism supplies ample power to operate practical center hung transoms. This operator will fit in a space 2-in. deep and 1½ in. wide and requires only two and one-half turns of the handle to open the transom to a maximum of 60 degrees.

Made of cold rolled steel; bearings bronze bushed; steel parts electrogalvanized; operating handle cast brass or bronze.

This device is recommended for center pivoted sash of moderate size and for light top or bottom hung sash not to exceed 14 in. in height.

Owing to the varying shapes of metal frames upper and lower brackets must be furnished to fit particular shapes. Submit details.

Instructions for Ordering

A right-hand door takes a right-hand operator when the fixture is placed on the lock side of the door. Fig. 1 shows a right-hand operator.

When transoms occur on corridor side and open out but are operated from room side of door the mechanism must be reversed at factory. State "Reversed Mechanism" when so ordering. The right-hand operator shown in

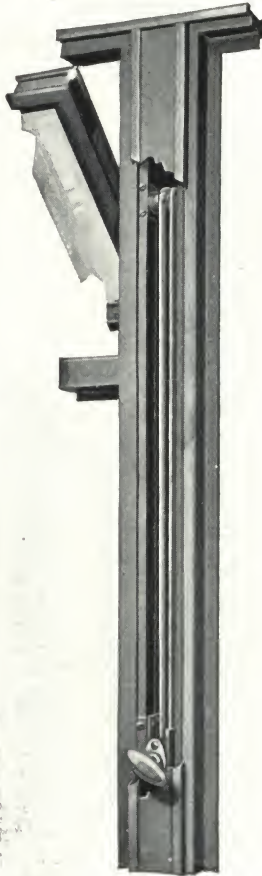


Fig. 1

Fig. 1 would then be "Left-hand Reversed Mechanism."

The length of the operator is governed by the height of the door. In the case of center and top hung transoms the height of the sash must also be considered.

For doors 7 ft. with center pivoted transoms we carry in stock operators 3 ft. long from center of pivot to center of handle. (See detail.) This brings the handle about 5 ft. from the floor, which has been found the best location as torn clothes have resulted from handles placed lower.

State hand wanted.
Give height of door.
Give height of transom.
Give thickness of door jamb.
State if transom is to be hung at bottom, center or top.
Give thickness of transom bar.
Give finish wanted on handle.
Number of hinges needed.

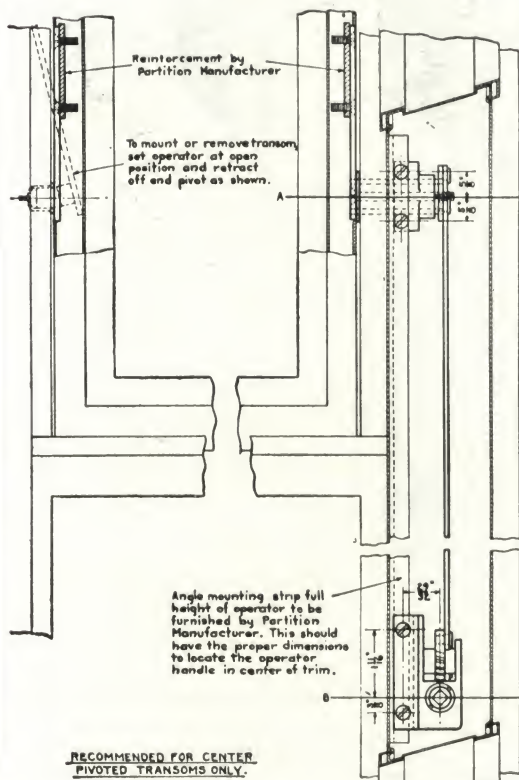
PRICE LIST

No extra charge for operators up to 3 ft. 6 in. long.

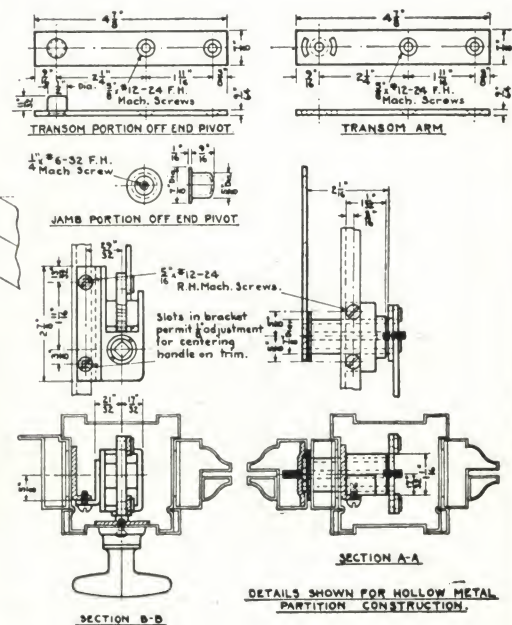
Prices given are for operator complete with knob handle.

	Each
Complete with handle in brass or bronze metal, dull or bright.....	\$5.00
For plated but not sanded finishes, except as noted below.....	5.50
For sanded and plated finishes, except as noted below.....	5.80
For chromium.....	6.50

Gold and silver plating, price on application.
Weight standard length, 4 lbs.



RECOMMENDED FOR CENTER PIVOTED TRANSOMS ONLY.



Screw reinforcement for reset by Partition Manufacturer should be in one piece and not attached to trim. Clearance holes in trim allow handle to center on operator.

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CAUTION

Template drawings are revised from time to time. We are not responsible for difficulties arising from the use of obsolete drawings. Always request our latest print for each installation.
Do not scale drawings.

RIXSON

TEMPLATE DETAILS FOR
CONCEALED TRANSOM OPERATOR No. 50

Plate 14

ADJUSTABLE BALL HINGES (Patented)

Note: These hinges are especially recommended where a bronze hinge of distinctive appearance and superior wearing qualities is desired, particularly on metal doors.

Rixson (Patented) Adjustable Ball Hinges embody mechanical features that are of particular advantage with metal doors.

On account of the special bronze used, etc., we are able to guarantee these hinges when used one pair to the door on heavy doors, such as hollow metal corridor doors in office buildings. Due to the warpage often encountered with wood doors, we recommend the use of a pair and a half on each wood door.

Friction is virtually eliminated in that the pivot A, cup bearing B and the steel ball are all of hardened steel.

The up and down adjustment feature is easily used. To raise or lower the door it is only necessary to remove Cap D; the pivot and in turn the door can be raised or lowered by turning the slotted disc, on which the pivot rests, with a large screw driver. Pivot A has a key (C) which fits in a slot in the knuckle and prevents the pivot from turning.

Rixson Adjustable Ball Hinge No. 3 is made in two widths: the narrow No. 3 hinge has the same overall dimensions as the No. 2 hinge but is much heavier, therefore suitable for use with extra heavy doors; the wide No. 3 hinge is furnished blank or with screw holes as required.

We do not supply this hinge in steel.

PRICE LIST RIXSON (PATENTED) ADJUSTABLE BALL HINGES

No.	Description	Price per pair	
		5x4½	5x8
2	Cast bronze, polished or dull.....	\$ 9.00	
3	Cast bronze, polished or dull.....	11.25	\$20.00

For plated but not sanded finishes, except as noted below, add \$1.25 for 5x4½ size, \$2.50 for 5x8 size to above prices.

For polished nickel, imitation half polished iron and sanded plated finishes, except as noted below, add \$1.75 for 5x4½ size, \$3.50 for 5x8 size, to above prices.

For chromium and verd antique finishes, add \$3.00 for 5x4½ size, \$5.00 for 5x8 size, to above prices.

Gold or silver plating on application.

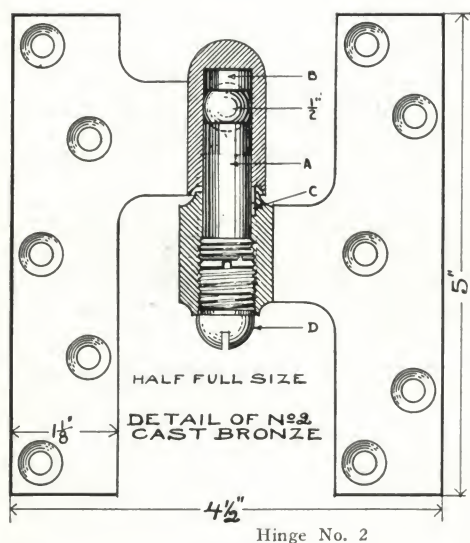
When ordering state hand wanted. (See page 1.)



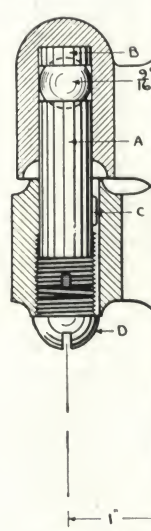
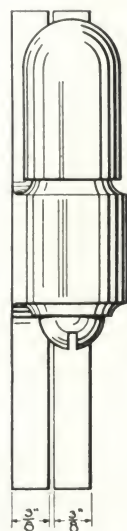
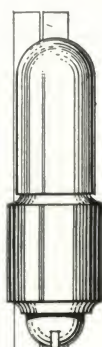
Hinge No. 2



Hinge No. 3



Hinge No. 2



HINGE N°3 5x8" SIZE

LEAVES FURNISHED
BLANK OR WITH SCREW
HOLES AS REQUIRED.

HALF FULL SIZE

Rixson Adjustable Ball Hinges

RIXSON

ADJUSTABLE BALL HINGES

Plate 15

FRICTION HINGE NO. 85

(Patented)

Note: This hinge is recommended for use on hospital and hotel room doors and inswinging casement windows.

Rixson Friction Hinge No. 85 is designed on the simple mechanical principle of a brakeband. It prevents slamming and holds the doors or sash open at any point; it is not affected by normal drafts. The center knuckle has a flat extension which passes around the pin. Screws (B) are threaded into this extension and friction is applied by simply turning these screws with a large screwdriver. There is a perforated sleeve (C) surrounding the pin; the perforations retain the grease which serves as a lubricant to eliminate all possible chance of noise. Friction is distributed over an unusually large area, an essential feature which permits easy and accurate adjustment and prevents wear. Being of the loose pin type, application is simple. This friction hinge has been on the market for more than ten years and there are thousands of pairs in use. A list of installations will be gladly furnished upon request. Wood screws for use with this hinge are specially made, being threaded clear up to the head to insure a good hold.

PRICE LIST RIXSON NO. 85 FRICTION HINGES

	Description	Price per pair			
		3 1/2 x 3 1/2	4 x 4	4 1/2 x 4 1/2	5 1/2 x 4 1/2
FS	Steel, sanded, prime coated.....	\$2.10	\$3.00	\$3.50	\$4.50
F2-F3	Steel, electrogalvanized or black rustless....	2.50	3.40	4.00	5.25
	Steel, planished plated, F4 to F13, incl.....	2.90	3.90	4.50	5.25
	Steel, planished plated, F14, F15, F15S and F5S to F13S, incl.....	3.10	4.10	4.75	5.50
	Steel, polished plated, F4P to F13P, incl.....	3.50	4.50	5.00	5.85
	Steel, polished plated, Rixson finishes, F15P, F15PS and F5PS to F13PS, incl. and F17PS.	3.75	4.75	5.25	6.25
	Steel, polished plated, chromium F19P and F19PS.....	4.50	5.75	6.50	7.75

Gold or Silver Plating: Price on application.

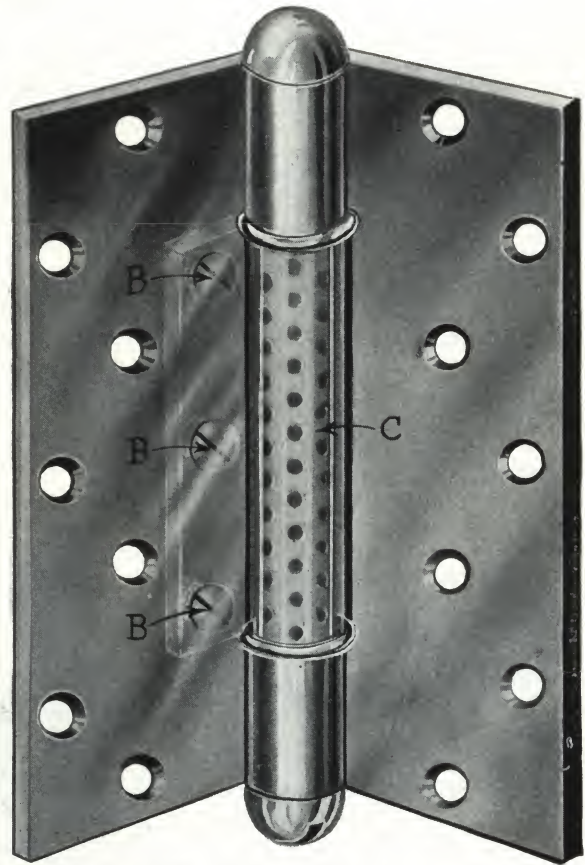
Bronze and White Metal: Price on application and in quantities only.

When ordered to template add 30¢ per pair, list, to above prices.

When machine screws are specified all sizes are packed with

1/2-in. 12-24 machine screws.

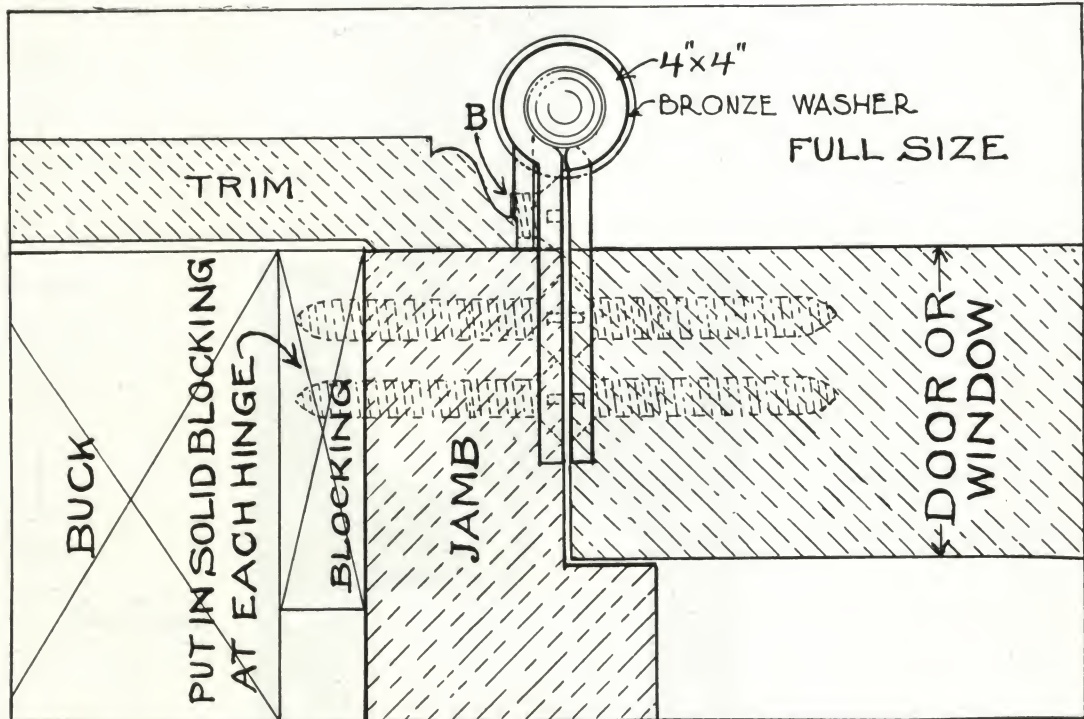
This hinge is not "handed."



Rixson Friction Hinge No. 85



Cross Section
Rixson Friction
Hinge No. 85,
Showing Ad-
justing Screw
"B"



Installation Detail Friction Hinge No. 85

RIXSON
FRICITION

FRICTION HINGE NO. 85

Plate 16

OLIVE KNUCKLE HINGES

(Patented)

Note: We recommend that the sand blasted finish be used and painted or stained at the job to match woodwork. No. 80 is intended for use on light doors up to 1½ in. thick. No. 81 is recommended for heavier doors. No. 84¼ is a cabinet hinge for use on bookcase and cupboard doors.

The knuckle of this hinge is a copy of the popular but expensive French Olive Knuckle Hinge. The leaves have been so designed as to make them readily adaptable to American construction and easier to paint than their French prototypes.

The increasing demand for this type of hinge, not only in fine residences but also for hospitals, hotels and apartment houses, shows that its advantages are well appreciated and that its moderate cost makes possible its choice in preference to ordinary hinges, even where large quantities are involved.

These hinges are made in cast malleable iron, selected for its unbreakableness, and also in brass and bronze metal. Architects interested in "half polished iron" hardware should ask to see sample as we feel confident that our Olive Knuckle Hinge in this finish will meet with approval. We do not make these hinges in steel or ordinary cast gray iron, nor in plated iron. These hinges have been used in some of the finest residences in the country; a list of references will be gladly furnished.

Painters' Instructions — Note: These hinges can be finished to match natural hardwood as well as painted woodwork. To match natural finish woodwork or stained woodwork, give the hinges one coat of yellow ochre, let this coat dry, then stain or varnish same as woodwork.

To match painted woodwork, just paint the hinges same as the woodwork; the sand blasted finish which is primed makes the paint stick perfectly.

PRICE LIST RIXSON OLIVE KNUCKLE HINGES

	Description	Price per pair		
		No. 80 5"x3½"	No. 81 6"x4¼"	No. 84¼ 3"x2¼"
FS	Malleable iron, sanded	\$1.80	\$2.40	\$1.15
F2	Malleable iron, electrogalvanized	2.50	3.25	1.75
F3	Malleable iron, black rustless	2.50	3.25	1.75
F18P	Malleable iron, half polished and oiled	4.50	5.25	3.25
	Brass or bronze metal, unpolished	5.25	6.50	3.25
	Brass or bronze metal, unpolished, sanded	5.75	7.00	3.70
	Brass or bronze metal, polished or dull	7.00	8.50	4.50
	For plated but not sanded finishes except as noted below	8.00	9.70	5.10
	For polished nickel, imitation half-polished iron and sanded and plated finishes except as noted below	8.25	10.00	5.30
	For chromium and verd antique	9.50	11.50	6.00

All hinges have bronze washers.

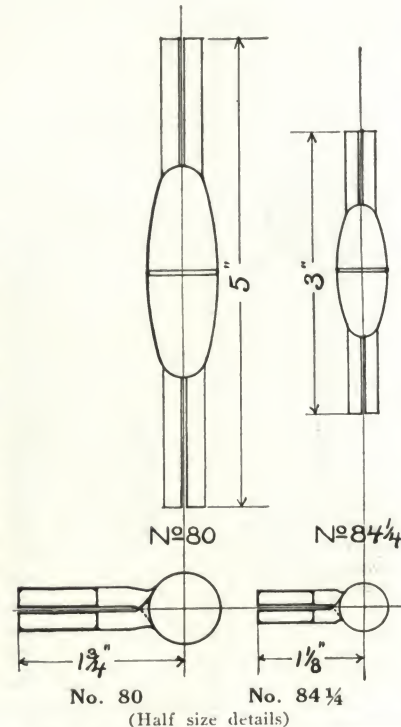
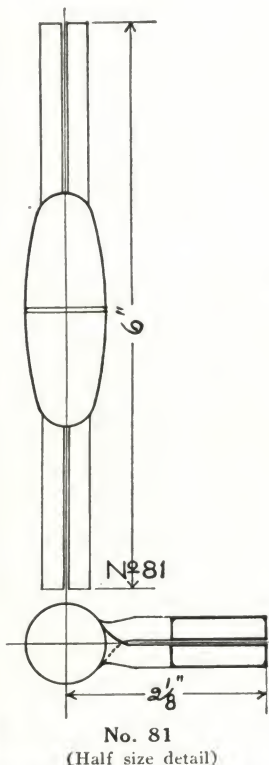
Malleable iron hinges will not be furnished in plated finishes.

Gold or silver plating on application.

White metal furnished only in quantity and on special quotation.

Add 40¢ per pair, list, for hinges made to template. When made to template, the No. 80 is regularly packed with ½ in. x 12-24, the No. 81 with ⅝ in. x 1¼-20 and the No. 84¼ with ⅝ in. x 10-24 machine screws.

State "hand" wanted when ordering. (See first page regarding hand.)



OLIVE KNUCKLE HINGES

Plate 17

CASEMENT HOLDERS (TUBULAR) (Patented)

Brass and Bronze Nos. 34½, 35, 35½ and 35¾

Steel Nos. 134½, 135, 135½ and 135¾

More than a half million Rixson Casement Holders in use to day attest the reliability and popularity of this simple and sturdy device.

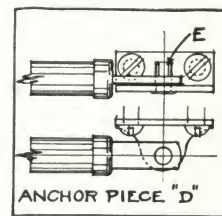
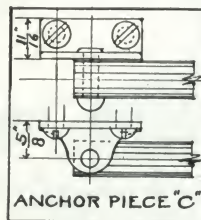
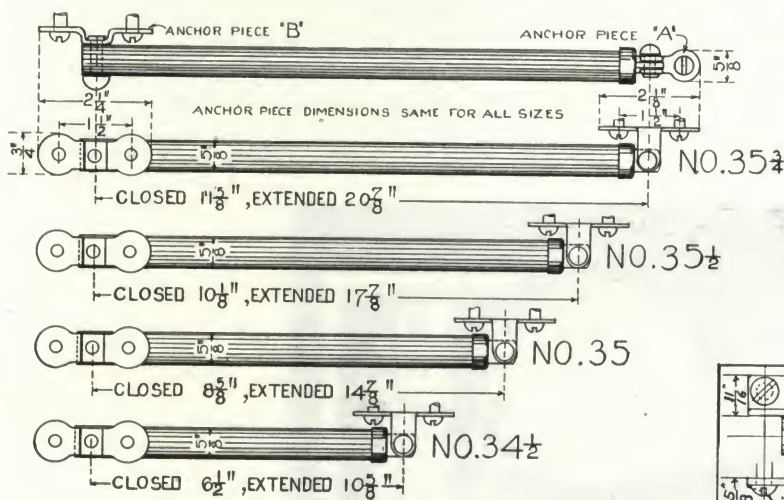
Casements: This holder permits the window to open a little beyond right angle; about 100 degrees. It holds the sash at any point automatically.

Friction is adjustable so that the resistance required to hold the sash can be set to suit even very small and light sash.

Transoms: For an inexpensive yet substantial means of holding transoms this device surpasses

chains. It holds the transom at any point. Now made in brass, bronze and steel and in four sizes to suit varying sash dimensions.

Anchor pieces "A" and "B" furnished but anchors "C" or "D" supplied at no additional charge when required. Anchor "C" suitable for steel sash and where the holder is applied on the outside of sash. This anchor can also be supplied on the rod end. Anchor "D" has the disconnecting feature for use with reversible casement hinges such as our No. 90 Casement Hinge.



PRICE LIST

	Each			
	No. 34½	No. 35	No. 35½	No. 35¾
Brass or bronze, dull or bright and black lacquered.....	\$2.00	\$2.25	\$2.50	\$3.00
Plated finishes except as noted below.....	2.45	2.70	3.00	3.50
Plated chromium and verd antique.....	4.75	5.00	5.50	6.00
Gold and silver, price on application.				
Steel finished only:	No. 134½	No. 135	No. 135½	No. 135¾
Sanded and primed for paint, cadmium or black.....	\$1.50	\$1.70	\$2.00	\$2.50
Unpolished plated finishes, except as noted below.....	1.50	1.70	2.00	2.50
Imitation half polished iron.....	1.70	1.90	2.20	2.70
Chromium: polished or dull and verd antique.....	4.00	4.50	4.75	5.25
Gold and silver plating not furnished on steel.				
All above packed 6 in carton. Weight per carton.....	3 lbs.	3 3/4 lbs.	4 1/4 lbs.	4 1/2 lbs.

RIXSON

**CASEMENT HOLDERS (TUBULAR)
(Patented)**

Plate 18

CASEMENT WINDOW OPERATORS

CASEMENT OPERATOR NO. 94 (PATENTED)

For Hinged Windows Swinging Out

Note: We recommend application above the stool, but when desired and so ordered, we will furnish rosette to finish hole in apron where handle passes through.

This operator has the same efficient arm with noiseless sliding block that is embodied in the popular Rixson Casement Operator No. 95.

Rixson Casement Operator No. 94 is made of steel stampings, with a hard bronze driving screw, providing a construction that is both simple and strong, with few working parts.

The case is very narrow and this fact allows installation on stools only $1\frac{1}{2}$ in. wide. When used with steel windows on an exceptionally narrow stool, or where no stool occurs, a steel base plate can be supplied at small extra cost. Special anchor pieces are furnished to suit various types of steel windows. The sash is locked in position at all times, eliminating rattle. Only three and one-half turns of the handle are required for one complete operation.

Handles—The data given regarding handles for Rixson Casement Operator No. 95 applies in its entirety to Casement Operator No. 94 (see following page) in so far as finishes, styles and prices are concerned. The following construction features, however, should be noted regarding handles for Rixson

Casement Operator No. 94: Unless otherwise ordered handles are furnished for stools $4\frac{1}{2}$ in. wide; all steel handles are squared 3 in. back from ends to facilitate cutting to suit various stool widths.

PRICE LIST—OPERATORS ONLY

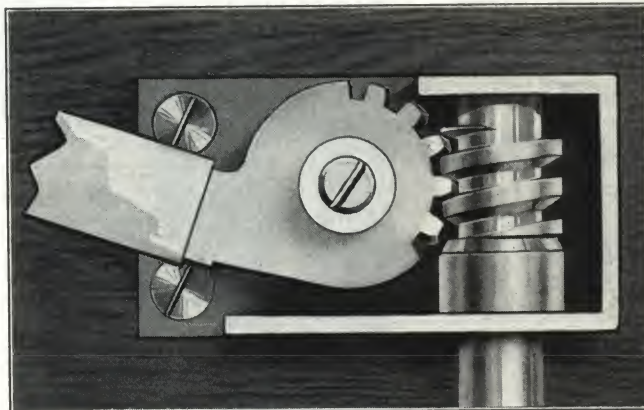
Steel	Each
Sanded, primed for paint; electrogalvanized or lacquered	\$3.00
Plated but not sanded finishes.....	4.00
Sanded plated finishes.....	4.30
Special sash plate "X" in combination with Casement Hinge No. 90.....	.50
Steel base plate add to list.....	.50
Brass or bronze, dull or bright.....	5.00
For plated but not sanded finishes except as noted below.....	6.00
For sanded and plated finishes except as noted below	6.30
For chromium and verd antique finish.....	8.00
Gold or silver plating, price on application.	
For special sash plate "X" add to list.....	1.00
Brass or bronze base plate.....	1.00

Handles

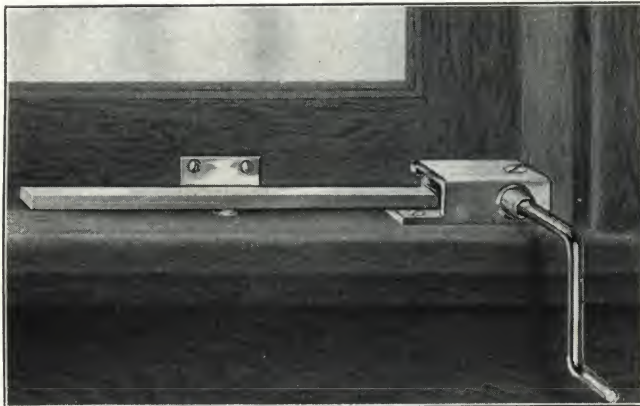
Regular Length—See Plate 20

Steel, brass plated, Crank Handle No. 5, Tee Handle No. 6.....	\$0.30
Cast iron guide, plated or galvanized.....	.20
Brass or bronze crank handle, Handle No. 7..	1.00
Brass or bronze crank handle, Handle No. 8 or 9.....	1.50
For plated finishes on Handles Nos. 7, 8 and 9, add to list.....	.50

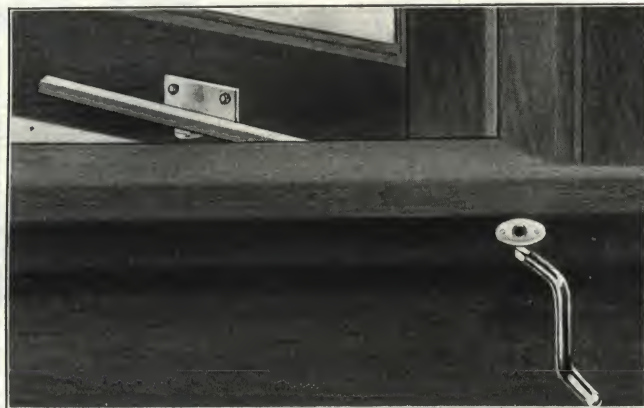
Additional charge for extra long handles as noted on Plate 20. Operators packed two in carton. Weight, $1\frac{1}{2}$ lb. each operator.



Operating Mechanism Casement Operator No. 94



Rixson Casement Operator No. 94 Mounted Above Stool



Operator No. 94 Installed Below Stool, with Detachable Handle

RIXSON
OR
RIXSON

CASEMENT OPERATOR NO. 94
For Hinged Windows Swinging Out

Plate 19

CASEMENT WINDOW OPERATORS

CASEMENT OPERATOR NO. 95 (PATENTED)

For Hinged Windows Swinging Out

Rixson Casement Operator No. 95 has been on the market for more than ten years, having been used during that period in all types of buildings, both public and private, with complete satisfaction to the users.

It permits the opening or closing of outswinging casement windows without disturbing the fly screens. A window equipped with Rixson Casement Operator No. 95 is always locked in position and cannot be moved except by turning the handle. When closed, the window is held absolutely tight, eliminating all rattle.

This device may be installed so it is concealed or exposed, as desired. (See Figs. 6 and 7.)

The mechanism being of the screw type develops ample power to handle sash in sizes up to 2 ft. 6 in. wide. (See Fig. 5.) The driving screw is of steel with double square threads and the traveler that runs on this screw is of cast bronze, doing away with all possibility of these two parts ever rusting together.

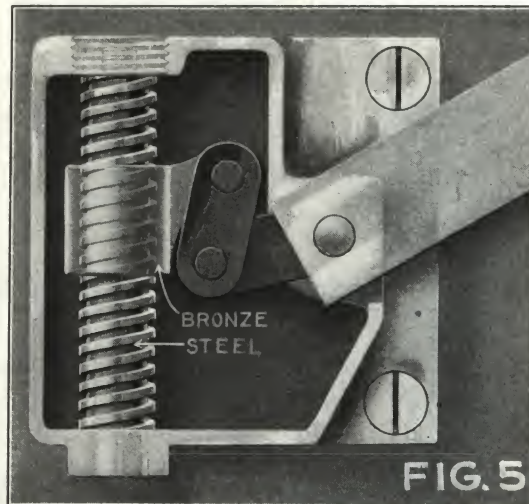
The slide which runs inside the arm is covered with fiber to eliminate friction and make the device noiseless.

In the iron operator the case and sash plate are made of malleable iron because of its unbreakableness.

Where required a sash plate $1\frac{1}{8}$ in. high can be supplied.

Handles—A handle for each operator is not essential, but when so ordered can be furnished made fast to the operator without additional charge.

Unless otherwise ordered, detachable handles are furnished suitable for stools $5\frac{1}{2}$ in. wide as this has



Operating Mechanism Casement Operator No. 95

been found to be the average width. Handles suitable for stools up to 12 in. in width will be furnished at list prices. All handles are squared 3 in. back from ends to facilitate cutting to suit various stool widths.

When operator is ordered for concealed installation a brass rosette, which trims the hole bored in the apron for the operating handle, will be furnished without additional charge. (See Fig. 7.) Where extremely long handles are to be used, a guide which fastens on the inside edge of the stool can be furnished in galvanized or plated finish (see handle No. 9, plate 22);

this guide prevents the handle from chafing the edge of the stool.

OPERATORS ONLY—HANDLES NOT INCLUDED

	Each
F-2 or 3 Iron, electro-galvanized or black rustless finish. For special sash plate "X" used in combination with Casement Hinge No. 90 add to list.....	\$3.75
No plated iron operators furnished.	.50
A or B Brass or bronze, dull or bright.....	6.00
For plated but not sanded finishes except as noted below.....	7.00
For sanded plated finishes except as noted below.....	7.30
For chromium finish.....	9.00
For special sash plate "X" add to list.....	1.00

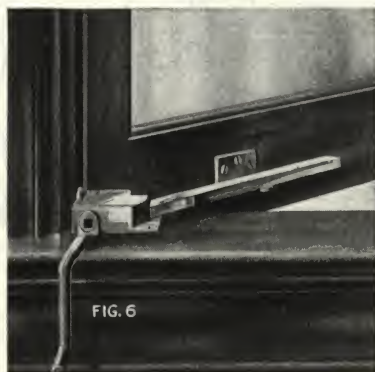
Gold or silver plating, price on application.

Handles

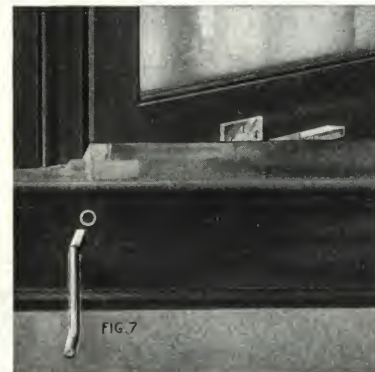
Regular length—see above

	Each
Steel, brass plated, Crank Handle No. 5, Tee Handle No. 6.....	\$0.30
Cast iron guide, plated or galvanized.....	.20
Brass or bronze crank handle. Handle No. 7..	1.00
Brass or bronze crank handle. Handles Nos. 8 or 9.....	1.50
For plated finishes on Handles Nos. 7, 8 and 9, add to list.....	.50

For handles to be used with stools more than 12 in. wide add 30¢ to the above prices for each additional 12 in. or fraction thereof. Operators packed two in carton. Weight, 2 lb. each operator.



Installation Above Stool



Concealed Installation

RIXSON
OF
RIXSON

CASEMENT OPERATOR NO. 95
For Hinged Windows Swinging Out

Plate 20

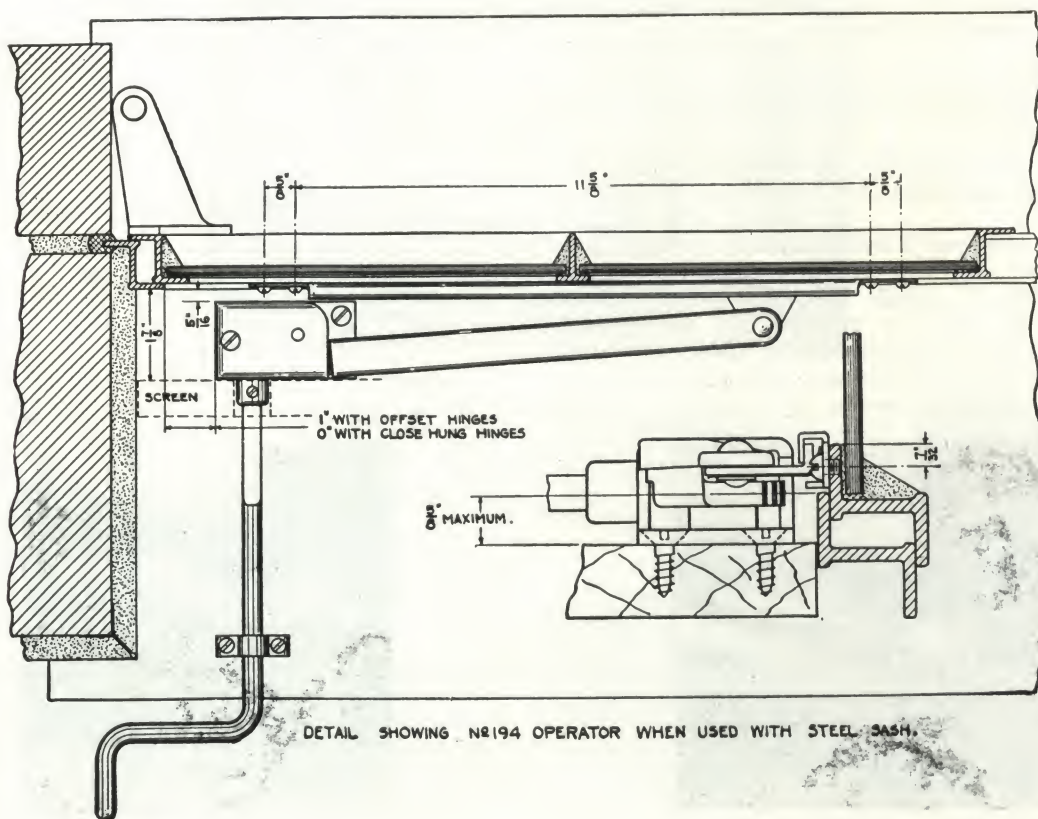
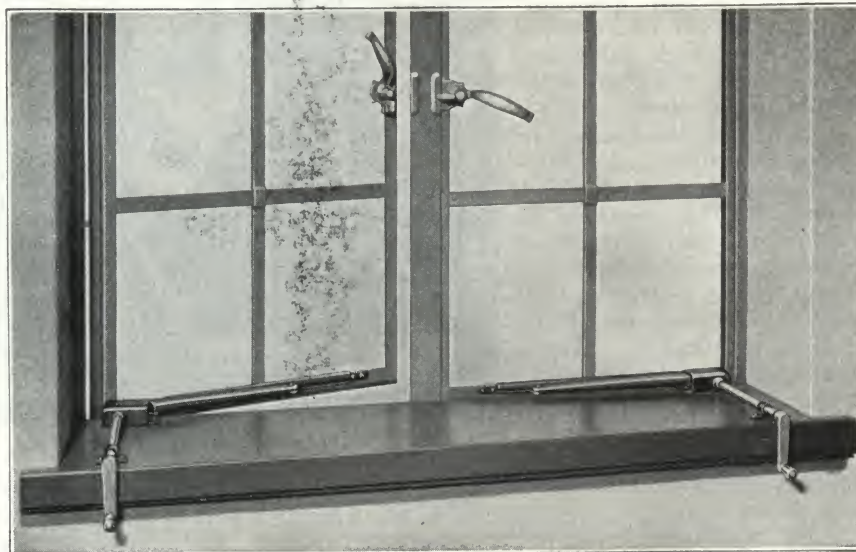
CASEMENT WINDOW OPERATOR NO. 194

For Steel Hinged Windows Swinging Out
(Patented)

A wonderfully neat and effective method of control of out-swinging steel casements is afforded by Rixson's No. 194 Case-ment Operator.

The simplicity of design and the ease of application makes this device a most attractive one. The sliding bar attached to the sash has standard perforations for screws and the raised arm permits application without the need of blocking to clear the frame. This is a very advantageous feature and should be considered both from the viewpoint of appearance and cost of installation.

Priced as the No. 94 for wood sash (Plate 19).

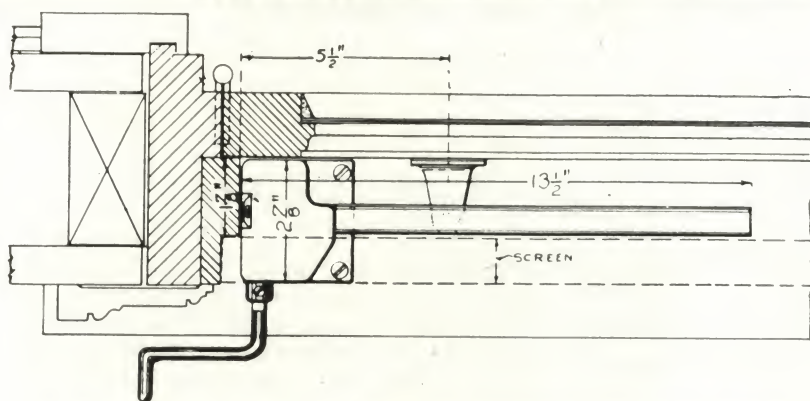


DETAIL SHOWING NO. 194 OPERATOR WHEN USED WITH STEEL SASH.

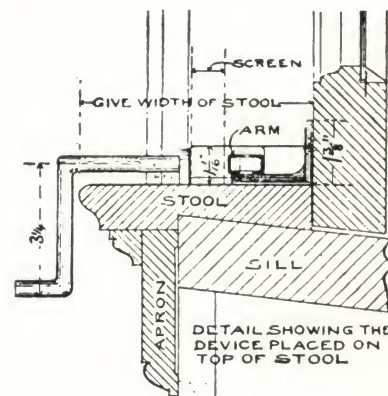
RIXSON

CASEMENT WINDOW OPERATOR NO. 194
For Steel Hinged Windows Swinging Out

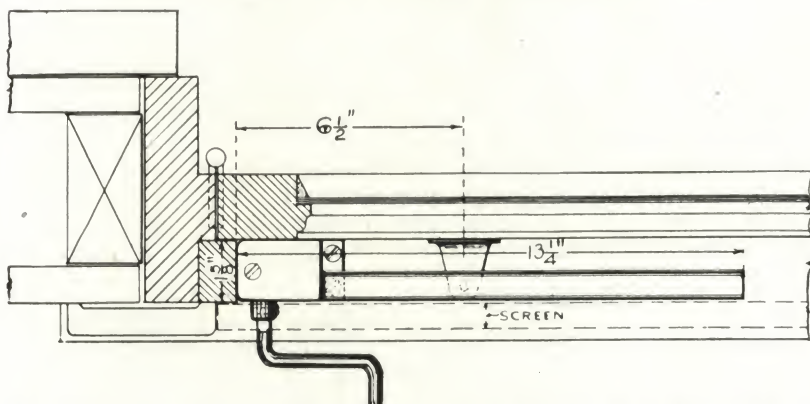
Plate 21



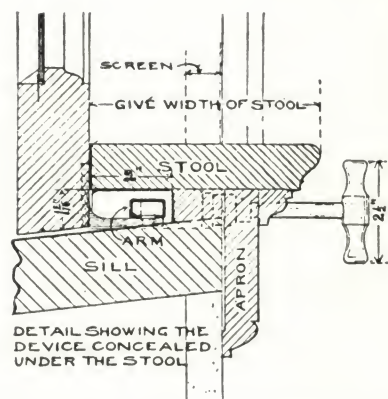
No. 95 Casement Operator as Applied in Ordinary Frame Construction



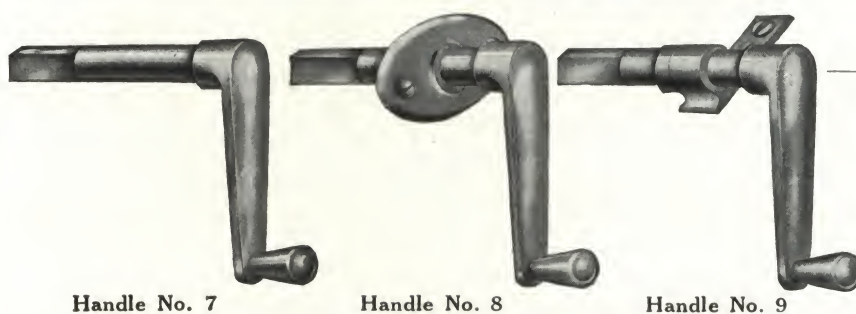
DETAIL SHOWING THE DEVICE PLACED ON TOP OF STOOL



No. 94 Casement Operator Showing Its Adaptability to Very Narrow Stool



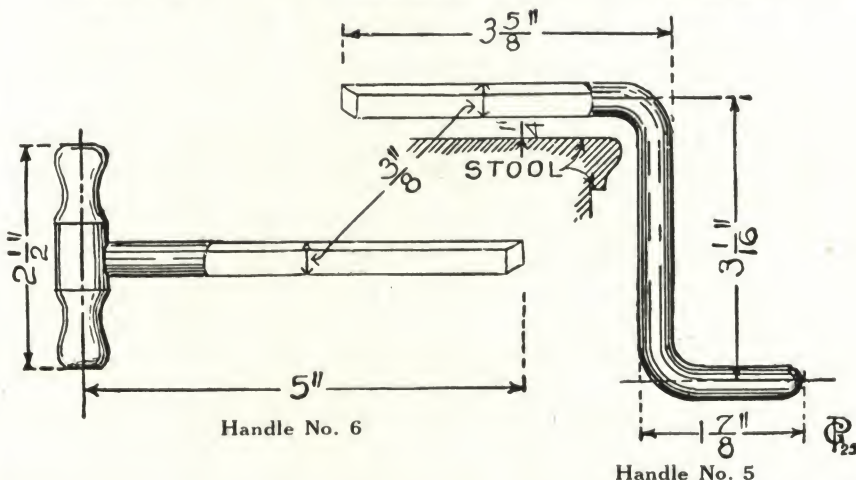
DETAIL SHOWING THE DEVICE CONCEALED UNDER THE STOOL



Handle No. 7

Handle No. 8

Handle No. 9



Handle No. 6

Handle No. 5

TYPES OF HANDLES

Suitable for Casement Operators Nos. 94 and 95

Handle No. 5—Dull brass plated steel crank handle of dimensions shown is furnished with both No. 94 and No. 95 Casement Operators unless otherwise ordered.

Handle No. 6—This handle is for use where the crank type handle cannot operate conveniently. Made in steel only.

Handle No. 7—Cast brass crank handle for ordinary conditions where a better grade handle is desired.

Handle No. 8—Same as No. 7 but equipped with attaching rose for fastening to apron where fixed handle is desired for operator installed beneath stool.

Handle No. 9—Same as No. 7 but equipped with bracket to support outer end.

Note—In ordering handles always specify width of stool.

RIXSON
OR
RIXSON

CASEMENT OPERATORS NOS. 94 AND 95
Miscellaneous Information

Plate 22

BOMMER SPRING HINGE COMPANY

GENERAL OFFICE AND FACTORY

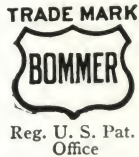
251-271 Classon Avenue
BROOKLYN, N. Y.

WESTERN SALES OFFICE, 180 North Wacker Drive, CHICAGO, ILL.
PACIFIC COAST SALES REPRESENTATIVE, JOHN T. ROWNTREE, INC., LOS ANGELES, CAL.

Products

SPRING HINGES and PIVOTS for all kinds of doors, also Strikes, Bolts, Latches and Fittings for lavatory units in office buildings, hospitals, theaters, public buildings, etc.

For Bommer Door Closers and Door Checks, see Manufacturers' Index in the front of this volume.



architect to give complete details when making specifications except where special hardware sizes may be required. Template drawings, which are furnished manufacturers of metal doors, are not included herein but may be had gratis on request.

Facilities and Service

The BOMMER SPRING HINGE COMPANY was established in 1876 in Brooklyn, N. Y. The plant now consists of 6-story brick buildings, covering almost a square city block, where the largest order can be handled promptly. A fleet of motor trucks and nearby rail and steamer terminals and docks insure quick delivery. When an architect specifies Bommer Products there will be no delay due to lack of manufacturing or shipping facilities nor to intelligent effort to please.

The Purpose of This Catalogue

This catalogue comprises the next 9 pages and has been arranged to give the architect information on Bommer Products. Illustrations, line drawings, and tables of specific Bommer Products make it possible for the

The Quality and Price of Bommer Products

Standard for over 50 years, and kept up-to-date, retaining superiority over all others.

Only the best materials obtainable are used in Bommer Products and numerous international awards officially attest that they are the most useful and satisfactory for general use.

Countless fine buildings throughout the world are equipped with Bommer Spring Hinges.

Prices are guaranteed to be no higher than those for goods of corresponding type.

Specifications

Architects, in specifying these products, should use the word "Bommer" and in addition thereto, if possible, the catalogue number of the article and finish symbol. Hardware dealers and lock manufacturers can include them in their contracts.

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Ever Ready Spring Hinges, Double and Single Action.....	2	For Lavatory Doors on Marble or Slate Partitions.....	7
Vertical Spring Pivot Hinges.....	3	Pipe-Clamp Spring Hinges.....	7
Horizontal Spring Pivot Hinges.....	4	Surface Spring Hinges.....	7
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Spring Pivots for Office Gates.....	6	Door Closers and Door Checks.....	See Manufacturers' Index

BOMMER STANDARD FINISHES AND SYMBOLS AND COMPARATIVE SYMBOLS

U. S. finish symbol	Bommer finish symbol	Description of finishes	Bommer	Corbin	Lockwood	Norwalk	Penn	Russwin	Sargent	Reading	Vale
US1B	J	Japanned, bright black.....	J	J	J	J	J	J	J	J	Jap.
US1D	DJ	Japanned, dead black.....	DJ	D	F					GL	
US2G	G	Galv'd electro-plated (Cadmium).....	G	G	Z	G	Gal	G	B	31	AZ10
US3	A	Brass or brass plated, bright.....	A	A or L	12½	IB	PB	10	OB	37	AY22
US4	DA	Brass or brass plated, dull.....	DA	EA	13	K	DB	9	OE	371	AY21
US5	LA	Brass or brass plated, oxidized.....	LA	KA	43	K3	DBR	9C	RD	33	AX28
US6	SLA	Brass or brass plated, oxidized, sanded.....	SLA	SKA	51	HK3	BS7L	O9C		24	CZ27
US8	MC	Antique copper mottled, bright.....	MC	R	7½	O	AC	7½	AB or A5B		
US9	B	Bronze or bronze plated, bright.....	B	B or N	1	1	PBZ	11	P	1	BZ10
US10	DB	Bronze or bronze plated, dull.....	DB	DB	34	DB	DBZ	11D	OP	7	BY22
US11	LB	Bronze or bronze plated, oxidized.....	LB	HB	23	DB3	DBZR	11C	O6P	221	BY21
US12	SLB	Bronze or bronze plated, oxidized, sanded.....	SLB	SHB	36½		BZS7L	O11C	RP	223	BX13
US14	N	Nickel plated, bright.....	N	E	5	NP	PN	4	N	80	NZ10
US15	DN	Nickel plated, dull.....	DN	DE	90	DN		14	LN or L5N	77	NY10
US16	SLN	Nickel plated, sanded.....	SLN	SE	55		NS		RN	78	NX10
US18	R	"Rustproof" black.....	R	F	31	RI	RP	46	BB	87	FX80
US19	RI	Dull black plated, oxidized, sanded.....	RI	KF	6	HW	IRP	47	BN	87½	FX90
US20	OB	Statuary bronze.....	OB	KB	38	2	PBZ4	2	A	2	BY25
US20A	OC	Statuary bronze, dark.....	OC	LB	2	2D	BBZ6	2D	A3B	2	BY65
US21	SOB	Statuary bronze, sanded.....	SOB	SKB	38S	H2	BZS4L	O2	RA	2½	BX25
US22	V	Verde antique.....	V	V	85	VA	V	36	V2A or VA	94	BX67
US23	DX	Silver plated, oxidized, dull.....	DX	KS	72	S3	DSR	8C	LS	42	SY52
US24	DZ	Gold plated, dull.....	DZ	DG	80	T	DG	19	G	57	GY10
US25	WM	Nickeline, white metal, bright.....	WM	NK	95	NM	Nickeline	44	EM	Nicolene	NZ40
US25	K	Chromium Plate.....	K								

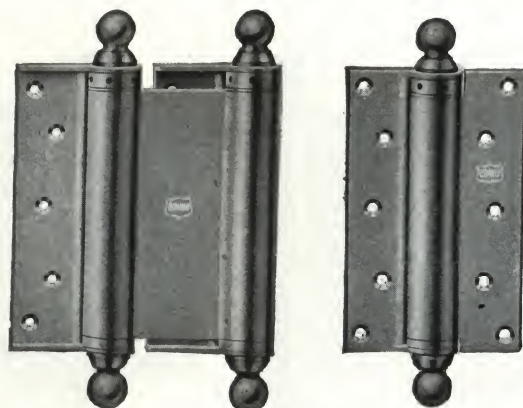
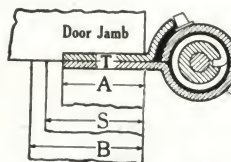
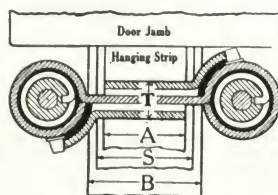
All our finishes conform to those of the United States Bureau of Standards.
All "oxidized and relieved" finishes have the entire surface slightly oxidized uniformly without any mottling or striping.
For Galvanized we furnish Genuine Cadmium Plate which is more than 100% superior to any commercial zinc finish.

PLATE 1. BOMMER STANDARD SPRING BUTT HINGES

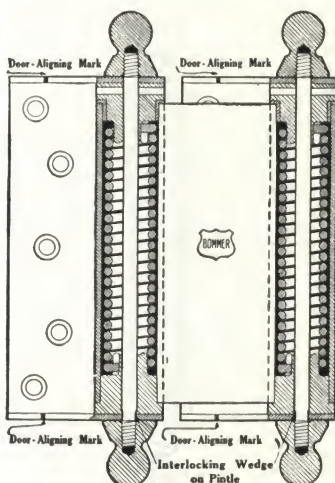
Double and Single Action—Hanging Strip Required

Bommer Standard spring butt hinges require a hanging strip for fastening them to the door casing. One flange is mortised into the hanging strip and the other into the door, which gives a uniform appearance and secure fastening.

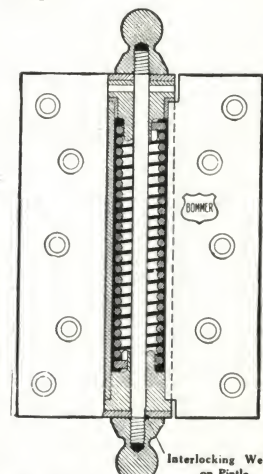
They are made of wrought steel, bronze and brass, in all finishes. The bearing surfaces are of different hardness in order to reduce friction. The spring barrels and their connecting plate are integral and exceptionally strong and of uniform thickness. The springs are of large diameter and unusual length, made of the best oil tempered steel wire, have great resilience and power and never go lame. The pintle and flange are interlocked, preventing the ball tips from working loose.

Double Action Type
No. 29Single Action Type
No. 0

Details of Bommer Standard Spring Butt Hinges



Double Action Type No. 29



Single Action Type No. 0

Size of hinge	T Type No. 29 thickness of the 3 leaves	T Type No. 0 thickness of the 2 leaves	A Minimum thickness of door	B Wood door maximum thickness	S Metal door maximum thickness	Width of door	Weight of door, lbs.	Hanging strip depth
3"	7/16"	11/16"	3/4"	1"	3/8"	2' 2"	30	1/2"
4"	7/16"	11/16"	3/4"	1 1/4"	1 1/8"	2' 4"	42	5/8"
5"	7/16"	3/16"	1 1/8"	1 1/2"	1 3/8"	2' 6"	56	3/4"
6"	7/16"	7/16"	1 1/4"	1 3/4"	1 1/2"	2' 8"	72	3/4"
7"	9/16"	15/16"	1 3/8"	2"	1 3/4"	2' 9"	90	7/8"
8"	9/16"	17/16"	1 1/2"	2 1/4"	2"	2' 10"	110	1"
10"	3/4"	1 1/2"	1 3/4"	2 1/2"	2 1/8"	3' 0"	150	1 1/8"
12"	3/4"	1 7/8"	2 1/4"	3"	2 5/8"	3' 2"	190	1 1/4"

Always use the largest size hinge the thickness of door will permit.

STANDARD FINISHES AND CATALOGUE NUMBERS FOR SPECIFYING BOMMER STANDARD SPRING HINGES

Planished Steel															
Thickness of door (also note directions above), in.	Length of flanges, in.	Japanned dead black		Bronze plated or brass plated (state which)		Antique copper or statuary finish (state which)		Dull brass or oxidized brass finish (state which)		Dull bronze or oxidized bronze finish (state which)		Nickel plated, bright or dull or galvanized (state which)		Sanded oxidized brass, oxidized bronze, or dull black (state which)	
		Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting
3/4 to 1	3	No. 29	No. 0	No. 479	No. 450	No. 329	No. 300	No. 629	No. 600	No. 679	No. 650	No. 879	No. 850	No. 279	No. 250
1 1/8 to 1 1/4	4	No. 30	No. 1	No. 480	No. 451	No. 330	No. 301	No. 630	No. 601	No. 680	No. 651	No. 880	No. 851	No. 280	No. 251
1 1/8 to 1 3/4	5	No. 33	No. 5	No. 483	No. 455	No. 333	No. 305	No. 633	No. 605	No. 683	No. 655	No. 883	No. 855	No. 283	No. 255
1 1/4 to 1 3/4	6	No. 36	No. 9	No. 486	No. 459	No. 336	No. 309	No. 636	No. 609	No. 686	No. 659	No. 886	No. 859	No. 286	No. 259
1 3/8 to 2	7	No. 39	No. 13	No. 489	No. 463	No. 339	No. 313	No. 639	No. 613	No. 689	No. 663	No. 889	No. 863	No. 289	No. 263
1 3/8 to 2 1/4	8	No. 42	No. 17	No. 492	No. 467	No. 342	No. 317	No. 642	No. 617	No. 692	No. 667	No. 892	No. 867	No. 292	No. 267
1 3/4 to 2 1/2	10	No. 45	No. 21	No. 495	No. 471	No. 345	No. 321	No. 645	No. 621	No. 695	No. 671	No. 895	No. 871	No. 295	No. 271
2 1/4 to 3	12	No. 48	No. 25	No. 498	No. 475	No. 348	No. 325	No. 648	No. 625	No. 698	No. 675	No. 898	No. 875	No. 298	No. 275

Solid Bronze or Brass															
Thickness of door (also note directions above), in.	Length of flanges, in.	Highly polished bronze		Highly polished brass		Antique copper or statuary finish (state which)		Dull brass or oxidized brass finish (state which)		Dull bronze or oxidized bronze finish (state which)		Nickel plated, bright or dull (state which)		Sanded oxidized brass or oxidized bronze (state which)	
		Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting
3/4 to 1	3	No. 129	No. 100	No. 129A	No. 100A	No. 429	No. 400	No. 729	No. 700	No. 779	No. 750	No. 829	No. 800	No. 229	No. 200
1 1/8 to 1 1/4	4	No. 130	No. 101	No. 130A	No. 101A	No. 430	No. 401	No. 730	No. 701	No. 780	No. 751	No. 830	No. 801	No. 230	No. 201
1 1/8 to 1 3/4	5	No. 133	No. 105	No. 133A	No. 105A	No. 433	No. 405	No. 733	No. 705	No. 783	No. 755	No. 833	No. 805	No. 233	No. 205
1 1/4 to 1 3/4	6	No. 136	No. 109	No. 136A	No. 109A	No. 436	No. 409	No. 736	No. 709	No. 786	No. 759	No. 836	No. 809	No. 236	No. 209
1 3/8 to 2	7	No. 139	No. 113	No. 139A	No. 113A	No. 439	No. 413	No. 739	No. 713	No. 789	No. 763	No. 839	No. 813	No. 239	No. 213
1 3/8 to 2 1/4	8	No. 142	No. 117	No. 142A	No. 117A	No. 442	No. 417	No. 742	No. 717	No. 792	No. 767	No. 842	No. 817	No. 242	No. 217
1 3/4 to 2 1/2	10	No. 145	No. 121	No. 145A	No. 121A	No. 445	No. 421	No. 745	No. 721	No. 795	No. 771	No. 845	No. 821	No. 245	No. 221
2 1/4 to 3	12	No. 148	No. 125	No. 148A	No. 125A	No. 448	No. 425	No. 748	No. 725	No. 798	No. 775	No. 848	No. 825	No. 248	No. 225

Note: To avoid errors, specify by number and state which finish is wanted. Special finishes made to match other hardware when samples are submitted.

PLATE 2. BOMMER EVER READY SPRING BUTT HINGES

Double and Single Action—No Hanging Strip Required

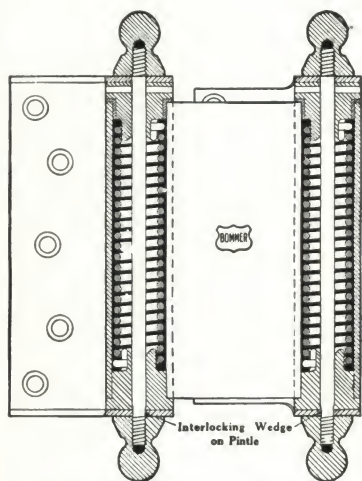
Ever Ready Bommer spring hinges do not require a hanging strip. They are fastened to the surface of the door casing, the entire thickness of hinge being mortised into the door.

They are made of wrought steel, bronze and brass, in all finishes. The bearing surfaces are of different hardness in order to reduce friction. The spring barrels and their connecting plate are integral and exceptionally strong and of uniform thickness. The springs are of large diameter and unusual length, made of the best oil tempered steel wire, have great resilience and power and never go lame. The pintle and flange are interlocked, which prevents the ball tips from working loose.

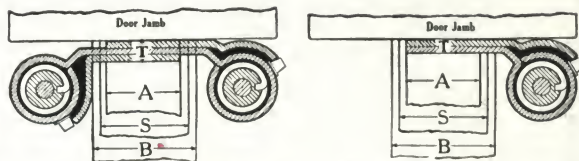
Double Action Type
No. 3029Single Action Type
No. 3000Directions for Selecting
Proper Size Hinge

The recommendations given in the table under the details apply to doors made of white pine or other soft wood. For hardwood doors, plateglass doors, metal-covered doors, doors having hardware or heavy kick-plates or doors exposed to strong drafts, always use the largest size hinge which the thickness of the door will permit; also take note that wide doors always require larger size hinges than narrow doors.

To avoid errors, specify or order by number and state which finish is wanted. If the finish desired is not mentioned the finish at head of column will be sent. When ordering hinges with special finish to match other hardware, send sample, or specify by the symbol given on our first page.



Double Action Type No. 3029

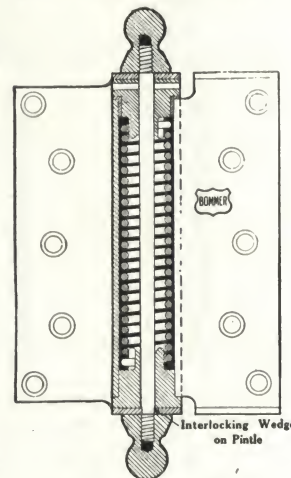


Details of Ever Ready Spring Hinges

Size of hinge, in.	T Type 3029 thickness of the 3 leaves, in.	T Type 3000 thickness of the 2 leaves, in.	A Minimum thickness of door, in.	B Wood door maximum thickness, in.	S Metal door maximum thickness, in.	Width of door, ft. in.	Wt. of door, lbs.
3	15/64	11/64	3/4	1	7/8	2 2	30
4	7/4	11/64	7/8	1 1/4	1 1/8	2 4	42
5	9/32	3/16	1 1/8	1 1/2	1 3/8	2 6	56
6	5/16	7/32	1 1/4	1 3/4	1 1/2	2 8	72
7	3/8	15/64	1 3/8	2	1 3/4	2 9	90
8	15/32	17/64	1 1/2	2 1/4	2	2 10	110

When hinges larger than the above are required, use Bommer Standard spring butt hinges with a hanging strip.

Always use the largest size hinge the thickness of door will permit.

Single Action Type
No. 3000

STANDARD FINISHES AND CATALOGUE NUMBERS FOR SPECIFYING BOMMER EVER READY SPRING HINGES

Planished Steel															
Thickness of door (also note directions above), in.	Length of flanges, in.	Japanned dead black		Bronze plated or brass plated (state which)		Antique copper or statuary finish (state which)		Dull brass or oxidized brass finish (state which)		Dull bronze or oxidized bronze finish (state which)		Nickel plated, bright or dull or galvanized (state which)		Sanded oxidized brass, oxidized bronze, or dull black (state which)	
		Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting
$\frac{3}{4}$ to 1	3	No. 3029	No. 3000	No. 3479	No. 3450	No. 3329	No. 3300	No. 3629	No. 3600	No. 3679	No. 3650	No. 3879	No. 3850	No. 3279	No. 3250
$\frac{7}{8}$ to $1\frac{1}{4}$	4	No. 3030	No. 3001	No. 3480	No. 3451	No. 3330	No. 3301	No. 3630	No. 3601	No. 3680	No. 3651	No. 3880	No. 3851	No. 3280	No. 3251
$1\frac{1}{8}$ to $1\frac{1}{2}$	5	No. 3033	No. 3005	No. 3483	No. 3455	No. 3333	No. 3305	No. 3633	No. 3605	No. 3683	No. 3655	No. 3883	No. 3855	No. 3283	No. 3255
$1\frac{1}{4}$ to $1\frac{3}{4}$	6	No. 3036	No. 3009	No. 3486	No. 3459	No. 3336	No. 3309	No. 3636	No. 3609	No. 3686	No. 3659	No. 3886	No. 3859	No. 3286	No. 3259
$1\frac{3}{8}$ to 2	7	No. 3039	No. 3013	No. 3489	No. 3463	No. 3339	No. 3313	No. 3639	No. 3613	No. 3689	No. 3663	No. 3889	No. 3863	No. 3289	No. 3263
$1\frac{3}{8}$ to $2\frac{1}{4}$	8	No. 3042	No. 3017	No. 3492	No. 3467	No. 3342	No. 3317	No. 3642	No. 3617	No. 3692	No. 3667	No. 3892	No. 3867	No. 3292	No. 3267
Solid Bronze or Brass															
Thickness of door (also note directions above), in.	Length of flanges, in.	Highly polished bronze		Highly polished brass		Antique copper or statuary finish (state which)		Dull brass or oxidized brass finish (state which)		Dull bronze or oxidized bronze finish (state which)		Nickel plated, bright or dull (state which)		Sanded oxidized brass or oxidized bronze (state which)	
		Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting	Double acting	Single acting
$\frac{3}{4}$ to 1	3	No. 3129	No. 3100	No. 3129A	No. 3100A	No. 3429	No. 3400	No. 3729	No. 3700	No. 3779	No. 3750	No. 3829	No. 3800	No. 3229	No. 3200
$\frac{7}{8}$ to $1\frac{1}{4}$	4	No. 3130	No. 3101	No. 3130A	No. 3101A	No. 3430	No. 3401	No. 3730	No. 3701	No. 3780	No. 3751	No. 3830	No. 3801	No. 3230	No. 3201
$1\frac{1}{8}$ to $1\frac{1}{2}$	5	No. 3133	No. 3105	No. 3133A	No. 3105A	No. 3433	No. 3405	No. 3733	No. 3705	No. 3783	No. 3755	No. 3833	No. 3805	No. 3233	No. 3205
$1\frac{1}{4}$ to $1\frac{3}{4}$	6	No. 3136	No. 3109	No. 3136A	No. 3109A	No. 3436	No. 3409	No. 3736	No. 3709	No. 3786	No. 3759	No. 3836	No. 3809	No. 3236	No. 3209
$1\frac{3}{8}$ to 2	7	No. 3139	No. 3113	No. 3139A	No. 3113A	No. 3439	No. 3413	No. 3739	No. 3713	No. 3789	No. 3763	No. 3839	No. 3813	No. 3239	No. 3213
$1\frac{3}{8}$ to $2\frac{1}{4}$	8	No. 3142	No. 3117	No. 3142A	No. 3117A	No. 3442	No. 3417	No. 3742	No. 3717	No. 3792	No. 3767	No. 3842	No. 3817	No. 3242	No. 3217

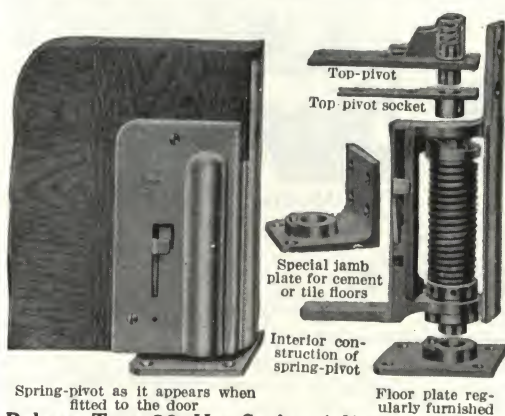
Note: To avoid errors, specify by number and state which finish is wanted. Special finishes made to match other hardware when samples are submitted.

Continued on next page

PLATE 3. BOMMER VERTICAL SPRING PIVOT HINGES

Double Action—Release and Non-release Types

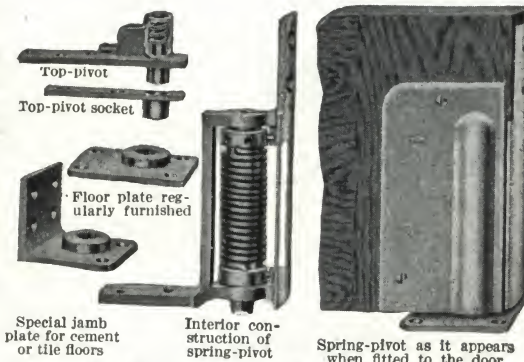
Bommer Release Type—The spring-action may be temporarily released on either side of the door by pressing down the side-pedal with the foot before opening the door, and is automatically re-engaged when the door is closed. By using a stop on the door-casing it works equally well single action. No weakening of the door, only a small section of the wood need be cut lengthwise with the grain. Saves labor and admits of close fitting; back edge of door is slightly rounded. Hardened



Spring-pivot as it appears when fitted to the door
Release Type 20, Has Spring Adjustment and Alignment Device

tool-steel ball-bearings are located in upper part of pivot-frame away from water, dust and dirt.

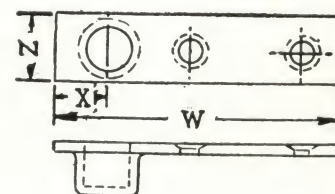
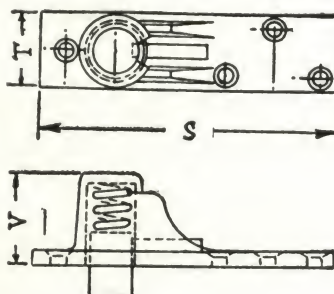
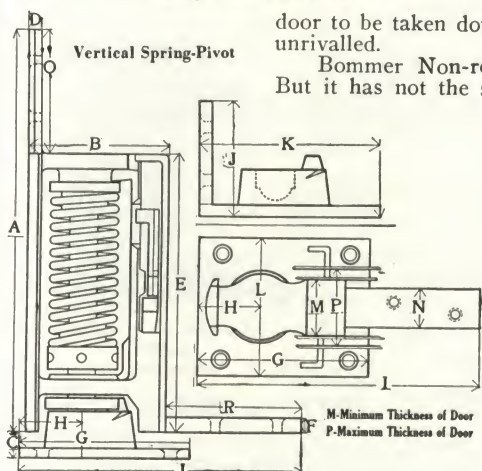
The strongest and most durable spring-pivot of its type, the springs are made of the best oil-tempered steel wire, have great resilience and power and never go lame. As sent out the spring is correctly set up, but the spring power can be adjusted to suit after the pivot is fixed to the door. The top-pivot has a spring-actuated plunger which permits the



Non-release Type 10, Has Spring Adjustment Only

door to be taken down without unscrewing. Workmanship, finish and elegance of appearance are unrivalled.

Bommer Non-release Type has the same general design and construction as Release Type 20. But it has not the spring action release feature.



SPRING PIVOTS

Vertical Release Type, Style 20

Type	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S	T	V	W	X	Z
20	7 ⁷ / ₈ "	2 ³ / ₄ "	1 ¹ / ₂ "	5 ¹ / ₈ "	5 ¹ / ₈ "	3 ¹ / ₄ "	1 ¹ / ₄ "	5 ³ / ₈ "	2 ¹ / ₄ "	3 ¹ / ₂ "	2 ¹¹ / ₁₆ "	1 ¹ / ₈ "	3 ¹ / ₄ "	2 ¹ / ₈ "	1 ¹ / ₂ "	2 ⁵ / ₈ "	4 ⁷ / ₈ "	1 ¹ / ₂ "	1 ⁵ / ₈ "	4 ⁴⁵ / ₆₄ "	1 ³ / ₄ "	1 ³ / ₈ "	
22	8"	3"	1 ¹ / ₂ "	5 ¹ / ₈ "	5 ¹ / ₈ "	3 ³ / ₈ "	3 ³ / ₈ "	1 ¹ / ₂ "	6 ¹ / ₈ "	2 ¹ / ₄ "	4"	3 ¹ / ₈ "	1 ¹ / ₂ "	1 ¹ / ₂ "	1 ¹ / ₂ "	2"	3 ¹ / ₄ "	4 ¹⁵ / ₁₆ "	1 ¹ / ₂ "	4 ⁴⁵ / ₆₄ "	1 ¹ / ₂ "	1 ³ / ₈ "	
24	10 ¹ / ₈ "	4 ¹ / ₈ "	1 ¹ / ₂ "	5 ¹ / ₈ "	7 ¹ / ₈ "	7 ¹ / ₁₆ "	4 ⁵ / ₈ "	2 ³ / ₁₆ "	7 ¹ / ₈ "	3"	4 ³ / ₄ "	3 ³ / ₄ "	1 ¹ / ₈ "	1 ³ / ₈ "	3"	2 ³ / ₄ "	6 ²⁷ / ₃₂ "	1 ¹ / ₂ "	2 ¹ / ₁₆ "	5 ⁵ / ₁₆ "	1 ¹ / ₈ "	1 ¹ / ₈ "	

Vertical Non-Release Type, Style 10

Type	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S	T	V	W	X	Z
10	7 ⁷ / ₈ "	2 ⁵ / ₁₆ "	1 ¹ / ₂ "	5 ¹ / ₈ "	5 ⁷ / ₈ "	3 ¹ / ₄ "	1 ¹ / ₄ "	5 ³ / ₈ "	2 ¹ / ₄ "	3 ¹ / ₂ "	2 ¹¹ / ₁₆ "	1 ¹ / ₈ "	3 ¹ / ₄ "	2 ¹ / ₈ "	1 ¹ / ₂ "	2 ³ / ₄ "	4 ⁷ / ₈ "	1 ¹ / ₂ "	1 ⁵ / ₈ "	4 ⁴⁵ / ₆₄ "	3 ¹ / ₄ "	1 ³ / ₈ "	
12	8"	2 ¹⁵ / ₁₆ "	1 ¹ / ₂ "	5 ¹ / ₈ "	5 ¹ / ₈ "	3 ¹ / ₄ "	1 ¹ / ₄ "	6 ¹ / ₈ "	2 ¹ / ₄ "	3 ¹ / ₂ "	3 ¹ / ₈ "	1 ¹ / ₈ "	1 ¹ / ₂ "	1 ¹ / ₂ "	2"	3 ¹ / ₄ "	4 ¹⁵ / ₁₆ "	1 ¹ / ₂ "	1 ¹ / ₂ "	4 ⁴⁵ / ₆₄ "	1 ¹ / ₂ "	1 ³ / ₈ "	
14	10 ¹ / ₈ "	3 ¹ / ₄ "	1 ¹ / ₂ "	5 ¹ / ₈ "	5 ¹ / ₈ "	3 ¹ / ₄ "	2"	7 ¹ / ₈ "	3"	4 ³ / ₄ "	3 ³ / ₄ "	1 ¹ / ₈ "	1 ³ / ₈ "	3 ¹ / ₁₆ "	2 ³ / ₄ "	4 ¹ / ₈ "	6 ²⁷ / ₃₂ "	1 ¹ / ₂ "	2 ¹ / ₁₆ "	5 ⁵ / ₁₆ "	1 ¹ / ₈ "	1 ¹ / ₈ "	

STANDARD FINISHES AND CATALOGUE NUMBERS FOR SPECIFYING TYPES NO. 20 AND NO. 10

Planished Steel

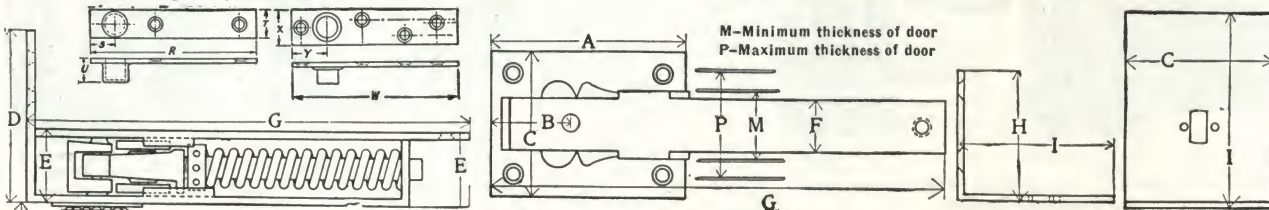
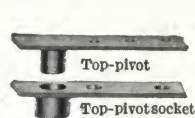
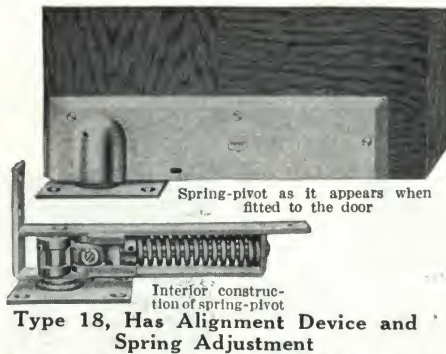
Thickness of door, in.	Japanned dead black		Bronze plated or brass plated (state which)		Antique copper or statuary finish (state which)		Dull brass or oxidized brass finish (state which)		Dull bronze or oxidized bronze finish (state which)		Nickel plated bright or dull or galvanized (state which)		Sanded oxidized brass, oxidized bronze, or dull black (state which)		From center of spindle to door casing, in.
	Release	Non-release	Release	Non-release	Release	Non-release	Release	Non-release	Release	Non-release	Release	Non-release	Release	Non-release	
1 ¹ / ₈ to 1 ¹ / ₂	No. 20	No. 10	No. 470	No. 460	No. 320	No. 310	No. 620	No. 610	No. 670	No. 660	No. 870	No. 860	No. 270	No. 260	1 ¹ / ₂
1 ¹ / ₂ to 2	No. 22	No. 12	No. 472	No. 462	No. 322	No. 312	No. 622	No. 612	No. 672	No. 662	No. 872	No. 862	No. 272	No. 262	1 ³ / ₄
1 ³ / ₄ to 2 ¹ / ₄	No. 24	No. 14	No. 474	No. 464	No. 324	No. 314	No. 624	No. 614	No. 674	No. 664	No. 874	No. 864	No. 274	No. 264	2 ¹ / ₂

Bronze or Brass

Thickness of door, in.	Highly polished bronze		Highly polished brass		Antique copper or statuary finish (state which)		Dull brass or oxidized brass finish (state which)		Dull bronze or oxidized bronze finish (state which)		Nickel plated bright or dull (state which)		Sanded oxidized brass or oxidized bronze (state which)		From center of spindle to door casing, in.
	Release	Non-release	Release	Non-release	Release	Non-release	Release	Non-release	Release	Non-release	Release	Non-release	Release	Non-release	
1 ¹ / ₈ to 1 ¹ / ₂	No. 120	No. 110	No. 120A	No. 110A	No. 420	No. 410	No. 720	No. 710	No. 770	No. 760	No. 820	No. 810	No. 220	No. 210	1 ¹ / ₂
1 ¹ / ₂ to 2	No. 122	No. 112	No. 122A	No. 112A	No. 422	No. 412	No. 722	No. 712	No. 772	No. 762	No. 822	No. 812	No. 222	No. 212	1 ³ / ₄
1 ³ / ₄ to 2 ¹ / ₄	No. 124	No. 114	No. 124A	No. 114A	No. 424	No. 414	No. 724	No. 714	No. 774	No. 764	No. 824	No. 814	No. 224	No. 214	2 ¹ / ₂

PLATE 4. BOMMER HORIZONTAL SPRING PIVOT HINGES

Will hold the door open when swung back beyond 90°. Type No. 18 has an efficient alignment feature. The spring tension is adjustable on both types. The floor plate is screwed to the floor surface, obviating the need of cutting holes in the floor. The weight of the door is carried on ball bearings. All moving parts can be lubricated through a hole in the side plate.



DIMENSIONS (INCHES) FOR TYPES 18, 19, 15 AND 16

Series No.	For doors	A	B	C	D	E	F	G	H	I	M	P	R	S	T	U	W	X	Y
15, 18, 16, 19	1 1/8 to 1 3/4 2 to 2 1/2	3 1/2 to 5 1/8	1 1/4 to 2 1/4	2 3/4 to 4	3 3/4 to 4 7/8	1 7/8 to 2 9/16	1 1/4 to 1 1/2	8 3/4 to 12	2 1/2 to 2 9/16	3 5/8 to 5 1/2	1 1/8 to 1 1/2	1 3/4 to 2 1/2	3 1/2 to 5 1/2	2 5/8 to 3 1/8	1 5/8 to 2 1/8	2 5/8 to 3 1/8	3 1/2 to 6 1/8	1 3/4 to 2 1/4	2 5/8 to 3 1/8

STANDARD FINISHES AND CATALOGUE NUMBERS FOR SPECIFYING BOMMER HORIZONTAL SPRING PIVOT HINGES

Types Nos. 18 and 15, Planished Steel

Thickness of door, in.	Japanned dead black		Bronze plated or brass plated (state which)		Antique copper or statuary finish (state which)		Dull brass or oxidized brass finish (state which)		Dull bronze or oxidized bronze finish (state which)		Nickel plated bright or dull or galvanized (state which)		Sanded oxidized brass, oxidized bronze, or dull black (state which)		Center of spindle to back edge of door, in.
	Type 18	Type 15	Type 18	Type 15	Type 18	Type 15	Type 18	Type 15	Type 18	Type 15	Type 18	Type 15	Type 18	Type 15	
1 1/8 to 1 3/4	No. 18	No. 15	No. 468	No. 465	No. 318	No. 315	No. 618	No. 615	No. 668	No. 665	No. 868	No. 865	No. 268	No. 265	1 1/2
2 to 2 1/2	No. 19	No. 16	No. 469	No. 466	No. 319	No. 316	No. 619	No. 616	No. 669	No. 666	No. 869	No. 866	No. 269	No. 266	2 1/4

Types Nos. 18 and 15, Solid Bronze or Brass

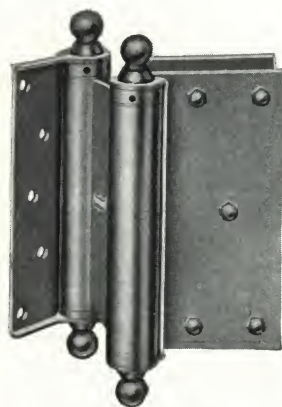
Thickness of door, in.	Highly polished bronze		Highly polished brass		Antique copper or statuary finish (state which)		Dull brass or oxidized brass (state which)		Dull bronze or oxidized bronze (state which)		Nickel plated bright or dull (state which)		Sanded Oxidized brass or oxidized bronze (state which)		Center of spindle to back edge of door, in.
	Type 18	Type 15	Type 18	Type 15	Type 18	Type 15	Type 18	Type 15	Type 13	Type 15	Type 18	Type 15	Type 18	Type 15	
1 1/8 to 1 3/4	No. 118	No. 115	No. 118A	No. 115A	No. 418	No. 415	No. 718	No. 715	No. 768	No. 765	No. 818	No. 815	No. 218	No. 215	1 1/2
2 to 2 1/2	No. 119	No. 116	No. 119A	No. 116A	No. 419	No. 416	No. 719	No. 716	No. 769	No. 766	No. 819	No. 816	No. 219	No. 216	2 1/4

BOMMER SPRING HINGES FOR METAL COVERED DOORS

BOMMER CLAMP-FLANGE SPRING HINGES

For Metal Covered Doors

Double Action



Type 10042

Hinges with one clamp-flange are regularly furnished with bolts, to clamp to the door and flathead machine screws for the jamb flange, but if so ordered, will be furnished with wood screws for the jamb flange.

Hinges with two clamp-flanges can be furnished when specified with bolts to clamp flanges to the door and also to the hanging-strip on the door jamb.

PLANISHED STEEL (ONLY) Hinges with one clamp-flange

Length of flange and clamp, in.	Japanned dead black	Bronze or brass plated bright or dull finish (state which)	Galvanized
	No.	No.	No.
8	10042	10492	10892
10	10045	10495	10895
12	10048	10498	10898

Length of flange and clamp, in.	Thickness of door, in.	Width of door, ft.—in.	Weight of door, lb.	Depth of clamp, in.	Quantity and size of bolts
8	1 1/2 to 1 3/4	2—10	110	3	4—1/4 in.
10	1 3/4 to 2	3—0	150	3 1/2	5—5/8 in.
12	2 to 2 1/2	3—2	190	4	5—3/8 in.

Always use the largest size hinge the thickness of door will permit.

BOMMER HALF-SURFACE SPRING HINGES

For Metal Covered Doors with Pressed Steel Jamb Stairways, Fire Exit and Corridor Doors

Single Action



Type 10009

These half-surface spring hinges are made to standard and close to commercial limits required by metal door and trim manufacturers.

Furnished with 1/2x12-24 F. H. screws for jamb leaf and 3/8x2 1/4 R. H. with grommet nuts for the door leaf. In bolting the surface leaf to the door the grommet nut draws the metal tight over the wood core preventing buckling of the metal.

PLANISHED STEEL (ONLY)

Length of flanges, in.	Japanned dead black	Bronze plated or brass plated (state which)	Antique copper or statuary finish (state which)	Dull brass or oxidized brass finish (state which)	Nickel plated bright or dull or galvanized (state which)
	No.	No.	No.	No.	No.
6	10009	10459	10309	10609	10859
7	10013	10463	10313	10613	10863


Length of flange, in.	Thickness of door, in.	Width of door, ft.—in.	Weight of door, lb.	Quantity of screws	Quantity of bolts
6	1 3/4	2 — 8	75	5	4
7	1 3/4	3 — 0	110	5	4

For doors wider or heavier than above use three hinges.

Nos. 2, 4, 6 and 8

Screw top pivot

Screw top pivot socket

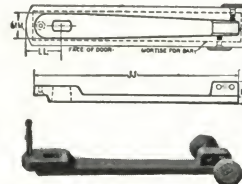


Top pivot

Top pivot socket

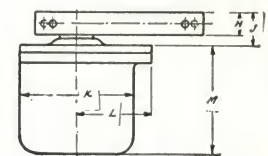
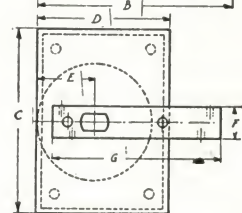
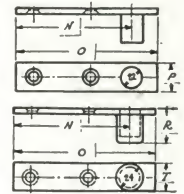
Type Nos.	2	4	6	8	27	28
AA	$\frac{1}{4}$	$\frac{5^{11}}{16}$	$\frac{6^{19}}{16}$	8	$\frac{5^{11}}{16}$	8
BB	$\frac{5}{8}$	$\frac{15}{16}$	$\frac{15}{16}$	2	$\frac{13}{16}$	$\frac{1}{2}$
CC	$\frac{3}{4}$	$\frac{15}{16}$	$\frac{13}{16}$	$\frac{21}{16}$	$\frac{13}{16}$	$\frac{21}{16}$
DD	$\frac{5}{8}$	$\frac{15}{16}$	$\frac{13}{16}$	$\frac{21}{16}$	$\frac{13}{16}$	$\frac{21}{16}$
EE	$\frac{3}{4}$	$\frac{4^{11}}{16}$	$\frac{5^{19}}{16}$	$\frac{6}{16}$	$\frac{4^{11}}{16}$	$\frac{6^{19}}{16}$
FF	$\frac{1}{2}$	1	$\frac{11}{16}$	2	1	$\frac{1}{2}$
GG	$\frac{1}{4}$	$\frac{13}{16}$	1	$\frac{13}{16}$	$\frac{13}{16}$	$\frac{13}{16}$
HH	$\frac{3}{8}$	1	$\frac{11}{16}$	$\frac{17}{16}$	1	$\frac{17}{16}$

No.	Length, in.	Width, in.	Height, in.
C- 2	4	5 $\frac{7}{16}$	3 $\frac{3}{16}$
C- 4	4 $\frac{5}{16}$	6	3 $\frac{3}{16}$
C- 6	4 $\frac{7}{8}$	6 $\frac{7}{8}$	3 $\frac{3}{16}$
C- 8	4 $\frac{7}{8}$	6 $\frac{7}{8}$	3 $\frac{3}{16}$
C-27	4 $\frac{1}{4}$	3 $\frac{1}{2}$	1 $\frac{7}{8}$
C-28	5 $\frac{3}{4}$	6	3 $\frac{3}{16}$



Type Nos.	2	4	6	8
JJ	$9\frac{1}{2}$	$9\frac{1}{2}$	$9\frac{3}{4}$	$9\frac{3}{4}$
KK	$1\frac{5}{16}$	$1\frac{5}{16}$	$1\frac{5}{16}$	$1\frac{5}{16}$
LL	$1\frac{5}{8}$	$1\frac{3}{4}$	2	2
MM	$\frac{7}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$

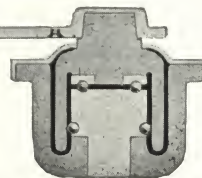
No.	2	4	6	8
A	$2\frac{1}{2}$	$2\frac{13}{16}$	$3\frac{1}{4}$	$3\frac{7}{8}$
B	$5\frac{1}{2}$	$5\frac{5}{8}$	$6\frac{1}{2}$	$6\frac{3}{4}$
C	$5\frac{1}{8}$	$5\frac{5}{8}$	$6\frac{1}{2}$	$6\frac{3}{4}$
D	$3\frac{3}{4}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$
E	$1\frac{5}{8}$	$1\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{1}{2}$
F	$1\frac{3}{8}$	$1\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{1}{2}$
G	$1\frac{3}{8}$	$1\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{1}{2}$
H	$4\frac{3}{4}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$5\frac{1}{2}$
I	$5\frac{1}{8}$	$5\frac{1}{8}$	$6\frac{1}{4}$	$6\frac{1}{4}$
J	$2\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{2}$
K	$3\frac{3}{8}$	$3\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{1}{2}$
L	$3\frac{3}{8}$	$3\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{1}{2}$
M	$3\frac{3}{8}$	$3\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{1}{2}$
N	$3\frac{3}{8}$	$3\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{1}{2}$
O	$3\frac{3}{8}$	$3\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{1}{2}$
P	$3\frac{3}{8}$	$3\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{1}{2}$
Q	$3\frac{3}{8}$	$3\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{1}{2}$
R	$3\frac{3}{8}$	$3\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{1}{2}$
T	$3\frac{3}{8}$	$3\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{1}{2}$



Type No. 2

Thickness of door, in.	Japanned dead black	Bronze plated or brass plated (state which)	Highly polished bronze	Highly polished brass	Antique copper or statuary finish (state which)		Dull brass or oxidized brass finish (state which)		Nickel plated bright or dull (state which)		Sanded oxidized brass or oxidized bronze (state which)	
	Planned steel only	Planned steel only	Bronze only	Brass only	Planned steel	Bronze or brass	Planned steel	Bronze or brass	Planned steel	Bronze or brass	Planned steel	Bronze or brass
$\frac{3}{8}$ to $1\frac{1}{2}$	No. 2	No. 452	No. 102	No. 102A	No. 302	No. 402	No. 602	No. 702	No. 852	No. 802	No. 252	No. 202
$1\frac{1}{8}$ to 2	No. 4	No. 454	No. 104	No. 104A	No. 304	No. 404	No. 604	No. 704	No. 854	No. 804	No. 254	No. 204
$2\frac{1}{8}$ to $2\frac{1}{2}$	No. 6	No. 456	No. 106	No. 106A	No. 306	No. 406	No. 606	No. 706	No. 856	No. 806	No. 256	No. 206
2 to $3\frac{1}{2}$	No. 8	No. 458	No. 108	No. 108A	No. 308	No. 408	No. 608	No. 708	No. 858	No. 808	No. 258	No. 208

Has a double
race of hardened
and ground tool
steel balls ar-
ranged to take
the weight and
thrust

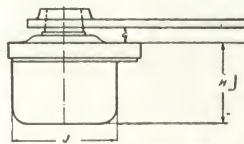


No.	A, in.	B, in.	C, in.	D, in.	E, in.
27	$3\frac{31}{32}$	$1\frac{1}{2}$	$3\frac{3}{32}$	$1\frac{5}{32}$	$1\frac{1}{8}$
28	$5\frac{3}{8}$	$2\frac{1}{4}$	$5\frac{5}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$

No.	F, in.	G, in.	H, in.	J, in.
27	$6\frac{27}{32}$	$1\frac{15}{32}$	$1\frac{1}{2}$	$2\frac{3}{32}$
28	$8\frac{5}{8}$	$1\frac{1}{2}$	$3\frac{1}{4}$	$4\frac{7}{16}$



No. 27



For top pivots see details above

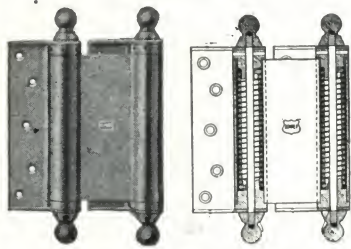
Japanned dead black	Bronze plated or brass plated (state which)	Highly polished bronze	Highly polished brass	Antique copper or statuary finish (state which)	Dull brass or oxidized brass finish (state which)	Nickel plated bright or dull (state which)	Sanded oxidized brass or dull black (state which)				
Cast iron only	Cast iron only	Bronze only	Brass only	Cast iron	Bronze or brass	Cast iron	Bronze or brass	Cast iron	Bronze or brass	Cast iron	Bronze or brass
No. 27	No. 477	No. 127	No. 127A	No. 327	No. 427	No. 627	No. 727	No. 877	No. 827	No. 277	No. 227
No. 28	No. 478	No. 128	No. 128A	No. 328	No. 428	No. 628	No. 728	No. 878	No. 828	No. 278	No. 228

PLATE 6. BOMMER SPRING HINGES FOR OFFICE GATES

Wide Leaf Type—Designed for 1¼ to 2½-in. Thick Gates Having Wide Handrails

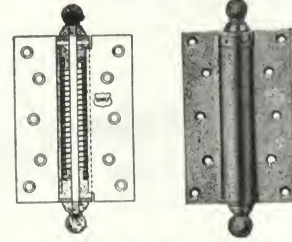
(For Standard Type Hinges, See Plate 1)

Double Action



Type 38, Double Action

Single Action



Type 7, Single Action

No.	Length of flanges, in.	Maximum thickness of gate, in.	Minimum thickness of gate, in.	Width of hand rail, in.	Distance between centres of barrels, in.	Distance centre of barrel to edge of flange, in.	Approx. weight of gate, lb.
38	6	2½	1¾	3¾	3½	2¾	60
7	5	2½	1¾	4	.....	.....	60

STANDARD FINISHES AND CATALOGUE NUMBERS FOR SPECIFYING TYPES 38 AND 7 SPRING HINGES

Planished Steel—Single and Double Action

Japanned dead black		Bronze plated or brass plated (state which)		Antique copper or statuary finish (state which)		Dull brass or oxidized brass finish (state which)		Nickel plated bright or dull or galvanized (state which)		Sanded oxidized brass, oxidized bronze or dull black (state which)	
Double action	Single action	Double action	Single action	Double action	Single action	Double action	Single action	Double action	Single action	Double action	Single action
No. 38	No. 7	No. 488	No. 457	No. 338	No. 307	No. 638	No. 607	No. 888	No. 857	No. 288	No. 257

Solid Bronze or Brass—Single and Double Action

Highly polished bronze		Highly polished brass		Antique copper or statuary finish (state which)		Dull brass or oxidized brass finish (state which)		Nickel plated bright or dull (state which)		Sanded oxidized brass or oxidized bronze (state which)	
Double action	Single action	Double action	Single action	Double action	Single action	Double action	Single action	Double action	Single action	Double action	Single action
No. 138	No. 107	No. 138A	No. 107A	No. 438	No. 407	No. 738	No. 707	No. 838	No. 807	No. 238	No. 207

BOMMER SPRING PIVOTS FOR OFFICE GATES

Types 11 and 11M—For 1⅞ to 2½-in. Thick Wood or Metal Gates and Railings

Suitable for either double acting or single acting gates, no need for cutting out or mortising gate or doorpost, although they can be mortised if so preferred. They are adapted to either wood or metal gates and railings and can be adapted to many other uses; easy to apply, save labor, and allow close fitting; back edge of gate is slightly rounded, using center of pivot as radius. Workmanship and finish unsurpassed.

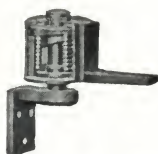


Type 11

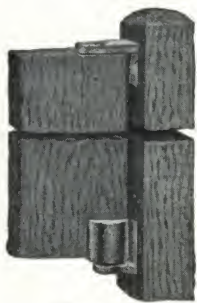
Top-pivot



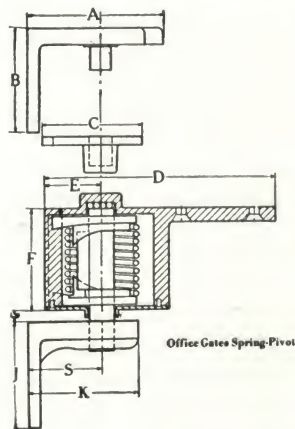
Top-pivot-socket



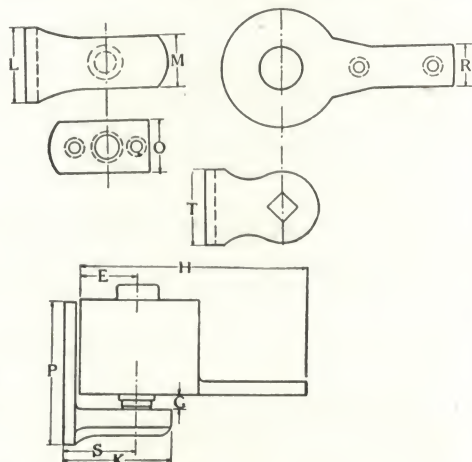
Sectional View



Type 11M



Office Gates Spring-Pivot



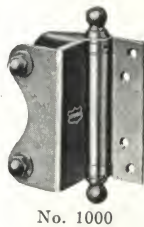
DIMENSIONS OF NO. 11 AND 11M

A	B	C	D	E	F	G	H	J	K	L	M	O	P	R	S	T
1⅞	2⅝	2⅝	5⅜	1¼	2⅝	⅝	5⅜	2⅝	2⅝	1⅞	1⅞	1⅞	3⅝	⅞	1⅞	1⅞

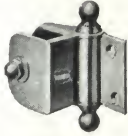
Japanned dead black	Highly polished bronze	Highly polished brass	Bronze plated or brass plated (state which)	Antique copper or statuary finish (state which)		Dull brass or oxidized brass finish (state which)		Nickel plated bright or dull or galvanized (state which)		Sanded oxidized brass, oxidized bronze or dull black (state which)	
Cast iron only	Bronze only	Brass only	Iron only	Cast iron	Bronze or brass	Cast iron	Bronze or brass	Cast iron	Bronze or brass	Cast iron	Bronze or brass
No. 11	No. 111	No. 111A	No. 461	No. 311	No. 411	No. 611	No. 711	No. 861	No. 811	No. 261	No. 211
No. 11M	No. 111M	No. 111AM	No. 461M	No. 311M	No. 411M	No. 611M	No. 711M	No. 861M	No. 811M	No. 261M	No. 211M

PLATE 7. BOMMER CLAMP FLANGE SPRING HINGES

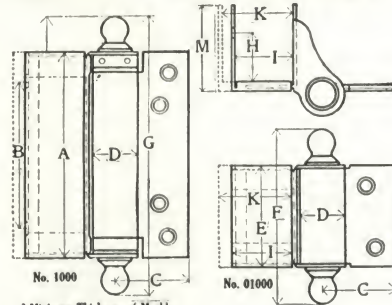
For Lavatory Doors on Marble or Slate Partitions Having Hanging Stiles



No. 1000

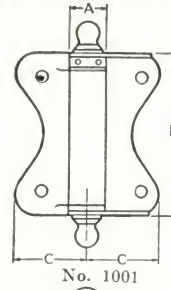


No. 01000

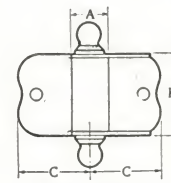


L-Minimum Thickness of Marble
K-Maximum Thickness of Marble

Details Single Action Spring Hinge
No. 1000 and Blank No. 01000

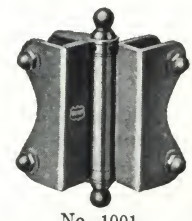


No. 1001

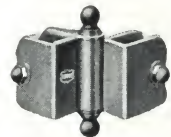


No. 01001

Details Double
Clamp
Hinge No. 1001
and Blank
No. 01001



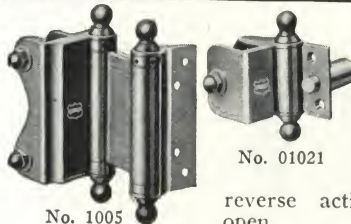
No. 1001



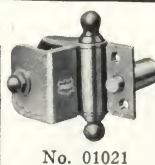
No. 01001

A	B	C	D	E	F	G	H	I	K	M
4	2 3/8	1 1/2	3/8	2	3 1/2	5 1/2	1	1 3/8	1 3/8	1 3/4

A	B	C	D	E	F	G	H
7/8	4	1 3/8	1 3/8	1 3/8	1 3/8	1 1/2	2



No. 1005



No. 01021

BOMMER LAVATORY SPRING HINGES

For either right or left-hand doors opening in or out.

These hinges are suitable for marble or slate partitions of the following thicknesses: 1 1/4, 1 1/2, 1 3/4, and 2 in.

The clamp-flange for the marble is adjustable 1/8 in. over and under sizes given to allow for variations in thickness. The single action are made to close the door but if so specified the springs can be made

reverse action, to hold the door open.

The clamp-flange of the double action is not adjustable. The adjustable clamp-hinges are furnished with bolts having one open nut, but can be supplied with all closed nuts when so specified. *The exact thickness of both*

BRASS NICKEL OR CHROMIUM PLATED OR BRONZE HIGHLY POLISHED

1000 Length of flanges, 4 in. Single action, has one clamp-flange

1001 Length of flanges, 4 in. Single action, has two clamp-flanges

1005 Length of flanges, 4 in. Double action, has one clamp-flange, not adjustable

the marble and the door must be stated.

No. 1012

For extra light and narrow lavatory doors, combination of blank and single action lavatory spring hinge can be used. Single acting hinges are made to close the door, but if so specified, they can be furnished to hold door open.

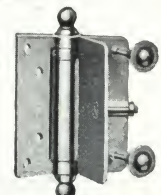
1006 Length of flanges, 4 in. Double action same as No. 1005, but has two clamp-flanges

1012 Length of flanges, 4 in. Single action, has angle-flange instead of clamp-flange

1013 Length of flanges, 3 in. Single action, constructed same as No. 1000. For extra light and narrow doors



No. 01012



FOR LAVATORY DOORS ON MARBLE OR SLATE PARTITIONS WITHOUT HANGING STILES

1015 and 1016 are for hanging two single-acting doors right and left to the same partition on one clamp-flange.

1002 and 1015 are for doors opening in and can be made to hold the doors open or closed as may be specified.

1016 and 1003 are for doors opening out; made only to hold the doors closed.

Flanges of the spring hinges are 4 inches in length; of the blank hinges without springs are 2 inches in length.

The clamp-flange for the marble is not adjustable; the exact thickness of marble and door must be stated when ordering.

BRASS NICKEL OR CHROMIUM PLATED OR BRONZE HIGHLY POLISHED

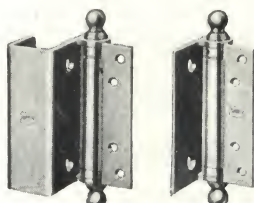
1015 Single action, for two doors, opening in

1016 Single action, for two doors, opening out

1002 Single action, for one door, opening in

1003 Single action, for one door, opening out

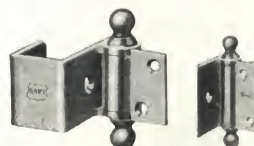
X1002 Single action, opening in or out, for end stalls to fasten to the wall



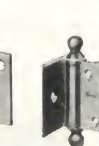
No. 1002



No. X1002



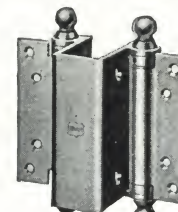
No. 01002



No. 0X1002



No. 1003



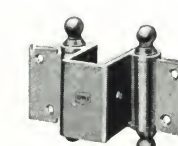
No. 1015



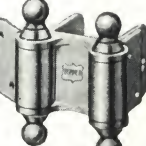
No. 1016



No. 01003



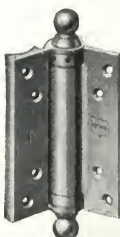
No. 01015



No. 01016

BOMMER PIPE-CLAMP SPRING HINGES

Double and Single Action for Lavatory Doors No. 1019 and No. 1004.



No. 1004



No. 1019

For pipe 1 3/8, 2, 2 1/2 and 2 3/4 in. outside diameter, are fastened to the pipe with machine screws.

Single action as regularly made close the door, but if specifically so ordered they can be made with reverse spring to hold door open, without extra charge.

BOMMER SURFACE SPRING HINGES

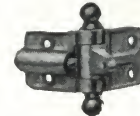
1011 as regularly made close the door, but if specifically so ordered, they can be made with reverse springs to hold it open without extra charge.

For very light and extra narrow lavatory doors only, a hinge 1011 at the top of the door, 01011 at the bottom, may be used. The checking blank 1020 may be used at the bottom of the door with surface hinge 1011 at the top. It will hold door partly open while the closet is unoccupied, dispensing with the use of an indicator.

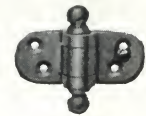
These hinges are regularly furnished with bolts for one leaf and wood screws for the other unless otherwise specified.



1011



1020



01011

PLATE 8. BOMMER SPRING PIVOTS FOR LAVATORY DOORS

For Lavatory Doors on Marble, Slate or Wood Partitions or for Pipe Standards

For double or single action doors, right or left-hand door, opening in or out or for regular action to close the door or reverse action to hold door open.

Thickness of marble must be stated. If wanted for pipe-standards, outside diameter of pipe must be stated.

Type 1025 for doors $1\frac{1}{8}$ to $1\frac{1}{2}$ in. thick. The pintle has a square shank fitting into the square hole of the bottom bracket so the pivot may be set in either position to close the door or hold it open. The spring tension is adjustable.

Type 1030 for doors $\frac{7}{8}$ to $1\frac{1}{2}$ in. thick. Will hold door open or closed at any point selected. To align the door or obtain regular or reverse action, slightly unscrew nut at bottom of hinge and move door to the point desired, then tighten the nut and lock-washer firmly.

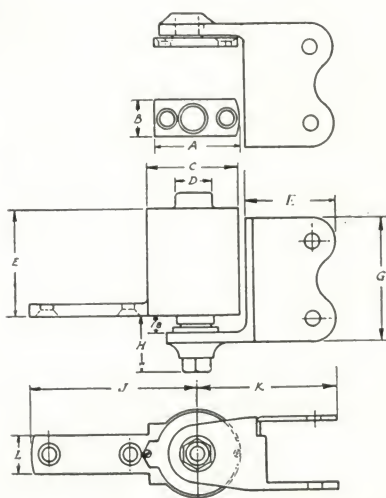
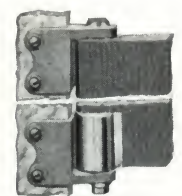
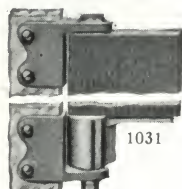
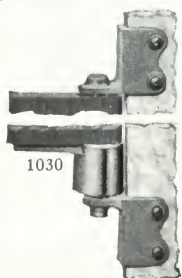
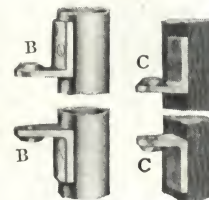
The clamp-flanges are adjustable $\frac{1}{8}$ in. over and under the following sizes: 1, $1\frac{1}{4}$, $1\frac{1}{2}$, and $1\frac{3}{4}$ in.

When ordering state if to be used double or single action, so proper tension will be applied to the spring.

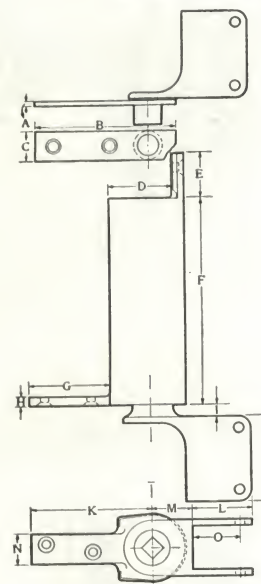
BRASS NICKEL OR CHROMIUM PLATED OR BRONZE HIGHLY POLISHED

No. 1030, 1031, 1032. For marble, with clamp-brackets
 1036 For pipe-standards, with concave-bracket Type B
 1037 For wood, with flat-brackets Type C
 1038 For wood, with flat-brackets Type C for door to swing in concave recess in jamb

No. 1025 For marble, with clamp-brackets
 1026 For pipe-standards, with concave-bracket Type B
 1027 For wood, with flat-bracket Type C
 1028 For wood, with flat-bracket Type C for doors to swing in concave recess in jamb



Details Lavatory Door Spring Pivot,
 Type No. 1030
 Dimensions in inches



Details of Lavatory
 Door Spring Pivot,
 Type No. 1025
 Dimensions in inches

A	B	C	D	E	F	G	H	J	K	L
$1\frac{3}{4}$	$\frac{3}{4}$	$1\frac{7}{8}$	$1\frac{1}{8}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{4}$	$1\frac{3}{8}$	$3\frac{7}{8}$	$2\frac{7}{8}$	$1\frac{1}{2}$

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
$\frac{1}{8}$	$3\frac{15}{16}$	$1\frac{15}{16}$	$9\frac{1}{8}$	$1\frac{1}{4}$	$5\frac{13}{16}$	$2\frac{3}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$2\frac{3}{4}$	$3\frac{3}{8}$	$1\frac{5}{8}$	$1\frac{1}{8}$	$1\frac{3}{16}$	$1\frac{1}{8}$

LAVATORY DOOR LATCHES, BOLTS AND INDICATOR

Used in Connection with Strikes and Keepers on Following Page

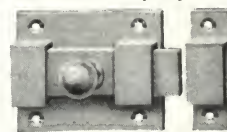
Brass, Nickel or Chromium Plated or Bronze Highly Polished



5000 Fig. 0
 Plate $1\frac{1}{2} \times 2$ —Bar $3\frac{1}{4} \times \frac{7}{8} \times \frac{1}{8}$ in.



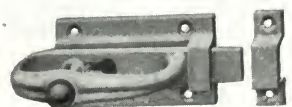
5001 Fig. 1
 Plate 2×2 —Bar $5 \times 1\frac{1}{4} \times \frac{1}{4}$ in.



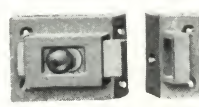
5003 Fig. 3
 $3 \times 2\frac{1}{2}$ —Bolt $3\frac{1}{2} \times \frac{7}{8} \times \frac{1}{4}$ in.



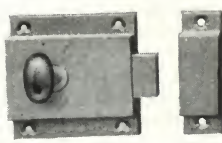
5002
 "Government" Type
 Has rubber bumper on Knob.
 Disc 2" dia. Bar $3\frac{1}{8} \times 1\frac{1}{8} \times \frac{1}{8}$ in.



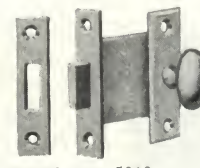
5006 Fig. 6
 Rim Bolt has rubber bumper
 on handle
 Plate $2\frac{7}{8} \times 1\frac{3}{4}$ —Bolt $4 \times \frac{5}{8} \times \frac{1}{4}$ in.



5008 Fig. 8
 Plate $2\frac{3}{4} \times 1\frac{3}{4}$ —Bolt
 $\frac{3}{4} \times \frac{1}{4}$ in.



5009 Fig. 9
 Size of case $2\frac{1}{2} \times 2\frac{5}{8}$
 —Bolt $\frac{7}{8} \times \frac{1}{4}$ in.
 Face to center of
 handle $1\frac{1}{8}$ in.



5010 Fig. 10
 Size of case $1\frac{5}{8} \times 2\frac{5}{8}$ —
 Bolt $\frac{7}{8} \times \frac{1}{4}$ in.
 Face to center of
 handle $1\frac{1}{8}$ in.



5015
 For doors 1 to 2 in.
 thick
 Used with bolts Nos.
 5009 or 5010

PLATE 9. BOMMER STRIKES AND KEEPERS FOR LAVATORY DOORS

On Marble or Slate Partitions

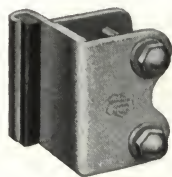
The strikes have rubber bumpers. The box to clamp to the marble of Nos. 1050 to 1057 is adjustable.

Suitable for marble or slate partitions of the following thicknesses:

1 inch 1¼ inches 1½ inches 1¾ inches 2 inches

Nos. 1050 to 1057 are adjustable ¼ inch over and under above sizes, to allow for variations from size in the thickness of the marble

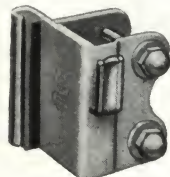
Thickness of marble and door and finish desired must always be stated when ordering



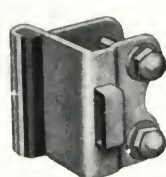
1050
Without bolt hole
reversible for right
or left hand door open-
ing in or out



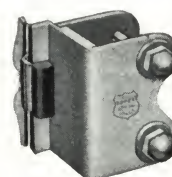
1051
For mortise bolt
reversible for right
or left hand door
opening in or out



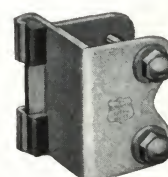
1052
For throw latch
reversible for
right or left hand
door opening in



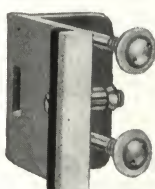
1055
For rim bolt
reversible for right
or left hand door
opening in



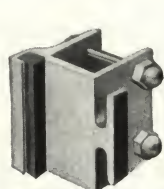
1056
For throw latch
reversible for right or
left hand door
opening out



1057
For rim bolt
reversible for right
or left hand door
opening out



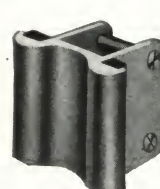
1062
For rim bolt
reversible for right or
left hand door
opening in



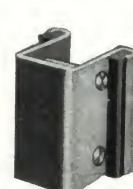
1063
"Government" Type
Not adjustable
reversible for right or left
hand door opening in



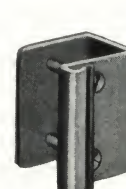
1065
Not adjustable
For partition without
hanging stile,
door opening in



1066
Not adjustable
For partition without
hanging stile,
doors opening in



1068
Not adjustable
For partition without
hanging stile,
doors opening out



1067
Not adjustable
For partition without
hanging stile,
door opening out

BRASS NICKEL OR CHROMIUM PLATED OR BRONZE HIGHLY POLISHED

No.	
1050	Without bolt hole
1051	With keeper for No. 5007 or 5010 bolt
1052	With keeper for Nos. 5000, 5001 or 5002 throw latch
1055	With keeper for Nos. 5003, 5006, 5008 or 5009 bolt
1056	With keeper for Nos. 5000, 5001 or 5002 throw latch
1057	With keeper for Nos. 5003, 5006, 5008 or 5009 bolt
1062	With keeper for Nos. 5003, 5008 or 5009 bolt

No.	
1063	With keeper for No. 5002 throw latch, according to govern- ment specification
1065	Cut for Nos. 5003, 5006, 5008, 5009 or 5010 bolt
1066	Cut for Nos. 5003, 5006, 5008, 5009 or 5010 bolt
1067	Cut for Nos. 5003, 5006, 5008, 5009 or 5010 bolt
1068	Cut for Nos. 5003, 5006, 5008, 5009 or 5010 bolt

Applied Flush with Surface



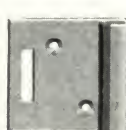
No. 1070



No. 1072

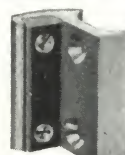


No. 1073

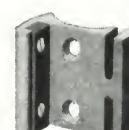


No. 1074

For Pipe Standards



No. 1083



No. 1084



No. 1085

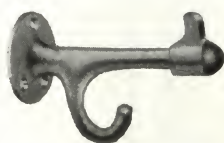
BRASS NICKEL OR CHROMIUM PLATED OR BRONZE HIGHLY POLISHED

No.	
1070	Applied to face of door flush with partition
1072	Applied on edge of door or partition
1073	With keeper for throw latch. For doors opening in. Always state thickness of door
1074	With keeper for rim or throw latch. For doors open- ing in. Always state thickness of door

No.	
1083	Applied to pipe standard with machine screws. Always state outside diameter of pipe
1084	With keeper for throw latch. For doors opening in. Always state outside diameter of pipe
1085	With keeper for rim or slide bolt. For doors opening in. Always state outside diameter of pipe

Always state width and thickness of bolt bar for items with keeper. Special strikes to meet other conditions than above indicated are made to order. To avoid errors order by number and state which finish is wanted

Accessories for Lavatories



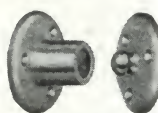
No. 5030



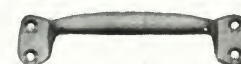
No. 5031

Hat and Coat Hooks

Length 3 ¾ in. over all—Plate 1 ½ in. diam.
Has rubber bumper



No. 5040
Length 1 ¾ in. over all
Plate 2 ¼ in. diam.
Has rubber cushion
Buffer and Plunger



No. 5020
Size 4 ⅝ x 1 ½ in.
Door Pull

No.	
5030	Coat hook with rubber bumper
5031	Fastened with one bolt through partition and has a projecting dowel; prevents it from turning
5040	Door buffer has rubber cushion furnished with wood screws

No.	
5041	Door buffer, same as No. 5040, furnished with bolts to fasten to marble partition
5040A	Same as 5040, made of iron, nickelplated

CHICAGO SPRING HINGE COMPANY

Spring Hinges and Pivots

GENERAL OFFICES AND WORKS
1500-1502 Carroll Avenue
CHICAGO, ILL.
TELEPHONE, MONROE 6868, 6869

EASTERN OFFICE AND WAREHOUSE
109 Lafayette Street
NEW YORK, N. Y.
TELEPHONE, CANAL 2676

Products

Manufacturers of a complete line of PATENT SPRING HINGES, including "Chicago" Spring and Springless Butt-hinges; "Triplex" and "Simplex" Spring Butt-hinges; "Relax," "Premier," "Ajax," "Durex" Spring Pivot-hinges; "Triplex" and "Sagless" Lavatory Door Spring Hinges; Lavatory Door Bolts, Latches and Stops; "Triplex" Gate Spring Butt-hinges; "Sagless" Gate Spring Pivot-hinges; "Sanitex" Closet Seat Spring Hinges; "Chicago" Cabinet and Refrigerator Spring Hinges.

Specially Constructed Products

We solicit details of conditions which require special construction of our products.

"Triplex" Spring Butt-hinges—Double Acting, Type 2001; Single Acting, Type 2002

Hanging strip required.

The Chicago "Triplex" (Three Leaf) spring butt-hinge requires a hanging strip for applying it to door casing. One flange is mortised into the hanging strip and the other into the door, which gives a uniform appearance and secure application.

The body is made from one piece of metal, formed with multiple thickness in the web and there is no joint where the barrel continues as the web. This gives maximum of strength and rigidity and avoids exposing springs to moisture which would cause rust and breakage.

The broad steel bearings, hardened lug bushings and disassemblment features are characteristics of this product. Springs are made of the best tempered steel wire, in ample proportions for the most excessive requirements.

Single acting hinges, when so specified, can be furnished with reverse-action springs to hold door open.

This type of hinge is also made with wide web and flanges, to clear handrail on office gates. (Type G2001 double acting and Type G2002 single acting.)



Specifications

In specifying, designate article by number, size and finish. Hardware dealers have our catalogue, prices and complete data pertaining to the "Chicago" spring hinge products. Hinges are made of steel,

brass or bronze metal, in standard sizes and all standard finishes.

Any special finish to match other hardware, can be furnished promptly.

Quality and Prices

The quality has been recognized for many years and the product considered as standard.

Prices are comparative with those for articles of similar type and quality.

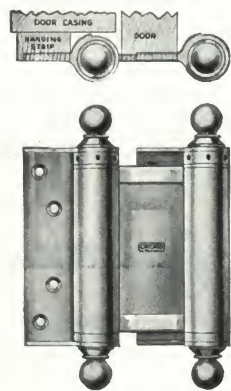
"Simplex" Spring Butt-hinges—Double Acting, Type 9001; Single Acting, Type 9002

No hanging strip required.

The Chicago "Simplex" (Simple Application) spring butt-hinge is applied to the surface of door casing without a hanging strip, the entire thickness of the hinge being mortised into the door. This method of application is simple and economical. The single acting hinge may be applied with one flange mortised into the casing and the other into the door.

The web between the barrels is straight, which gives strength, balanced strain and uniform appearance.

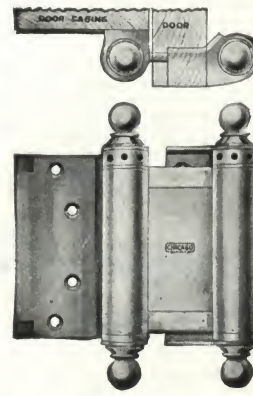
A feature, of great importance, is that all the standards of the "Triplex" spring hinge, which have been recognized for many years, have been maintained in the "Simplex" spring hinge. The body made from one piece of metal formed with multiple thickness in the web and no joint where the barrel continues as the web, distance between the axial centers, location of screw holes, length of mortise cut, size of springs and barrels, straight web, etc., all are identical with the "Triplex," which has been recognized for construction and quality by architects, builders and hardware dealers.



Type 2001
"Triplex" Double Acting



Type 2002
"Triplex" Single Acting



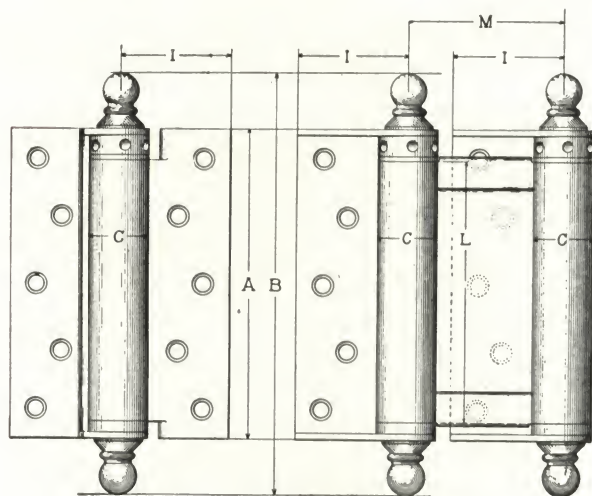
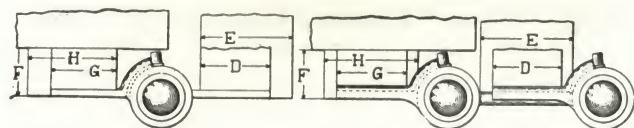
Type 9001
"Simplex" Double Acting



Type 9002
"Simplex" Single Acting

"Triplex" and "Simplex" Double and Single Acting Spring Butt-hinges

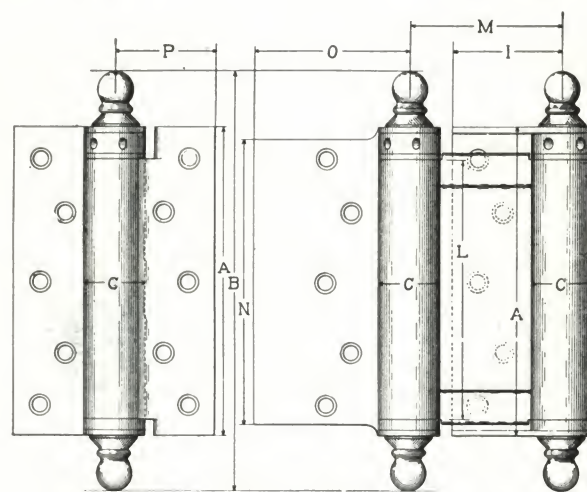
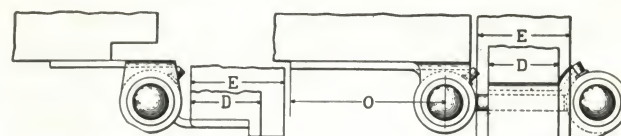
Application of proper size of hinge, according to conditions, is an essential to consider in specifying. It is advisable to avoid overloading the hinge by the selection of too small a size, thereby causing the annoyance of doors improperly operating and possible breakages. Details shown on the next page will assist in specifying "Triplex" and "Simplex" hinges. Single acting "Triplex" and "Simplex" hinges, when so specified, can be furnished with reverse-action springs to hold the door open. Supplied in steel, brass or bronze metal in standard finishes or to match other hardware



Type 2002 Type 2001
Detail of "Triplex" Spring Butt-hinge

Dimensions in Inches

SINGLE ACTING TYPE 2002									DOUBLE ACTING TYPE 2001										
A	B	C	D	E	F	G	H	I	A	B	C	D	E	F	G	H	I	L	M
3	4 1/2	6 5/8	3 1/2	1 1/2	5/8	3/4	1 1/2	1 3/8	3	4 1/2	6 5/8	3 1/2	1 1/2	5/8	3/4	1 1/2	1 3/8	1 3/8	1 3/8
4	5 1/2	6 7/8	3 3/4	1 1/2	5/8	3/4	1 1/2	1 3/8	4	5 1/2	6 7/8	3 3/4	1 1/2	5/8	3/4	1 1/2	1 3/8	1 3/8	1 3/8
5	6 3/4	6 3/4	3 1/2	1 1/2	5/8	3/4	1 1/2	1 3/8	5	6 3/4	6 3/4	3 1/2	1 1/2	5/8	3/4	1 1/2	1 3/8	1 3/8	1 3/8
6	8 1/4	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	6	8 1/4	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 3/8	1 3/8
7	9 1/4	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	7	9 1/4	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 3/8	1 3/8
8	10 5/8	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	8	10 5/8	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 3/8	1 3/8
10	13 1/4	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	10	13 1/4	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 3/8	1 3/8
12	15 1/4	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	12	15 1/4	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 1/2	1 3/8	1 3/8	1 3/8



Type 9002 Type 9001
Detail of "Simplex" Spring Butt-hinge

Dimensions in Inches

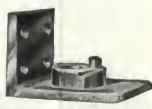
*SINGLE ACTING TYPE 9002							DOUBLE ACTING TYPE 9001												
A	B	C	D	E	P		A	B	C	D	E	I	L	M	N	O			
3	4 9/16	6 5/8	3 1/2	1 1/2	1 3/8		3	4 17/32	6 5/8	3 1/2	1 1/2	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8
4	5 5/8	6 7/8	3 3/4	1 1/2	1 3/8		4	5 1/2	6 7/8	3 3/4	1 1/2	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8
5	6 3/4	6 3/4	3 1/2	1 1/2	1 3/8		5	6 3/4	6 3/4	3 1/2	1 1/2	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8
6	8 3/4	1 3/8	1 1/2	1 3/8	1 3/8		6	8 3/4	1 3/8	1 1/2	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8
7	9 9/16	1 3/8	1 1/2	1 3/8	1 3/8		7	9 1/4	1 3/8	1 1/2	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8
8	10 11/16	1 3/8	1 1/2	1 3/8	1 3/8		8	10 5/8	1 3/8	1 1/2	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8
10	13 1/8	1 3/8	1 1/2	1 3/8	1 3/8		10	13 1/4	1 3/8	1 1/2	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8

*Single acting, Type 9002, may be applied with one flange mortised into casing and the other into the door.

Chicago "Relax" Spring Pivot-hinges—Double Acting, Type 6001

The Chicago "Relax" spring pivot-hinge is suitable for highest class requirements. It is applied to surface of floor, thereby avoiding cutting and possible interference with girders or iron beams. The tension is adjustable. The spring action is readily disengaged by a lever, allowing door to be placed open at any desired position. This is a great convenience, and eliminates the tendency of springs to lose their power as a result of remaining fixed at high tension when doors are held open by door holders. Weight of door is carried on ball bearings located in the top of hinge, thereby protected from dirt and moisture. Plunger top pivot, furnished with this hinge, permits door to be fitted closely to top casing and to be taken down readily without removing any screws. No hanging strip required. Jamb edge of door must be slightly rounded. For tile or concrete floors specify jamb attaching plates.

Furnished in three sizes, for doors 1 1/2 in., 1 3/4 in., and 2 in., and 1 3/4 in., 2 in., and 2 1/4 in.



Jamb Attach-ing Plate



Type 6001
Chicago "Relax" Spring Pivot-hinge

to surface of floor. Mechanical construction eliminates the tendency of wear in bearings. Action of spring is compression and it is made of best tempered steel flat wire; tension is readily adjusted and a device is provided for aligning door. With this hinge, door will remain open if swung to 90°. No hanging strip is required. Jamb edge of door must be slightly rounded. For tile or concrete floors specify jamb attaching plates.

Furnished in two sizes, for doors 1 1/2 in. and 1 3/4 in. to 2 1/4 in.



Type 4001
Chicago "Premier" Spring Pivot-hinge

"Chicago" Spring Butt-hinges—Double Acting, Type 1 1/2

The "Chicago" spring butt-hinge is constructed in a most substantial manner. The spring power, effected by both a torsion and leverage principle, produces a positive action as well as an easy movement of the door.

General construction and mechanical action of this hinge give best results obtainable in operating doors subject to excessive and violent use.

For doors of the following thicknesses:

7/8 to 1 in.
1 1/8 to 1 3/4 in.
1 3/8 to 1 1/2 in.

1 3/4 to 2 in.
2 1/4 to 2 1/2 in.
2 3/4 to 3 in.



Type 1 1/2
"Chicago" Spring Butt-hinge

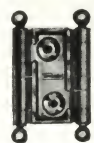
Chicago "Premier" Spring Pivot-hinges—Double Acting, Type 4001

The Chicago "Premier" spring pivot-hinge is applied

"Chicago" Springless Butt-hinges—Double Acting, Type 3 1/2

The "Chicago" springless butt-hinge can be used advantageously in combination with a "Chicago" spring hinge, Type 1 1/2, where doors are light or narrow.

This combination is not advisable on outside doors subject to drafts, where a pair of spring hinges should be used.



Type 3 1/2
"Chicago"
Springless
Butt-hinge

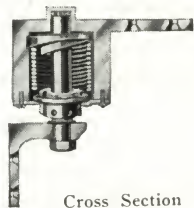
Chicago "Sagless" Gate Spring Pivot-hinges, Type 4007

The Chicago "Sagless" gate spring pivot-hinge is the pivot type, therefore if the gate is wide or heavy, it can not sag. The weight of the gate is carried on ball bearings and is not supported by the spring, therefore a very light tension may be applied. Exterior tension adjustment permits use after hinge is applied. Convex lock washer forms a ball and socket adjustment which automatically aligns hinge pintle.

An adjustable pintle, with locking device, permits setting the gate or door to remain at rest in any desired position. The spring is of large dimensions and made of best tempered steel flat wire. A ball bearing top socket is supplied with this hinge. The application is extremely simple and, if desired, all attachments may be applied to the surface of the post and gate without mortising. This is very desirable for metal gates.

These hinges are supplied in iron, brass or bronze metal and are suitable for gates 1 1/8 to 2 1/2 in. thick with a hand rail as wide as 2 1/2 in.

The attaching plates of the brackets are 2 1/4 in. high by 1 1/2 in. wide. Pintle center to surface of post is 1 5/8 in.



Cross Section



Applied View

Type 4007, Chicago
"Sagless" Gate
Spring Pivot-hinge

Chicago "Triplex" Lavatory Door Spring Hinges

The Chicago "Triplex" lavatory door spring hinges, illustrated, are made in bronze or brass metal, polished or nickel-plated, or in white bronze (nickeline), for partition thicknesses as specified. The spring hinge flanges are 4 in. long.

The 2242, 2244, and 2246 have adjustable clamp flanges and open head nuts on bolts, permitting adjustment of 1/8 in. under and over the following sizes by which they are specified: 1, 1 1/4, 1 1/2, 1 3/4 and 2 in.

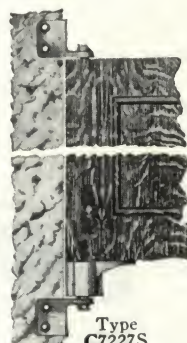
The advantage of the adjustment in clamp flange is that it can be properly and securely applied to partitions having slight variations in thickness.

Where doors are very narrow or light weight, a single acting spring hinge may be used in conjunction with a springless hinge. See Types 2244 and 2444 illustrated below. Where doors swing out and occupancy indicator is not desired, a checking springless hinge, Type 2246 or 2446 can be used. This hinge holds door ajar when not bolted shut. Where doors swing in, hinges can be furnished with reverse action springs to hold door open. Lavatory door stops similar to No. 1247F, with keeper for door bolt similar to No. 1244, can be supplied in various types to meet conditions.

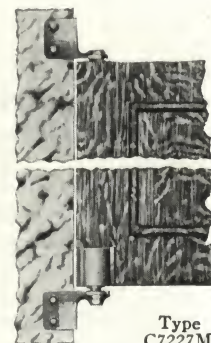
Chicago "Sagless" Lavatory Door Spring Pivot-hinges, Type C7227S and C7227M

The "Sagless" lavatory door spring pivot-hinge is made with attachments for application to marble partitions or pipe standards. The clamp type "C" attachments are adjustable 1/8 in. under or over the following sizes by which they are specified: 1, 1 1/4, 1 1/2, 1 3/4 and 2 in. This hinge can be used either double or single acting. An adjustable pintle with locking device permits setting the door to remain at rest in any desired position.

A larger hinge of similar type, C4227S or C4227M with greater spring power and with exterior tension adjustment can also be furnished. This hinge is particularly adapted to double acting vestibule doors. See Type 4007 for description of features.

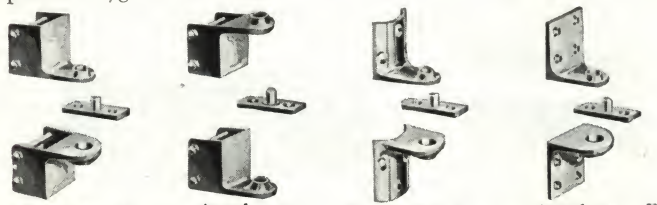


Type
C7227S



Type
C7227M

Chicago "Sagless" Lavatory Spring Hinges

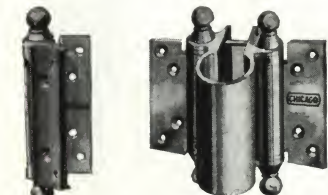


Attachment C

Attachment CI

Attachment P

Attachment F



No. P2222

No. 12342DD

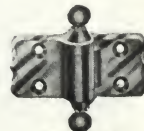
Pipe Standard Hinges



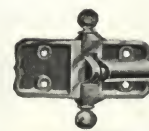
No. 2244



No. 2246



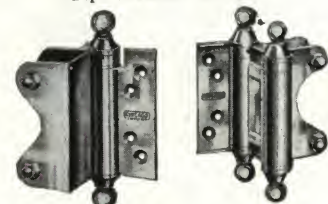
No. 2444



No. 2446

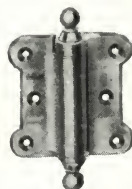


No. 1244



No. 2242

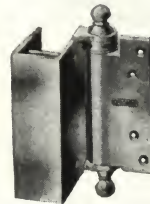
No. 2241



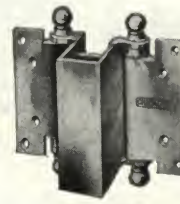
No. 2442



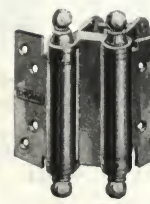
No. 1247F



No. 2842



No. 2642



No. 2542



No. 2742

Chicago "Triplex" Lavatory Spring Hinges, Stops and Bolts

LAWSON-MILWAUKEE SPRING HINGES

MANUFACTURED BY

MILWAUKEE STAMPING COMPANY

GENERAL SALES OFFICES AND FACTORY

MILWAUKEE, WIS.

TELEPHONE

GREENFIELD 2400

CHICAGO OFFICE AND WAREHOUSE, 230 West Superior Street
Telephone, Superior 8927-8

NEW YORK OFFICE AND WAREHOUSE, 416 Broadway
Telephone, Canal 1131

SEATTLE OFFICE, R. F. BEVERS, 521 Thirtieth Avenue, South
Telephone, Beacon 5387

DENVER OFFICE, PETERSON SALES Co., 1921 Blake Street
Telephone, Tabor 1979

HARRISBURG OFFICE, ARTHUR R. BODMER, 323 Kelso Street

BOSTON OFFICE, C. E. HARRIS, 120 Pearl Street
Telephone, Congress 4384

LOS ANGELES OFFICE AND WAREHOUSE, F. W. JONAS, 320 East
Third Street

Telephone, Faber 0160

DALLAS OFFICE, JOHN H. NORTH, 1002 Woodlawn Avenue
Telephone, 6-6398

NEW ORLEANS OFFICE, FRED J. ALLEN, 202 Balter Building
Telephone, Main 1927

MONTREAL, QUE., C. J. WALKER, LTD., Coristine Building
Telephone, Marquette 1501

TORONTO, ONT., T. MORTIMER & Co., 64 Wellington Street, W.
Telephone, Elgin 2789

Products

DOUBLE ACTING and SINGLE ACTING JAMB SPRING HINGES, SPRING and GRAVITY PIVOT HINGES, STRIKES, BOLTS, LATCHES and HINGES for toilet stall doors; special HOSPITAL LOUVRE HINGES; SCREEN DOOR HINGES; DOUBLE ACTING FLOOR HINGES; DOOR GUARDS; VENTILATING WINDOW LOCKS.

For Rite-Way Garment Fixtures, Toilet Partitions and Shower Stalls, see Manufacturers' Index.

Quality and Price

Lawson hinges are of the highest quality obtainable. Prices are competitive with other standard makes.

Lawson "Universal" Pivot Spring Hinge

Can be set to hold a door open at any position desired. The pivot bearings prevent sagging of the door.

The hinge support and pivot support can be used either right or left hand, opening in or out by using the pivot support as a hinge support or vice versa.

The pintle is tapered at the bottom and fits into a tapered socket. When the nut is tightened, the pintle is drawn down into the socket, and this taper fit holds the pintle firmly in place.

The hinge is double acting but can be used single acting by the application of a door stop or strike. Best results are obtained by using double acting hinges as this eliminates the pounding of the door against the strike, which causes loosening of the joints or breaking of the marble.

Because of its simplicity, strength, adaptability to any construction and reversible feature, architects and contractors specify Lawson's "Universal" pivot spring hinge.

Lawson Gravity Pivot Hinge

Resembles Lawson "Universal" pivot spring hinge in size, shape and attachments. For use on double act-

ing doors, but can be used on single acting by the application of a door stop or strike.

This hinge has a ball bearing roller which guarantees smooth action. All working parts are completely inclosed in the hinge housing. Furnished with brackets for attaching to marble, slate or metal partitions.

Types of Buildings with Lawson "Universal" Pivot Spring Hinges—

St. Paul Union Depot, St. Paul, Minn.
Loew's State Theater, New York, N. Y.
Los Angeles Public Schools, Los Angeles, Cal.
New York City Schools, New York, N. Y.
Furniture Mart, Chicago, Ill.
Elks Building, Louisville, Ky.
Bent School, Bloomington, Ill.
Edgewater Beach Hotel, Unit No. 2, Chicago, Ill.
Western Electric Co., Chicago, Ill.
New Palmer House, Chicago, Ill.
Masonic Temple, Detroit, Mich.

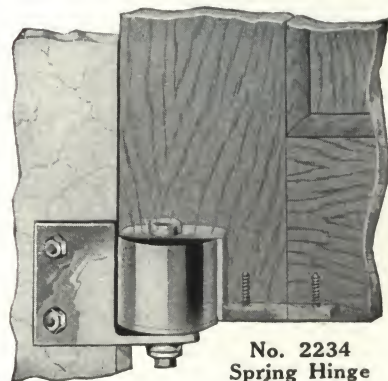
Some of the Partition Manufacturers Who Have Adopted Lawson "Universal" Pivot Spring Hinges as Standard Equipment—

The Vitrolite Company
New York Machinery Company
Atlanta Sheet Metal Works
Fiat Metal Manufacturing Company
Albatross Steel Equipment Company
Andres Stone and Marble Company
Structural Slate Company
Theo. S. Gassner.

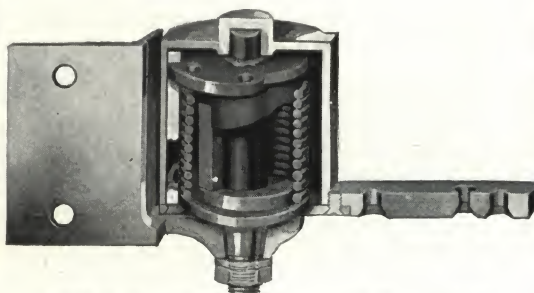
Hardware Specifications for Toilet Stalls

Marble, Slate or Glass—All hinges for toilet stall doors shall be of the pivot type, similar to Lawson's No. 2234 or 2834, made by MILWAUKEE STAMPING COMPANY, and so arranged that they may be set to hold the door open, 3, 5, or 7 in., either in or out, as the owner may elect, after the hinges are applied. They shall be of solid brass, nickel plated.

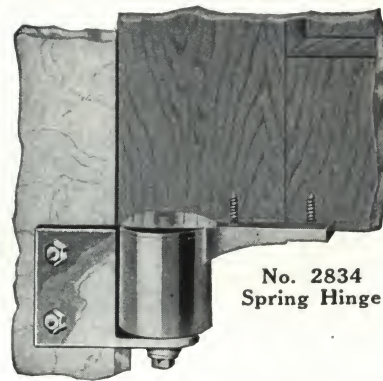
All keepers for these doors shall be of the double acting type, similar to Lawson's No. 1850, 1852 or 1854. [See bottom of second page following.]



No. 2234
Spring Hinge



Details of the Lawson "Universal" Hinge



No. 2834
Spring Hinge

Metal Partitions—All doors shall be equipped with pivot hinges similar to Lawson's "Universal" hinge or Lawson's Gravity hinge for metal doors, made by MILWAUKEE STAMPING COMPANY, and so arranged that they may be set to hold the door open in or out 3, 5, or 7 in., as the owner may elect, after the hinges are applied.

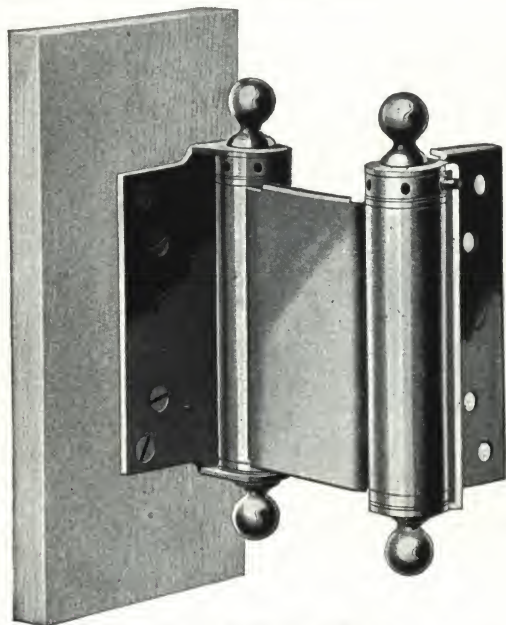
Where Coin Locks Are to Be Used—(Add the following to above specifications.) All doors shall be set, before the strike is attached, to hold the door open 3, 6 or 9 in. Open door out and attach strike, thus giving the spring additional power necessary to insure locking of the door, no matter how gently the door is closed.

Lawson "Nu" Jamb Spring Hinge

The Lawson "Nu" Jamb spring hinge *does not* require the use of a hanging strip. It fastens directly to the jamb and thus gives a far more solid support for the door than if a hanging strip were used.

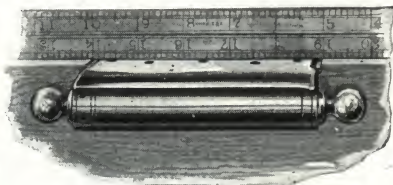
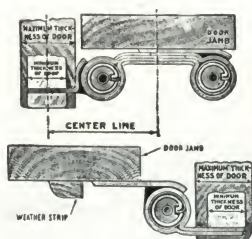
Where a hanging strip is already installed, this hinge can also be used. Only one mortise to make, therefore more easily and quickly applied.

Made of the best materials obtainable, this hinge is exceptionally strong and durable. It is fully guaranteed as to workmanship and material.



"Nu" Jamb Spring Hinge

Notice that the hinge fastens directly to the door jamb



The Only Mortise to Make to Attach "Nu" Jamb Spring Hinge

LAWSON "NU" JAMB SPRING HINGES

Size of hinge	For doors
3"	$\frac{3}{4}$ " thick x 2' 3" wide or 1" thick x 2' 0" wide
4"	1" thick x 2' 6" wide or $1\frac{1}{4}$ " thick x 2' 0" wide
5"	$1\frac{1}{2}$ " thick x 2' 6" wide or $1\frac{1}{2}$ " thick x 2' 3" wide
6"	$1\frac{3}{4}$ " thick x 2' 9" wide or $1\frac{3}{4}$ " thick x 2' 3" wide
7"	$1\frac{3}{4}$ " thick x 2' 9" wide or 2" thick x 2' 6" wide
8"	$1\frac{3}{4}$ " thick x 3' 0" wide or 2" thick x 2' 6" wide
10"	$1\frac{3}{4}$ " thick x 3' 0" wide or 2" thick x 2' 6" wide

For outside doors subject to draft, wide or heavy doors of hardwood, metal covered doors, or doors weighted with heavy plate glass or hardware, use the largest size hinge the thickness of the door will permit. Wide doors require larger size hinges than narrow doors.

Milwaukee Jamb Spring Hinges

To be applied to a hanging strip.

Material—The best grade of cold drawn steel, bronze or brass and spring steel of the finest oiltempered quality.

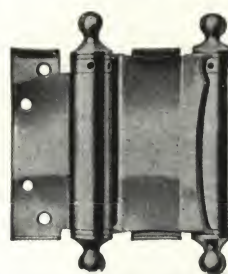
Construction—Springs are large diameter, unusual in length and retain their great resiliency and power indefinitely. Hinges are designed so as to protect the spring from moisture and grit.

Bearings are entirely enclosed in the barrel and are formed by the spring bottom and the tension adjustment working on the ball tips. This results in a large bearing surface. Outside surface is plain and smooth and can be easily kept clean.

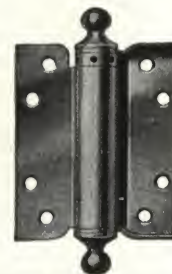
Brass and bronze hinges are equipped with steel bearings. This makes them equally as strong and durable as steel hinges.

Finish—Great care is exercised to maintain a high standard in the finish. Each and every part is given an extra heavy coat of plating.

Finished in planished steel, solid brass or bronze.



Double Acting Hinge



Single Acting Hinge

Milwaukee Jamb Spring Hinges

SIZES FOR SINGLE OR DOUBLE ACTING BUTTS

Length of flange...	$\frac{3}{4}$ " to 1"	$\frac{7}{8}$ " to 1"	1" to $1\frac{1}{4}$ "	$1\frac{1}{4}$ " to $1\frac{3}{4}$ "	$1\frac{3}{4}$ " to 2"	$1\frac{3}{4}$ " to $2\frac{1}{4}$ "
Thickness of door.	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{4}$ "	$1\frac{3}{4}$ "	2"

Always select the largest hinge which the thickness of the door permits.



Gate Hinge

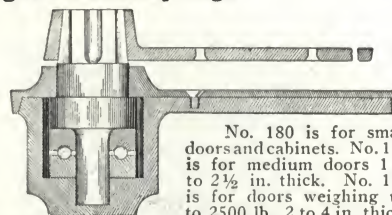
"Universal" Pivot Gate Hinges

Lawson "Universal" pivot gate hinge is sagless and requires no hanging strip. It is the only gate hinge with a positive alignment feature.

Maximum width at hand rail, 2 in. Thickness of gate, 1 to 2 in. Diameter of cup, 2 in. Brackets, 2x1 $\frac{1}{8}$ in. wide.

Matchless Pivot Hinges without Springs

The ball bearings distribute the weight and provide easy and noiseless action. For double and single acting doors.



No. 180 is for small doors and cabinets. No. 165 is for medium doors $1\frac{3}{8}$ to 2 $\frac{1}{2}$ in. thick. No. 175 is for doors weighing up to 2500 lb., 2 to 4 in. thick.

MATCHLESS PIVOT HINGE WITHOUT SPRING

Dimensions	No. 165	No. 175	No. 180
Top plate.....	2 $\frac{1}{4}$ " x 4 $\frac{1}{2}$ "	4 $\frac{3}{4}$ " x 5 $\frac{1}{4}$ "	1" x 4"
Depth of cup.....	1 $\frac{3}{8}$ "	3 $\frac{1}{4}$ "	1 $\frac{1}{8}$ "
Center of pintle to jamb....	1"	1 $\frac{1}{2}$ "	1 $\frac{1}{8}$ "
Bottom socket to floor....	$\frac{3}{8}$ "	$\frac{3}{8}$ "	$\frac{3}{8}$ "
Top pivot face plate.....	1 $\frac{3}{8}$ " x 5 $\frac{7}{8}$ "	2" x 8"	1" x 4 $\frac{3}{4}$ "
Invisible socket.....	1 $\frac{3}{8}$ " x 7 $\frac{7}{8}$ "	2" x 9 $\frac{3}{4}$ "	$\frac{5}{8}$ " x 3 $\frac{3}{4}$ "

Floor Hinges

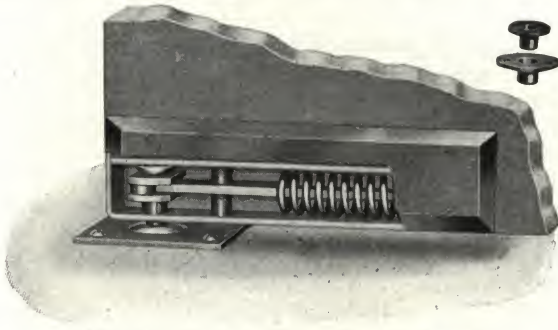
Series No. 800—This surface floor hinge is made for doors from $1\frac{1}{8}$ to $1\frac{3}{4}$ in. thick and of standard size, weighing under 55 lb.

Furnished with square beveled edge side plates which are reversible.

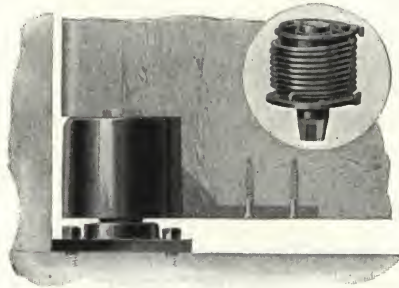
The ball bearing is at the top of the hinge where it should be to carry the weight. This arrangement also keeps it up out of the dirt. The hinge has a smooth, snappy action at all times. Wear is reduced to a minimum by having all moving parts hardened by a special process. Easily and quickly applied.

Series No. 600—This surface floor hinge is of heavier construction and has the working parts enclosed in a grease chamber which keeps out the dirt and prevents wear. For $1\frac{1}{8}$ to $1\frac{3}{4}$ -in. doors.

Series No. 900—This surface floor hinge is for heavier doors from $1\frac{3}{4}$ to $2\frac{1}{2}$ in. thick.

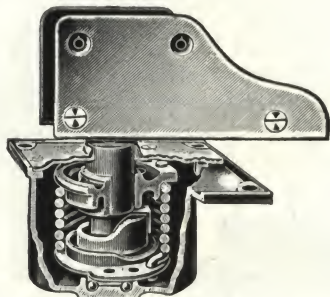


No. 800 Surface Floor Spring Hinge



Matchless Mortise Floor Hinge, Series 1700

Series No. 1700—For doors $2\frac{1}{4}$ in. thick and over, weighing approximately 500 lb. Especially adapted for factories. Has surface floor plate.



Details of Matchless Mortise Floor Hinge, Series 1200 to 1600, Inclusive

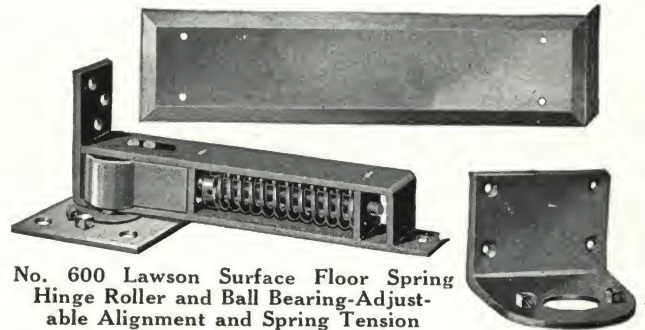
Do not use stronger than No. 1300 for residences. Width of door is the main point to consider

MATCHLESS MORTISE FLOOR HINGE

Series No.	1200	1300	1400	1500	1600
Thickness of doors	$1\frac{1}{8}$ " to $1\frac{1}{2}$ "	$1\frac{1}{2}$ " to 2"	2" to $2\frac{1}{2}$ "	$2\frac{1}{2}$ " to $3\frac{1}{4}$ "	3" to 4"
Size of cover	$4\frac{1}{4}$ "x $4\frac{1}{4}$ "	$4\frac{3}{4}$ "x $4\frac{3}{4}$ "	5"x5"	$5\frac{1}{2}$ "x $5\frac{1}{2}$ "	$6\frac{1}{4}$ "x $6\frac{1}{4}$ "
Center of pintle to door casing	$1\frac{7}{8}$ "	$2\frac{1}{8}$ "	$2\frac{3}{8}$ "	$2\frac{1}{2}$ "	$2\frac{1}{4}$ "
Depth of hinge	$3\frac{1}{4}$ "	$3\frac{1}{4}$ "	$3\frac{1}{2}$ "	4"	4"

No. 600 Lawson Surface Floor Spring Hinge

For doors from $1\frac{1}{8}$ to $1\frac{3}{4}$ in. thick and of standard size. This type of hinge embodies all patented features, and, in addition, a grease chamber which encloses and lubricates the working parts, preventing the collec-

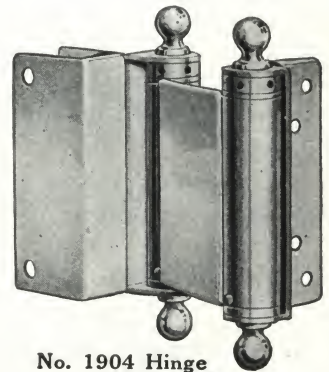


No. 600 Lawson Surface Floor Spring Hinge Roller and Ball Bearing-Adjustable Alignment and Spring Tension

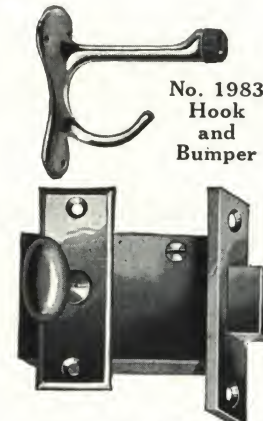
tion of dust and dirt. Can be used to advantage in a great many places where a checking floor hinge would ordinarily be used.

Lavatory Hardware

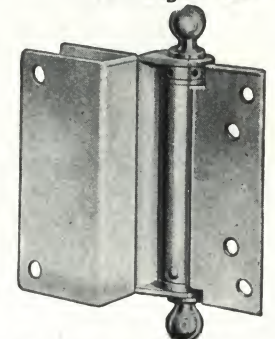
Besides the "Universal" pivot spring hinges illustrated on previous page, we also make a complete line of all types of lavatory hinges, strikes, bolts, bumpers, etc., and can furnish anything desired.



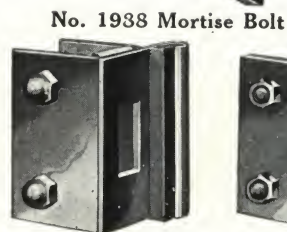
No. 1904 Hinge



No. 1983 Hook and Bumper

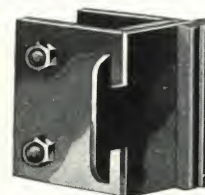


No. 1900 Lavatory Hinge

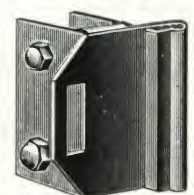


No. 1938 Mortise Bolt

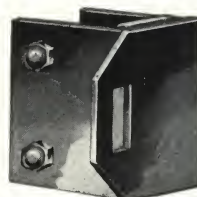
No. 1842 For Mortise Bolt for Doors Opening in or Out



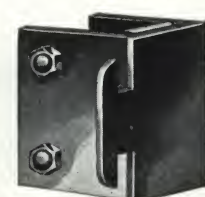
No. 1844 For Throw Latch for Doors Opening in or Out



No. 1848 For Rim Bolt for Doors Opening in or Out

Lavatory Door Strikes and Keepers

1852 For Rim Bolt



1854 For Throw Latch Double Acting Keepers



1850 For Mortise Bolt

THE SHELBY SPRING HINGE CO.

Double and Single Acting Checking Floor Hinges

SHELBY, OHIO

NEW YORK REPRESENTATIVE, HARVEY BRONNER, 90 West Broadway, Room 51
PACIFIC COAST REPRESENTATIVE: POND HARDWARE SPECIALTY Co., 2115 Arapahoe Street, LOS ANGELES, CALIF.

Nos. 10 and 11 Shelby Double Acting Checking Hinges for Light Interior Doors

Cam action, compression spring, liquid checking, needle valve speed control, adjustable alignment. Hold-open, unless non-holdopen is specified.

Recommended for light interior doors:

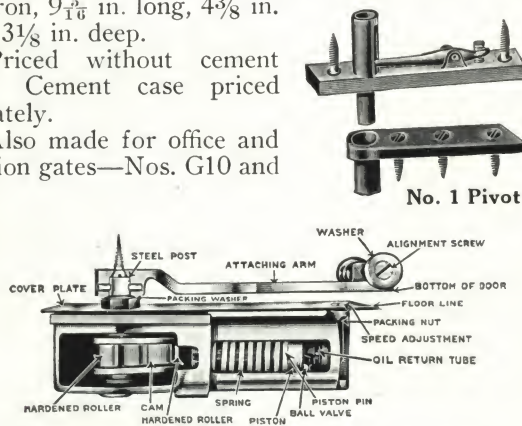
No. 10 hinge for doors not over 2 ft. 8 in. x 7 ft. x 1 3/4 in. thick.

No. 11 hinge for doors not over 3 ft. x 7 ft. 6 in. x 2 in. thick.

Hinge Dimensions—Floor plate, wrought bronze or brass—9 3/8 in. long, 4 9/16 in. wide. Hinge case, iron, 8 5/8 in. long, 4 1/8 in. wide, 2 1/16 in. deep. Cement case, cast iron, 9 5/16 in. long, 4 3/8 in. wide, 3 1/8 in. deep.

Priced without cement case. Cement case priced separately.

Also made for office and partition gates—Nos. G10 and G11.



No. 1 Pivot

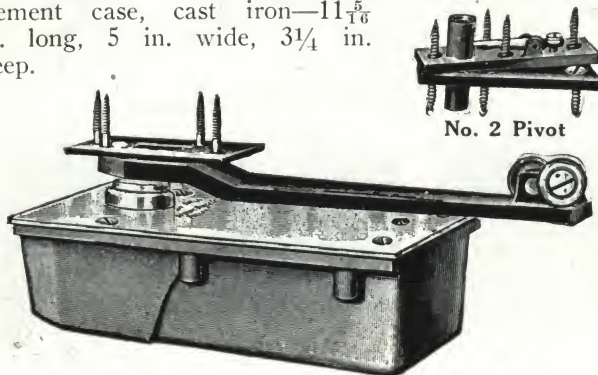
Nos. 16 and 17 Double Acting Checking Floor Hinges for Exterior and Heavy Interior Doors

Non-holdopen unless holdopen is specified. Compression spring, cam action, alignment adjustment, hinge arm and top pivot concealed in edge of the door, closing speed controlled by needle valve, all working parts are in non-freezing, lubricating checking liquid, which conforms to U. S. government standard.

No. 16 hinge for extra heavy or wide interior doors, for ordinary entrance and vestibule doors not over 2 ft. 8 in. x 7 ft. 6 in. x 2 in. thick.

No. 17 hinge for heavy entrance and vestibule doors not over 3 ft. 6 in. x 7 ft. 6 in. x 3 in. thick.

No. 16 Hinge Dimensions—Floor plate wrought bronze or brass—11 1/16 in. long, 5 in. wide. Hinge case, iron—10 1/8 in. long, 4 1/2 in. wide, 3 1/16 in. deep. Cement case, cast iron—11 5/16 in. long, 5 in. wide, 3 1/4 in. deep.



No. 2 Pivot

No. 17 Hinge Dimensions—Floor plate wrought bronze or brass—13 1/8 in. long, 5 1/2 in. wide. Hinge case, iron—12 5/8 in. long, 5 in. wide, 3 3/8 in. deep. Cement case, cast iron—13 3/8 in. long, 5 7/16 in. wide, 3 5/8 in. deep.

Nos. 16 and 17 priced with cement cases.

Blue Print Templates furnished on request.

Checking Floor Hinges can be furnished in all Hardware Finishes.

Single Acting Checking Floor Hinges, Nos. 12, 13, 14, and 15, Offset Arm

Compression spring, crank action, spindle seated in a ball-bearing, arm supporting door forged steel, all working parts operating in lubricating, non-freezing checking fluid U. S. government standard. Will hold open at 115° and can be opened to 180°. Can be furnished to hold open at 90°.

Door Sizes (Wood or Kalamein Doors)—No. 12 hinge for interior doors not over 2 ft. 8 in. x 7 ft. x 1 3/4 in. thick. No. 13 hinge for interior doors not over 3 ft. x 7 ft. 6 in. x 1 3/4 in. thick. No. 14 hinge for doors not over 2 ft. 8 in. x 7 ft. 6 in. x 2 in. thick. No. 15 hinge for doors not over 3 ft. 6 in. x 7 ft. 6 in. x 2 1/2 in. thick.

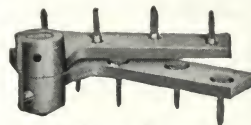
No. 12 Hinge Dimensions—Floor plate wrought bronze or brass—8 7/16 in. long, 5 in. wide. Hinge case, iron—9 1/8 in. long, 4 5/8 in. wide, 3 1/16 in. deep. Cement case, cast iron—9 1/16 in. long, 5 in. wide, 3 1/4 in. deep.

No. 13 Hinge Dimensions—Floor plate, wrought bronze or brass; hinge case, iron; cement case, cast iron; same as No. 12.

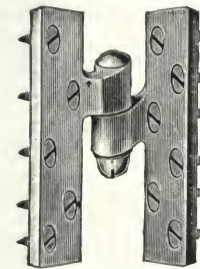
No. 14 Hinge Dimensions—Floor plate wrought bronze or brass—10 1/16 in. long, 5 in. wide. Hinge case, iron—11 1/8 in. long, 4 5/8 in. wide, 3 1/16 in. deep. Cement case, cast iron—11 5/8 in. long, 5 in. wide, 3 1/4 in. deep.

No. 15 Hinge Dimensions—Floor plate wrought bronze or brass—11 7/8 in. long, 5 1/2 in. wide. Hinge case, iron—12 1/8 in. long, 5 in. wide, 3 3/8 in. deep. Cement case, cast iron—13 1/16 in. long, 5 7/16 in. wide, 3 5/8 in. deep.

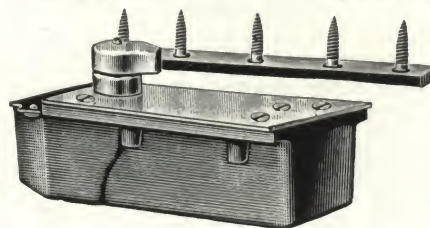
Note: Nos. 12 and 13 hinges priced without cement cases; cement cases priced separately. Nos. 14 and 15 priced with cement cases. *Specify hand of doors.*



No. 4 Pivot



No. 5 Side Pivot for Segment Head Doors



Nos. C13, C14, C15 Single Acting Center Hung Checking Floor Hinges, Compression Spring Type

For light interior doors, exterior and vestibule doors hung singly or hung in groups without mullions.

Compression oil-tempered spring, crank action, spindle seated in a ball bearing, speed of door controlled by accessible needle valve.

Doors hung in groups without mullions should be equipped with door stays to keep the swing of the door within a 90° radius.

Door Sizes (Wood or Kalamein Doors)—No. C13 for doors not over 3 ft. x 7 ft. 6 in. x $1\frac{3}{4}$ in. thick. No. C14 for doors not over 2 ft. 8 in. x 7 ft. 6 in. x 2 in. thick. No. C15 for doors not over 3 ft. 6 in. x 7 ft. 6 in. x $2\frac{1}{2}$ in. thick.

No. C13 Hinge Dimensions—Floor plate, wrought bronze or brass— $9\frac{3}{4}$ in. long, 5 in. wide. Hinge case, iron— $9\frac{1}{8}$ in. long, $4\frac{7}{8}$ in. wide, $3\frac{1}{8}$ in. deep. Cement case, cast iron— $9\frac{1}{8}$ in. long, 5 in. wide, $3\frac{1}{4}$ in. deep.

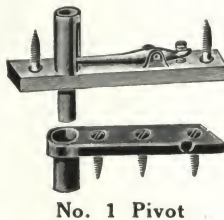
No. C14 Hinge Dimensions—Floor plate wrought bronze or brass— $11\frac{1}{2}$ in. long, 5 in. wide. Hinge case, iron— $10\frac{1}{8}$ in. long, $4\frac{7}{8}$ in. wide, $3\frac{1}{8}$ in. deep. Cement case, cast iron— $11\frac{1}{4}$ in. long, 5 in. wide, $3\frac{1}{4}$ in. deep.

No. C15 Hinge Dimensions—Floor plate, wrought bronze or brass— $13\frac{5}{8}$ in. long, $5\frac{1}{2}$ in. wide. Hinge case, iron— $12\frac{5}{8}$ in. long, 5 in. wide, $3\frac{3}{8}$ in. deep. Cement case, cast iron—13 in. long, $5\frac{7}{8}$ in. wide, $3\frac{5}{8}$ in. deep.

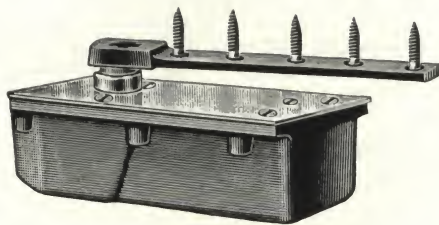
Note: Specify hand of doors.
No. C13 priced without cement case.

Nos. C14 and C15 priced with cement case.

Blue print templates furnished on request.



No. 1 Pivot

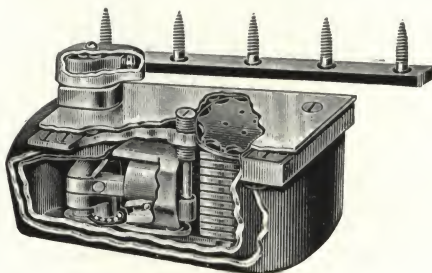
**Nos. 18 and 19 Offset Arm Single Acting Checking Floor Hinges, Torsion Spring Type**

Crank spindle seated in a ball bearing; spring tension adjustment.

This type hinge will permit the door to be opened to 180° and is non-hold open but can be furnished hold-open if specified.

The top pivot, No. 6 is ball bearing.

Priced with cement case.

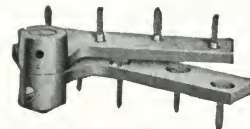


Door Sizes—No. 18 for medium and heavy interior doors not over 3 ft. 6 in. wide. No. 18 for entrance and vestibule doors not over 2 ft. 10 in. wide. No. 19 for heavy entrance and vestibule doors over 2 ft. 10 in. wide.

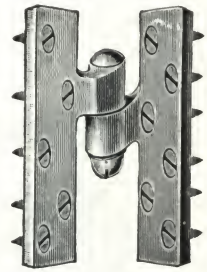
No. 18 Hinge Dimensions—Hinge floor plate— $8\frac{1}{8}$ in. long $5\frac{1}{8}$ in. wide. Cement case, iron— $10\frac{1}{8}$ in. long, 5 in. wide, $3\frac{3}{8}$ in. deep.

No. 19 Hinge Dimensions—Hinge floor plate— $9\frac{7}{8}$ in. long, $6\frac{1}{8}$ in. wide. Cement case, iron— $11\frac{1}{8}$ in. long, $5\frac{7}{8}$ in. wide, $4\frac{1}{8}$ in. deep.

Note: For Segment Head Doors No. 7 Side Pivot will be furnished instead of No. 6 Top Pivot. This Pivot can be used as a Supplementary or Side Pivot. Specify hand of doors.



No. 6 Pivot



No. 7 Pivot

Nos. C18 and C19 Center Hung Single Acting Checking Floor Hinges, Torsion Spring Type

For entrance and vestibule doors hung in groups without mullions.

Non-hold open unless hold-open is specified.

No hardware shows on the face of the door, and the floor plate centers under the door.

All working parts operate in non-freezing, lubricating checking fluid.

Specify hand of doors. Priced with cement case.

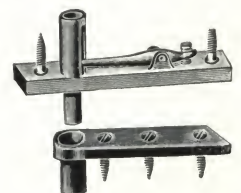
Door Sizes—No. C18 hinge for medium and heavy interior doors not over 3 ft. 6 in. wide. No. C18 hinge for entrance and vestibule doors not over 2 ft. 10 in. wide. No. C19 hinge for heavy entrance and vestibule doors over 2 ft. 10 in. wide.

No. C18 Hinge Dimensions—Floor plate, wrought bronze or brass— $10\frac{1}{4}$ in. long, $5\frac{1}{8}$ in. wide. Cement case, cast iron— $10\frac{1}{8}$ in. long, 5 in. wide, $3\frac{3}{8}$ in. deep.

No. C19 Hinge Dimensions—Floor plate, wrought bronze or brass— $11\frac{1}{4}$ in. long, $6\frac{1}{8}$ in. wide. Cement case, cast iron— $11\frac{1}{8}$ in. long, $5\frac{7}{8}$ in. wide, $4\frac{1}{8}$ in. deep.

Blue print templates furnished on request.

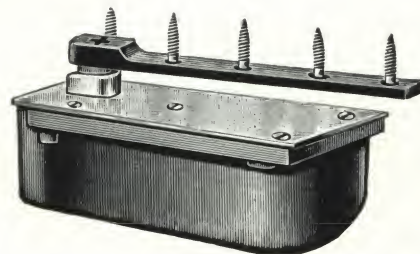
Federal master specification, number 336, type number 2350B.



No. 1 Pivot

Catalogue

A complete 50-page Checking Hinge Catalogue, containing full information, will be mailed on request.



ESTABLISHED 1876

BOMMER SPRING HINGE COMPANY

Door Closers and Door Checks

251-271 Classon Avenue, BROOKLYN, N. Y.

WESTERN SALES OFFICE, 180 North Wacker Drive, CHICAGO, ILL.
PACIFIC COAST SALES REPRESENTATIVE, JOHN T. ROWNTREE, INC., LOS ANGELES, CAL.
BOSTON SALES REPRESENTATIVES, WALTER H. CUTLER, 39 Pearl Street, BOSTON, MASS.**Products**

DOOR CLOSERS and DOOR CHECKS.

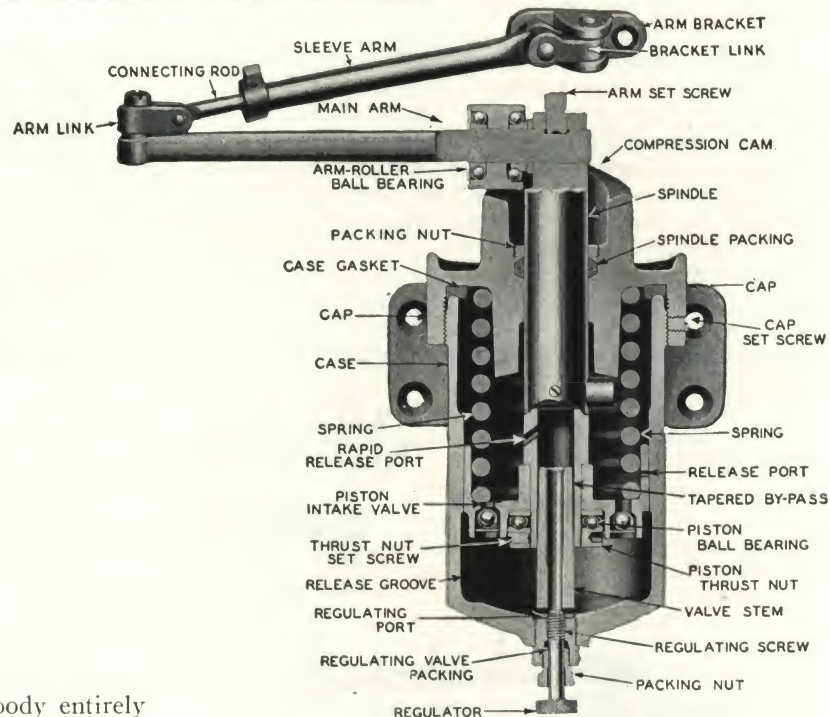
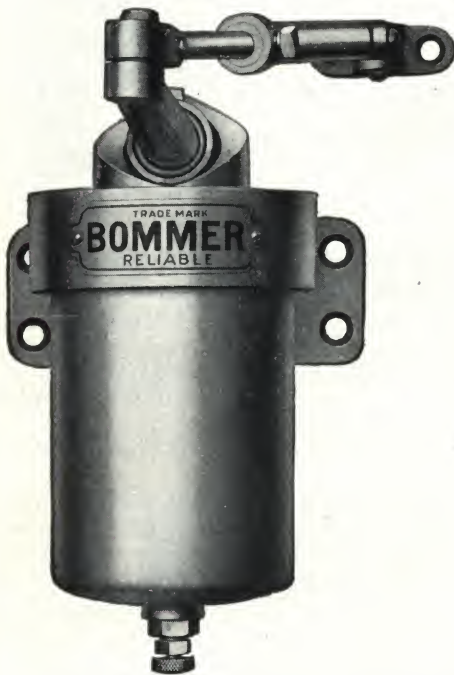
For Bommer Spring Hinges and Pivots for all kinds of doors, also Strikes, Bolts, Latches

TRADE MARK



Reg. U. S. Pat. Office

and Fittings for lavatory units in office buildings, hospitals, theaters, public buildings, etc., see Manufacturers' Index in the front of this volume.

"BOMMER RELIABLE DOOR CLOSERS"

"Bommer Reliable Door Closers" embody entirely new mechanical ideas. They are simple, have few parts and are practically unbreakable. The powerful compression spring positively closes the door and requires no adjustment. The greater checking area prevents slamming. The speed is controlled by the regulator.

The arm, a steel drop forging, has a hardened steel ball bearing roller traversing the cam. The cam design gives powerful action and controls the door. The construction is mechanically correct. All parts are made of materials best suited for their particular purpose. Accurate workmanship insures proper functioning of all parts.

All Bommer Door Closers are reversible and may be used right or left hand without changing any part of the mechanism, and are easily applied by following the templet and simple instructions packed with each door closer and check.

First—they can be adjusted to control the door to a uniform speed from the open position to the jamb, so there is no perceptible noise when the door comes in contact with the jamb.

Second—they can be adjusted to control the door at a uniform speed from the open position to the jamb where the latch comes in contact with the strike. This allows all the spring energy to be exerted in overcoming the latch resistance with the result that the door closes and is not left open at the latch point.

The automatic hold-open feature in the "Bommer Reliable Door Closer" eliminates the use of floor stops, hooks or other devices generally used to hold doors open.

Every closer is tested for mechanical efficiency before leaving the factory and is guaranteed against defects in material or workmanship.

Size and Classification of Door Closers

No. 61—For light doors, screen doors, telephone or coupon booth doors, etc.

No. 62—For pantry or kitchen doors, inside or office doors not over 7x3 ft.

No. 63—For vestibule doors, heavy inside doors, outside doors not over 7x2½ ft.

No. 64—For large interior doors, store doors, outside doors not over 7½x3 ft.

No. 65—For doors not larger than 7½x4 ft.

No. 66—For extra large outside doors (exposed to heavy draft).

These specifications apply to doors under normal conditions. If the door is unusually heavy, or is subject to strong drafts, use one size larger than is specified.

Finishes

Regularly furnished in gold bronze. At the same price (when so ordered) they will be supplied in maroon bronze, symbol MB; silver bronze, symbol XB; or dull black, symbol JD. Can also be furnished in other finishes and cast bronze at an additional price. Suffix symbol for finish. For description of finishes, see our pages on Spring Hinges listed in Manufacturers' Index in the front of this volume.

Method of Attaching Bommer Reliable Door Closer and Check

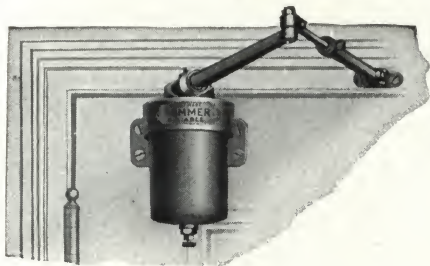


Fig. 1

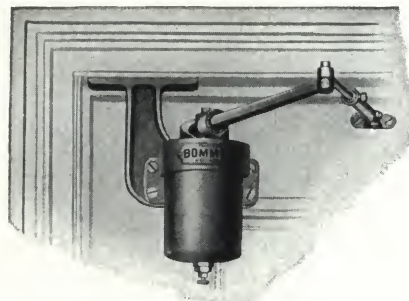


Fig. 2

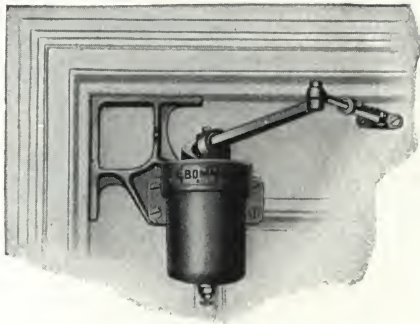


Fig. 3

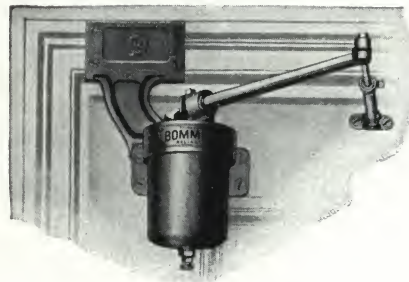
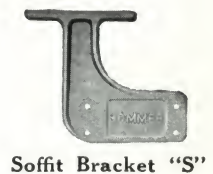
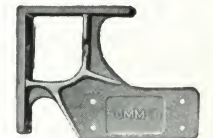


Fig. 4



Soffit Bracket "S"



Corner Bracket "C"



Flush Bracket "F"

Fig. 1—Shows the closer as regularly furnished, applied on the inner or hinge side of door. This method of applying is recommended wherever the condition permits. When applying, the closer may be so placed that the door can be opened to 130° before it will automatically remain open.

Fig. 2—Soffit Bracket "S" should be used where the door opens outward and cannot be applied to the hinge side of door. The soffit bracket and closer may be so placed that the hold-open feature is effective at any determined point between 90° and 165°. The width of the foot or base for attaching to the soffit No. 62 and No. 63 closer is 1¼ in., No. 64 to No. 66 is 1½ in.

Fig. 3—Corner Bracket "C" should be used where the door opens outward, and cannot be applied to hinge side of door. The bracket is securely fastened to both the jamb and soffit. When bracket and closer are so applied, the arm may be adjusted so that the hold-open feature is effective at any determined point between 135° and 165°. The width of the corner brackets for all size closers to attach to the soffit is 1½ in.

Fig. 4—Flush Bracket "F" should be used when the soffit is not sufficiently wide to furnish a footing for the soffit or corner bracket. When applying, the closer can be so placed that the door may be opened to 130° before it will automatically remain open.

Hold-open Feature—The Door Closers No. 61 to No. 65, inclusive, have the hold-open feature, but if desired without this feature and if so ordered, a stop piece with a setscrew will be furnished that can be fastened to the cam to eliminate the hold-open feature.

The Door Closer No. 66 is furnished regularly without the hold-open feature, but if so ordered, will be furnished with a special cam that will hold door open.

Key Adjustment

These closers and checks can be furnished with a key adjustment so that only possessors of key may change valve adjustment.

BOMMER RELIABLE DOUBLE ACTION DOOR CHECK NO. 68

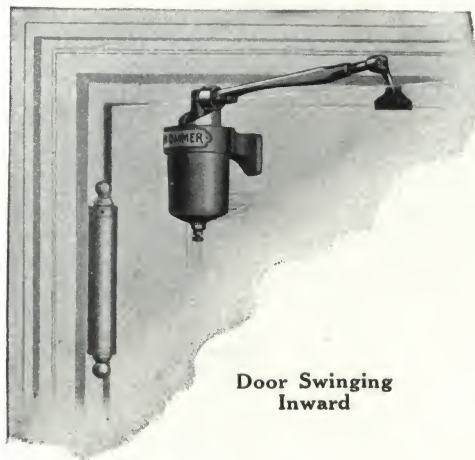
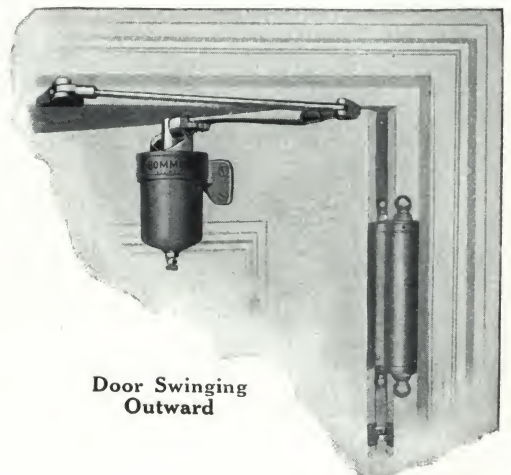
For use on doors hung with double action spring hinges, it permits the door to swing in both directions. No. 68 is a checking device only and has no spring; the necessary power for closing the door is furnished by the spring hinges; the check controls the closing speed and brings the door quietly

to rest on the center without any oscillation, thus eliminating noise and greatly reducing draughts.

Its construction embodies features identical with those in the "Bommer Reliable Door Closer," except the spring is omitted and the main arm has a knuckle joint.

This permits the door to swing free in both directions; the arm passes over the top of the door when the door is moved in the direction of the check and drops below the soffit of the door frame when the door swings in the direction opposite. A door guide pivot and socket is furnished to keep the door in proper relation with the frame.

This device is most useful for entrance doors to stores and public buildings.

Door Swinging
InwardDoor Swinging
Outward

SOSS MANUFACTURING COMPANY, INC.

Manufacturers of Invisible Hinges

ROSELLE, N. J.

DETROIT OFFICE, 1051 Book Building, Washington Boulevard

REPRESENTATIVES

BOSTON, MASS., C. E. HARRIS Co., 120 Pearl Street

CHICAGO, ILL., JOHN C. BOLD & Co., 228 No. LaSalle Street

CLEVELAND, OHIO, THE GESING BROS. Co., 1037 Terminal Tower

SAN FRANCISCO, CALIF., BEN. R. BLACKBURN Co., 163 Second Street

LOS ANGELES, CAL., W. H. STEELE, 302 E. 4th Street

MINNEAPOLIS, MINN., W. J. HILL, 945 Andrus Building

PHILADELPHIA, PA., R. C. KRATZ, 311 Perry Building

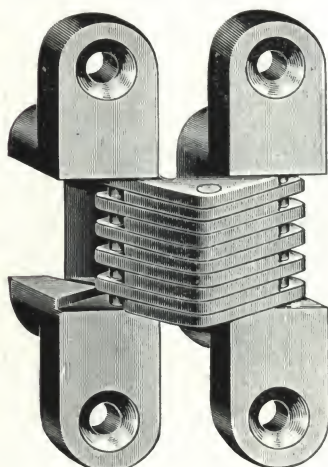
Soss Invisible Hinges

Soss invisible hinges are specially desirable for finer work, for secret panels, in fact, wherever the obtrusiveness of an ordinary visible butt is objectionable. They are mortised into the door and jamb and when the door is closed, are entirely invisible, giving *beauty without interruption*. With Soss invisible hinges, no metal projects at either side of the door, and there is no wide crack when the door is open, for these hinges fit into a mortise. Soss invisible hinges also offer a safety feature of unusual value—when the door is closed, there is no way of reaching the hinges. As an added advantage, Soss invisible hinges require no extra effort or labor to apply—they are mortised into the same part of the door and jamb as the ordinary butt.

To all these features of the Soss invisible hinge is added extraordinary strength and carrying power, due to its short leverage and sturdy construction.

SOSS INVISIBLE HINGES FOR FURNITURE AND LIGHT CABINET WORK

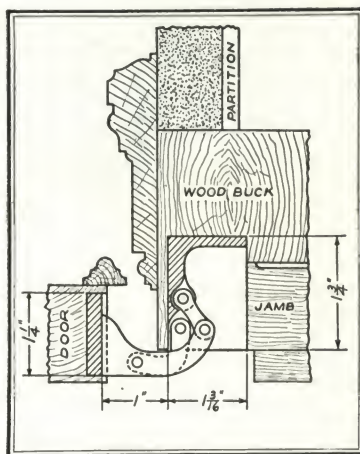
Hinge No.	Thickness of wood, minimum, in.
99	$\frac{9}{16}$
100	$\frac{9}{16}$
101	$\frac{9}{16}$
102	$\frac{9}{16}$
103	$\frac{11}{16}$
110	$\frac{9}{8}$
115	$\frac{11}{16}$
300	$\frac{9}{16}$
302	$\frac{11}{16}$
302-A	$\frac{11}{16}$
303	$\frac{11}{16}$
306	$\frac{9}{16}$



No. 116 (One-half size)
For Standard House Doors
Normal clearance; roller bearings

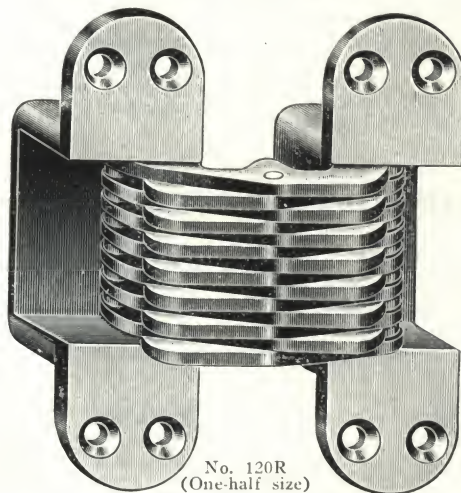
SOSS

TRADE-MARK



No. 117 Soss Hinge Installed

Showing clearance when door is fully opened. Used on house doors and secret panels with projecting moulding



No. 120R
(One-half size)
For Heavy Wood Doors
Wide clearance for projecting trim

SOSS INVISIBLE HINGES FOR LARGER DOORS

Hinge No.	Thickness of wood, in.		For doors	
	Minimum	Maximum	Ft. wide	Up to ft. high
104	$\frac{3}{4}$	$\frac{7}{8}$	2	5
108	$\frac{3}{4}$	$1\frac{1}{8}$	2	5
112	$1\frac{1}{8}$	$1\frac{1}{4}$	2	6
116	$1\frac{3}{8}$	$1\frac{5}{8}$	$2\frac{1}{2}$	6
121	$1\frac{3}{8}$	...	2	6
117	$1\frac{1}{2}$	...	$2\frac{1}{2}$	6
118	$1\frac{1}{2}$	$1\frac{5}{8}$	$2\frac{1}{2}$	6
118-A	$1\frac{1}{2}$	$1\frac{5}{8}$	$2\frac{1}{2}$	6
120-R	$1\frac{3}{4}$	$2\frac{1}{2}$	3	7
120-J	$1\frac{1}{2}$			

Metal and fireproof doors

Years of use have proved that doors hung with Soss hinges will not sag, nor will the hinges themselves wear down under heavy loads.

A templet, the use of which insures an accurate mortise, is furnished with each pair of hinges.

Types—Soss Invisible Hinges are supplied in three types, irrespective of plating finish, as follows:

Rufkast: our standard hinge with smooth surfaces, but not ground or polished.

Blunt: on our blunt hinges, the hinge plates are ground and polished.

Polished: on the polished type, not only the plates but the links or connecting members of the hinge are ground and highly polished, producing a product of superior finish.

Standard finish for all of the above types of hinges is dull brass, but we can supply them in any special finish desired at an additional charge. Prices for special finishes on application.

Specified Everywhere in the Best Work

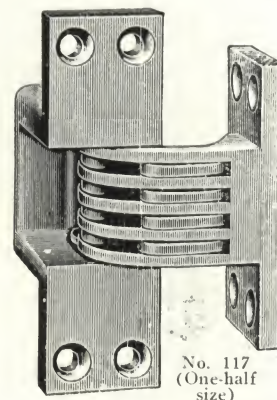
Soss invisible hinges are extensively used in the finest residences, office and public buildings, hotels, store fixtures, cabinet work and furniture. They have been adopted by many of the foremost architects and furniture manufacturers in the country.

Catalogue

Latest illustrated catalogue will be sent on request.

SOSS INVISIBLE HINGES FOR METAL CABINETS AND MEDICINE CLOSETS

Hinge No.	Thickness of metal, in.
105	$\frac{1}{16}$
114	$\frac{1}{16}$
314	$\frac{1}{16}$



No. 117
(One-half size)
For House Doors and Secret Panels with Projecting Mouldings

CORBIN LOCKS AND BUILDERS' HARDWARE



P. & F. CORBIN
THE AMERICAN HARDWARE CORPORATION SUCCESSOR
NEW BRITAIN, CONN., U.S.A.

REPRESENTATIVE



P. & F. CORBIN

THE AMERICAN HARDWARE CORPORATION, SUCCESSOR
Manufacturers of Locks and Builders' Hardware
GENERAL OFFICES AND FACTORIES
NEW BRITAIN, CONN.

NEW YORK, N. Y., 101 Park Avenue

BRANCH OFFICES
CHICAGO, ILL., 323 W. Randolph Street

PHILADELPHIA, PA., 404 Finance Building

The Corbin Organization

P. & F. Corbin was founded in 1849 and for years has been one of the best known hardware manufacturers in the country. We manufacture a complete line of builders' hardware, which enables an architect to specify our goods, for an entire building. Dealing with one company for the complete hardware requirements of a building has the advantage of placing the responsibility for service and quality of product in one place. Furthermore when making an addition to a building it simplifies securing material of the same design, finish and operation to that originally used.

Good Buildings Deserve Good Hardware



A Complete Condensed Hardware Catalogue for Architects

This catalogue has been prepared by a consulting architectural standardist in conjunction with the best hardware experts of our organization. It is a complete catalogue in a condensed and concise form for the special use of the architectural profession. All unnecessary products and data of no interest to the architect have been omitted. The descriptive matter has been condensed, in many cases to tabular form, so that it is possible to make comparisons, especially in locks, which were previously difficult for anyone except a hardware specialist.

The designs have been arranged in groups according to periods which enables the architect to make a comparison of a number of designs of one period in a small space. All cheap shelf hardware has also been omitted which assures the architect that any product selected from the catalogue will be of good quality. A general catalogue, sent on request, lists all Corbin products.

Architectural Service by Hardware Specialists

At our general office and at each of our branch offices, we have a staff of men who are specialists in hardware and who have had long experience with hardware requirements for all types of buildings. Their experience is at the service of the architect without obligation. Their advice is of value as they are in constant touch with the latest improvements in hardware.

If the architects' office is at a distance from our offices, we suggest that a set of plans with a general idea as to the type of hardware and hardware allowance be sent to our nearest office. A complete hardware schedule will be made up and an estimate submitted on request.

Prices in Catalogue

The prices given in this catalogue are list prices and are included for purposes of comparison only. They apply to finishes B, CB, DB, HB, WB, A, CA, EA, KA, and WA as shown on Plate 3. Prices on other finishes on application.

GENERAL INDEX

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011	72	095 1/2	81	280	69	01034 1/2	76	02162	80	2859 1/4	28
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37 1/2	72	105	71	318	25	1405 1/2	77	02210 1/2	27	03352 1/2	64
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41	70	111	71	345 1/2	74	01508	25	2217 1/2	78	D03354	66
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043 1/4	70	112	71	349 7/8	25	1519 1/2	25	02219	78	D03357 1/4	67
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47 1/2	70	0127 1/2	84	366	73	1606	25	02277 1/2	83	4317 1/2	77
48	79	128	84	366 1/8	73	1607	25	2278 1/2	83	4320	77
50	79	0128	84	367	74	1608	25	02278 1/2	83	4406	27
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56	79	0128 1/4	84	368 1/2	73	1609 1/2 R	77	2286	78	4422 1/2	27
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075	82	163 Hook	76	373	73	1840 1/2	77	02357 1/4	67	09296	78
76	80	D163	76	382	73	1904	76	T02357 1/4	67	09296 3/4	78
77	80	0163	73	382 1/2	73	1904 1/2	76	02357 3/4	67	9298	78
78 1/4	80	164 Bolt	73	412 1/2	72	1909	76	T02357 3/4	67	9299	78
78 1/2	80	164 Hook	76	414 1/2	72	1909 1/2	76	2358	67	13278 3/4	83
82	28	D164	76	423	71	1918	25	2360	28	32385	65
083	81	0164	73	424	71	1921 1/2	25	2361	28	32485	65
083 1/4	81	165	76	433	71	1922 3/4	25	2404	77	33385	65
083 1/2	81	D165	76	434	26	1923	25	2405	77	33485	65
084	81	168	76	475	26	1923 1/2	25	2421	76	41176	64
084 1/2	81	D168	76	523	71	1925	25	2422	76	41180	64
084 1/2	81	168 1/2	73	524	71	1926	25	2425	76	41186	64
084 1/2	81	0168 1/2	73	595 1/2	75	1927	25	002427	84	41187	64
085	81	169 1/2	73	599 1/2	75	1928	25	02428	84	42385	65
085	81	170	77	609R	77	1929	25	2430	76	42386	64
085 1/2	81	171 1/2	70	609 1/2 R	77	1930	25	2431	76	42387	64
085 1/2	81	171 3/4	70	619 1/2 R	77	1931	25	2605	26	42485	65
086	81	172	70	639	67	1932	25	2609R	77	42486	65
086	81	182	78	639 1/2	67	1934	25	2609 1/2 R	77	42487	65
086 1/2	81	182 1/2	78	0655	73	1989	28	2616	26	52385	65
086 1/2	81	184	78	0655 1/4	73	1990	28	2619 1/2 R	77	52376	64
086 1/2	81	197	83	0655 1/2	73	1990 1/4	28	2621 1/2	26	52380	64
088	81	197 1/2	83	0657	73	1991	28	2651	26	52386	64
088 1/2	81	199 1/4	83	0657 1/4	73	1991 1/4	28	2659	28	52387	64
088 1/2	81	199 1/2	83	0657 1/2	73	1992 1/4	28	2660	26	52476	65
088 1/2	81	0199 1/2	83	661	75	1993	28	2661	26	52480	65
089	81	200 1/4	83	661 1/2	75	1993 1/4	28	2662	26	52485	65
089	81	0200 1/4	83	663	75	1994	28	2663	26	52486	65
089 1/2	81	200 1/2	83	663 1/2	75	1994 1/4	28	2666	26	52487	65



NUMERICAL INDEX

PLATE 2

DESCRIPTION OF FINISHES

Specify Finish by Prefixing Symbol to Number

FOR CAST AND WROUGHT BRONZE

Finish Symbol	Description
B	Natural Color
AB	Aged or Old English Bronze
CB	Natural Color, Fine Wheel (Ship Finish)
WB	Natural Color, Medium Wheel (Ship Finish)
DB	Natural Color, Dull
SB	Natural Color, Sanded
HB	Statuary Light
SHB	Statuary Light, Sanded
RHB	Statuary Light, Sanded, High Parts Polished Suitable only for ornamental designs Use "SHB" for plain goods to match
KB	Statuary Medium
SKB	Statuary Medium, Sanded
RKB	Statuary Medium, Sanded, High Parts Polished Suitable only for ornamental designs Use "SKB" for plain goods to match
LB	Statuary Dark
SLB	Statuary Dark, Sanded
RLB	Statuary Dark, Sanded, High Parts Polished Suitable only for ornamental design Use "SLB" for plain goods to match
CR	Chromium Plated

Finish Symbol	Description
DCR	Chromium Plated, Dull
E	Nickel Plated, Polished
2E	Nickel Plated, Oxidized, Relieved and Sanded, Edges and High Parts Polished. Apply only to certain designs
DE	Nickel Plated, Dull
KE	Nickel Plated, Oxidized and Relieved Suitable only for ornamental goods Use "DE" for plain goods to match
SKE	Nickel Plated, Oxidized, Relieved and Sanded
SE	Nickel Plated, Sanded
HPE	Imitation Half-Polished Iron
WEH	Imitation Fresh Forged Iron for wrought bronze only
MHD	Imitation Half Polished Iron to match HD finish
DG	Gold Plated, Dull
IG	Imitation Gold
R	Antique Copper
DS	Silver Plated, Dull
KS	Silver Plated, Oxidized and Relieved
V	Verde Antique
HV	Verde Antique, High Lights Relieved

FOR CAST AND WROUGHT BRASS

A	Natural Color
AA	Aged or Old English Brass
CA	Natural Color, Fine Wheel (Ship Finish)
WA	Natural Color, Medium Wheel (Ship Finish)
EA	Natural Color, Dull
SEA	Natural Color, Sanded
KA	Oxidized and Relieved Suitable only for ornamental goods Use "EA" finish for plain goods to match

SKA	Oxidized and Relieved, Sanded
2A	Oxidized and Relieved, Sanded Edges and High Parts Polished Applied only to certain designs Use "SKA" for plain goods to match
RKA	Oxidized and Relieved, Sanded High Parts Polished Suitable only for ornamental designs Use "SKA" for plain goods to match

BRASS AND BRONZE WITHOUT LACQUER

NL	Indicates "No Lacquer." For example, "DBNL"
OR	Indicates "Oil Rubbed." For example, "DBOR"

NICKELINE

NK	Composition Cast White Metal, Highly Polished
----	---

BOWER BARFF FINISHES

F	Genuine Bower Barff or Black Iron Applied to iron and steel, but designated by prefixing this symbol "F" to catalog numbers for cast and wrought bronze
---	--

KF	Imitation Bower Barff or Black Iron Applied to bronze, iron, and steel
----	---

FOR STEEL AND IRON

Amber, Coppered, Japanned, Galvanized, Dead Black, and White Enamel finishes are furnished only on articles so described in Catalog and are applied to unpolished surface.

A	Brass Plated
EA	Brass Plated, Dull
KA	Brass Plated, Oxidized and Relieved Suitable only for ornamental goods Use "EA" finish for plain goods to match
SKA	Brass Plated, Oxidized and Relieved, Sanded
2A	Brass Plated, Oxidized and Relieved, Sanded Edges and High Parts Polished Applied only to certain designs Use "SKA" for plain goods to match
RKA	Brass Plated, Oxidized and Relieved, Sanded High Parts Polished Suitable only for ornamental designs Use "SKA" for plain goods to match
B	Bronze Plated
DB	Bronze Plated, Dull
HB	Bronze Plated, Statuary Light
SHB	Bronze Plated, Statuary Light, Sanded
RHB	Bronze Plated, Statuary Light, Sanded High Parts Polished Suitable only for ornamental designs Use "SHB" for plain goods to match
KB	Bronze Plated, Statuary Medium
SKB	Bronze Plated, Statuary Medium, Sanded

RKB	Bronze Plated, Statuary Medium, Sanded High Parts Polished Suitable only for ornamental designs Use "SKB" for plain goods to match
LB	Bronze Plated, Statuary Dark
SLB	Bronze Plated, Statuary Dark, Sanded
E	Nickel Plated, Polished
2E	Nickel Plated, Oxidized, Relieved and Sanded, Edges and High Parts Polished. Apply only to certain designs
DE	Nickel Plated, Dull
KE	Nickel Plated, Oxidized and Relieved Suitable only for ornamental goods Use "DE" for plain goods to match
SKE	Nickel Plated, Oxidized, Relieved and Sanded
MHD	Imitation Half Polished Iron to match HD finish
R	Antique Copper
C	Coppered (Listed)
D	Dead Black (Listed)
G	Electro-Galvanized (Listed)
J	Japanned (Listed)
Y	Amber (Listed)
W	White Enamel (Listed)
AL	Aluminum Bronze for door checks only
MR	Maroon for door checks only

POMPEIIAN FINISHES

The Pompeian Finish is the result of the application of a special process to articles of our regular line, creating a new and startlingly original decorative effect. The surface is treated to give it a delicate lacy pattern in flat relief and both the texture and color bear a resemblance to the result of exposure to the elements. The rich and often somber tints are such as are caused by the corrosive action of the air through long periods of time.

Each piece is individual in treatment, the surface of no two

being alike. The distribution of color will also vary slightly, preserving a uniformity of appearance but with difference in shades which enhance the general effect.

This finish is seen to best effect when applied to hardware with a plain surface or with designs which have no finely modeled details.

Finish symbols are the same as for our regular brass or bronze finishes, using the prefix "P" to signify the Pompeian surface.



PHB Finish
(Pompeian, Light Statuary Bronze)



PB Finish
(Pompeian, Bronze, Natural Color)



PT Finish
(Pompeian, Bronze, Tapestry)



PA Finish
(Pompeian, Brass, Natural Color)



PKE Finish
(Pompeian, Nickel Plated, Oxidized and Relieved)



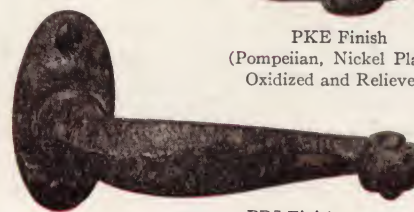
PVB Finish
(Pompeian, Bronze, Verde Antique)



PLB Finish
(Pompeian, Dark Statuary Bronze)



PVA Finish
(Pompeian, Brass, Verde Antique)



PRI Finish
(Pompeian, Bronze, Rusty Iron)



COLOR EFFECTS IN HARDWARE

PLATE 4

POLYCHROME FINISHES

The application of color to the depressed portions of the surface permits endless combination of tints in pleasing effects. Any arrangement of colors can be provided with variations of shades to suit the most exacting taste. They can be made to conform to the colors associated with the decorative period of the design; they can be made to harmonize with the color scheme of the decorations of the building; they can provide a brilliant dash of color to relieve a monotony of appearance. There is no limit to the variations which can be made.

This finish should be employed only on designs which have depressions which will receive the color with metal exposed in

the higher levels. No fixed system of symbols for combination of color has been found possible, the treatment depending upon the desire of the purchaser. The Corbin artists will co-operate in the creation of any effect desired. The treatment of all pieces of the same kind in any order will be identical. We have employed the designation of Polychrome for this treatment, as indicative of many colors in which it can be produced.

The treatment brings into relief delicate detail in the ornamentation. In heraldic designs the actual colors of the originals, or those approved by the organizations whose emblems are used, can be applied with fidelity.



A Moorish Knob and Escutcheon in Colors Taken from the Alhambra



A Knob and Escutcheon for Inside Residence Doors



Knob for Masonic Buildings



An Adam Door Pull in Harmonious Colors



An Egyptian Push Plate for Fraternal Buildings

Illustrations
one-fifth size

MODERNISTIC PERIOD

Cast Bronze

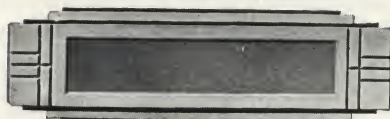
GARGAN



746-55 x 746-05



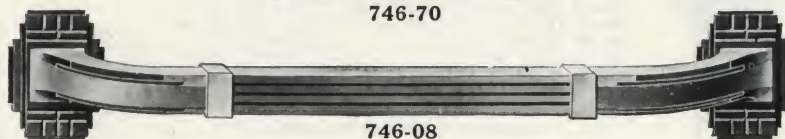
746-40



746-70



746-13

746-22x
746-05

746-08

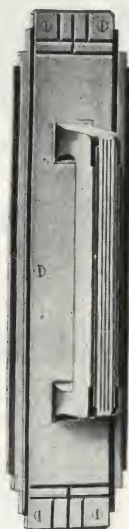


746-49

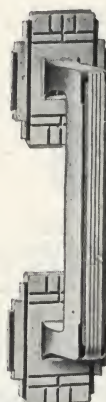
GARGAN DESIGN (Serial 746)

Cat. No.	Description of parts	Size, in.	Price
746-05	Knob rose.....	2 1/4 x 2 1/4	\$2.05
746-08	Push bar.....	3 3/8 wide	13.20
746-13	Cylinder collar, small.....	2 5/8 x 2 1/4	1.10
746-14	Cylinder collar, large.....	3 3/8 x 2 5/8	1.30
746-20	Door knob.....	2 1/2 x 2 1/2	5.90
746-22	Door knob.....	2 1/4 x 2 1/4	4.35
746-25	Door knob (oval).....	2 5/8 x 1 1/4	4.35
746-29	Escutcheon, cylinder lock.....	10 x 2 3/4	5.05
746-30	Escutcheon, cylinder lock.....	9 x 2 3/4	3.60
746-31	Escutcheon, mortise lock.....	8 x 2 1/2	2.65
746-40	Escutcheon, key plate.....	1 3/4 x 1 1/4	.60
746-49	Thumb knob.....	1 3/4 x 1 1/4	1.85
746-55	Lever handle.....	3 1/4	3.60
*746-70	Letter drop plate.....	3 x 10	7.20
*746-71	Letter drop with back plate.....	3 x 10	12.60
*746-72	Letter drop with hood.....	3 x 10	15.00
746-80	Store door handle.....	16 x 3 1/4	10.70
746-84	Sectional door handle.....	10 x 2 5/8	8.20
746-86	Door pull.....	14 x 3	9.60
746-87	Sectional door pull.....	9 1/4 x 2 5/8	7.65
746-90	Push plate, large.....	16 x 3 1/4	7.20
746-01	Push plate, small.....	14 x 3	6.40

*Letter drop plates have opening of 1 1/2 x 7 in.
Knobs have PY shank, No. 56 type spindle.
For details of unit lock sets, see plates 34-37.



746-86



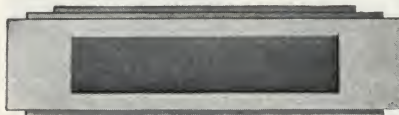
746-87

746-25x
746-31746-22x
746-29

745-55 x 745-05



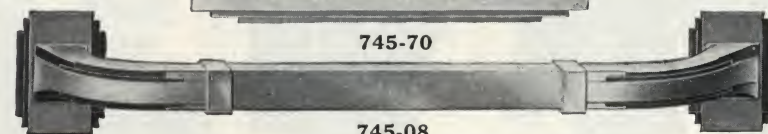
745-40



745-70



745-13

745-22x
745-05

745-08



745-49

GOTHAM DESIGN (Serial 745)

Cat. No.	Description of parts	Size, in.	Price
745-05	Knob rose.....	2 x 1 3/4	\$1.69
745-08	Push bar.....	3 wide	11.00
745-13	Cylinder collar, small.....	2 1/8 x 2 1/8	.91
745-14	Cylinder collar, large.....	3 x 2 1/4	1.09
745-22	Door knob.....	2 1/4 x 2 1/4	3.64
745-29	Escutcheon, cylinder lock.....	10 x 2 3/4	4.22
745-30	Escutcheon, cylinder lock.....	9 x 2 1/2	3.00
745-31	Escutcheon, mortise lock.....	7 x 2 1/4	2.20
745-40	Escutcheon, key plate.....	1 3/4 x 1 1/4	.51
745-49	Thumb knob for 3/8-in. spindle.....	1 1/2 x 1 1/4	1.55
745-50	Thumb knob for 1/2-in. spindle.....	3 x 1 1/4	1.82
745-55	Lever handle.....	3 1/4	3.60
*745-70	Letter drop plate.....	3 x 10 1/4	6.00
*745-71	Letter drop with back plate.....	3 x 10 1/4	10.50
*745-72	Letter drop with hood.....	3 x 10 1/4	12.50
745-84	Sectional door handle.....	9 1/8 x 2 1/4	6.82
745-86	Door pull, plate.....	14 x 3	8.00
745-87	Door pull, 5 1/2 in. c. to c.....	8 7/8 x 2 1/4	6.36
745-90	Push plate, large.....	16 x 3	6.00
745-01	Push plate, small.....	14 x 3	5.34

*Letter drop plates have opening of 1 1/2 x 7 in.
Knobs have PY shank, No. 56 type spindle.
For details of unit lock sets, see plates 34-37.



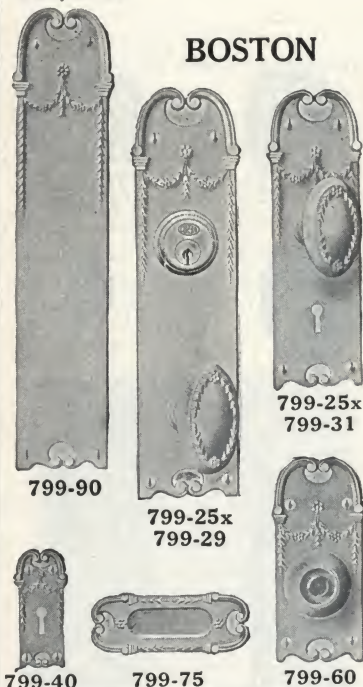
745-86

745-22x
745-30745-22x
745-31745-22x
745-29

PERIOD DESIGNS OF HARDWARE TRIM

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 6

Illustrations
one-fifth size**BOSTON****ADAM PERIOD**

Cast Bronze

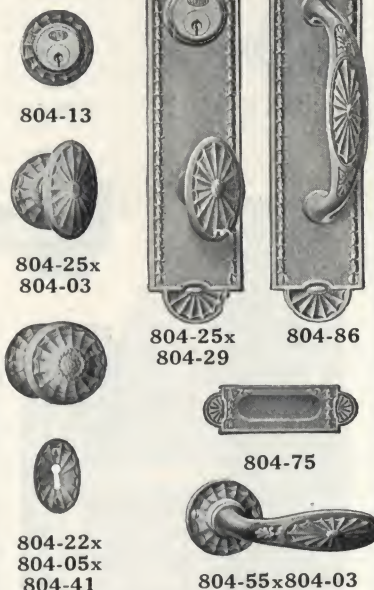
BOSTON DESIGN (Serial 799)

Cat. No.	Description of parts	Size, in.	Price
799-25	Door knob.....	2 1/2 x 2 1/2	\$5.55
799-29	Escutcheon, cylinder lock..	10 7/8 x 2 1/2	8.89
799-30	Escutcheon, cylinder lock..	9 3/8 x 2 1/2	6.67
799-31	Escutcheon, mortise lock..	7 7/8 x 2 1/2	5.33
799-34	Escutcheon, cup.....	8 x 2 1/2	6.67
799-40	Escutcheon, key plate....	3 1/2 x 1 1/2	1.33
799-47	Escutcheon with lever....	5 x 1 1/2	6.00
799-60	Electric push button.....	5 3/8 x 2 1/2	3.55
799-75	Flush sash lift.....	1 5/8 x 4 1/2	3.33
799-90	Push plate, small.....	15 x 3 1/2	8.89
799-91	Push plate, large.....	20 x 3 1/2	15.55

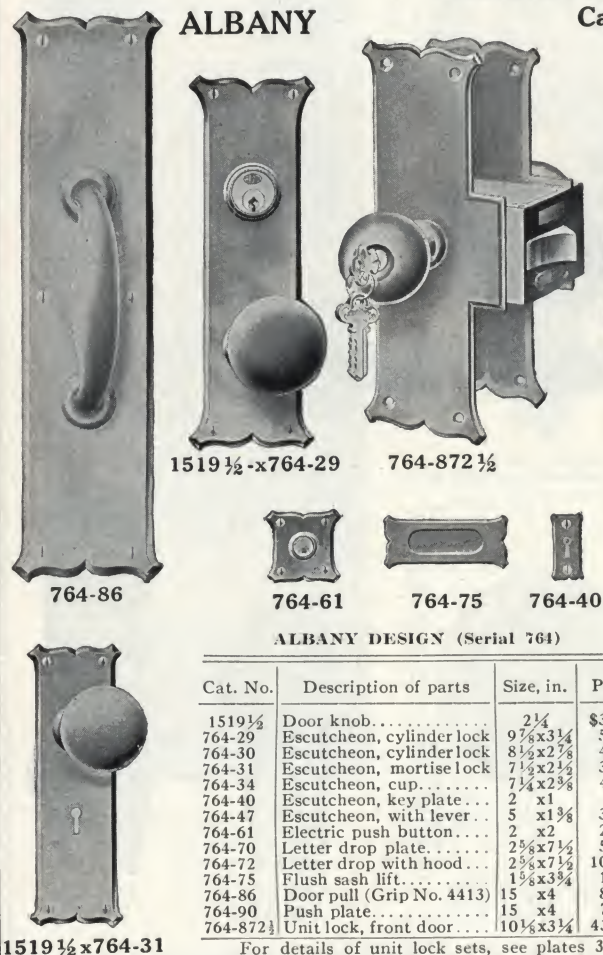
FITZROY DESIGN (Serial 804)

804-03	Rose for French shank knobs.....	2 1/2 x 2 1/2	\$1.80
804-05	Rose for knob.....	2 1/2 x 2 1/2	1.80
804-13	Cylinder collar.....	2 1/2 x 2 1/2	1.20
804-22	Door knob, round.....	2 1/2 x 2 1/2	5.00
804-25	Door knob, oval French shank.....	2 3/4 x 1 1/2	5.00
804-29	Escutcheon, cylinder lock..	12 x 2 1/2	8.00
804-34	Escutcheon, cup.....	12 x 2 1/2	8.00
804-41	Escutcheon, key plate, oval	2 x 1 1/4	.89
804-49	Thumb knob.....	2 1/2 x 1 1/4	1.87
804-55	Lever handle, large.....	4 1/2 x 3 1/2	7.35
804-56	Lever handle, small.....	3 1/2 x 3 1/2	6.65
804-75	Flush sash lift.....	1 1/4 x 3 3/4	2.78
804-86	Door pull.....	12 x 2 1/2	14.44
804-90	Push plate, large.....	18 x 2 1/2	13.34
804-91	Push plate, small.....	12 x 2 1/2	10.00

Knobs have PY shank, No. 56 type spindle.

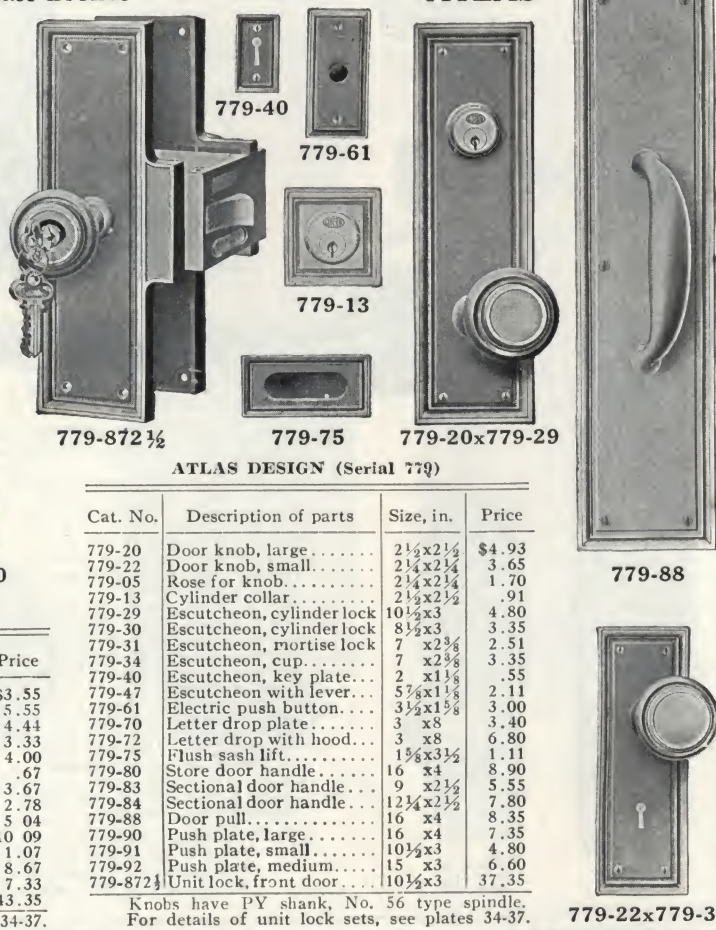
FITZROY**COLONIAL PERIOD**

Cast Bronze

ALBANY**ALBANY DESIGN (Serial 764)**

Cat. No.	Description of parts	Size, in.	Price
1519 1/2	Door knob.....	2 1/4	\$3.55
764-29	Escutcheon, cylinder lock..	9 7/8 x 3 1/4	5.55
764-30	Escutcheon, cylinder lock..	8 1/2 x 2 1/2	4.44
764-31	Escutcheon, mortise lock..	7 1/2 x 2 1/2	3.33
764-34	Escutcheon, cup.....	7 1/4 x 2 1/2	4.00
764-40	Escutcheon, key plate....	2 x 1	.67
764-47	Escutcheon, with lever....	5 x 1 1/2	3.67
764-61	Electric push button.....	2 x 2	2.78
764-70	Letter drop plate.....	2 3/8 x 7 1/2	5.04
764-72	Letter drop with hood....	2 3/8 x 7 1/2	10.09
764-75	Flush sash lift.....	1 5/8 x 3 3/4	1.07
764-86	Door pull (Grip No. 4413)	15 x 4	8.67
764-90	Push plate.....	15 x 4	7.33
764-872 1/2	Unit lock, front door....	10 1/2 x 3 1/4	43.35

For details of unit lock sets, see plates 34-37.

ATLAS**ATLAS DESIGN (Serial 779)**

Cat. No.	Description of parts	Size, in.	Price
779-20	Door knob, large.....	2 1/2 x 2 1/2	\$4.93
779-22	Door knob, small.....	2 1/4 x 2 1/4	3.65
779-05	Rose for knob.....	2 1/4 x 2 1/4	1.70
779-13	Cylinder collar.....	2 1/2 x 2 1/2	.91
779-29	Escutcheon, cylinder lock..	10 1/2 x 3	4.80
779-30	Escutcheon, cylinder lock..	8 1/2 x 3	3.35
779-31	Escutcheon, mortise lock..	7 x 2 3/8	2.51
779-34	Escutcheon, cup.....	7 x 2 3/8	3.35
779-40	Escutcheon, key plate....	2 x 1 1/2	.55
779-47	Escutcheon with lever....	5 1/2 x 1 1/2	2.11
779-61	Electric push button.....	3 1/2 x 1 3/8	3.00
779-70	Letter drop plate.....	3 x 8	3.40
779-72	Letter drop with hood....	3 x 8	6.80
779-75	Flush sash lift.....	1 5/8 x 3 1/2	1.11
779-80	Store door handle.....	16 x 4	8.90
779-83	Sectional door handle....	9 x 2 1/2	5.55
779-84	Sectional door handle....	12 1/4 x 2 1/2	7.80
779-88	Door pull.....	16 x 4	8.35
779-90	Push plate, large.....	16 x 4	7.35
779-91	Push plate, small.....	10 1/2 x 3	4.80
779-92	Push plate, medium.....	15 x 3	6.60
779-872 1/2	Unit lock, front door....	10 1/2 x 3	37.35

Knobs have PY shank, No. 56 type spindle.
For details of unit lock sets, see plates 34-37.**PLATE 7****PERIOD DESIGNS OF HARDWARE TRIM**

Prefix Letters for Finish. Description of Finishes, Plate 3



Illustrations
one-fifth size

COLONIAL PERIOD

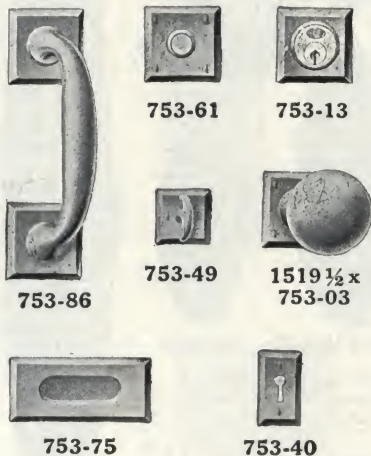
For Colonial Period Wrought Iron Hardware, see plates 18 and 19

BEACON

Cast Bronze

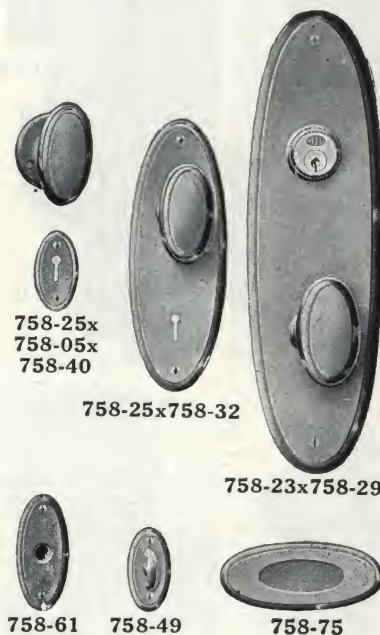
BEACON DESIGN (Serial 753)

Cat. No.	Description of parts	Size, in.	Price
1519½	Door knob.....	2¼x2¼	\$3.55
753-03	Rose for knob.....	2 x2	1.35
753-13	Cylinder collar, small.....	2 x2	.65
753-14	Cylinder collar, large.....	2¼x2¼	.80
753-40	Escutcheon, key plate, square.....	2 x1½	.55
753-41	Escutcheon, key plate, rect.....	1½x1½	.55
753-49	Thumb knob.....	1½x1½	.84
753-61	Push button.....	2 x2	1.67
753-75	Flush sash lift.....	1¼x3½	1.11
753-82	Sectional handle.....	8½x2	3.90
753-83	Sectional handle.....	8¼x2¼	5.00
753-84	Sectional handle.....	10½x2¼	5.55
753-86	Door pull (Grip No. 4395).....	7 x2	3.11



BRIGHTON DESIGN (Serial 758)

758-05	Rose for knob, large.....	2 x2	\$1.31
758-06	Rose for knob, small.....	1½x1½	1.20
758-23	Door knob, oval, large.....	2¾x1¾	6.11
758-25	Door knob, oval, small.....	2½x1½	5.35
758-29	Escutcheon, cylinder lock.....	12 x3½	6.44
758-30	Escutcheon, cylinder lock.....	9 x2¾	3.80
758-32	Escutcheon, mortise lock.....	7 x2½	3.20
758-34	Escutcheon, cup.....	7 x2½	4.00
758-40	Escutcheon, key plate.....	2¼x1½	.40
758-44	Escutcheon, with drop.....	2½x1	1.11
758-45	Escutcheon and thumb knob.....	3 x1½	2.00
758-49	Thumb knob, large.....	2¼x1½	1.00
758-49½	Thumb knob, small.....	1½x1	1.00
758-61	Electric push button.....	3 x1½	2.78
758-75	Flush sash lift.....	1¾x4¼	1.07
758-91	Push plate.....	12 x3½	6.44



CHELSEA

CHELSEA DESIGN (Serial 752)

1118	Rose for knob, large.....	2 x2	\$0.89
1117	Rose for knob, small.....	1½x1½	.89
752-13	Cylinder collar.....	2 x2	.65
1519½	Door knob, large.....	2¼x2¼	3.55
1921	Door knob, small.....	2 x2	2.70
2633	Escutcheon, key plate, round.....	1½x1½	.33
2660	Escutcheon, key plate, oval.....	1½x1½	.22
752-41	Escutcheon, key plate, round.....	2 x2	.55
752-44	Escutcheon with drop, small.....	1¼x1¼	.73
2661	Escutcheon with drop, large.....	1¼x1½	.75
2155	Thumb knob, small.....	1½x1½	.85
752-49½	Thumb knob, large.....	1¾x1¾	.84
752-61	Electric push button.....	2 x2	1.33
2213	Flush sash lift.....	1½x3	5.55
752-82	Sectional door handle.....	8¼x2¾	3.90
752-83	Sectional door handle.....	8½x2½	5.00
752-84	Sectional door handle.....	10¼x2½	5.55
752-86	Door pull (Grip No. 4395).....	6¼x1¾	3.11



GRANBY DESIGN (Serial 754)

754-03	Rose for knob, large.....	2 x2	\$1.35
754-05	Rose for knob, small.....	1½x1½	1.10
754-13	Cylinder collar, small.....	2 x2	.80
754-14	Cylinder collar, large.....	2¼x2¼	.84
1519½	Door knob.....	2¼x2¼	3.55
1921½	Door knob (French shank).....	2 x2	3.20
754-40	Escutcheon, key plate.....	1¼x1¼	.62
754-49	Thumb knob.....	1½x1½	.93
754-61	Push button.....	2 x2	1.67
754-75	Flush sash lift.....	1½x3	.90
754-84	Sectional door handle.....	8½x2½	5.55
754-86	Door pull.....	7½x2	4.44



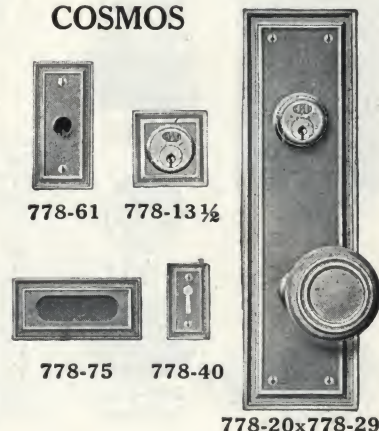
COSMOS

COSMOS DESIGN (Serial 778)

778-05	Rose for knob.....	2¼x2¼	\$1.69
778-13½	Cylinder collar.....	2½x2½	.91
778-20	Door knob, large.....	2½x2½	4.93
778-22	Door knob, small.....	2½x2¼	3.65
778-29	Escutcheon, cylinder lock.....	10½x3	4.22
778-30	Escutcheon, cylinder lock.....	8½x3	3.00
778-31	Escutcheon, mortise lock.....	7 x2¾	2.20
778-34	Escutcheon, cup.....	7 x2¾	3.33
778-40	Escutcheon, key plate.....	2 x1½	.51
778-47	Escutcheon with lever.....	5½x1½	2.00
778-61	Electric push button.....	3½x1½	2.44
778-70	Letter drop plate.....	3 x8	3.40
778-72	Letter drop with hood.....	3 x8	6.65
778-75	Flush sash lift.....	1½x3½	.91
778-77	Bar sash lift.....	1½x6½	2.80
778-80	Store door handle.....	16 x4	8.90
778-83	Sectional door handle.....	9 x2¾	5.55
778-84	Sectional door handle.....	12½x2¾	7.80
778-86	Door pull.....	16 x4	8.35
778-90	Push plate, large.....	16 x4	7.13
778-91	Push plate, small.....	10½x3	4.31
778-93	Push plate, medium.....	14 x3	4.67
778-872½	Unit Lock, Front Door.....	10½x3	37.35



COSMOS



All Knobs except as noted have PY shanks,
No. 56 type spindle.
For details of unit lock sets, see plates 34-37.



PERIOD DESIGNS OF HARDWARE TRIM

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 8

COLONIAL PERIOD

Illustrations
one-fifth size

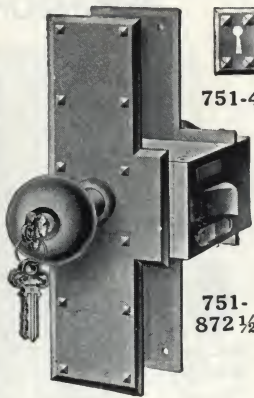
HUDSON

Cast Bronze

PURITAN



751-86



751-872 1/2



751-40



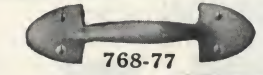
751-75



751-60

1519 1/2 x
751-29

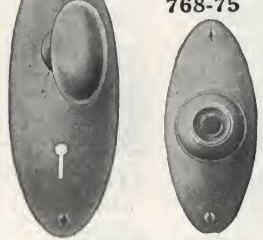
1608x768-30



768-77



768-75



768-60



768-87



768-40



768-44

HUDSON DESIGN (SERIAL 751)

Cat. No.	Description of parts	Size, in.	Price
1519 1/2	Door knob.....	2 1/4 x 2 1/4	\$ 3.55
751-29	Escutcheon, cylinder lock.....	10 x 2 3/4	5.50
751-30	Escutcheon, cylinder lock.....	9 x 2 1/2	4.55
751-31	Escutcheon, mortise lock.....	7 1/4 x 2 1/4	4.10
751-34	Escutcheon, cup.....	5 1/4 x 2 3/8	2.90
751-40	Escutcheon, key plate.....	1 3/4 x 1 1/4	.89
751-47	Escutcheon with lever.....	4 1/2 x 1	2.20
751-60	Electric push button.....	4 x 2	3.55
751-70	Letter drop plate.....	2 1/4 x 6 7/8	6.24
751-72	Letter drop with hood.....	2 1/4 x 6 7/8	12.45
751-75	Flush sash lift.....	1 3/8 x 3	1.33
751-80	Store door handle.....	16 x 3 3/8	14.45
751-86	Door pull (Grip No. 4412).....	12 x 3 1/2	9.24
751-90	Push plate.....	12 x 3 1/2	5.89
751-872 1/2	Unit lock, front door.....	10 x 2 1/2	39.35

For details of unit lock sets, see plates 34-37.
Knobs have PY shank, No. 56 type spindle.

PURITAN DESIGN (SERIAL 768)

Cat. No.	Description of parts	Size, in.	Price
1608	Door knob, oval.....	2 1/2 x 1 1/2	\$ 4.80
768-30	Escutcheon, cylinder lock.....	10 x 3	3.73
768-32	Escutcheon, mortise lock.....	7 1/4 x 2 3/8	2.22
768-34	Escutcheon, cup.....	7 1/4 x 2 3/8	2.89
768-40	Escutcheon, key plate.....	2 1/4 x 1 1/4	.53
768-44	Escutcheon with drop.....	2 1/4 x 1	1.11
768-45	Escutcheon and thumb knob.....	2 1/4 x 1 1/4	1.67
768-47	Escutcheon with lever.....	5 x 1 1/2	3.67
768-60	Electric push button.....	5 1/4 x 2 1/2	3.00
768-70	Letter drop plate.....	2 1/4 x 7 1/4	5.00
768-72	Letter drop with hood.....	2 1/4 x 7 1/4	10.00
768-75	Flush sash lift.....	1 1/2 x 3 3/4	.91
768-77	Bar sash lift.....	1 1/2 x 6	1.35
768-87	Door pull (Grip No. 4412).....	15 x 3	7.80
768-91	Push plate, large.....	15 x 3	7.11
768-92	Push plate, small.....	11 1/2 x 3 3/8	5.55

Knobs have PY shank, No. 56 type spindle.

1519 1/2 x
751-31

QUINCY

QUINCY DESIGN (SERIAL 776)

Cat. No.	Description of parts	Size, in.	Price
776-22	Door knob.....	2 1/4 x 2 1/4	\$ 3.65
776-29	Escutcheon, cylinder lock.....	11 1/4 x 2 3/4	4.80
776-31	Escutcheon, mortise lock.....	8 1/4 x 2 1/2	3.10
776-32	Escutcheon, mortise lock.....	7 1/4 x 2 3/8	2.51
776-34	Escutcheon, cup.....	6 1/4 x 2 3/8	3.20
776-40	Escutcheon, key plate.....	1 3/4 x 1 1/4	.51
776-47	Escutcheon with lever.....	5 1/4 x 1 1/4	2.00
776-60	Electric push button.....	3 1/4 x 2 3/8	2.44
776-70	Letter drop plate.....	2 1/4 x 6 1/4	3.40
776-72	Letter drop with hood.....	2 1/4 x 6 1/4	6.65
776-75	Flush sash lift.....	1 3/8 x 3	.91
776-77	Bar sash lift.....	2 1/4 x 6 3/8	2.80
776-80	Store door handle.....	15 x 3	8.00
776-87	Door pull (Grip No. 4412).....	16 x 4	8.33
776-91	Push plate, small.....	15 x 3	6.13
776-92	Push plate, large.....	16 x 4	7.22
776-872 1/2	Unit lock, front door.....	9 5/8 x 2 3/4	37.35

For details of unit lock sets, see plates 34-37.
Knobs have PY shank, No. 56 type spindle.



776-60



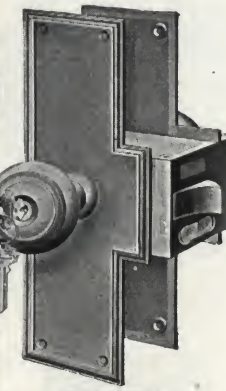
776-40



776-22x



776-31



776-872 1/2

REVERE

REVERE DESIGN (SERIAL 755)

Cat. No.	Description of parts	Size, in.	Price
755-03	Rose for knob.....	2 1/8 x 2 1/8	\$2.20
755-13	Cylinder collar, small.....	1 1/4 x 1 1/8	.65
755-14	Cylinder collar, large.....	2 1/4 x 2 1/4	.80
755-25	Door knob.....	2 1/4 x 2 1/4	5.00
755-34	Escutcheon, cup.....	4 x 2 1/2	4.44
755-40	Escutcheon, key plate.....	1 1/2 x 1 1/2	.51
755-41	Escutcheon, key plate.....	1 1/2 x 1 1/2	.89
755-49	Escutcheon and thumb knob.....	2 1/2 x 1 1/2	1.00
755-61	Electric push button.....	1 1/2 x 2 1/2	1.89
755-75	Flush sash lift.....	1 1/2 x 3 1/2	1.55
755-83	Sectional door handle.....	8 1/2 x 3 1/2	4.45
755-84	Sectional door handle.....	9 1/2 x 2 1/4	5.00
755-86	Door pull (Grip No. 4394).....	7 1/4 x 1 1/2	5.33
755-87	Door pull (Grip No. 4394 1/4).....	7 1/2 x 2 1/4	5.58

Knobs have PY shank, No. 56 type spindle.



755-61



755-40

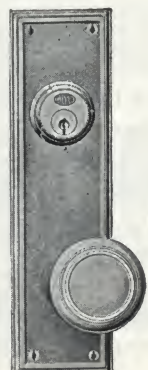


755-75

755-87



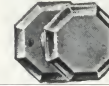
776-87

776-22x
776-29

776-75



755-13



755-25x



755-03

Illustrations
one-fifth size

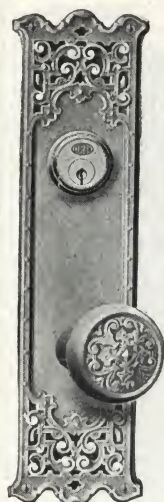
ELIZABETHAN PERIOD

Cast Bronze

LEICESTER STOCKTON

LEICESTER DESIGN (Serial 941)

Cat. No.	Description of parts	Size, in.	Price
941-03	Rose for knob.....	2½x2½	\$2.70
941-13	Cylinder collar.....	2½x2½	1.67
941-20	Door knob, large.....	2½x2½	7.78
941-22	Door knob, small.....	2½x2½	6.00
941-29	Escutcheon, cylinder lock.....	12½x3¼	6.67
941-30	Escutcheon, cylinder lock.....	10 x2½	5.00
941-31	Escutcheon, mortise lock.....	8½x2½	6.33
941-34	Escutcheon, cup.....	8½x1½	6.00
941-40	Escutcheon, key plate.....	6 x1½	4.44
941-47	Electric push button.....	5½x2½	6.00
941-60	Letter drop plate.....	23½x8½	12.00
941-72	Letter drop with hood.....	15x4½	3.33
941-75	Flush sash lift.....	13½x5½	3.35
941-77	Bar sash lift.....	12½x3¼	56.00
941-80	Push plate.....	12½x3¼	56.00
941-872½	Unit lock, front door.....		



941-22x941-31

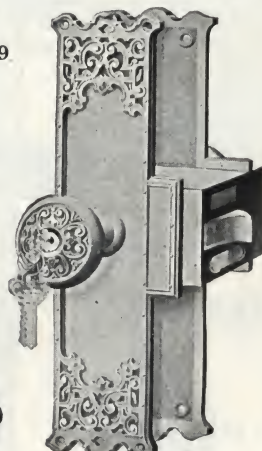
941-20x941-29



941-13

941-22x
941-03

941-75

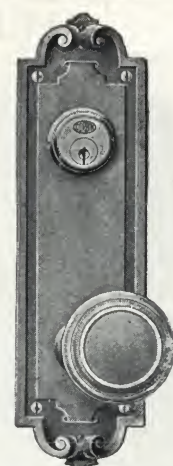


941-872½

STOCKTON DESIGN (Serial 942)

Cat. No.	Description of parts	Size, in.	Price
942-13	Cylinder collar.....	2½x3¼	\$2.00
942-20	Door knob, large.....	2½x2½	5.68
942-22	Door knob, small.....	2½x2½	4.04
942-29	Escutcheon, cylinder lock.....	12 x3	8.89
942-30	Escutcheon, cylinder lock.....	10 x2½	6.67
942-31	Escutcheon, mortise lock.....	8 x2½	5.00
942-34	Escutcheon, cup.....	8 x2½	6.33
942-40	Escutcheon, key plate.....	3½x1½	.89
942-47	Electric push button.....	6 x1½	3.33
942-61	Electric push button.....	4½x1½	2.78
942-75	Flush sash lift.....	13½x4½	2.00
942-77	Bar sash lift.....	12½x6½	2.65
942-80	Store door handle.....	20 x4	16.65
942-84	Sectional handle.....	12 x2½	8.35
942-86	Door pull (Grip No. 4413).....	14 x4	12.22
942-90	Push plate.....	14 x4	8.89
942-91	Push plate.....	16 x4	10.00
942-92	Push plate.....	20 x4	12.44
942-93	Push plate.....	12 x3	5.33
942-874½	Unit lock, front door.....	12 x3	48.00

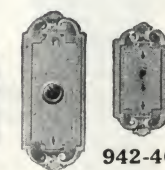
For details of unit lock sets, see plates 34-37.
Knobs have PY shank, No. 56 type spindle.



942-20x942-29

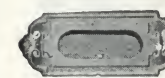


942-86

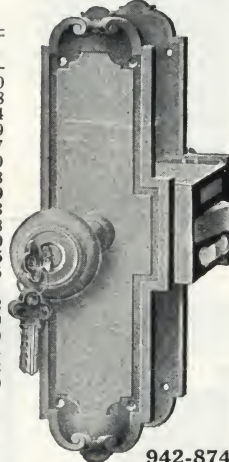


942-40

942-61



942-75



942-874½

FLEMISH PERIOD

Cast Bronze

DELFT



933-20x933-29



933-60



933-22x933-31

DELFT DESIGN (Serial 933)

Cat. No.	Description of parts	Size, in.	Price
933-20	Door knob, large.....	2½x2½	\$7.77
933-22	Door knob, small.....	2½x2½	6.00
933-23	Door knob, oval, large.....	2½x1½	6.67
933-25	Door knob, oval, small.....	2½x1½	5.33
933-29	Escutcheon, cylinder lock.....	13½x3½	9.44
933-30	Escutcheon, cylinder lock.....	12½x3½	8.00
933-31	Escutcheon, mortise lock.....	10 x2½	7.22
933-34	Escutcheon, cup.....	10 x2½	8.55
933-40	Escutcheon, key plate.....	2½x1½	1.20
933-47	Electric push button.....	6½x1½	6.00
933-60	Letter drop plate.....	6½x2½	5.33
933-70	Letter drop with hood.....	27x10	8.00
933-72	Letter drop with hood.....	27x10	16.00
933-75	Flush sash lift.....	11½x4½	3.33
933-90	Push plate.....	13½x3½	9.44
933-872½	Unit lock, front door.....	13½x3½	60.00



933-40

FRANCIS PERIOD

Cast Bronze

BLOIS



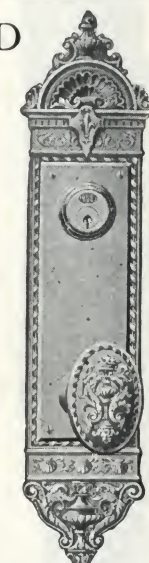
915-25x915-31



915-40



915-60



915-23x915-29

BLOIS DESIGN (Serial 915)

Cat. No.	Description of parts	Size, in.	Price
915-23	Door knob, large.....	27x2	\$ 8.33
915-25	Door knob, small.....	25x1½	6.67
915-29	Escutcheon, cylinder lock.....	15 x3½	10.00
915-31	Escutcheon, mortise lock.....	11½x2½	6.67
915-34	Escutcheon, cup.....	11½x2½	8.00
915-40	Escutcheon, key plate.....	25x1½	1.20
915-47	Electric push button.....	7½x1½	6.00
915-60	Electric push button.....	7½x2½	6.11
915-75	Flush sash lift.....	11½x5½	3.35
915-80	Push plate.....	15 x3½	10.00

Knobs have PY shank, No. 56 type spindle.



915-75



PERIOD DESIGNS OF HARDWARE TRIM

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 10

FRENCH RENAISSANCE PERIOD

Illustrations
one-fifth size

Cast Bronze

LYONS

LYONS DESIGN (Serial 897)

Cat. No.	Description of parts	Size, in.	Price
897-20	Door knob, large.....	2½x 2½	\$5.78
897-22	Door knob, small.....	2¼x 2¼	4.49
897-29	Escutcheon, cylinder lock	11½x 3	5.78
897-30	Escutcheon, cylinder lock	10½x 3	4.00
897-31	Escutcheon, mortise lock	8½x 2½	2.78
897-34	Escutcheon, cup.....	8½x 2½	4.11
897-47	Escutcheon and lever....	6 x 1	4.89
897-60	Electric push button....	5½x 2½	3.33
897-70	Letter drop plate.....	3 x 12	7.10
897-72	Letter drop with hood...	3 x 12	14.20
897-75	Flush sash lift.....	1½x 5½	1.20
897-80	Store door handle.....	20¾x 4	13.30
897-86	Door pull (Grip No. 4413)	20¾x 4	19.44
897-90	Push plate.....	20¾x 4	16.11
897-872½	Unit lock, front door....	11½x 3	44.00

For details of unit lock sets, see plates 34-37.
Knobs have PY shank, No. 56 type spindle.



897-60

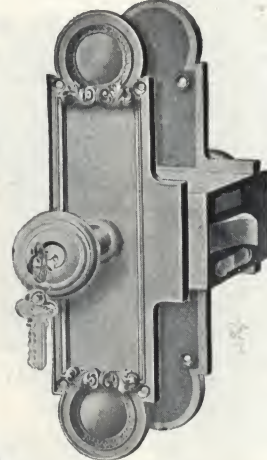


897-86

897-22x897-31



897-20x897-29



897-872½



897-75

GOTHIC PERIOD

AMIENS

Cast Bronze

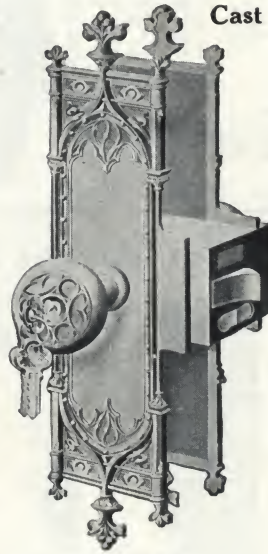
CANTERBURY



860-86



860-20x860-29



860-872½

AMIENS DESIGN (Serial 860)

Cat. No.	Description of parts	Size, in.	Price
860-20	Door knob, large.....	2½x2½	\$6.40
860-22	Door knob, small.....	2¼x2¼	5.20
860-29	Escutcheon, cylinder lock	13 x 3½	9.33
860-31	Escutcheon, mortise lock	10 x 2¾	6.67
860-34	Escutcheon, cup.....	9¾x2¾	8.00
860-47	Escutcheon and lever....	7 x 1½	4.89
860-60	Electric push button....	6½x2½	5.33
860-70	Letter drop plate.....	2¾x8½	7.10
860-72	Letter drop with hood...	2¾x5	14.20
860-75	Flush sash lift.....	1½x5½	3.33
860-77	Bar sash lift.....	1¾x5½	1.60
860-80	Store door handle.....	24 x 3¾	22.20
860-86	Door pull.....	19 x 3¾	17.78
860-90	Push plate.....	19 x 3¾	13.33
860-91	Push plate.....	24 x 3¾	16.00
860-872½	Unit lock, front door....	14 x 3¾	57.35

For details of unit lock sets, see plates 34-37.
Knobs have PY shank, No. 56 type spindle.



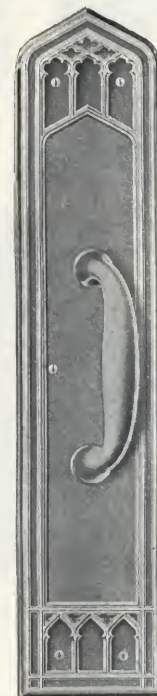
862-22x862-31

862-20x
862-03

862-40



862-20x862-29



862-86

CANTERBURY DESIGN (Serial 862)

Cat. No.	Description of parts	Size, in.	Price
862-03	Rose for knob.....	2½x2½	\$ 1.80
862-20	Door knob, large.....	2½x2½	5.33
862-22	Door knob, small.....	2¼x2¼	4.67
862-29	Escutcheon, cylinder lock	12½x3¾	5.55
862-31	Escutcheon, mortise lock	9¾x2¾	3.33
862-40	Escutcheon, key plate....	2½x1½	.42
862-80	Store door handle.....	18 x 3¾	15.55
862-86	Door pull (Grip No. 4395)	18 x 3¾	9.67
862-90	Push plate.....	18 x 3¾	8.67

Knobs have PY shank, No. 56 type spindle.

PLATE 11

PERIOD DESIGNS OF HARDWARE TRIM

Prefix Letters for Finish. Description of Finishes, Plate 3



Illustrations
one-fifth size

GOTHIC PERIOD

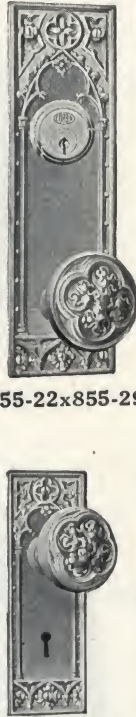
FREIBURG

Cast Bronze

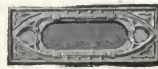
HAMPDEN



855-86



855-22x855-31



855-75



856-75

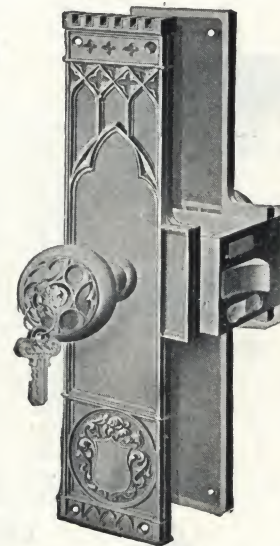
FREIBURG DESIGN (Serial 855)

Cat. No.	Description of parts	Size, in.	Price
855-22	Door knob, large	2 1/4 x 2 1/4	\$ 5.78
855-29	Escutcheon, cylinder lock	9 3/4 x 2 1/4	7.67
855-30	Escutcheon, cylinder lock	8 3/4 x 2 1/4	6.33
855-31	Escutcheon, mortise lock	6 1/2 x 2 1/4	4.67
855-34	Escutcheon, cup	6 1/2 x 2 1/4	5.67
855-70	Letter drop plate	2 1/2 x 6 3/4	4.50
855-72	Letter drop with hood	2 1/2 x 6 3/4	9.00
855-75	Flush sash lift	1 1/2 x 4	1.82
855-77	Bar sash lift	1 1/2 x 5	2.78
855-80	Store door handle	18 3/8 x 3 1/2	18.85
855-86	Door pull (Grip No. 4413)	18 3/8 x 3 1/2	13.33
855-90	Push plate, large	18 3/8 x 3 1/2	11.10
855-91	Push plate, small	15 1/4 x 3 1/2	10.00

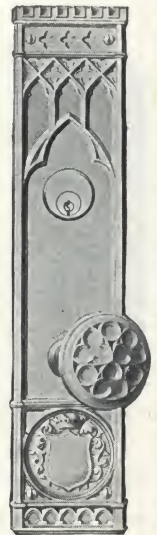
HAMPDEN DESIGN (Serial 856)

856-20	Door knob, large	2 1/2 x 2 1/2	\$ 6.40
856-22	Door knob, small	2 1/4 x 2 1/4	5.20
856-29	Escutcheon, cylinder lock	14 x 3 1/8	6.55
856-30	Escutcheon, cylinder lock	10 x 3	4.66
856-31	Escutcheon, mortise lock	8 3/4 x 2 3/4	3.66
856-34	Escutcheon, cup	8 3/4 x 2 3/4	8.00
856-40	Escutcheon, key plate	2 1/2 x 1	.88
856-47	Escutcheon and lever	6 x 1 1/4	4.44
856-60	Electric push button	5 1/2 x 2 3/4	5.33
856-70	Letter drop plate	2 1/2 x 9 3/4	6.65
856-72	Letter drop with hood	2 1/2 x 9 3/4	13.35
856-75	Flush sash lift	1 1/2 x 4 1/2	2.80
856-77	Bar sash lift	1 1/2 x 6 3/4	1.60
856-86	Door pull (Grip No. 4428)	26 1/2 x 5	33.91
856-90	Push plate, large	26 1/2 x 5	20.55
856-91	Push plate, small	18 x 3 1/4	8.88
856-92	Push plate, medium	21 x 3 1/2	10.22
856-872 1/2	Unit lock, front door*	13 3/4 x 3	57.35

*For details of unit lock sets, see plates 34-37.
Knobs have PY shank, No. 56 type spindle.



856-872 1/2



856-20x856-29



856-40



856-60

856-77

SALISBURY



857-20x857-29



857-22x857-31



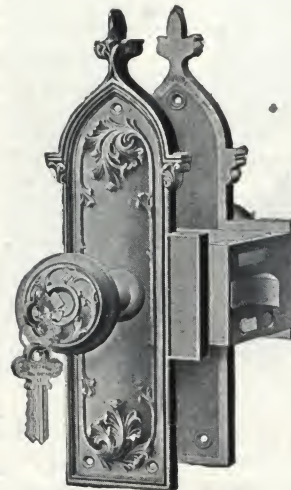
857-60



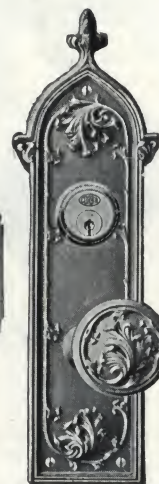
857-75



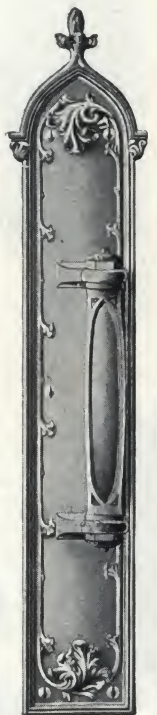
857-90



859-872 1/2



859-20x859-29



859-86

SALISBURY DESIGN (Serial 857)

Cat. No.	Description of parts	Size, in.	Price
857-20	Door knob, large	2 1/2 x 2 1/2	\$7.00
857-22	Door knob, small	2 1/4 x 2 1/4	5.78
857-29	Escutcheon, cylinder lock	14 1/4 x 3 3/8	9.33
857-31	Escutcheon, mortise lock	10 x 2 3/8	6.67
857-34	Escutcheon, cup	9 3/8 x 2 3/8	8.00
857-40	Escutcheon, key plate	2 3/8 x 1	1.33
857-47	Escutcheon and lever	6 1/2 x 1 1/4	4.67
857-60	Electric push button	5 x 2 1/4	3.00
857-75	Flush sash lift	1 1/2 x 4 1/4	3.33
857-90	Push plate	14 1/4 x 3 3/8	9.44

Knobs have PY shank, No. 56 type spindle.

TRIANT DESIGN (Serial 859)

Cat. No.	Description of parts	Size, in.	Price
859-20	Door knob, large	2 1/2 x 2 1/2	\$ 7.00
859-22	Door knob, small	2 1/4 x 2 1/4	5.78
859-29	Escutcheon, cylinder lock	12 1/4 x 3 1/4	9.33
859-31	Escutcheon, mortise lock	10 1/2 x 3 1/8	6.67
859-34	Escutcheon, cup	10 1/2 x 3 1/8	8.00
859-80	Store door handle	19 x 3 3/8	15.55
859-86	Door pull	19 x 3 3/8	17.78
859-90	Push plate	19 x 3 3/8	13.33
859-872 1/2	Unit lock, front door*	12 3/8 x 3 1/2	54.65

*For details of unit lock sets, see plates 34-37.
Knobs have PY shank, No. 56 type spindle.



PERIOD DESIGNS OF HARDWARE TRIM

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 12

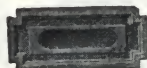
GREEK PERIOD

Cast Bronze

Illustrations
one-fifth size

CORFU

CORFU DESIGN (SERIAL 823)

823-22x
823-31

823-75



823-40

Cat. No.	Description of parts	Size, in.	Price
823-13	Cylinder collar.....	3 x 3	\$ 1.65
823-20	Door knob, large.....	2 1/2 x 2 1/2	5.34
823-22	Door knob, small.....	2 1/4 x 2 1/4	3.67
823-30	Escutcheon, cylinder lock.....	10 x 3	3.73
823-31	Escutcheon, mortise lock.....	8 x 2 5/8	2.80
823-34	Escutcheon, cup.....	8 x 2 5/8	3.53
823-40	Escutcheon, key plate.....	2 x 1 1/2	.42
823-47	Escutcheon and lever.....	5 1/4 x 1 1/2	2.27
823-61	Electric push button.....	3 1/2 x 1 1/4	3.00
823-70	Letter drop plate.....	3 x 6 3/4	4.49
823-72	Letter drop with hood.....	3 x 6 3/4	8.98
823-75	Flush sash lift.....	1 5/8 x 3 3/4	.91
823-77	Bar sash lift.....	1 1/2 x 5 3/4	1.67
823-80	Store door handle, small.....	16 x 3 1/2	7.80
823-81	Store door handle, large.....	21 x 3 3/8	12.80
823-84	Sectional door handle.....	10 5/8 x 3	8.90
823-87	Door pull (Grip No. 4413).....	15 x 3 1/2	8.89
823-90	Push plate, large.....	16 x 4	8.00
823-91	Push plate, small.....	15 x 3 1/2	7.00

Knobs have PY shank, No. 56 type spindle.



823-61



823-87

LEONIDAS

MEANDER

LEONIDAS DESIGN (SERIAL 820)

Cat. No.	Description of parts	Size, in.	Price
820-20	Door knob, large.....	2 1/2 x 2 1/2	\$ 6.00
820-22	Door knob, small.....	2 1/4 x 2 1/4	4.67
820-29	Escutcheon, cylinder lock.....	16 x 4 1/2	15.11
820-30	Escutcheon, cylinder lock.....	12 1/4 x 3 3/8	10.00
820-31	Escutcheon, mortise lock.....	11 x 3 1/4	8.33
820-34	Escutcheon, cup.....	11 x 3 1/8	10.00
820-40	Escutcheon, key plate.....	2 3/8 x 1	1.33
820-47	Escutcheon and lever.....	6 x 1 1/2	6.00
820-60	Electric push button.....	7 1/2 x 3 1/2	7.78
820-70	Letter drop plate.....	3 1/2 x 11	12.00
820-72	Letter drop with hood.....	3 1/2 x 11	24.00
820-75	Flush sash lift.....	2 x 5 5/8	3.35
820-80	Store door handle.....	20 1/2 x 4 1/4	14.45
820-86	Door pull (Grip No. 4413).....	16 x 4 1/4	17.11
820-90	Push plate.....	16 x 4 1/4	15.11

MEANDER DESIGN (SERIAL 811)

811-20	Door knob, large.....	2 1/2 x 2 1/2	\$ 6.00
811-22	Door knob, small.....	2 1/4 x 2 1/4	4.67
811-29	Escutcheon, cylinder lock.....	11 1/4 x 3 3/4	4.78
811-30	Escutcheon, cylinder lock.....	8 x 3	3.13
811-31	Escutcheon, mortise lock.....	6 1/2 x 2 5/8	2.27
811-34	Escutcheon, cup.....	6 1/2 x 2 5/8	2.80
811-40	Escutcheon, key plate.....	2 x 1 1/2	.49
811-47	Escutcheon and lever.....	4 1/2 x 1 1/2	2.80
811-60	Electric push button.....	3 1/4 x 2 7/8	3.00
811-70	Letter drop plate.....	2 5/8 x 6 1/2	3.45
811-72	Letter drop with hood.....	2 5/8 x 6 1/2	6.88
811-75	Flush sash lift.....	1 5/8 x 3 1/4	.89
811-80	Store door handle.....	15 3/4 x 3 1/4	8.90
811-86	Door pull (Grip No. 4413).....	15 3/4 x 3 1/4	8.67
811-90	Push plate.....	15 3/4 x 3 1/4	6.67
811 872 3/4	Unit lock, front door*.....	10 x 3 1/2	41.30

*For details of unit lock sets, see plates 34-37.
Knobs have PY shank, No. 56 type spindle.

OLYMPUS

OLYMPUS DESIGN (SERIAL 819)

Cat. No.	Description of parts	Size, in.	Price
819-20	Door knob, large.....	2 1/2 x 2 1/2	\$ 6.67
819-22	Door knob, small.....	2 1/4 x 2 1/4	5.33
819-29	Escutcheon, cylinder lock.....	15 1/4 x 3	12.00
819-30	Escutcheon, cylinder lock.....	13 x 2 7/8	9.33
819-31	Escutcheon, mortise lock.....	12 1/4 x 2 5/8	8.00
819-32	Escutcheon, mortise lock.....	10 x 2 1/4	6.67
819-34	Escutcheon, cup.....	9 5/8 x 2 1/4	8.00
819-47	Escutcheon and lever.....	7 1/4 x 1 1/2	6.00
819-60	Electric push button.....	5 x 2 1/4	4.44
819-70	Letter drop plate.....	2 1/4 x 9 7/8	8.00
819-72	Letter drop with hood.....	2 1/4 x 9 7/8	16.00
819-75	Flush sash lift.....	1 1/2 x 5 5/8	3.33
819-77	Bar sash lift.....	1 1/2 x 6 3/4	4.00
819-86	Door pull.....	15 1/4 x 3 1/2	12.73
819-90	Push plate.....	15 1/4 x 3 1/2	9.44

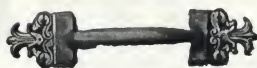
Knobs have PY shank, No. 56 type spindle.

819-22x
819-32

819-60



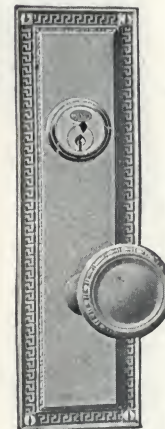
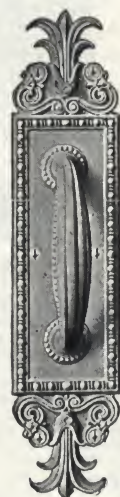
819-75



819-77

811-22x
811-31

811-60

811-20x
811-29

819-86

819-20x
819-29

PLATE 13

PERIOD DESIGNS OF HARDWARE TRIM

Prefix Letters for Finish. Description of Finishes, Plate 3

CORBIN

Illustrations
one-fifth size

ITALIAN RENAISSANCE PERIOD

Cast Bronze MESSINA

MESSINA DESIGN (Serial 880)

Cat. No.	Description of parts	Size, in.	Price
880-20	Door knob, large.....	2½x2½	\$ 6.67
880-22	Door knob, small.....	2¼x2¼	5.11
880-28	Escutcheon, cylinder lock.....	11 x3	7.00
880-29	Escutcheon, cylinder lock.....	8¾x3	3.44
880-30	Escutcheon, cylinder lock.....	7 x2½	3.00
880-31	Escutcheon, mortise lock.....	6½x2¼	2.55
880-34	Escutcheon, cup.....	6½x2¼	3.11
880-40	Escutcheon, key plate.....	1½x1	.66
880-47	Escutcheon and lever.....	4¾x1¼	3.11
880-61	Electric push button.....	2¾x1½	2.22
880-70	Letter drop plate.....	2¼x6½	4.22
880-72	Letter drop with hood.....	2¼x6½	8.44
880-75	Flush sash lift.....	1½x2¾	1.11
880-86	Door pull (Grip No. 4413).....	11 x3	10.35
880-90	Push plate.....	11 x3	7.00

Knobs have PY shank, No. 56 type spindle.



880-86



880-22x880-31



880-61



880-40



880-75

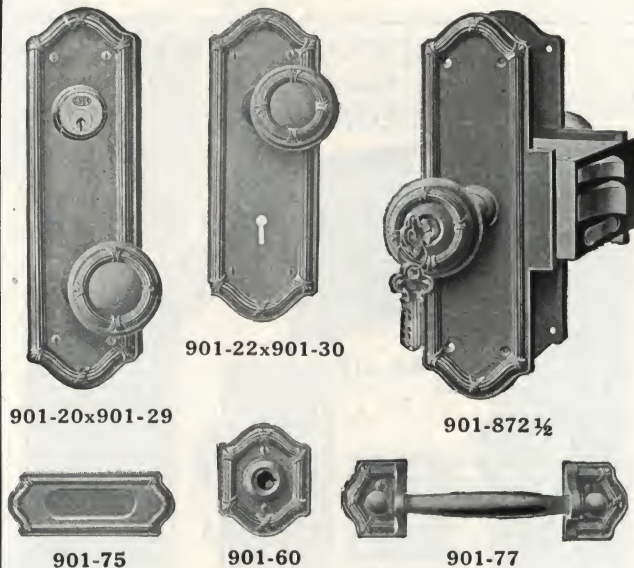


880-20x880-28

LOUIS XIV PERIOD

Cast Bronze

NAVARRE



901-22x901-30

901-20x901-29

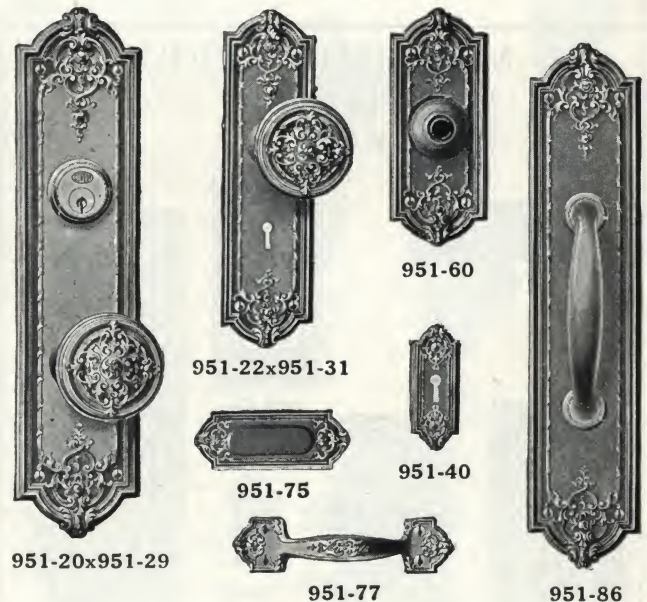
901-872½

901-75

901-60

901-77

NEMOURS



951-60

951-22x951-31

951-75

951-40

951-77

951-86

NAVARRE DESIGN (Serial 901)

Cat. No.	Description of parts	Size, in.	Price
901-03	Rose for knob.....	2½x2½	\$ 2.67
901-20	Door knob, large.....	2½x2½	7.33
901-22	Door knob, small.....	2¼x2¼	6.00
901-29	Escutcheon, cylinder lock.....	10½x3	7.49
901-30	Escutcheon, cylinder lock.....	8¾x3	5.33
901-34	Escutcheon, cup.....	8¾x3	6.67
901-60	Electric push button.....	3 x2½	2.78
901-70	Letter drop plate.....	3 x8¾	7.10
901-72	Letter drop with hood.....	3 x8¾	14.20
901-75	Flush sash lift.....	1½x4	2.33
901-77	Bar sash lift.....	2 x7¾	4.89
901-84	Sectional door handle.....	12¾x2½	8.35
901-90	Push plate, small.....	10½x3	7.49
901-91	Push plate, large.....	15 x3	11.33
901-872½	Unit lock, front door.....	10½x3	46.65

For details of lock sets, see plates 34-37.
Knobs have PY shank, No. 56 type spindle.

NEMOURS DESIGN (Serial 951)

Cat. No.	Description of parts	Size, in.	Price
951-20	Door knob, large.....	2½x2½	\$ 7.11
951-22	Door knob, small.....	2¼x2¼	5.78
951-29	Escutcheon, cylinder lock.....	14 x3¾	9.44
951-30	Escutcheon, cylinder lock.....	11½x3	7.00
951-31	Escutcheon, mortise lock.....	9 x2½	4.44
951-34	Escutcheon, cup.....	9 x2½	5.78
951-40	Escutcheon, key plate.....	3¼x1½	.89
951-47	Escutcheon and lever.....	6½x1½	6.00
951-60	Electric push button.....	6½x2½	4.22
951-70	Letter drop plate.....	9 x2½	5.22
951-72	Letter drop with hood.....	9 x2½	10.44
951-75	Flush sash lift.....	1½x4	2.00
951-77	Bar sash lift.....	1½x6	2.00
951-86	Door pull (Grip No. 4412).....	15½x3¼	12.00
951-90	Push plate.....	15½x3¼	10.00

Knobs have PY shank, No. 56 type spindle.



PERIOD DESIGNS OF HARDWARE TRIM

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 14

LOUIS XVI PERIOD

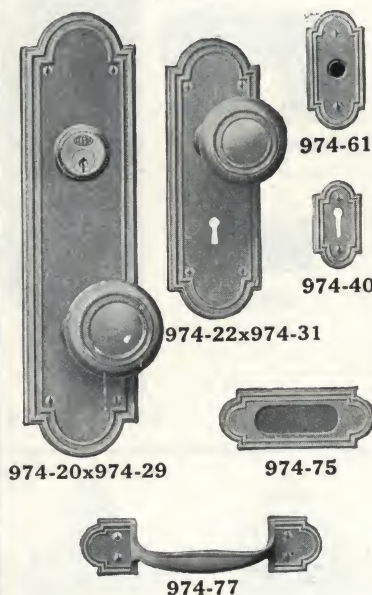
Cast Bronze

Illustrations
one-fifth size

ARCO

ARCO DESIGN (Serial 974)

TOURS



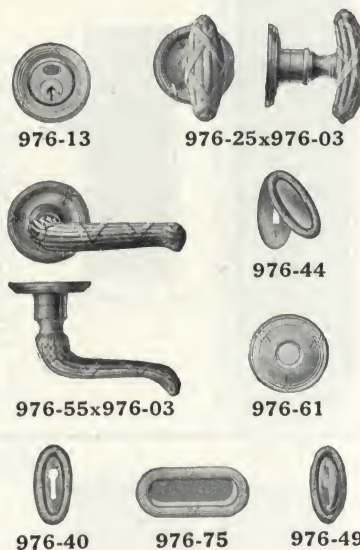
Cat. No.	Description of parts	Size, in.	Price
974-13	Cylinder collar	3 1/2 x 2	\$ 2.00
974-20	Door knob, large	2 1/2 x 2 1/2	4.45
974-22	Door knob, small	2 1/4 x 2 1/4	3.20
974-29	Escutcheon, cylinder lock	11 1/2 x 3	4.60
974-30	Escutcheon, cylinder lock	9 1/2 x 2 3/4	3.00
974-31	Escutcheon, mortise lock	7 x 2 3/8	2.20
974-34	Escutcheon, cup	7 x 2 3/8	3.20
974-40	Escutcheon, key plate	2 1/4 x 1 1/4	.51
974-47	Escutcheon and lever	5 1/2 x 1 1/4	2.00
974-61	Electric push button	3 x 1 1/2	2.44
974-70	Letter drop plate	2 3/8 x 7	3.47
974-72	Letter drop with hood	2 3/8 x 7	6.65
974-75	Flush sash lift	1 1/2 x 4	.91
974-77	Bar sash lift	1 1/2 x 6 1/4	1.00
974-80	Store door handle, large	18 x 4	10.00
974-81	Store door handle, small	16 1/2 x 3 1/4	8.35
974-84	Sectional door handle	9 5/8 x 2	5.55
974-86	Door pull (Grip No. 4412)	16 1/2 x 3 1/4	8.00
974-87	Door pull (Grip No. 4410)	11 1/2 x 3	6.13
974-90	Push plate, medium	16 1/2 x 3 1/4	6.33
974-91	Push plate, small	11 1/2 x 3	4.45
974-92	Push plate, large	24 x 4	10.67
974-872 1/2	Unit lock, front door	11 1/2 x 3	37.35

For details of unit lock sets, see plates 34-37.

TOURS DESIGN (Serial 976)

Cat. No.	Description of parts	Size, in.	Price
976-03	Rose for knob	2 1/2 x 2 1/8	\$ 2.67
976-13	Cylinder collar	2 1/2 x 2 1/8	1.51
976-25	Door knob, oval	3 x 1 1/8	24.00
976-40	Escutcheon, key plate	2 3/8 x 1	1.33
976-44	Escutcheon with drop	2 3/8 x 1	2.00
976-49	Thumb knob	2 3/8 x 1	13.90
976-55	Lever	4	2.22
976-61	Push button	2 x 2	2.22
976-75	Flush sash lift	1 1/2 x 3	3.33

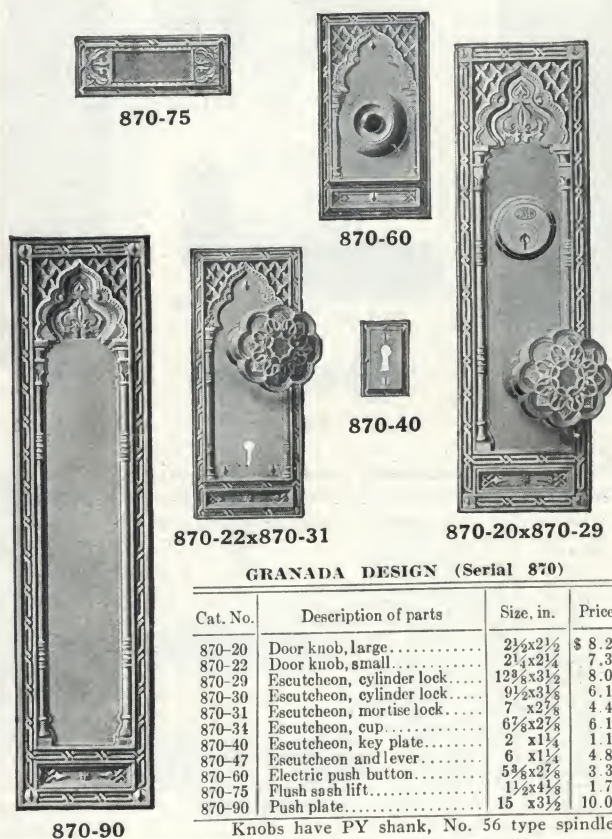
Knobs have PY shank, No. 56 type spindle.



MOORISH PERIOD

Cast Bronze
GRANADA

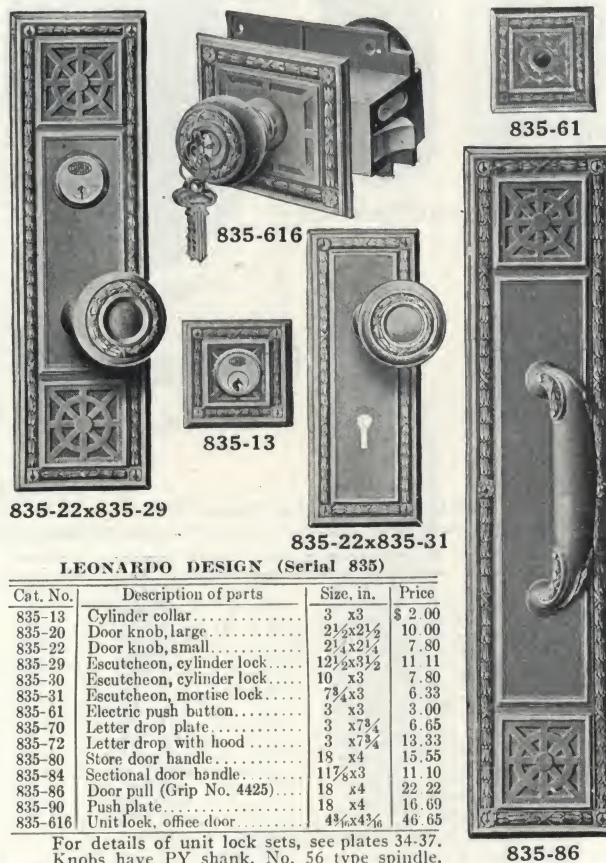
ROMAN PERIOD

Cast Bronze
LEONARDO

GRANADA DESIGN (Serial 870)

Cat. No.	Description of parts	Size, in.	Price
870-20	Door knob, large	2 1/2 x 2 1/2	\$ 8.22
870-22	Door knob, small	2 1/4 x 2 1/4	7.33
870-29	Escutcheon, cylinder lock	12 1/2 x 3 1/2	8.00
870-30	Escutcheon, cylinder lock	9 1/2 x 3 1/2	6.11
870-31	Escutcheon, mortise lock	7 x 2 1/2	4.44
870-34	Escutcheon, cup	6 7/8 x 2 1/2	6.11
870-40	Escutcheon, key plate	2 x 1 1/4	1.11
870-47	Escutcheon and lever	6 x 1 1/4	4.89
870-60	Electric push button	5 3/8 x 2 1/2	3.33
870-75	Flush sash lift	1 1/2 x 4 1/2	1.78
870-90	Push plate	15 x 3 1/2	10.00

Knobs have PY shank, No. 56 type spindle.



LEONARDO DESIGN (Serial 835)

Cat. No.	Description of parts	Size, in.	Price
835-13	Cylinder collar	3 x 3	\$ 2.00
835-20	Door knob, large	2 1/2 x 2 1/2	10.00
835-22	Door knob, small	2 1/4 x 2 1/4	7.80
835-29	Escutcheon, cylinder lock	12 1/2 x 3 1/2	11.11
835-30	Escutcheon, cylinder lock	10 x 3	7.80
835-31	Escutcheon, mortise lock	7 3/4 x 3	6.33
835-61	Electric push button	3 x 3	3.00
835-70	Letter drop plate	3 x 7 3/4	6.65
835-72	Letter drop with hood	3 x 7 3/4	13.33
835-80	Store door handle	18 x 4	15.55
835-84	Sectional door handle	11 1/2 x 3	11.10
835-86	Door pull (Grip No. 4425)	18 x 4	22.22
835-90	Push plate	18 x 4	16.69
835-616	Unit lock, office door	4 3/8 x 4 3/8	46.65

For details of unit lock sets, see plates 34-37.
Knobs have PY shank, No. 56 type spindle.

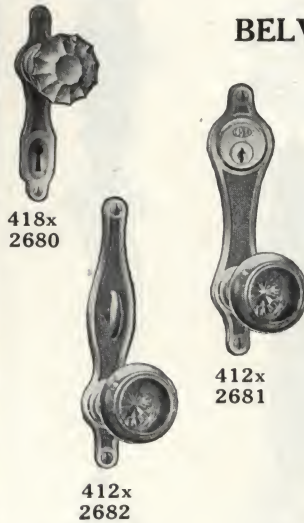
Illustrations
one-fifth size

MODERN WROUGHT DESIGNS

BELVIDERE

Wrought Bronze

ELMWOOD

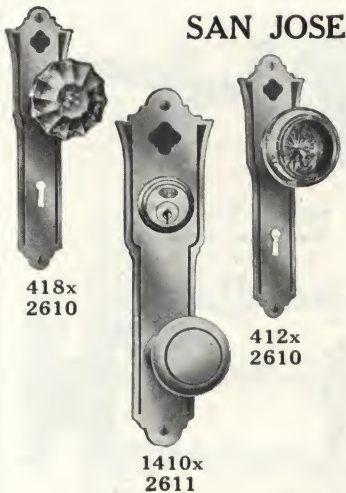
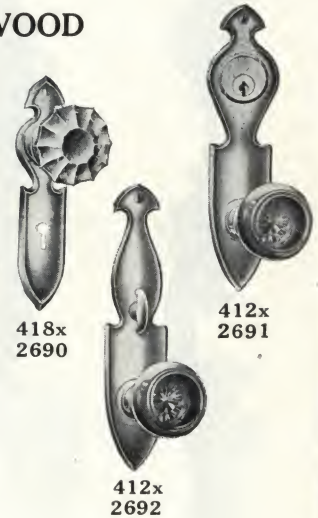


BELVIDERE DESIGN			
Cat. No.	Description of parts	Size, in.	Price, each
2680	Escutcheon, mortise lock	5x1 1/4	\$0.22
2681	*Escutcheon, cylinder lock	7x1 1/8	.40
2682	†Escutcheon, mortise lock	7x1 1/8	.35

ELMWOOD DESIGN

Cat. No.	Description of parts	Size, in.	Price, each
2690	Escutcheon, mortise lock	6 x 1 1/2	\$0.22
2691	*Escutcheon, cylinder lock	7 3/4 x 2	.40
2692	†Escutcheon, mortise lock	7 3/4 x 1 5/8	.35

*For outside use with No. 1343 lock only.
†Suitable for locks operated by thumb knob and for inside use with No. 1343 lock.



SAN JOSE

SAN JOSE DESIGN

Cat. No.	Description of parts	Size, in.	Price, each
2610	Escutcheon, mortise lock	6 3/8 x 1 7/8	\$0.26
2611	Escutcheon, cylinder lock	9 3/8 x 2 3/8	.46

MIAMI DESIGN

Cat. No.	Description of parts	Size, in.	Price, each
2620	Escutcheon, mortise lock	7 1/16 x 1 3/4	\$0.22
2621	Escutcheon, cylinder lock	8 1/2 x 2 1/16	.40



MIAMI



ACADIA

ST. JOHNS DESIGN

Cat. No.	Description of parts	Size, in.	Price, each
2640	Escutcheon, mortise lock	6 7/8 x 1 3/4	\$0.26
2641	Escutcheon, cylinder lock	9 1/8 x 2 3/8	.46

ST. JOHNS

WROUGHT BRONZE DOOR KNOBS					
Cat. No.	Diam., in.	Shank	Spindle	Projection, in.	Price, pair
* 412	2	Wrought bronze	056	2 3/16	\$1.00
* 418	2	Wrought bronze	056	2 3/16	1.00
† 1410	2	Standard	36	2 3/16	1.10
§ 1425	2	Standard	36	1 1/2	1.10
‡ 1440	2	French	056	2 3/16	2.20

*Have fire-polished pressed glass top.

†For use with San Jose design only.

‡For use with St. Johns design only.

§Can be furnished with PW shanks and 56 type spindle



PERIOD DESIGNS OF HARDWARE TRIM

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 16

GEORGIAN PERIOD

Somerset Design (Serial 507)

Colonium Metal,* Fresh Forged Iron Finish, EH
Cast Bronze, Black Iron Finish, DH
All Trim Shown Below Available in Polished Brass and
Bronze. Prefix Serial No. 807 Instead of No. 507



50784x50713
Door Handle and
Cylinder Collar
Size: Handle, 10x2 in.
Collar, 4½x2 in.
Price, each:
Handle, \$12.00
Collar, 2.80



50790
Push Plate
Size: 12x3 in.
Price, each: \$6.00



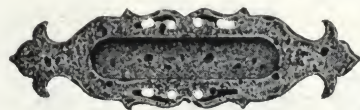
50722x50703
Knob with Rose
Size: 2 in. diam.
Price, pair:
Knob, \$6.50
Rose, 1.60



50755x50704
Lever Handle
with Rose
Size: Length, 3½ in.
Projection,
2½ in.
Rose, 3x1½ in.
Price: Handle, \$5.50
each
Rose, \$1.20
pair



50757 ½ x50705
Ring Handle
with Rose
Size: Handle, 2¾
in. diam.
Rose, 2 in.
diam.
Price, each: \$7.05



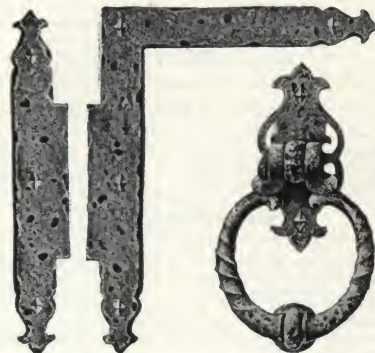
50770
Letter Drop Plate
Size: 2½x8½ in.
Price, each: \$6.50



50743
Slide Bolt
Size: Plate, 1½x3½ in.
Strike, 1½x2 in.
Price, each: \$2.50



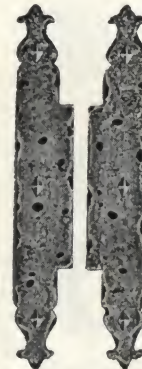
50777
Sash Lift
Size: 1½x6½ in.
Price, each: \$1.10



50716
HL Hinge Plate
Size: Length, 9 in.
Width, 1½
and 7½ in.
Price, pair: \$6.70
Regularly furnished
for 4-in. butts



50768
Door Knocker
Size: 7½x4 in.
Price, each: \$13.00



50726
H Hinge Plate
Size: 9x1½ in.
Price, pair: \$6.00
For 4x4-in. butts



50742
Rat Tail Bolt
Size: Plate, 5x1½ in.
Length, 14½ in.
Price, each: \$4.00



50752 (S—R—M)
Casement Fastener
Size: Plate, 3x1½ in.
Lever, 3½ in.
Price, each: \$3.50



50722x50731
Knob and
Escutcheon
Size: Escutcheon,
8x2½ in.
Knob, 2 in.
diam.
Price: Escutcheon,
\$3.00 each
Knob, \$6.50
pair



50722x50730
Knob and
Escutcheon
Size: Escutcheon,
9½x2¾ in.
Knob, 2 in.
diam.
Price: Escutcheon,
\$3.50 each
Knob, \$6.50
pair



50761
Electric Push
Button
Size: 3x1 in.
Price, each: \$2.50



50710
HL HINGE
Size: 4x4¾ in.
Price, pair: \$3.60



50700x50757
Rim Lock with Ring Handle

Case: 3¾x5½x¾ in.
Backset: To hub, 4 in.; to keyhole, 2 in.
Strike: 3¾x2x¾ in.
Hub: ½ in. bronze.
Cast bronze bolts, 3 tumblers, 640 changes.
not reversible, state hand, right hand
shown.
Operation: Latch bolt from either side by
knob or ring. Dead bolt by key from
either side.
Price, each: \$36.00



Dummy Case with
Ring for Strike for
Lock No. 50701



50715
H HINGE
Size: 4x2¼ in.
Price, pair: \$3.30



50798
Hinge Plate
Size: 20 and 30 in.; butt stock, 4 in.
Price, set: \$80.00
Other sizes of butt stock made to order

*A special rustless metal having all the surface qualities of polished wrought iron, but unaffected by any atmosphere. When mingled with iron it is impossible to distinguish one from the other.

EARLY ENGLISH AND COLONIAL PERIOD

Colonium Metal*

Finishes: EH, Natural Iron; DH, Dead Black
For complete line, see Corbin Special Catalogue



7380
Door Knocker
Size: $7\frac{3}{4} \times 4\frac{1}{2}$ in.
Price, each: \$12.00



53061
Electric Push Button
Size: $2\frac{1}{4}$ in. diam.
Price, each: \$3.00



7373
Door Knocker
Size: $5\frac{1}{2} \times 4$ in.
Price, each: \$7.00



7203
Key Plate
Size: $2\frac{1}{4} \times 1\frac{1}{4}$ in.
Price, each: \$1.50



7205
Key Plate
Size: $2\frac{1}{2} \times 1\frac{1}{2}$ in.
Price, each: \$1.00



7114x7107
Lever Handle with Rose
Size: Length, $3\frac{3}{8}$ in.
Projection, $2\frac{1}{2}$ in.
Rose, $2\frac{1}{4} \times 1\frac{1}{2}$ in.
Price each: \$5.60 with rose



7600
Push Plate
Size: $13 \times 4\frac{1}{4}$ in.
Price, each: \$7.50



7110x7106
Lever Handle with Rose
Size: Length, $3\frac{3}{8}$ in.
Projection, $2\frac{1}{2}$ in.
Rose, $2\frac{1}{4} \times 1\frac{1}{2}$ in.
Price, each: \$6.10 with rose



7904x7264
Knob and Escutcheon
Size: Escut., $6\frac{3}{4} \times 2\frac{1}{2}$ in.
Knob, $1\frac{1}{2} \times 1\frac{1}{2}$ in.
Price: Escut., \$3.00
Knob, 7.00



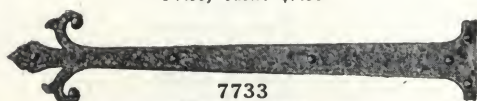
7918x7210
Knob and Escutcheon
Size: Escut., 7×2 in.
Knob, $1\frac{1}{4} \times 1\frac{1}{4}$ in. diam.
Price: Escut., \$3.00
Knob, 4.50

56184x56113
Door Handle and Cylinder Collar
Size: Handle, $13\frac{3}{8} \times 3\frac{3}{8}$ in.
Collar, $3\frac{3}{8} \times 3\frac{3}{8}$ in.
Price, each: Handle, \$12.00
Collar, 3.00

53084x53013
Door Handle and Cylinder Collar
Size: Handle, $13\frac{3}{8} \times 2\frac{1}{2}$ in.
Collar, $3\frac{3}{8} \times 2\frac{1}{2}$ in.
Price, each: Handle, \$13.00
Collar, 3.00



7714
Hinge Plates
Size: Corners, $13\frac{1}{2} \times 29\frac{3}{4}$ in.
Center, $17 \times 29\frac{3}{4}$ in.
Price, set: \$100.00
Regularly furnished for 6-in. butts, other sizes to order



7733
Hinge Plates
Size: Width, $5\frac{1}{2}$ in.; Length, 20 or 30 in.
Price, each: 20-in., \$10.00; 30-in., \$17.50
Regularly furnished for 5-in. butts, other sizes to order



58061
Electric Push Button
Size: 2-in. diam.
Price, each: \$2.00



7723
Hinge Plate
Size: $15\frac{3}{8} \times 27\frac{1}{2}$ in.
Price, each: \$50.00



7035
"H" Hinge Plates
Size: 7 in. high
Price, pair (4 pcs.): \$6.00
Note: Use 7101 3x3-in. hinges.



7330
Cupboard Latch
Size: Plate, $3\frac{1}{2} \times \frac{3}{4}$ in.
Price, each: \$2.80



576, 57678
Thumb Latch
Size: $6\frac{1}{2} \times 1\frac{1}{4}$ in.
576 with latch bar
Price, each: \$10.50
57678 for lock
Price, each: \$3.50



7061 $\frac{1}{2}$
Butt Hinge
Price pair: 3x3 in., \$6.00
 $3\frac{1}{2} \times 3\frac{1}{2}$ in., \$6.40
4x4 in., \$ 8.00
5x5 in., 11.50
6x6 in., 17.00



7916
Shutter Dog
Size: $6\frac{3}{8} \times 2\frac{3}{8}$ in.
Price, pair: \$4.00

*A special rustless metal having all the surface qualities of polished wrought iron, but unaffected by any atmosphere. When mingled with iron it is impossible to distinguish one from the other.



PERIOD DESIGNS OF HARDWARE TRIM

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 18

COLONIAL PERIOD

Wrought Iron

Finishes: DD, Dead Black; HD, Half Polished

For complete line, see Corbin Special Catalogue



983
Thumb Latch
Size: $8\frac{3}{4} \times 2\frac{1}{2}$ in.
Price, each: \$5.00



979
Thumb Latch
Size: $7 \times 2\frac{1}{4}$ in.
Price, each: \$4.80



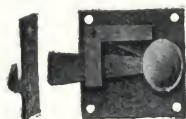
9013
Cylinder Collar
Size: $2\frac{3}{8} \times 2\frac{1}{4}$ in.
Price, each: \$0.70



9125
"HL" Hinge
Price: 3×3 in., \$2.20
 4×4 in., 2.40
 $7 \times 6\frac{3}{4}$ in., 2.70
 $9 \times 8\frac{1}{2}$ in., 3.80



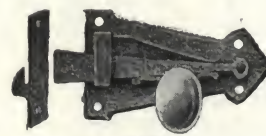
9580
Bolt
Size: $3\frac{1}{2} \times 1\frac{3}{8}$ in.
Price, each: \$2.00



9401
Rim Latch
Size: 3×3 in.
Knob: Brass.
Price, each: \$8.00



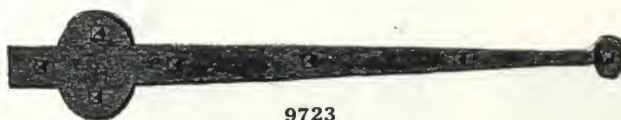
96584
Door Handle
965
Thumb Latch
Size: $11 \times 3\frac{1}{4}$ in.
96584 includes handle and shortened thumb piece.
Price, each: \$5.00
965 includes full length thumb piece and latch bar 9040 but no collar.
Price, each: \$6.00



9400
Rim Latch
Size: 3×5 in.
Knob: Brass.
Price, each: \$9.00



9370
Door Knocker
Size: $5\frac{1}{4} \times 3\frac{1}{4}$ in.
Price, each: \$5.00



9723
Hinge Strap
Price, each: 4×14 in., \$4.00; 4×22 in., \$6.00; 4×30 in., \$7.00



9722
Hinge Strap
Price, each: $1\frac{1}{2} \times 14$ in., \$1.30; $1\frac{1}{2} \times 22$ in., \$2.50; $1\frac{1}{2} \times 30$ in., \$3.70



9260 1/2
Door Knocker



9721
Hinge Strap
Price, each: $1\frac{1}{2} \times 14$ in., \$1.30; $1\frac{1}{2} \times 22$ in., \$2.50; $1\frac{1}{2} \times 30$ in., \$3.70



9200
Key Plate
Size: $1\frac{7}{8} \times 1\frac{1}{8}$ in.
Price, each: \$0.50

9260
Drop Handle
Size: $4\frac{3}{4} \times 4\frac{7}{8}$ in.
Price, each: \$5.00
9260 for use with lock instead of knob. Does not have bottom plate as shown for knocker

Illustrations
one-fifth size

DESIGNS FOR COMMERCIAL BUILDINGS

For unit lock details in these designs, see plates 34-37

Cast Bronze

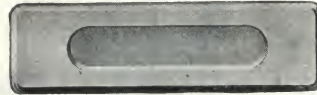
AMERICA DESIGN



4457



02148



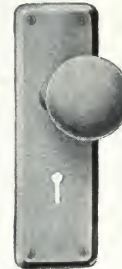
2436 $\frac{3}{4}$



4496 $\frac{1}{4}$



1519 $\frac{1}{2}$ x
740-29



1519 $\frac{1}{2}$ x
740-31



2340



02219

AMERICA DESIGN (Serial 740)			
Cat. No.	Description of parts	Size, in.	Price
1519 $\frac{1}{2}$	Door knob.....	2 $\frac{1}{4}$	\$3.55
02148	Thumb knob (knob 1 $\frac{1}{8}$ x $\frac{5}{8}$ in.).....	2 x $\frac{3}{4}$	.90
4496 $\frac{1}{4}$	Escutcheon, key plate.....	1 $\frac{5}{8}$ x 1 $\frac{1}{8}$	.30
740-29	Escutcheon, cylinder lock.....	10 x 2 $\frac{3}{4}$	3.20
740-29 $\frac{1}{2}$	Escutcheon, cylinder lock.....	9 x 2 $\frac{3}{4}$	2.80
740-30	Escutcheon, cylinder lock.....	8 x 2 $\frac{3}{4}$	2.20
740-31	Escutcheon, mortise lock.....	7 x 2 $\frac{3}{4}$	1.80
740-32	Escutcheon, mortise lock.....	6 x 2	1.40
740-34	Escutcheon, cup.....	7 x 2 $\frac{1}{4}$	2.00
740-37	Escutcheon, lever handle.....	5 $\frac{1}{4}$ x 1 $\frac{3}{8}$	.90
*740-80	Store door handle.....	14 x 3 $\frac{1}{2}$	6.65
740-81	Store door handle.....	16 x 4	7.80
4457	Door pull (Grip No. 4412).....	12 x 3	4.90
4458	Door pull (Grip No. 4412).....	14 x 3 $\frac{1}{2}$	5.35
4459	Door pull (Grip No. 4413).....	16 x 4	6.45
†2340	Push plate.....	10 x 2 $\frac{3}{4}$	2.20
†2340	Push plate.....	12 x 3	2.90
†2340	Push plate.....	14 x 3 $\frac{1}{2}$	3.35
†2340	Push plate.....	15 x 3 $\frac{1}{2}$	3.75
†2340	Push plate.....	16 x 4	4.20
†2340	Push plate.....	20 x 4	5.55
02219	Flush sash lift.....	1 $\frac{1}{16}$ x 3 $\frac{1}{8}$	.45
02219 $\frac{1}{2}$	Flush sash lift.....	2 x 3 $\frac{1}{2}$	.67
02220	Flush sash lift.....	1 $\frac{5}{8}$ x 3	.45
2426 $\frac{3}{4}$	Letter drop plate.....	2 x 7	2.00
02426 $\frac{3}{4}$	Letter drop with back plate.....	2 x 7	2.50
**002426 $\frac{3}{4}$	Letter drop with hood.....	2 x 7	3.50
002427	Letter drop with hood and chute.....	2 $\frac{1}{8}$ x 7	6.60
02428	Letter drop, vertical, with hood and chute.....	8 $\frac{1}{4}$ x 3	8.90

*Illustrated on Plate 21.

†For plates with the word "Push" or "Pull," see Plate 27.

**When furnished with wrought brass chute add \$1.45 each.

COLUMBIA DESIGN



4496



2329

COLUMBIA DESIGN (Serial 742)

Cat. No.	Description of parts	Size, in.	Price
1519 $\frac{1}{2}$	Door knob.....	2 $\frac{1}{4}$	\$3.55
4496	Escutcheon, key plate.....	1 $\frac{3}{4}$ x 1 $\frac{3}{16}$	.30
742-29	Escutcheon, cylinder lock.....	10 x 2 $\frac{3}{4}$	3.20
742-30	Escutcheon, cylinder lock.....	8 x 2 $\frac{3}{4}$	2.20
742-31	Escutcheon, mortise lock.....	7 x 2 $\frac{3}{4}$	1.80
742-32	Escutcheon, mortise lock.....	6 x 2	1.40
742-34	Escutcheon, cup.....	7 x 2 $\frac{1}{4}$	2.00
742-37	Escutcheon, lever handle.....	5 $\frac{1}{4}$ x 1 $\frac{3}{8}$	.90
*742-80	Store door handle.....	14 x 3 $\frac{1}{2}$	6.65
742-81	Store door handle.....	20 x 4	10.55
†4460	Door pull (Grip No. 4412).....	12 x 3	4.90
†4461	Door pull (Grip No. 4412).....	14 x 3 $\frac{1}{2}$	5.35
†4462	Door pull (Grip No. 4413).....	16 x 4	6.45
†2342	Push plate.....	10 x 2 $\frac{3}{4}$	2.20
†2342	Push plate.....	12 x 3	2.90
†2342	Push plate.....	14 x 3 $\frac{1}{2}$	3.35
†23	Push plate.....	15 x 3 $\frac{1}{2}$	3.75
†2342	Push plate.....	16 x 4	4.20
†2342	Push plate.....	20 x 4	5.55
2219 $\frac{1}{2}$	Flush sash lift.....	1 $\frac{1}{4}$ x 3 $\frac{1}{8}$	.45
02226 $\frac{1}{4}$	Flush sash lift.....	1 $\frac{5}{8}$ x 3	.45
2329	Letter drop plate.....	2 $\frac{1}{2}$ x 8	2.20
02329	Letter drop with back plate.....	2 $\frac{1}{2}$ x 8	3.55
**002329	Letter drop with hood.....	2 $\frac{1}{2}$ x 8	4.45

*Illustrated on Plate 21.

†For plates with the word "Push" or "Pull," see Plate 27.

**When furnished with wrought brass chute, add \$1.45 each.



1519 $\frac{1}{2}$ x
742-31



2342



2219 $\frac{1}{2}$



MODERN DESIGNS OF HARDWARE TRIM

Prefix Letters for Finish. Description of Finishes, Plate 3

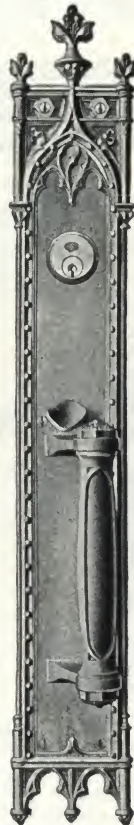
PLATE 20

ENTRANCE DOOR HANDLE LOCKSETS

Illustrations
one-fifth size

Cast Bronze

WITH ESCUTCHEONS

740-81
America745-80
Gotham974-80
Arco860-80
Amiens811-80
Meander779-80
Atlas746-80
Gargan780-80
Camden776-80
QuincyENTRANCE DOOR HANDLE LOCKSETS WITH
ESCUTCHEONS

Catalog No.			Size, in.	Price set
Handle	Lock	Set		
74080	0288	740-990	14 x 3½	\$24.45
74081	0288	740-991	16 x 4	26.65
74580	0288	745-990	16 x 3	26.65
74680	0288	746-990	16 x 3¼	32.00
77680	0288	776-990	15 x 3	26.65
77880	0288	778-990	16 x 4	26.65
77980	0288	779-990	16 x 4	26.65
78080	0288	780-990	16 x 4	26.65
81180	0288	811-990	15¾ x 3½	26.65
86080	0288	860-990	24 x 3½	53.35
86280	0288	862-990	18 x 3¾	41.10
97481	0288	974-990	16½ x 3¼	26.65
97480	0288	974-991	18 x 4	28.90

778-80
Cosmos862-80
Canterbury

PLATE 21

ENTRANCE DOOR HANDLES
WITH ESCUTCHEONS

Prefix Letters for Finish. Description of Finishes, Plate 3



Illustrations one-fifth size

ENTRANCE DOOR HANDLE LOCKSETS

Cast Bronze

SECTIONAL, FOR RESIDENCE AND STORE ENTRANCE AND VESTIBULE DOORS

The illustration at the left shows the use of sectional handles on both sides of the door, while that on the right shows handle one side and knob on the other.

Double Handle Sets

This combination with handles on both sides of the door is commonly used on store doors and in some cases on large main entrance doors. The handle on the outside adds to and is in keeping with the heavy appearance of the door. Both handles afford a better grip for opening the door. If a knob were used, the strain on the shank when opening heavy doors would be too great and would, in a short time, affect its operation.

Any of the handles illustrated below or included on the preceding and following pages may be used.

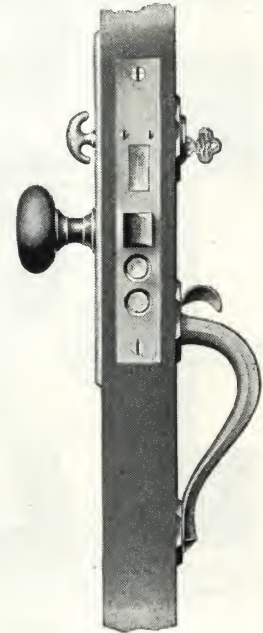
A number of locks may be used with these handles. Those particularly suited for store door sets are shown and described on Plate 40.

Handle and Knob Sets

This combination with a handle on the outside and a knob on the inside of the door is generally used on residence entrance and vestibule doors. The handle adds to the exterior appearance and the knob harmonizes with the interior finishing.

Any handle shown on this, the preceding and following pages may be used in this installation. A large number of knobs of either metal or glass, with rose or escutcheon, are suited for this combination and may be chosen from those shown on Plate 25.

The locks best fitted for this service may be found on Plate 51.



359-84



364-84



415-84

752-84
Chelsea753-84
Beacon755-84
Revere

SECTIONAL HANDLE

Cat. No.	Size, in.	Projection, in.	Cylinder collar, in.	Grip No.	Price, each
359-84	10 1/4 x 2 3/8	3 1/4	2 3/8 x 2 3/8	4419 1/2	\$5.90
364-84	13 1/4 x 2 3/8	2 3/8	2 3/8 x 2 3/8	.....	8.65
415-84	10 3/4 x 2 3/8	2 1/2	2 3/8 x 2 1/8	4389	6.65
752-84	10 1/4 x 2 1/8	2 3/8	2 x 2	4419 1/2	5.55
753-84	10 1/8 x 2 1/4	2 3/8	2 1/4 x 2 1/4	4419 1/2	5.55
755-84	9 7/8 x 2 3/4	2 3/8	2 1/4 x 2 1/4	4391	5.00

PRICES OF LOCKSETS†

Design serial No.	Price, various locksets, No.*				
	870	880	888	898	994
359	\$17.20	\$17.75	\$21.10	\$20.55	\$21.10
364	20.00	20.55	26.65	26.10	26.65
415	17.80	18.35	21.65	21.10	21.65
752	16.10	16.65	21.10	20.55	21.10
753	16.10	16.65	21.10	20.55	21.10
755	14.45	15.00	20.55	20.00	20.55

†For component parts of lockset see plate 23.
*In ordering, prefix serial number of design.

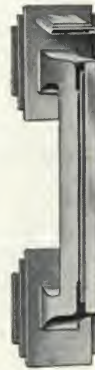


SECTIONAL ENTRANCE DOOR HANDLES

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 22

ENTRANCE DOOR HANDLE LOCKSETS

Illustrations
one-fifth sizeCast Bronze
SECTIONAL, FOR ENTRANCE AND
VESTIBULE DOORS778-84
Cosmos746-84
Gargan823-84
Corfu804-84
Fitzroy745-84
Gotham901-84
Navarre835-84
Leonardo

SECTIONAL HANDLES

Cat. No.	Size, in.	Projection, in.	Cylinder collar, in.	Grip No.	Price, each
745-84	9 1/8 x 2 1/4	2 9/16	3 x 2 1/4	.....	\$ 6.82
746-84	10 x 2 3/8	2 5/8	3 3/8 x 2 3/8	.....	8.20
778-84	12 3/4 x 2 5/8	2 5/8	2 5/8 x 2 5/8	4422	7.80
785-84	10 3/8 x 2 1/2	2 1/2	2 1/2 x 2 1/2	4418	5.35
804-84	9 x 2	2 1/2	2 1/2 diam.	4417	5.55
823-84	10 5/8 x 3	3	3 x 3	4419 1/2	8.90
835-84	11 7/8 x 3	2 5/8	3 x 3	4425 1/2	11.10
901-84	12 3/4 x 2 1/2	2 5/8	3 x 2 1/2	4422	8.35
974-84	9 5/8 x 2	2 1/2	3 1/2 x 2	4418	5.55

COMPONENT PARTS OF LOCK-SETS

Set* No.	Handle* No.	Knob No.	Lock No.
Handle One Side, Knob Other			
870	84	1419PV†	1348 1/2
880	84	1419PV†	1349 1/2
Handles Both Sides			
888	84	.....	1347 1/2
898	84	.....	1357 1/2
994	84	.....	0288

*Prefix serial number of design wanted.
†And rose.

PRICES OF LOCKSETS

Design, serial No.	Price, various sets, No.*				
	870	880	888	898	994
746	\$27.00	\$21.25	\$29.40	\$28.75	\$29.40
778	17.80	18.35	26.10	25.55	26.10
785	15.00	15.55	21.55	21.00	21.55
804	16.65	17.20	20.55	20.00	20.55
823	18.90	19.45	26.10	25.55	26.10
835	22.20	22.75	32.20	31.65	32.20
901	18.35	18.90	26.65	26.10	26.60
974	16.10	16.65	21.10	20.55	21.10

*In ordering prefix serial number of design.

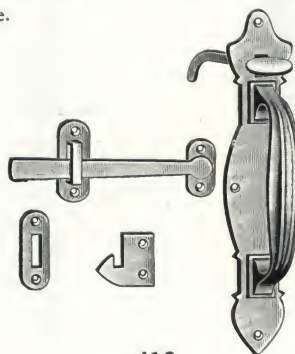
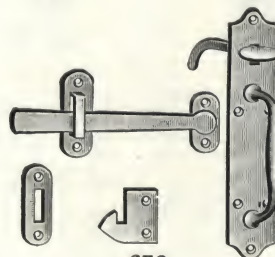
785-84
Fairfax416
Size, plate: 9 1/4 x 1 1/8 in.
Price, each: \$10.55678
Size, plate: 6 1/2 x 1 1/4 in.
Price, each: \$7.35974-84
Arco

PLATE 23

SECTIONAL ENTRANCE DOOR HANDLES

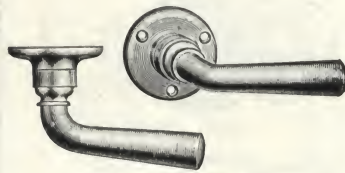
Prefix Letters for Finish. Description of Finishes, Plate 3



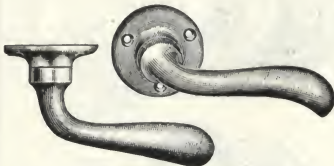
Illustrations
one-fourth size

LEVER HANDLES

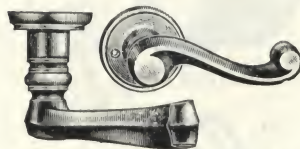
Cast Bronze



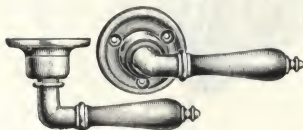
2119 to 2122



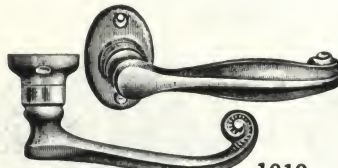
2112, 2113 (Right Hand)



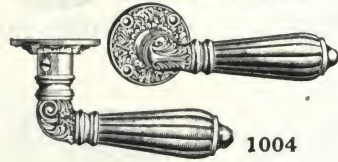
1009 to 1011 (Right Hand)



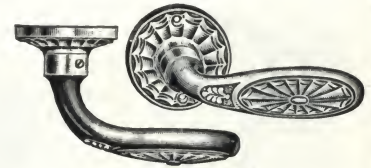
2125, 2126



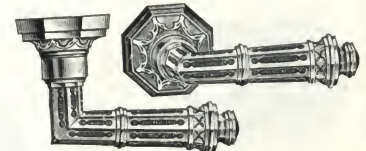
1019



1004



804-55, 804-56

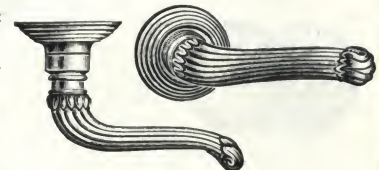


856-55 to 856-56

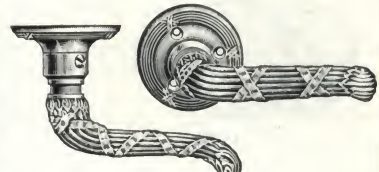
LEVER HANDLES Priced with Roses

Cat. No.	Length, in.	Projection, in.	Rose		Spindle, in.	Price
			No.	Dia., in.		
1004	4	2 1/2	.....	3 7/8	5/16	\$ 6.65
1009	3 1/4	2 1/8	1129	1 3/4	5/16	6.95
1010	4	2 5/8	1130	2 1/4	5/16	7.45
1011	2 1/8	2 3/4	.....	2x1**	5/16	5.00
1019	4 1/2	2 1/2	.....	2 1/4 x 1 1/2**	5/16	4.45
2112	3 1/2	2 1/2	1120 1/2	2	5/16	3.00
2113	4 1/4	2 5/16	1120 1/2	2	5/16	3.55
2119	2 5/8	2 1/4	1117 1/2	1 3/4	5/16	2.00
2120	3 1/8	2 1/16	1120 1/2	2	5/16	2.45
2121	3 1/2	2 3/4	1120 1/2	2	5/16	2.75
2122	4 1/4	2 7/8	1120 1/2	2	5/16	3.35
2125	3 7/8	2 3/8	1128	2	5/16	4.45
2126	3 1/4	2	.....	1 3/4	5/16	3.35
804-55	4 1/8	2 13/16	804-03	2	5/16	7.35
804-56	3 1/2	2 7/8	804-03	2	5/16	6.65
856-55	4 1/2	3 1/8	856-03	2 3/4	5/16	21.35
856-55 1/2	3 1/2	3	856-04	2	5/16	11.35
856-56	6 5/8	3 7/8	856-05	4 1/2*	5/8	33.35
975-55	4	3 1/8	975-05†	2	5/16	12.55
976-55	4	3 3/8	976-03	2 1/8	5/16	13.90

*Square. **Oval. †With concealed screws.

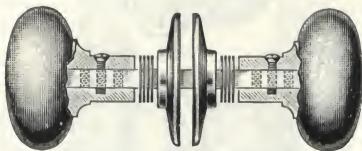


975-55



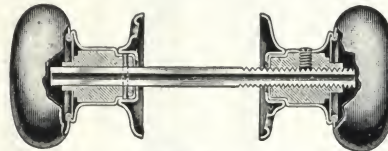
976-55

KNOB ATTACHMENTS AND TYPES OF SPINDLES



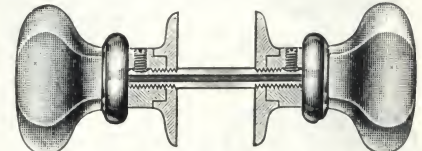
Plain or Standard Type

Knobs are attached to spindle by screws which pass through knob shanks and are screwed into spindle, drawing knobs tight against it. Three holes in each end of spindle give range of adjustment of 1 in. Washers under ends of knob shanks eliminate end play. Used on all knobs, with exceptions noted on knob pages



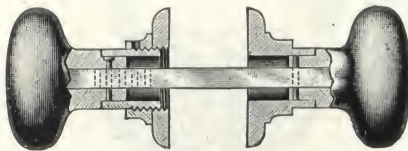
PW Type

Outer knob is fastened to spindle by a pin which is covered by thimble on the rose. Inner end of spindle and shank of inner knob are threaded and knob is screwed down to the correct adjustment. It is held in place by a cone-pointed set screw which enters a groove in the spindle. Range of adjustment 1 in. Used with round one-piece, wrought knobs



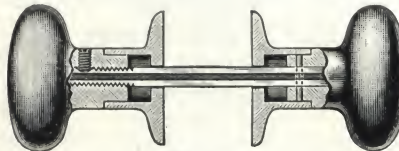
Glass Knob Type

Both knobs are screwed on the spindle to the correct adjustment and held in place by cone-pointed set screws which enter grooves in the spindle. Shanks are bracketed into rose with all side play eliminated. Range of adjustment 1/2 in. Glass knobs are also supplied with standard type of shank and spindle when so ordered



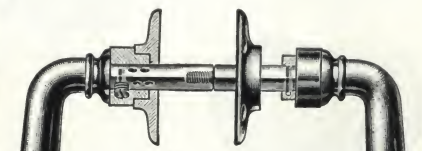
PH Type

Outer knob is fastened to spindle by a pin which is covered by thimble on the rose. Inner knob is secured by a pin which is passed through knob shank and hole in spindle giving nearest correct adjustment. Rose and thimble are separate pieces both screwed on a sleeve which is bracketed on knob shaft. Rose is attached to door, sleeve turned to a close fit and locked by screwing thimble tight against rose. Range of adjustment 3/4 in. Used with round, one-piece, wrought knobs with cast shank and cast knobs, with exceptions noted on knob pages



PY Type

Outer knob is fastened to spindle by a pin which is covered by thimble on the rose. Inner end of spindle and shank of inner knob are threaded and knob is screwed down to the correct adjustment. It is held in place by a cone-pointed set screw which enters a groove in the spindle. Range of adjustment 1 in. Long thimbles bracketed to knob shank give smooth, easy action under close adjustment. Used with round, one-piece, wrought knobs with cast shank and cast knobs with exceptions noted on knob page



LH Type

Outer handle is fastened to spindle by a pin which is covered by thimble on the rose. Inner handle is secured by a set screw terminating in a dowel pin which passes through the spindle into the opposite side of shank. Adjustment is obtained by changing length of spindle by means of a screw in the swivel. State thickness of door when ordering. Used for lever handles with exceptions noted on lever hand handle pages and for No. 3000 locks for unusually heavy service



LEVER HANDLES—KNOB ATTACHMENTS

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 24

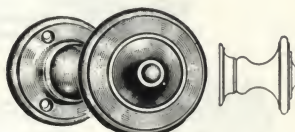
BRONZE DOOR KNOBS

Illustrations
one-third sizeCast Bronze
Spindle $\frac{1}{8}$ In.

1925, 1926



1927, 1928



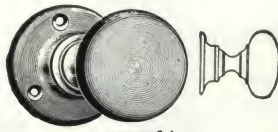
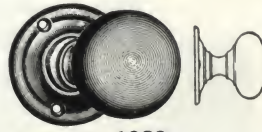
1929, 1930



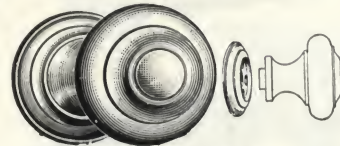
1931, 1932



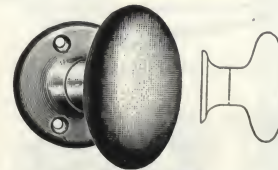
1918

1923 $\frac{1}{2}$ 

1923



1618 to 1622

1922 $\frac{3}{4}$ 

1607, 1608

BRONZE DOOR KNOBS
Priced with Roses

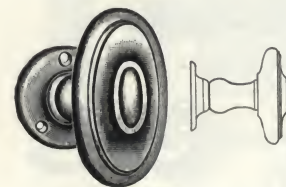
Cat. No.	Dia., in.	Description		Rose		Projection, in.	Price, pair
		Shank	Spindle	No.	Dia., in.		
1925	1 $\frac{3}{4}$	French	056	1117 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{8}$	\$3.70
1926	2	French	056	1117 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{1}{2}$	4.00
1927	1 $\frac{3}{4}$	French	056	1129	1 $\frac{3}{4}$	1 $\frac{1}{2}$	4.00
1928	2	French	056	1129	1 $\frac{3}{4}$	2	4.30
1929	1 $\frac{3}{4}$	French	056	1129	1 $\frac{3}{4}$	2 $\frac{1}{8}$	3.90
1930	2	French	056	1129	1 $\frac{3}{4}$	2 $\frac{1}{8}$	4.20
1931	1 $\frac{3}{4}$	French	056	1129	1 $\frac{3}{4}$	2 $\frac{1}{8}$	4.20
1932	2	French	056	1129	1 $\frac{3}{4}$	2 $\frac{1}{8}$	4.50
1918	1 $\frac{3}{4}$	French	056	1117 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{3}{8}$	4.00
1923 $\frac{1}{2}$	1 $\frac{3}{4}$	French	36 $\frac{1}{2}$ **	1117 $\frac{1}{2}$	1 $\frac{3}{4}$	2	3.10
1922 $\frac{3}{4}$	1 $\frac{3}{4}$	French	056	1117 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{3}{8}$	3.90
1923	1 $\frac{3}{4}$	French	36 $\frac{1}{2}$ **	2	1 $\frac{1}{2}$	1 $\frac{1}{8}$	3.10
1921 $\frac{1}{2}$	2	French	056	1117 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{4}$	3.90
1934	1 $\frac{3}{4}$	Special	Special	1134†	1 $\frac{3}{8}$	2 $\frac{1}{8}$	5.00
1518 $\frac{1}{2}$	2 $\frac{1}{2}$	PY*	56	1118	2	2 $\frac{3}{8}$	5.33
1519 $\frac{1}{2}$	2 $\frac{1}{4}$	PY*	56	1118	2	2 $\frac{3}{8}$	4.25
1618	3	Special	Special	1147	2 $\frac{1}{2}$	2 $\frac{3}{8}$	16.00
1620	2 $\frac{1}{2}$	Special	Special	1137	2	2 $\frac{3}{8}$	13.00
1621	2 $\frac{1}{4}$	Special	Special	1137	2	2 $\frac{1}{4}$	12.00
1622	1 $\frac{3}{4}$	Special	Special	1139	1 $\frac{3}{4}$	1 $\frac{1}{8}$	11.00
1507	2 $\frac{3}{4}$ x 1 $\frac{7}{8}$	PY*	56	1118	2	2 $\frac{3}{8}$	5.00
1508	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	PY*	56	1118	2	2 $\frac{1}{8}$	5.50
1508	2 x 1 $\frac{1}{2}$	PY*	56	1117	1 $\frac{3}{4}$	2 $\frac{3}{8}$	4.50
1606	2 $\frac{1}{4}$ x 1 $\frac{5}{8}$	French	056	1117 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	4.50
1611	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	PY*	56	1118	2	2 $\frac{1}{4}$	6.00
1612	2 $\frac{1}{2}$ x 1 $\frac{1}{2}$	PY*	56	1118	2	2 $\frac{1}{8}$	6.00
1607	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	PY*	56	1118	2	2 $\frac{1}{8}$	5.00
1608	2 $\frac{1}{2}$ x 1 $\frac{1}{2}$	PY*	56	1118	2	2 $\frac{1}{8}$	5.50
1605	2 $\frac{1}{2}$ x 1 $\frac{5}{8}$	French	056	1128	2	2 $\frac{1}{8}$	6.00
1616	2 $\frac{3}{4}$ x 1 $\frac{1}{2}$	French	056	1117 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	6.00

*Can be furnished with PH shanks when so ordered.

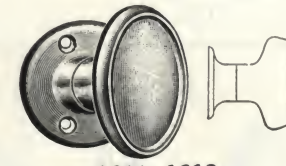
**Swivel spindle furnished to allow close adjustment.

†No. 1134 rose has concealed screws.

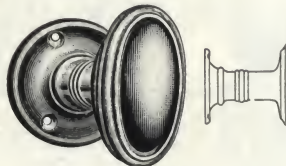
Note: State thickness of door.



1616



1611, 1612



1605

1518 $\frac{1}{2}$, 1519 $\frac{1}{2}$

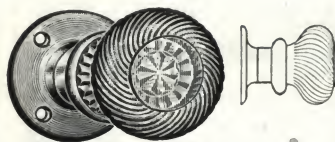
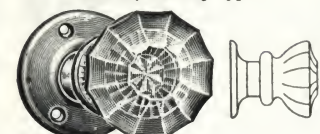
GLASS DOOR KNOBS

Cast Bronze Shanks

Spindle $\frac{1}{8}$ In.

GLASS DOOR KNOBS

Priced with Roses

215, 315
Round, flat top type218, 318
Polygon type

Cat. No.	Dia., in.	Kind of glass	Rose			Projection, in.	Price, pair
			No.	Dia. in.	Material		
215	2	Pressed	1120 $\frac{1}{2}$	2	Cast bronze	2 $\frac{3}{8}$	\$1.80
315	2	Pressed	1109 $\frac{1}{2}$	2	Wrought bronze	2 $\frac{3}{8}$	1.50
315 $\frac{3}{4}$	1 $\frac{3}{4}$	Pressed	1109 $\frac{1}{2}$	1 $\frac{3}{4}$	Wrought bronze	2 $\frac{3}{8}$	1.50
218	2	Pressed	1120 $\frac{1}{2}$	2	Cast bronze	2 $\frac{1}{8}$	1.80
318	2	Pressed	1109 $\frac{1}{2}$	2	Wrought bronze	2 $\frac{1}{8}$	1.50
212	2	Pressed	1120 $\frac{1}{2}$	2	Cast bronze	2 $\frac{1}{8}$	1.80
312	2	Pressed	1109 $\frac{1}{2}$	2	Wrought bronze	2 $\frac{1}{8}$	1.50
249 $\frac{1}{2}$	2 $\frac{1}{4}$	Opal pressed	1120 $\frac{1}{2}$	2	Cast bronze	2 $\frac{3}{8}$	2.50
249 $\frac{3}{4}$	1 $\frac{3}{4}$	Opal pressed	1117 $\frac{1}{2}$	1 $\frac{3}{4}$	Cast bronze	2 $\frac{1}{4}$	2.50
349 $\frac{1}{2}$	2 $\frac{1}{4}$	Opal pressed	1109 $\frac{1}{2}$	2	Wrought bronze	2 $\frac{3}{8}$	2.00
349 $\frac{3}{4}$	1 $\frac{3}{4}$	Opal pressed	1179 $\frac{1}{2}$	1 $\frac{3}{4}$	Wrought bronze	2 $\frac{3}{8}$	2.00

Note: State thickness of door.

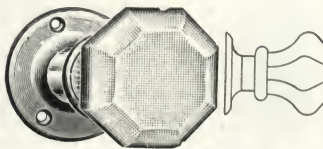
212, 312
Round type249 $\frac{1}{2}$, 349 $\frac{1}{2}$
Octagon type, opal glass

PLATE 25

DOOR KNOBS

Prefix Letters for Finish. Description of Finishes, Plate 3

CORBIN

Illustrations
one-third size

ESCUTCHEONS

Cast Bronze



2660



2661



2605



2661



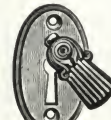
2662



2616



2673



2668 1/2



2663



2666



2667

ESCUTCHEONS (KEY PLATES)

Cat. No.	Size, in.	Price, each	Cat. No.	Size, in.	Price, each
2621 1/2	1 3/4 x 1 1/8	\$0.30	2616	1 3/8 x 3/8	\$1.65
2660	1 1/8 x 1 1/8	.25	2673	2 1/4 x 1 1/8	.90
2651	1 3/4 x 1 1/16	.30	2668 1/2	2 x 1 1/8	1.35
2605	2 1/8 x 1	.85	2663	2 x 3/4	.65
2661	1 3/4 x 1 1/8	.75	2666	2 x 3/4	.65
2662	1 3/4 x 3/4	.75	2667	2 1/4 x 3/4	.65

COMBINED ROSES, INDICATOR PLATES AND ESCUTCHEONS

Cast Bronze

FOR HOTEL CORRIDOR LOCKS



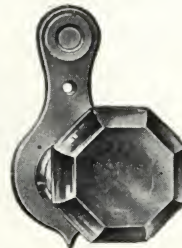
592-25x592-30



1921 1/2 x 590-30



340 1/2 x 1175 x 2660



1519 1/2 x Rose x 475



591-25x591-30

INDICATORS, KNOBS, ESCUTCHEONS AND KEY TAGS

Cat. No.	Description	Size, in.	Price
* 475	Cylinder collar and button indicator	3 1/4 x 2 1/8	\$3.00 each
* 1175	Knob, rose and button indicator	3 3/4 x 1 1/8	3.00 each
340 1/2	Door knob (glass)	2 1/4	1.50 pair
1519 1/2	Door knob	2 1/4	3.55 pair
1921 1/2	Door knob	2	3.20 pair
591-25	Door knob	2 1/4 x 1 3/4	6.70 pair
592-25	Door knob	2 3/8 x 1 3/4	8.00 pair
2660	Escutcheon	1 3/8 x 1 1/4	2.65 doz.
*590 30	Escutcheon	7 3/8 x 1 7/8	†5.55 each
*591-30	Escutcheon	8 3/8 x 2	†5.10 each
*592-30	Escutcheon	8 1/2 x 1 7/8	†6.70 each
S3820	Key tag	2 1/4 x 1 3/8	On application
S4646	Key tag	2 3/8 x 1 3/8	On application

*State number of lock with which these will be used.
†These prices do not include button indicator.



S4646



S3820



ESCUTCHEONS, ROSES, PLATES, ETC.

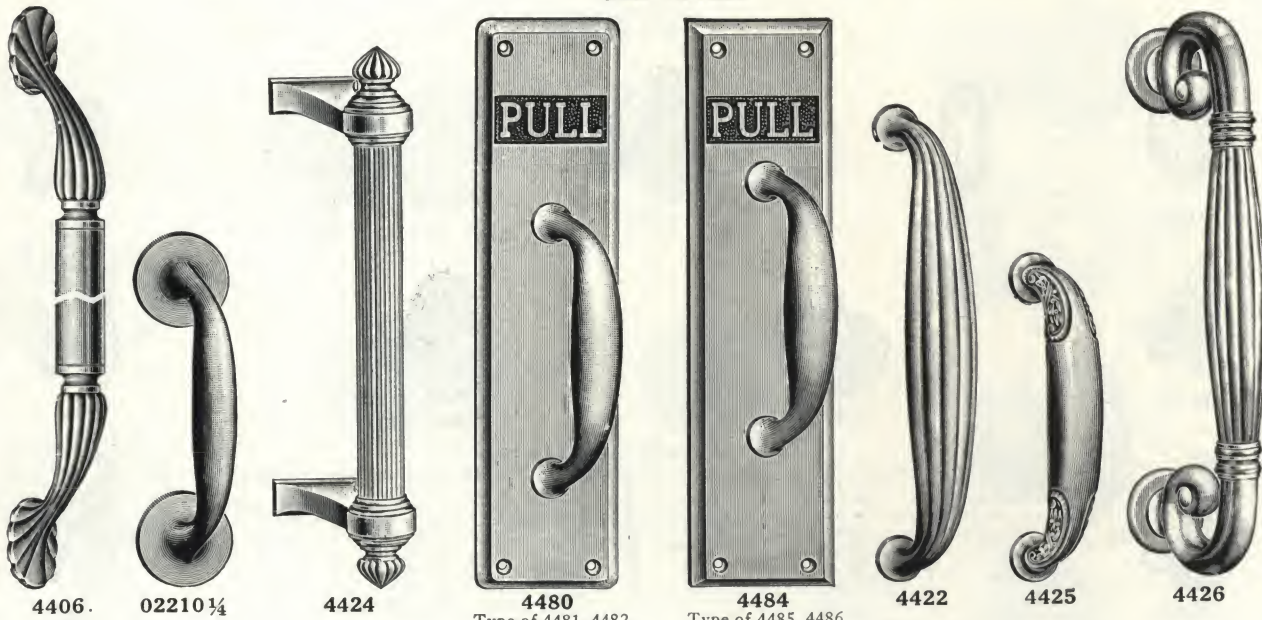
Important: For Description of Finishes, Plate 3
For Other Escutcheons See Corbin General Catalogue

PLATE 26

DOOR PULLS, PUSH PLATES AND PUSH BARS

Illustrations
one-fourth size

Cast Bronze



4406.

02210 1/4

4424

4480

Type of 4481, 4482

4484

Type of 4485, 4486

4422

4425

4426

DOOR PULLS

Cat. No.	Center to center, in.	Base size, in.	Price, each
4406	14	1 1/8 wide	\$ 7.80
4422	9		6.10
4422 1/2*	9		6.10
4424	8 3/8	3/4 x 1 3/4	18.00
4425	5 3/4		5.00
4425 1/2	9		8.90
4426	9 1/2	1 1/8	20.00
02210 1/4	5 1/2	2	1.80
02210 1/2	7 1/2	2	4.00

*Offset 3/4 in.

Note: Furnished with machine screws and nuts to fasten to Push Plate or through door.

DOOR PULLS

Cat. No.	Size, in.	Price, each
4480	12x3	\$5.35
4481	14x3 1/2	5.90
4482	16x4	6.45
4484	12x3	5.35
4485	14x3 1/2	5.90
4486	16x4	6.44

For pulls with plain plates without word "Pull," see Plate 20.

PUSH PLATES

Cat. No.	Prices, various sizes, in.		
	12x3	14x3 1/2	16x4
2330	\$3.00	\$3.75	\$4.30
2332	3.00	3.75	4.30

For plain plates without word "Push," see Plate 20.

PUSH BARS
Wrought Bronze Bars

Cat. No.	Bases, size, in.	Bar, dia., in.	Projection, in.	Clearance, in.	Price, various lengths, in.			
					24	30	36	42
2200 1/4	2 3/4	1	3	1 5/8	\$ 4.50	\$ 4.80	\$ 5.20	\$.....
2204	2, 2 3/4	1	3	1 5/8	4.50	4.80	5.20	.....
2205	1 1/4 wide	*	1 1/4	1 5/8	12.00†	13.35‡	14.65§	16.10§§
2206	1 1/8 wide	1	2 1/2	1 5/8	10.45	10.88	11.33	.....
2206 1/2	1 1/8 wide	1	2 1/2**	1 5/8	10.45	10.88	11.33	.....

*Width over all 2 1/4 in.

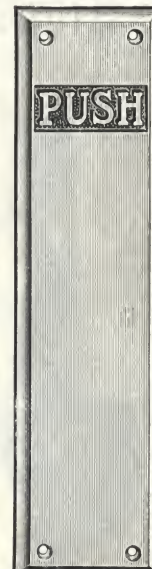
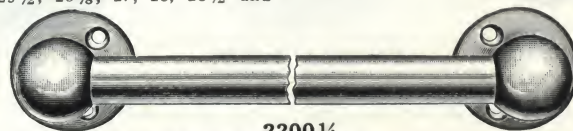
**High end; low end 1 5/8 in.

†Lengths: 14 1/2, 16 1/2, 19 1/2, 21 and 22 1/2, \$12.00.

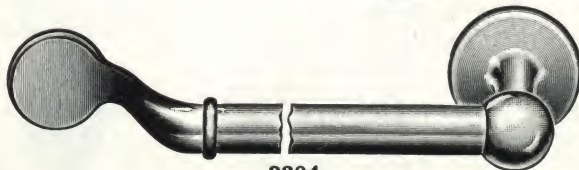
‡Lengths: 24 1/2, 25 1/2, 26 1/2, 27, 28, 28 1/2 and 29 1/2, \$13.35.

§Lengths: 30 1/2, 31, 31 1/2, 32 1/2 and 35 1/2, \$14.65.

§§Lengths: 36 1/2, 38, 39 1/2 and 41, \$16.10.

2330
America
Design2332
Columbia
Design

2200 1/4



2204



2206



2205 (Left Hand)

PLATE 27

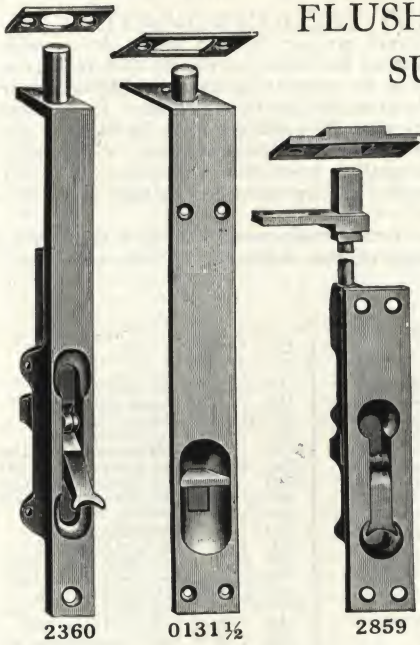
DOOR PULLS, PUSH PLATES AND
PUSH BARS

Prefix Letters for Finish. Description of Finishes, Plate 3



Illustrations one-third size

FLUSH, EXTENSION FLUSH AND SURFACE DOOR BOLTS



EXTENSION FLUSH BOLTS Cast Bronze, Polished

Cat. No.	Size, plate, in.	*Length bolt, in.	Price, each
2659	5 7/8 x 5/8	6, 8, 12, 18, 24, 30, 36, 48	\$ 1.90
2856	6 3/4 x 1	6, 8, 12, 18, 24, 30, 36, 48	1.90
2859	6 3/4 x 1 1/4	6, 8, 12, 18, 24, 30, 36, 48	1.90
2859 1/2	6 3/4 x 1 1/4	6, 8, 12, 18, 24, 30, 36, 48	2.65
*02859	6 3/4 x 1 1/2	8, 12, 18, 24, 30, 36, 48	4.50
12857	6 3/4 x 1 1/2	6, 12, 18, 24, 30, 36, 48	4.00
2851	3 1/2 x 1 1/2	6, 8, 12, 18, 24, 30, 36, 48	2.00
2853	6 x 1 1/2	8, 12, 18, 24, 30, 36, 48	2.00
\$02858	5 x 1 3/4	8, 12, 18, 24, 30, 36, 48	6.00
\$2858	7 x 2 3/8	8, 12, 18, 24, 30, 36, 48	10.65

*Length of extension flush bolts is measured from center of operating member to end of bolt head when retracted.

†Bolt head 3/4 x 3/4 in.

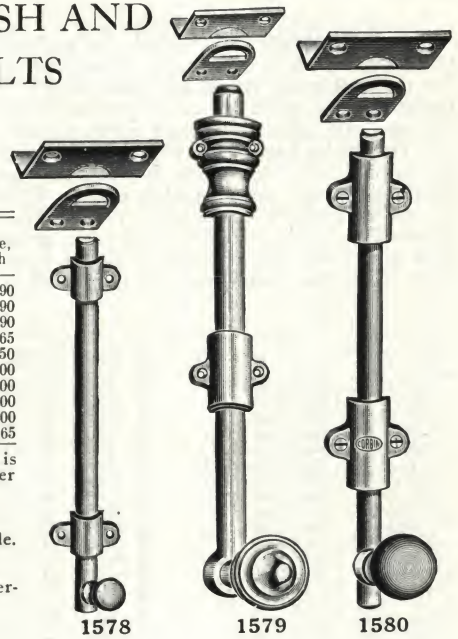
‡Face rounded to 4-in. radius.

§Front has 1/2-in. rabbet. Reversible.

§§Requires 1 3/8-in. mortise.

§§§Requires 1 7/8-in. mortise.

Note: State length desired when ordering.



FLUSH BOLTS

Cat. No.	Width, in.	Material	Price per dozen; various lengths, inches							
			2	2 1/2	3	4	6	8	12	18
0133	3/4	Wrot bronze			\$7.45	\$ 8.00	\$ 9.25			
133	3/4	Cast bronze			8.55	9.35	10.70			
1399 1/2	1	Cast bronze				26.65				
*82	3/8	Wrot brass	\$2.40	\$2.65	2.90	3.66				
*98	1/2	Wrot brass	3.00	3.24	4.08	5.78				
*104	3/8	Wrot brass		4.44	5.42	6.48	\$ 9.66			
*109	3/4	Wrot brass			8.65	10.80	13.35	\$17.60		
0131 1/2	1	Wrot bronze				10.9	13.35	21.65	\$33.35	
2360	5/8	Cast bronze				28.80	30.60	36.60	48.00	
†2361	1	Cast bronze					31.80	40.20	55.80	

*Furnished with steel bolt.

†Also furnished in 24-in. length. Price: \$72.00.

Note: State length desired when ordering.

SURFACE DOOR BOLTS

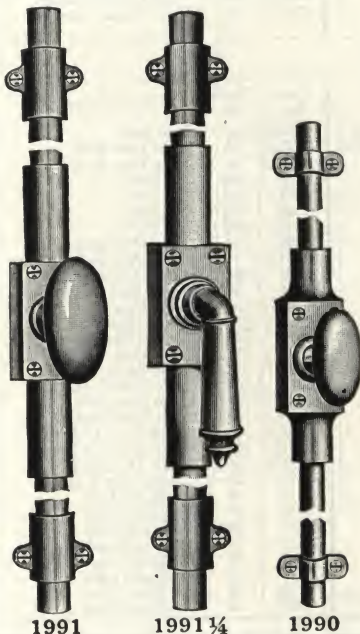
Cat. No.	Rods, half round, in.	Guides, width, in.	Bronze	Price per dozen; various lengths, inches							
				4	6	9	12	18	24	30	
1578	3/8	1 1/8	Wrot	\$ 6.20	\$ 7.20	\$ 9.35	\$10.65				
1580 1/2	1/2	1 3/8	Wrot		9.80	12.20	13.35	\$16.00	\$18.90	\$24.45	
1580	5/8	1 3/8	Cast		32.00	34.40	36.80	41.60	46.40	51.20	
1579	5/8	1 3/8	Cast			48.00	52.00	60.00	68.00	76.00	

Note: Nos. 1580 and 1579 are furnished with wrot bronze rod. State length desired when ordering.

Illustrations one-fourth size

CREMONE BOLTS

CREMONE BOLTS
Cast bronze, wrought bronze rods



Cat. No.	Type of handle	Projection, in.	Rods, half round, in.	Case and guides, width, in.	Price, each
*1990	Knob	1 7/8	1 1/2	1 1/4	\$11.00
*1990 1/4	Lever	2 1/2	1 1/2	1 1/4	11.00
1991	Knob	2 1/8	1 1/2	1 1/2	12.20
1991 1/4	Lever	2 7/8	1 1/2	1 1/2	12.20
1989	Lever	2 3/8	1 1/2	1 1/2	21.35
1992 1/4	†	2 3/8	1 1/2	1 1/2	22.20
1993	Knob	2 3/8	1 1/2	1 3/8	28.88
1993 1/4	Lever	2 1/2	1 1/2	1 3/8	28.88
2004	Knob	2 1/8	1 1/2	2	54.00
1994	Knob	3	1 1/2	1 5/8	37.78
1994 1/4	Lever	2 5/8	1 1/2	1 5/8	37.78
2003	Knob	3 1/8	1 1/2	1 5/8	37.78
2003 1/4	Lever	3 1/2	1 1/2	1 5/8	37.78

*Furnished with wrought bronze guides. Stock size for doors 7 ft. in height; all others, stock size for doors 8 ft. 6 in. Knob or lever, 3 ft. 6 in. from bottom.

†Furnished knob one side, lever other. Positions reversible.

Note: State hand on all bolts with lever handles. State height of sash or door and distance from bottom to handle; otherwise stock size will be furnished.

STRIKES



For Sash or
Doors Opening
In

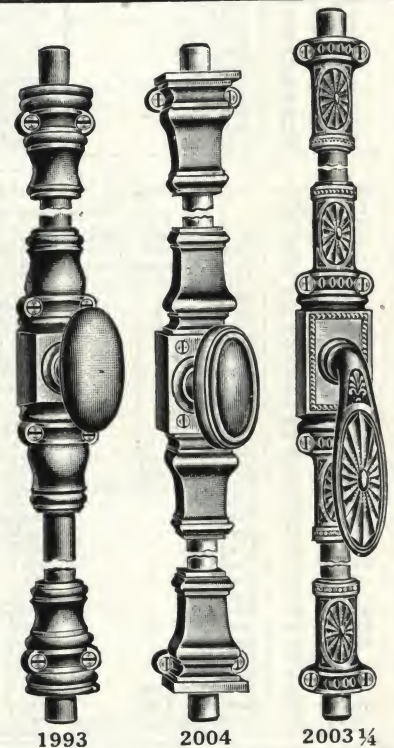


For Sash or
Doors Opening
Out

Both types furnished regular
with all above bolts



Type "D"
Furnished
with above
bolts when
ordered



FLUSH, SURFACE AND CREMONE BOLTS

Prefix Letters for Finish. Description of Finishes, Plate 3
For Iron Bolts and Complete Details, see Corbin General Catalogue

PLATE 28

CORBIN LOCKS

P. & F. CORBIN make a lock for practically every condition or place where any degree of security must be provided. On the following pages are illustrated a complete line of Corbin Locks which are of interest to the architectural profession. All other locks have been omitted.

The locks have been arranged in groups according to the special use for which they are designed such as for public buildings, office buildings, etc. Under each heading or group a short description of the features which are required for the particular service is given. The locks in each group are also indexed so that a lock for any type of door is readily found and a selection of locks of different

qualities for the same service is also given in a table.

The arrangement of the locks is entirely different from that generally given in the regular hardware trade catalogue. It is written entirely from the user's viewpoint. Each group is arranged so as to give the architect first the highest type of lock and that giving the greatest protection. Other locks follow in order of quality, protection and price. The differences between each lock are described so that a selection is easily made.

It is hoped the new arrangement will save time and a clearer understanding of the differences between the locks will be obtained.

INDEX OF CYLINDER LOCKS

Lock No.	Plate No.	Type of Lock	Lock No.	Plate No.	Type of Lock	Lock No.	Plate No.	Type of Lock	Lock No.	Plate No.	Type of Lock
130	60	Dead Lock	522	45	Hotel Lock	570 $\frac{1}{2}$	39	Entrance Door Lock	1434 $\frac{1}{2}$	60	Rim Dead Lock
130 $\frac{1}{4}$	60	Dead Lock	523	45	Hotel Lock	572	39	Entrance Door Lock	1558	57	Mortise Night Latch
133	60	Dead Lock	524	45	Hotel Lock	572 $\frac{1}{2}$	39	Entrance Door Lock	1558 $\frac{1}{4}$	57	Mortise Night Latch
133 $\frac{1}{4}$	60	Dead Lock	525	45	Hotel Lock	580	39	Entrance Door Lock	2261	49	Unit Asylum Lock
133 $\frac{1}{2}$	60	Dead Lock	526	45	Hotel Lock	581	39	Entrance Door Lock	02262	36	Unit Entrance Door Lock
134	62	Sliding Door Lock	527	45	Hotel Lock	658	57	Mortise Night Latch	2267	36	Unit Entrance Door Lock
134 $\frac{1}{4}$	62	Sliding Door Lock	0536	44	Hotel Lock	658 $\frac{1}{2}$	57	Mortise Night Latch	02267	36	Unit Entrance Door Lock
137	60	Dead Lock	0536 $\frac{1}{4}$	44	Hotel Lock	735	61	$\frac{1}{2}$ Mortise Dead Lock	2267 $\frac{1}{2}$	36	Unit Entrance Door Lock
137 $\frac{1}{4}$	60	Dead Lock	0537 $\frac{1}{2}$	44	Hotel Lock	1138	60	Dead Lock	2323	41	Vestibule Door Lock
137 $\frac{1}{2}$	60	Dead Lock	0538	44	Hotel Lock	1138 $\frac{1}{4}$	60	Dead Lock	2341	52	French Door Lock
138	60	Dead Lock	0538 $\frac{1}{4}$	44	Hotel Lock	1138 $\frac{1}{2}$	60	Dead Lock	2343	53	Entrance Door Lock
138 $\frac{1}{4}$	60	Dead Lock	0538 $\frac{1}{2}$	44	Hotel Lock	1262	49	Asylum Lock	2347	40	Store Door Handle Lock
138 $\frac{1}{2}$	60	Dead Lock	0538 $\frac{3}{4}$	44	Hotel Lock	1323	41	Vestibule Door Lock	2347 $\frac{1}{2}$	40	Store Door Handle Lock
140	60	Dead Lock	539	43	Hotel Lock	1323 $\frac{1}{4}$	41	Vestibule Door Lock	2349 $\frac{1}{2}$	53	Entrance Door Lock
141	60	Dead Lock	539 $\frac{1}{4}$	43	Hotel Lock	1324	52	Apartment Lock	02436 $\frac{1}{4}$	36	Unit Hotel Corridor Lock
141 $\frac{1}{4}$	60	Dead Lock	540	45	Hotel Lock	1325	52	Apartment Lock	2445	36	Unit Front Door Lock
158	60	Dead Lock	541	45	Hotel Lock	1333	60	Dead Lock	2455	36	Unit Communicating Lock
158 $\frac{1}{4}$	60	Dead Lock	542	45	Hotel Lock	1333 $\frac{1}{4}$	60	Dead Lock	2455 $\frac{1}{4}$	36	Unit Communicating Lock
0180	40	Store Door Handle Lock	543	45	Hotel Lock	1333 $\frac{1}{2}$	60	Dead Lock	02462	35	Unit Office Lock
200	62	Garage Door Lock	544	45	Hotel Lock	1338	41	Vestibule Lock	2464	35	Unit Office Lock
210	62	Garage Door Lock	545	45	Hotel Lock	1339	41	Vestibule Lock	02464	35	Unit Office Lock
256	57	Rim Night Latch	546	45	Hotel Lock	01339	41	Vestibule Lock	2464 $\frac{1}{4}$	35	Unit Office Lock
256 $\frac{1}{2}$	57	Rim Night Latch	547	45	Hotel Lock	01339 $\frac{1}{4}$	41	Vestibule Lock	02464 $\frac{1}{2}$	35	Unit Office Lock
0288	40	Store Door Handle Lock	0548	57	Mortise Night Latch	01339 $\frac{1}{2}$	51	Vestibule Lock	2466	35	Unit Office Lock
356	57	Rim Night Latch	0556	57	Mortise Night Latch	01339 $\frac{3}{4}$	51	Vestibule Lock	2466 $\frac{1}{4}$	35	Unit Office Lock
356 $\frac{1}{2}$	57	Rim Night Latch	0558	57	Mortise Night Latch	01339 $\frac{1}{2}$	51	Vestibule Lock	2467	35	Unit Office Lock
360	60	Rim Dead Lock	0558 $\frac{1}{4}$	57	Mortise Night Latch	01339 $\frac{3}{4}$	51	Vestibule Lock	02467	35	Unit Office Lock
360 $\frac{1}{2}$	60	Rim Dead Lock	559	57	Mortise Night Latch	1341	52	French Door Lock	2467 $\frac{1}{4}$	35	Unit Office Lock
456 $\frac{1}{2}$	57	Rim Night Latch	563	40	Office Door Lock	1343	53	Entrance Door Lock	02467 $\frac{1}{2}$	35	Unit Office Lock
456 $\frac{1}{4}$	57	Rim Night Latch	0563	40	Office Door Lock	1345	53	Entrance Door Lock	2472	36	Unit Entrance Door Lock
472	57	Rim Night Latch	0563 $\frac{1}{4}$	40	Office Door Lock	1346	53	Entrance Door Lock	2488 $\frac{1}{2}$	36	Unit Latch
474	57	Rim Night Latch	563 $\frac{1}{2}$	40	Office Door Lock	1347	40	Store Door Handle Lock	3000	63	Three Point Lock
505	46	Hotel Lock	564	40	Office Door Lock	1347 $\frac{1}{2}$	40	Store Door Handle Lock	3001	63	Three Point Lock
506	46	Hotel Lock	564 $\frac{1}{2}$	40	Office Door Lock	1348	53	Entrance Door Lock	4055	38	Coupon Booth Door
507	46	Hotel Lock	566	40	Office Door Lock	1348 $\frac{1}{2}$	53	Entrance Door Lock	4056	38	Unit Coupon Booth Door
508	46	Hotel Lock	567	40	Office Door Lock	1349	53	Vestibule Lock	4580	59	Rim Front Door Lock
510	46	Hotel Lock	0567	40	Office Door Lock	1349 $\frac{1}{2}$	53	Entrance Door Lock	S7210	38	Vault Handle Triplelox
511	46	Hotel Lock	567 $\frac{1}{4}$	40	Office Door Lock	01350	53	Entrance Door Lock	S7210 $\frac{1}{4}$	38	Vault Handle Triplelox
512	46	Hotel Lock	0567 $\frac{1}{2}$	40	Office Door Lock	1353	53	Entrance Door Lock	S7210 $\frac{1}{2}$	38	Vault Handle Triplelox
513	46	Hotel Lock	567 $\frac{3}{4}$	40	Office Door Lock	1354	53	Entrance Door Lock	S7210 $\frac{3}{4}$	38	Vault Handle Triplelox
514	46	Hotel Lock	0567 $\frac{1}{2}$	41	Office Door Lock	1386	68	Exit Door Lock	S7400	38	Vault Handle Triplelox
515	46	Hotel Lock	567 $\frac{3}{4}$	41	Office Door Lock	1387	68	Exit Door Lock	S7400 $\frac{1}{4}$	38	Vault Handle Triplelox
516	46	Hotel Lock	0568	39	Entrance Door Lock	1392	62	Sliding Door Lock	S7400 $\frac{1}{2}$	38	Vault Handle Triplelox
517	46	Hotel Lock	569	41	Corridor Office Lock	1394	62	Sliding Door Lock	S7407	38	Vault Handle Triplelox
520	45	Hotel Lock	0569 $\frac{1}{2}$	41	Corridor Office Lock	1431	60	Rim Dead Lock	S7407 $\frac{1}{4}$	38	Vault Handle Triplelox
521	45	Hotel Lock	570	39	Entrance Door Lock	1432	60	Rim Dead Lock	S7407 $\frac{1}{2}$	38	Vault Handle Triplelox
						1434	60	Rim Dead Lock			

INDEX OF BITTED KEY LOCKS

Lock No.	Plate No.	Type of Lock	Lock No.	Plate No.	Type of Lock	Lock No.	Plate No.	Type of Lock	Lock No.	Plate No.	Type of Lock
045	58	Knob Latch	1591 $\frac{1}{2}$	55	Bath Room Lock	738 $\frac{1}{2}$	50	Rim Asylum Latches	1372 $\frac{1}{2}$	61	Dead Lock
048	58	Knob Latch	1593 $\frac{1}{2}$	55	Communicating Door Lock	739 $\frac{1}{2}$	50	Rim Asylum Dead Locks	1375 $\frac{1}{2}$	54	Inside Door Lock
049	58	Knob Latch	160	62	Sliding Door Lock	785	54	Inside Door Locks	1376 $\frac{1}{2}$	54	Inside Door Lock
058	58	Knob Latch	160 $\frac{1}{2}$	62	Sliding Door Lock	785 $\frac{1}{4}$	54	Inside Door Locks	1380	68	Exit Lock
68 $\frac{1}{4}$	58	Cabinet Latch	0173	56	French Door Lock	785 $\frac{1}{2}$	54	Inside Door Locks	1381	68	Exit Lock
068 $\frac{1}{2}$	58	Cabinet Latch	0173 $\frac{1}{2}$	56	French Door Lock	787	56	French Door Lock	1382	68	Exit Lock
68 $\frac{3}{4}$	58	Cabinet Latch	0174	56	French Door Lock	787 $\frac{1}{4}$	56	French Door Lock	1383	68	Exit Lock
068 $\frac{1}{2}$	58	Cabinet Latch	0174 $\frac{1}{2}$	56	French Door Lock	787 $\frac{1}{2}$	56	French Door Lock	2364	54	Inside Door Lock
68 $\frac{3}{4}$	58	Cabinet Latch	176	68	Exit Latch	795	54	Inside Door Lock	2364 $\frac{1}{2}$	54	Inside Door Lock
068 $\frac{1}{2}$	58	Cabinet Latch	0176	68	Exit Latch	795 $\frac{1}{4}$	54	Inside Door Lock	2365	54	Inside Door Lock
69	58	Cabinet Latch	227	55	Bedroom Lock	795 $\frac{1}{2}$	54	Inside Door Lock	02365	56	French Door Lock
88 $\frac{1}{4}$	58	Knob Latch	227 $\frac{1}{2}$	55	Bedroom Lock	1144	61	Dead Lock	02365 $\frac{1}{2}$	56	French Door Lock
088 $\frac{1}{2}$	58	Knob Latch	233	55	Bedroom Lock	1144 $\frac{1}{2}$	61	Dead Lock	2370	59	Colonial Rim Lockset
090	58	Knob Latch	0233	55	Bedroom Lock	1260	50	Asylum Latch	2375 $\frac{1}{2}$	59	Inside Door Lock
090 $\frac{1}{2}$	58	Exit Knob Latch	233 $\frac{1}{2}$	55	Bedroom Lock	1260 $\frac{1}{4}$	50	Asylum Latch	2383	56	French Door Lock
90 $\frac{3}{4}$	58	Knob Latch ($\frac{3}{4}$ -in. throw)	0233 $\frac{1}{2}$	55	Bedroom Lock	1261	49	Asylum Lock	2785	54	Inside Door Lock
0131	61	Dead Lock	235 $\frac{1}{2}$	47	Hotel Lock	1270 $\frac{1}{2}$	48	Class Room Lock	2785 $\frac{1}{4}$	54	Inside Door Lock
132	61	Dead Lock	236 $\frac{1}{2}$	47	Hotel Lock	1271 $\frac{1}{2}$	48	Class Room Lock	2785 $\frac{1}{2}$	54	Inside Door Lock
0132	61	Dead Lock	238 $\frac{1}{2}$	47	Hotel Lock	1272 $\frac{1}{2}$	48	Class Room Lock	2787	56	French Door Lock
132 $\frac{1}{2}$	61	Dead Lock	239 $\frac{1}{2}$	47	Hotel Lock	1273 $\frac{1}{2}$	48	Class Room Lock	2787 $\frac{1}{4}$	56	French Door Lock
0132 $\frac{1}{2}$	61	Dead Lock	326	55	Bedroom Lock	1283	56	French Door Lock	2787 $\frac{1}{2}$	56	French Door Lock
144	61	Dead Lock	327	55	Bedroom Lock	1294	62	Sliding Door Lock	3370	59	Colonial Rim Lockset
144 $\frac{1}{2}$	61	Dead Lock	327 $\frac{1}{2}$	55	Bedroom Lock	1302	62	Sliding Door Lock	3512	59	Rim Knob Lock
0145	61	Dead Lock	442 $\frac{1}{2}$	47	Hotel Lock	1364	54	Inside Door Lock	3530	59	Rim Knob Lock
0145 $\frac{1}{2}$	61	Dead Lock	443 $\frac{1}{2}$	47	Hotel Lock	1364 $\frac{1}{2}$	54	Inside Door Lock	3532	59	Rim Knob Lock
0147 $\frac{1}{2}$	61	Dead Lock	444 $\frac{1}{2}$	45	Hotel Communicating Lock	1365	54	Inside Door Lock	4512	59	Rim Knob Lock
148 $\frac{1}{2}$	61	Dead Lock	444 $\frac{3}{4}$	45	Hotel Communicating Lock	01365	56	French Door Lock	4518	59	Rim Knob Lock
149 $\frac{1}{4}$	61	Dead Lock	0695 $\frac{1}{2}$	49	Asylum Knob Lock	01365 $\frac{1}{4}$	56	French Door Lock	4530	59	Rim Knob Lock
159	55	Bath Room Lock	728	61	$\frac{1}{2}$ Mortise Bolt	01365 $\frac{1}{2}$	56	French Door Lock	4532	59	Rim Knob Lock
0159	55	Bath Room Lock	736 $\frac{1}{2}$	50	$\frac{1}{2}$ Mortise Asylum Dead	1366	54	Inside Door Lock	4538	59	Rim Knob Lock
159 $\frac{1}{4}$	55	Communicating Door Lock	737 $\frac{1}{2}$	50	$\frac{1}{2}$ Mortise Asylum Latches	1366 $\frac{1}{4}$	54	Inside Door Lock			

PLATE 29

GENERAL INFORMATION AND NUMERICAL INDEX OF LOCKS

Prefix Letters for Finish. Description of Finishes, Plate 3



STANDARDIZED TEMPLATE LOCKS FOR HOLLOW METAL DOORS

For several years there has been under discussion the establishment of standard sizes of locks for hollow metal doors. The door manufacturers have wished to be relieved of the detail caused by the wide variety of sizes and shapes of locks which has made the manufacture of each door individual, and has prevented interchangeability. Working with the Advisory Committee on Builders' Hardware of the Bureau of Commerce we, in conjunction with some other lock manufacturers have adopted standards on locks principally used, which have been approved by The Hollow Metal Association as giving them the relief desired, and sanctioned by the American Institute of Architects as permitting architects to have the necessary freedom in design. The Associated General Contractors have also approved these standards.

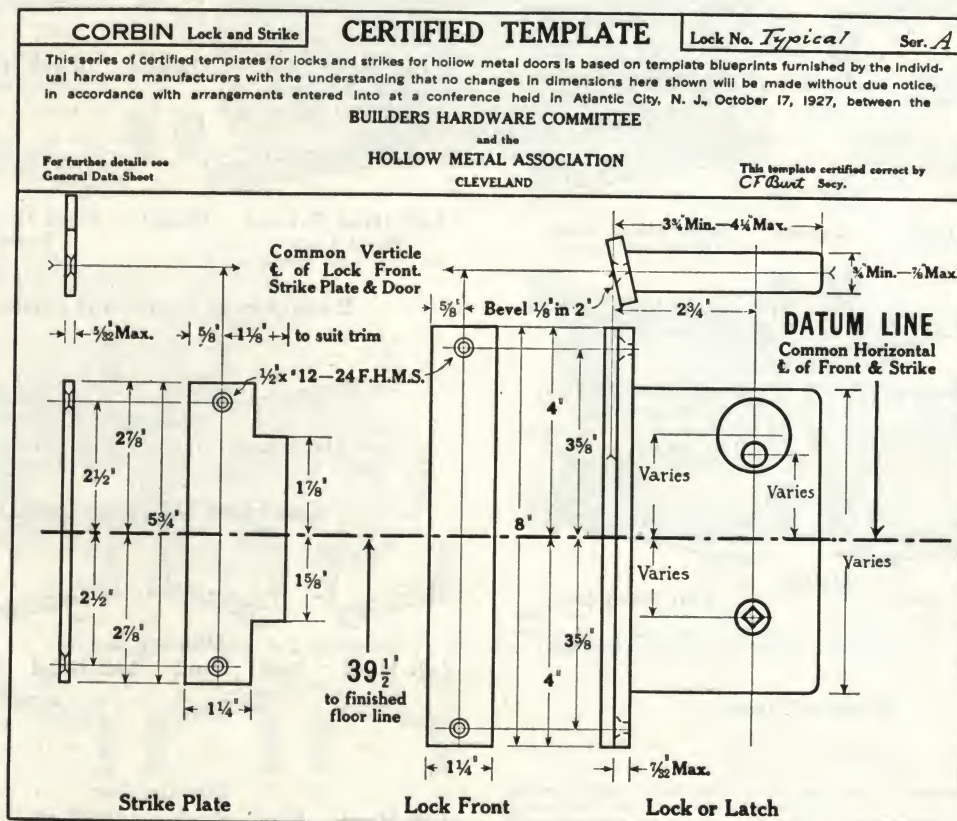
This standardization applies only to locks and their strikes, and covers those in most general use. It is still possible to have locks used which are not included in this plan, but they are special in the metal door manufacturers' estimation, and should not be used when the desired functions can be secured with the certified template locks. The door manufacturers have provided standard reinforcements for these certified template locks and their strikes.

The fronts and strikes of these locks are uniform as to length, width, thickness and spacing of screw holes; cases are uniform as to backset. The length, width and thickness of cases fall within certain maximum and minimum dimensions prescribed by the standardization rules. The spacing between cylinder hole and knob hole will vary in the different types of locks, and is not standardized. The strikes are flat. The hollow metal jamb manufacturer will spot weld a box to his frame, over which our flat strike will be applied.

The members of the Hollow Metal Association have been provided with Certified Template Drawings of these locks and will be kept informed of any changes. It is therefore not necessary to provide them with template drawings. When specifying any of these locks, simply mention the number and add TMS.

CORBIN STANDARDIZED TEMPLATE LOCKS

Type of lock	Lock No.	Cylinders	Thumb turn	Knob	Thumb latch	Can furnish indicator	Steps in face	Plate No.
Store door.....	0288	2			2		Without	40
Hotel door.....	520	1	1			Yes	With	45
Hotel door.....	521	2		2		Yes	With	45
Hotel door.....	522	1	1			Yes	With	45
Hotel door.....	523	2		2		Yes	With	45
Hotel door.....	524	1	1			Yes	With	45
Hotel door.....	525	2		2		Yes	With	45
Hotel door.....	526	1	1			Yes	With	45
Hotel door.....	527	2		2		Yes	With	45
Hotel door.....	0537 $\frac{1}{2}$	1	1				Without	44
Hotel door.....	0538	2		2		Yes	With	44
Hotel door.....	0538 $\frac{1}{4}$	1	1			Yes	With	44
Hotel door.....	0538 $\frac{1}{2}$	2		2		Yes	Without	44
Hotel door.....	0538 $\frac{3}{4}$	1	1			Yes	Without	44
Hotel door.....	540	1	1			Yes	Without	45
Hotel door.....	541	2		2		Yes	Without	45
Hotel door.....	542	1	1			Yes	Without	45
Hotel door.....	543	2		2		Yes	Without	45
Hotel door.....	544	1	1			Yes	Without	45
Hotel door.....	545	2		2		Yes	Without	45
Hotel door.....	546	1	1			Yes	Without	45
Hotel door.....	547	2		2		Yes	Without	45
Office door.....	0567 $\frac{1}{2}$	2		2			Without	51
Office door.....	567	1		2			With	40
Office door.....	567 $\frac{1}{4}$	1	1				With	40
Office door.....	0567	1		2			With	40
Office door.....	0567 $\frac{1}{4}$	1	1				With	40
Office door.....	567 $\frac{1}{2}$	2		2			Without	51
Underwriters' lock.....	567 $\frac{3}{4}$	1		2			With	41
Underwriters' lock.....	0567 $\frac{3}{4}$	1		2			With	41
Underwriters' lock.....	569 $\frac{1}{2}$	2		2			Without	41
Underwriters' lock.....	0569 $\frac{1}{2}$	2		2			Without	41
Office door (2 bolt).....	580	2		2			Without	39
Office and vestibule.....	1339	1		2			With	41
Office and vestibule.....	1339 $\frac{1}{4}$	1	1				With	41
Office and vestibule.....	01339	1		2			With	41
Office and vestibule.....	01339 $\frac{1}{4}$	1		2			Without	51
Office and vestibule.....	01339 $\frac{1}{2}$	2		2			Without	51
Office and vestibule.....	01339 $\frac{3}{4}$	1		2			Without	51
Office and vestibule.....	1339 $\frac{1}{2}$	2		2			Without	51
Entrance door.....	1347	2			2		With	40
Entrance door.....	1347 $\frac{1}{2}$	1	1		2		With	40



STANDARDIZED TEMPLATE LOCKS

PLATE 30

DEFINITIONS OF LOCK TERMS

The following definitions are in amplification of the illustrations and descriptions on the following plates. The terms apply mostly to special features on cylinder locks

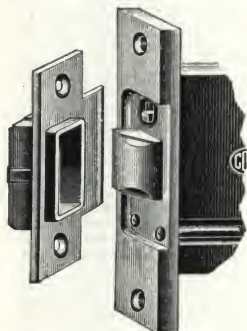
Types of Lock Fronts

Flat Front—The flat face or front is at right angles to the body or case of the lock. Locks with flat fronts are generally reversible.

Bevel Front—This front is on a standard bevel of $\frac{1}{8}$ in. on 2 in.; any other bevel is special and is subject to an extra charge. Lock No. 1364 and higher grade furnished standard bevel without extra charge. Bevel front locks are not reversible; state hand according to diagrams below.

Rabbeted Front—Made with $\frac{1}{2}$ in. standard rabbet for doors with rabbeted meeting stiles. Rabbeted fronts other than standard are furnished at an extra charge. When ordering send full size detail of special rabbet. Not reversible, state hand.

Recessed Front—As shown in illustration, the front is recessed and the strike plate projected, which protects the latch or dead bolt from being forced.

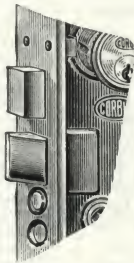


Lock with Recessed Front

Dead Bolt →

Easy Spring Latch →

Stops in Face →



Types of Latches

Easy Spring—See illustration. This is the simplest type of latch bolt and is used in most good locks. It latches easily and is operated by a spring separate from that operating the knob. Used in both bitted key and cylinder locks.

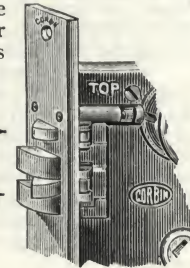
Anti-friction—A small additional latch connected to the regular latch bolt, in high grade cylinder locks, which engages the strike and retracts the regular latch. It prevents friction between latch bolt and strike and permits easy closing of door.

Auxiliary Latch—A supplementary latch used for dead locking the latch bolt of cylinder locks which do not have dead bolts. The auxiliary latch does not engage the strike, but when the door is closed it is forced back, automatically dead locking the latch bolt which cannot be forced back as long as the door is closed. It does not prevent key or knobs from operating the latch bolt.

Stops—Consist of two buttons in the lock front. Used to make the outside knob operative or inoperative by pushing in one or the other of the two stops, thus locking or unlocking the door.

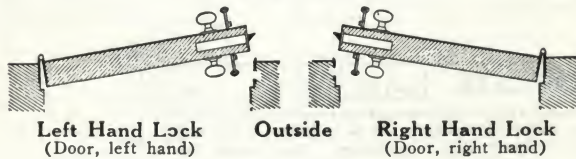
Auxiliary Latch →

Anti-friction Latch →



HAND OF LOCKS

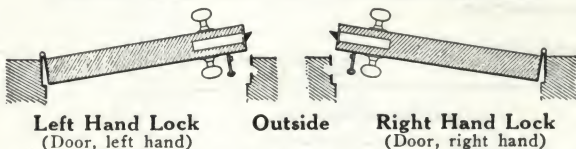
Mortise Locks



Left Hand Lock
(Door, left hand)

Outside

Right Hand Lock
(Door, right hand)



Left Hand Lock
(Door, left hand)

Outside

Right Hand Lock
(Door, right hand)



Left Hand Reverse
Bevel Lock
If operated by key from
outside only
(Door, right hand)

Outside

Right Hand Reverse
Bevel Lock
If operated by key from
outside only
(Door, left hand)



Right Hand Lock
If key functions are the
same from both sides; otherwise
left hand reverse bevel lock
(Door, right hand)

Outside

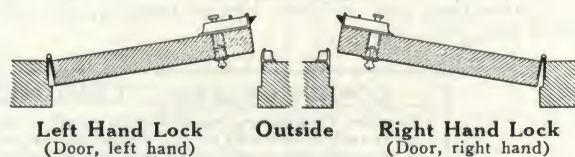
Left Hand Lock
If key functions are the
same from both sides; otherwise
right hand reverse bevel lock
(Door, left hand)

Bevel of Door



The standard bevel of the fronts of mortise locks, which are not reversible, is $\frac{1}{8}$ in. in 2 in., to conform to the bevel of the edge of the door

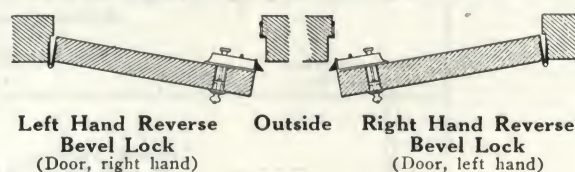
Rim Locks



Left Hand Lock
(Door, left hand)

Outside

Right Hand Lock
(Door, right hand)

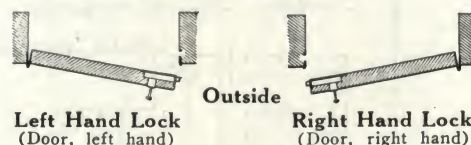


Left Hand Reverse
Bevel Lock
(Door, right hand)

Outside

Right Hand Reverse
Bevel Lock
(Door, left hand)

Bookcase or Cupboard Locks



Left Hand Lock
(Door, left hand)

Outside

Right Hand Lock
(Door, right hand)

Casement Window Locks



Left Hand

Right Hand

Left Hand

Right Hand

Left Hand

Right Hand

Left Hand

Right Hand

THE CORBIN PIN TUMBLER CYLINDER LOCKS AND MASTER KEYING SYSTEM

It is a well-known fact that with the advent of the cylinder lock a general and inexpensive means of security was produced which it had not previously been possible to secure.

Corbin has not only been one of the pioneers in the development of the cylinder lock but has perfected a cylinder lock which allows the use and variation of a master keying system previously considered impossible.

Two types of cylinders are made, the standard type cylinder and the large master cylinder. The difference between the two types is that the standard cylinder has the standard size single plug in which the key and pins fit while the large master cylinder has an additional heavy ring surrounding the plug. The extra ring doubles the number of changes and master keying facilities of the cylinder. This permits the adequate master keying of large office buildings, hotels, hospitals, institutions, etc., without duplicating the keying system on one or more floors. The standard cylinder affords the same master keying possibilities as all others of the same class, but we recommend the use of the large cylinder where an extensive master keying system is required. In both types of Corbin cylinders the key-way extends through the entire length of the plug which is cut from a solid bar. The highest degree of accuracy in the fitting of the key is necessary.

The spring pressed pins bolt the plug to the shells and the variation in the length of the pins makes the great number of key changes possible. The first two pins are balanced directly on balls, a Corbin invention. When the key is inserted, the balls roll in

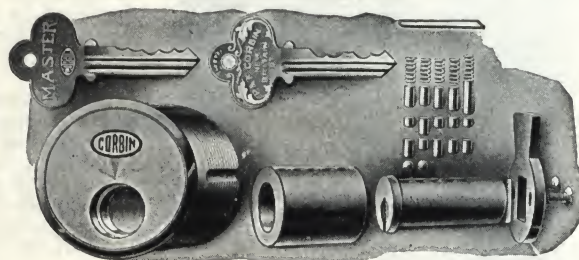
their place, and impart a directly upward movement to the pins. Practically no resistance is offered to the entrance of the key and the amount of wear is greatly reduced.

Essential Features of a Master Keying System

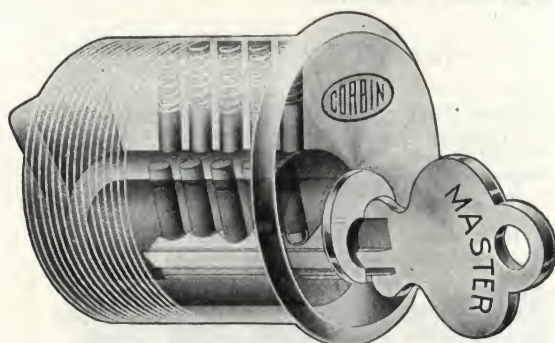
The use of a master keying system has become general wherever there are many doors through which it is desired to limit passage to groups or individuals. In a hotel, for instance, each room will have a guest key which is different from all others in the building; each floor will have a different master key for its chamber maid; each wing or group of floors under a housekeeper will have a grand master key different from the others; and the office will have a great grand master key or emergency key which will open all doors. In hospitals, office buildings, apartments, etc., a similar system, or one even more elaborate, may be installed.

The use of the Corbin Master Keyed Cylinder provides an absolute certainty that the number of changes required will always be satisfactorily supplied. It is essential however that all future expansion be considered when a schedule for such a system is being prepared. There have been instances in the past where no expansion was considered and the

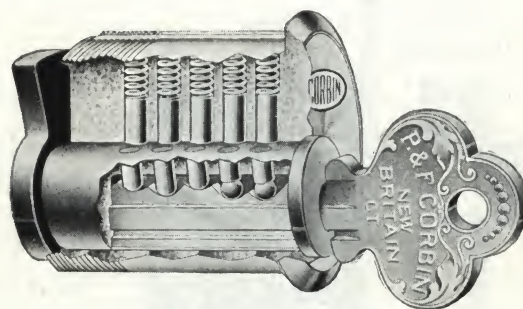
schedule originally installed would not permit the required increase of key changes. In such cases the entire system has to be changed to provide for the increase. This entails an expense that could have been avoided had the Corbin representative been advised of the possible expansion.



Parts of Corbin Master Cylinder



253 1/2 Master Cylinder



253 Standard Cylinder

Function of the Various Keys in the Corbin Master Keying System

Great Grand Master Key opens any door in the entire system. Each *Grand Master Key* opens any door in its division, and no other.

Each of the *Master Keys* opens any door in its own floor or group of buildings, and no other.

The *Service Keys* may be either (a) single or (b) sets of identical keys, as desired.

Special Keys (where individual service alone is desired) are not master keyed. These and the *Service Keys* will open no door other than the one for which they are individually designed.

Locks on desks, cabinets, etc., can be fitted to the *Service Key* of the corresponding house, department, etc.

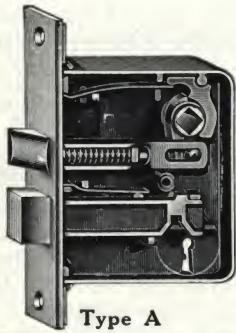


CORBIN CYLINDER LOCKS—MASTER KEYING SYSTEM

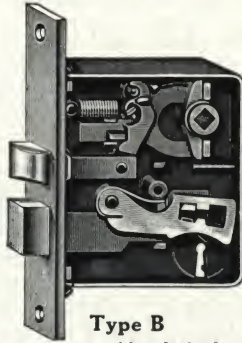
Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 32

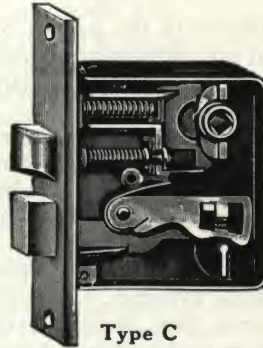
TYPES OF CORBIN BITTED KEY LOCKS

**Type A**

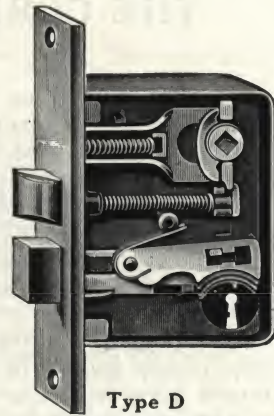
A lock for inside doors, ensuring privacy and a proper degree of security for general use

**Type B**

A one-tumbler lock for inside doors. Secure, with easy-latch and firm knob spring action. Also made 3-tumbler and master-keyed

**Type C**

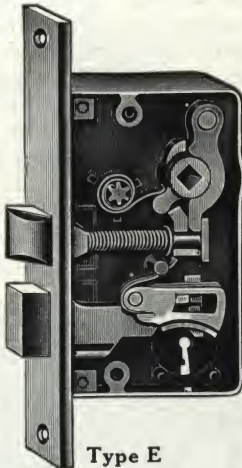
A 3-tumbler lock with light, resilient spring on the latch bolt and a stronger spring on the knob action

**Type D**

A heavy, master-keyed, 3-tumbler lock, with long, lively easy spring on the latch bolt and a quick, snappy knob action

Corbin locks of this type have 3 methods of changing the key combination; (1) projections on the side of the keyhole and corresponding cuts or channels in the bit of the key to enable it to enter the lock; (2) projections placed on the inside of the case, and cuts in the end of the bit of the key to enable it to pass; (3) the use of lever tumblers which must be lifted by the key before it can move the bolt, and which the key must raise to exactly the right point. All of these 3 factors can be changed in location and form, making a like change in the key necessary. The number of possible variations depends largely on the kind of lock, and the number of tumblers, and is increased in many locks by employing end wards, side wards and lever tumblers in combination in the same lock. Corbin bitted-key locks can be obtained with the maximum number of key changes possible with this type of mechanism and with functions suited to the doors they are required to secure.

All parts of the mechanism are finely pro-

**Type E**

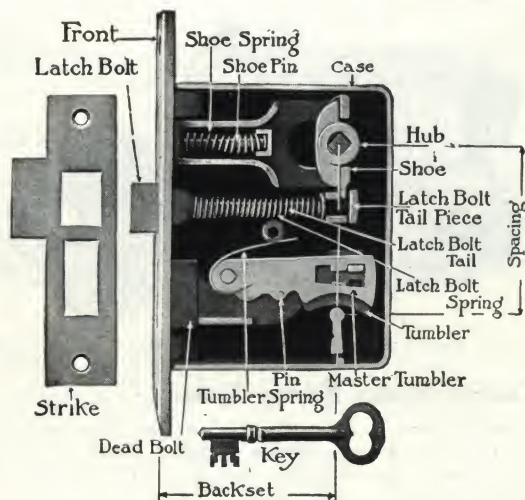
A lock for use with lever handles, having a strong French spring on the hub to insure a quick return of the handle to horizontal position

portioned and accurately adjusted. The tumblers, in addition to limiting the use of the key, lock the dead bolt firmly in either the thrown or retracted position.

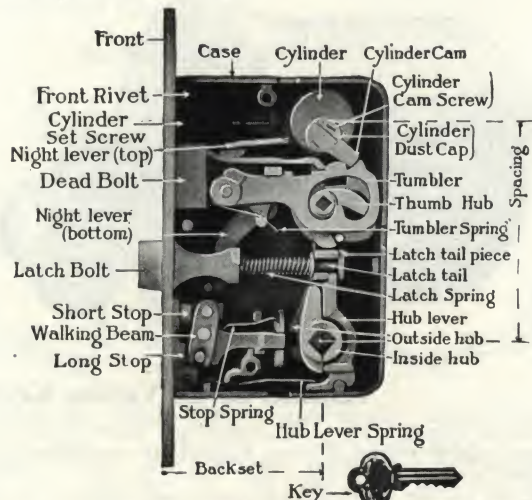
The roll-backs actuated by the knob have abundant leverage and retract the latch bolt easily, the strong spring giving a quick and positive return when the knob is released. The latch bolt has a lighter resilient spring, and the impact of the latch bolt with the strike causes a minimum of resistance to the closing of the door. Every detail has been carefully developed in order that the user of a Corbin lock may have security, proper service and absence from trouble as long as the lock is in use.

The illustrations show the varying forms of the principal elements in locks of this type. Various functions are added by changing the mechanism, to adapt the locks to the manifold demands of the complex existence of today, and Corbin locks can be supplied that will answer perfectly and conveniently any requirement of the most exacting conditions.

TYPICAL PARTS OF CORBIN LOCKS

**Type D Lock**

Names of the various parts are indicated and the terms "spacing" and "backset" graphically defined

**Cylinder Front Door Lock**

CORBIN UNIT LOCKS

Rigid, One-Piece, Factory Assembled Units

The Unit lock set is assembled at the factory in one piece, with knobs and escutcheons attached; it is shipped as a unit and is applied to the door as a unit. The fine and accurate adjustments of the skilled lockmakers are never disturbed.

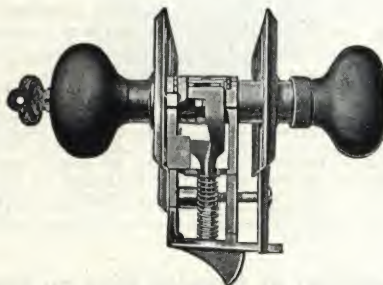
Unit locks are made in a large variety of functions to suit all purposes, with knobs and escutcheons in the Corbin designs and in any of the Corbin finishes. They cover all

the requirements of high-grade door locks. The form and the fact that the adjustments are undisturbed make it possible to introduce features which could not otherwise be adopted. The result is a superior type of mechanism, a smoothness of action, a freedom from trouble, and a degree of security which place the Corbin Unit locks in a separate and distinct class which has never been equaled. Among their distinguishing characteristics are the following:

Construction Details and Installation

The Mechanism—Is exceedingly simple. The accompanying illustration of a typical lock interior shows how few the parts are and their direct action. A frame, a latch bolt with tail piece, a spring, two rollbacks, a spindle, and a cylinder in the outer knob—these with the knobs and escutcheons make a No. 2467 lock for inside doors. Other types have additional parts to perform additional functions, but the same general form and simplicity is maintained in all.

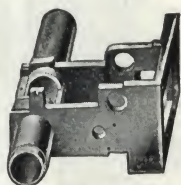
The Heavy One-Piece Cast Bronze Frame—Holds all parts firmly in place. The moving parts are all attached to the frame, instead of being laid into a case, and are accurately machined to operate without loss of motion. The depth of the chamber in the frame permits all parts to be so arranged as to give a direct action with an easy spring and a positive smoothness which is found elsewhere only in high-grade safe locks.



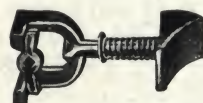
Interior of Unit Lock

The Heavy Cast Bronze Escutcheons—Make the door stronger at this point than at any other.

The Strike—Is a heavy bronze casting, with a protecting flange against which the inner edge of the lock rests. The box or recess made to receive the latch bolt is accurately spaced and fits it snugly, holding the door closely against the stop. The strike is of the protected type, making it impossible to force back the latch bolt from the outside when the door is closed.



Heavy Cast Frame



Swinging Latch Bolt

The Long, Swinging Latch Bolt—Offers little frictional resistance to the strike, and protrudes far enough to engage the strike in the event of the door shrinking.

The Coiled Spring gives a quick, snappy action with a slight turn to the knob.

The Outer Knob—Contains a Corbin ball-bearing cylinder—the highest development in key mechanism. It can be supplied with or without master key and in any number of changes desired. Both knobs have close adjustment and cannot work loose or rattle.



Outer Knob



Inner Knob

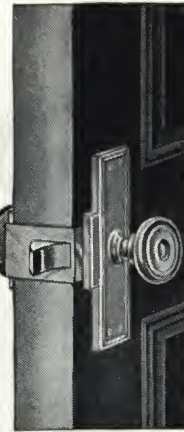
The Inner Knob—Carries a locking ring, which, when turned, makes the outer knob rigid. In other types the locking is accomplished in various ways, all simple and positive in action.

The Unit Lock is Adjustable—For variations in thickness of doors.



Door Prepared for Unit Lock Set

With cut made in the edge to contain the lock case



Unit Lock Set Applied to Door

Entire rigid unit held firmly in place by means of the escutcheon screws

Installing

The method of attaching is one of the most evident of the advantages obtained through the form of the Unit lock. There is no mortise made in the door, but a piece is cut out of the edge of the door of the exact size of the lock case. This is accomplished in a very few minutes with an ordinary saw and chisel, and does not require special skill. An ordinary workman can attach a Unit lock to the finest veneered door without danger of injuring the surface. After the cut is made, the lock set is slipped into place just as it comes from the box without detaching the knobs and escutcheons, or changing any of the adjustments. The adjusting screw is then tightened, bringing the escutcheons in close contact with the sides of the door, and the escutcheons are screwed to the door. The lock is always true and straight with the door, and presents a finished appearance. The knobs are also in proper relation to the lock as the bearings into which the knob shanks fit are a part of the heavy cast bronze frame, and project through the sides of the door, to the knobs, the shanks having but four one-thousandths of an inch of play.



CORBIN UNIT LOCK CONSTRUCTION

PLATE 34

FOR OFFICE DOORS

Illustrations
one-fifth size

The locks for this service are divided into groups according to the method of controlling the outside knob. They are furnished with reverse bevel for doors opening out when so ordered. Not reversible, state hand and thick-

ness of door. Furnished in complete locksets with knobs and escutcheons in various designs. Catalogue numbers for America Design only shown below.
Master Keying—In sets as desired with other Corbin master-keyed cylinder locks.

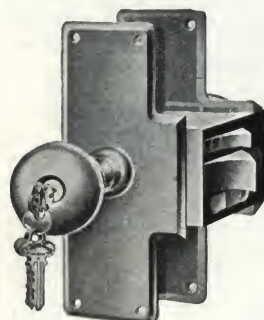
Outside Knob Controlled by Stops in Face of Lock

No. 02464—Latch bolt is operated by knob from either side and by key from outside at all times. Has auxiliary latch which prevents forcing the bolt when door is closed but does not prevent key or knobs from operating latch bolt.

No. 02464 $\frac{1}{4}$ —Same as 02464 but with thumb knob on the inside which locks against the key.

No. 2464—Similar to 02464 but without auxiliary latch.

No. 2464 $\frac{1}{4}$ —Same as 02464 $\frac{1}{4}$ but without auxiliary latch.



02464
America No. 740-560



2464
America No. 740-616

Lock No.	Furnished in Lockset Number				Two escutcheons, size, in.	
	America design		Columbia Design			
	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
02464	740-564	740-560	742-564	742-560	4 $\frac{3}{8}$ x 4	8 x 2 $\frac{1}{2}$
02464 $\frac{1}{4}$	740-570	740-566	742-570	742-566	4 $\frac{3}{8}$ x 4	8 x 2 $\frac{1}{2}$
2464	740-616	740-612	742-616	742-612	3 $\frac{3}{4}$ x 4	8 x 2 $\frac{1}{2}$
2464 $\frac{1}{4}$	740-622	740-618	742-622	742-618	3 $\frac{3}{4}$ x 4	8 x 2 $\frac{1}{2}$

Knobs 2 $\frac{1}{4}$ in. in diameter.

Outside Knob Controlled by Knurled Ring on Inside Knob Shank

No. 02467—Latch bolt is operated by knob from either side and by key from outside at all times. Has auxiliary latch which prevents forcing the bolt when door is closed but does not prevent key or knobs from operating latch bolt. When so ordered, furnished without knurled ring, the outside knob being always rigid.

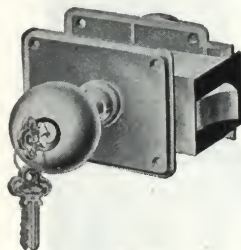
No. 02467 $\frac{1}{4}$ —Same as 02467 but with thumb knob to lock against key.

No. 2467—Same as 02467 but without auxiliary latch.

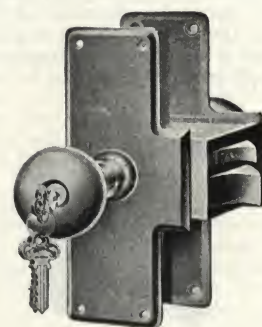
No. 2467 $\frac{1}{4}$ —Same as 2467 but with thumb knob inside to lock against the key.

No. 2466—Same as 2467 but with 2 $\frac{3}{4}$ -in. backset.

No. 2466 $\frac{1}{4}$ —Same as 2467 $\frac{1}{4}$ but with 2 $\frac{3}{4}$ -in. backset.



2467
America No. 740-588



02467
America No. 740-600

Lock No.	Furnished in Lockset Number				Two escutcheons, size, in.	
	America design		Columbia Design			
	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
02467	740-604	740-600	742-604	742-600	3¾ x 4	8 x 2½
02467 ¼	740-610	740-606	742-610	742-606	3¾ x 4	8 x 2½
2467	740-588	740-584	742-588	742-584	3¾ x 4	8 x 2½
2467 ¼	740-594	740-590	742-594	742-590	3¾ x 4	8 x 2½
2466	740-576	740-572	742-576	742-572	3¾ x 4	8 x 2½
2466 ¼	740-582	740-578	742-582	742-578	3¾ x 4	8 x 2½

Knobs 2 $\frac{1}{4}$ in. in diameter.

Outside Knob Controlled by Master Key Only from Inside

No. 02462—Operation and auxiliary latch are the same as previous group. Stop work is not disturbed by operation of key on the outside.

When so desired, furnished with key to operate latch bolt from both sides, both knobs always rigid.



02462
America No. 740-862

Lock No.	Furnished in Lockset No.		Two escutcheons, size, in.	
	Horizontal	Vertical	Horizontal	Vertical
	America Design			
02462	740-864	740-860	3¾ x 4	10 x 3
02462	.....	740-862	.....	8 x 2½
Columbia Design				
02462	742-864	742-860	3¾ x 4	10 x 3
02462	.....	742-862	.....	8 x 2½

GENERAL CONSTRUCTION

Case Size: Nos. 02464 and 02464 $\frac{1}{4}$, 2 $\frac{5}{8}$ x 3 $\frac{3}{4}$ x 1 $\frac{1}{8}$ in.; Nos. 2464, 2464 $\frac{1}{4}$, 02467, 02467 $\frac{1}{4}$, 2467, 2467 $\frac{1}{4}$ and 02462, 2x3 $\frac{3}{4}$ x 1 $\frac{1}{8}$ in.; Nos. 2466 and 2466 $\frac{1}{4}$, 2x3 $\frac{1}{2}$ x 1 $\frac{1}{8}$ in.

Front, Bolt, Strike: Cast bronze, polished. Frame: Cast bronze. Front: Beveled. Reverse bevel for doors opening out, furnished when so ordered.

Keys: Nickel silver, class 27.

Backset: 3 in. except Nos. 2466 and 2466 $\frac{1}{4}$, 2 $\frac{3}{4}$ in.

Reversible: No, state hand and thickness of door.

Latch Construction: Easy spring.

Master Keying: Unlimited.

Illustrations
one-fifth size

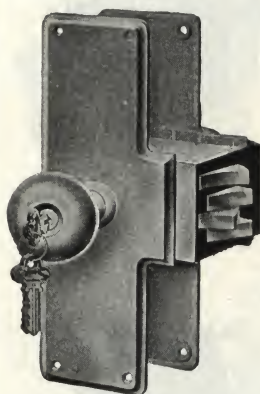
FOR ENTRANCE DOORS TO PUBLIC BUILDINGS AND OFFICES

Anti-friction Latch Bolt with $\frac{3}{4}$ -in. Throw for Fire Doors

Approved by New York Board of Fire Underwriters.

These locks are not reversible, state hand and thickness of door. Furnished with reverse bevel for doors opening out when so ordered. The operation differs in the method of locking the outside knob. They are furnished in complete locksets with knobs and escutcheons in the America design only.

Master Keying—In sets as desired with other Corbin master-keyed cylinder locks.



02267

America No. 740-828

No. 02262—Latch bolt is operated by knob from either side and by key from outside at all times. Outside knob is locked by master key only from the inside, retracting bolt by key from outside does not release knob. Has auxiliary latch which prevents forcing the bolt

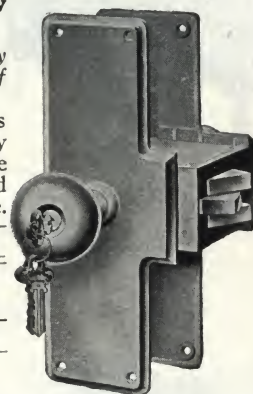


Easy Spring Latch Bolt with Standard Throw and Dead Bolt

Not approved by New York Board of Fire Underwriters.

No. 2472—Has latch bolt operated by knob from either side and dead bolt operated by key from either side.

Master Keying—America No. 740-676 Same as previous group.



2267

America No. 740-784

Lock No.	Furnished in Lockset Number				Two escutcheons, size, in.	
	America design		Columbia design			
	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
02262		*740-542				10 x 3
02267		*740-828				10 x 3
2267½		*740-696				10 x 3
2267		*740-784				10 x 3
2472	740-676	740-674	742-676	742-674	3¾ x 4	8 x 2½
2472		740-672		742-672		10 x 3

Knobs $2\frac{1}{4}$ in. in diameter.

*Knobs $2\frac{1}{2}$ x $2\frac{1}{4}$ in. in diameter.

FOR ENTRANCE DOORS TO RESIDENCES, APARTMENTS, ETC.

No. 2445—Has easy spring latch bolt, stops in face and dead bolt. Latch bolt is operated by knob from either side, both bolts operated by key from outside at all times. Outside knob locked by stop in face. Dead bolt locked from inside by thumb knob.

FOR HOTEL CORRIDOR DOORS

No. 02436 1/4—Has button indicator, stop in face and auxiliary latch with standard functions.

Operated by knob from either side and by guests', maids', housekeepers' and emergency key from outside.

Thumb knob on inside deadlocks against all keys except emergency, and at same time thrusts forward button indicator on outside escutcheon. Thumb knob inoperative unless door is closed.

When locked by thumb knob inside, exit may be had by merely turning the inside knob, which automatically releases all locking mechanism except stop work.

Emergency key operates lock at all times.

FOR COMMUNICATING DOORS

No. 2455—Latch bolt operated by knob from either side. Thumb knob on the inside deadlocks latch bolt. This lock is reversible except when escutcheons are of a design which cannot be inverted.

No. 2455 1/4—Same as 2455 except that it has a thumb knob on each side. Each knob locks against the opposite side deadlocking the latch bolt.

UNIT LATCHES

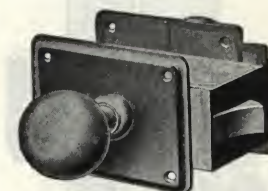
No. 2488 1/2—A latch without keys. Latch bolt can be operated by knob from either side at all times.

This latch is reversible except when escutcheons are of a design which cannot be inverted. Furnished in complete locksets with knobs and escutcheons in various designs. Catalogue numbers for America Design only shown below.



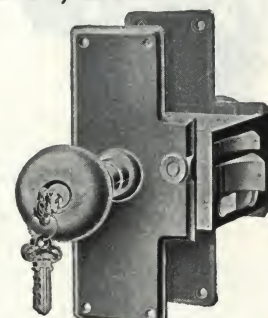
2445

America No. 740-872 1/2



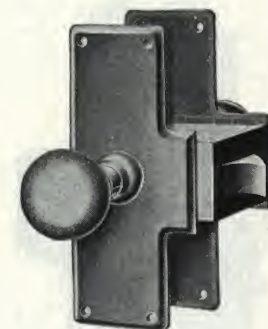
2488 1/2

America No. 740-098



02436 1/4

America No. 740-866



2455

America No. 740-472

Lock No.	Furnished in Lockset Number				Two escutcheons, size, in.	
	America design		Columbia design			
	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
2445	740-876½	740-872½	742-876½	742-872½	4¾ x 4	10 x 3
02436¼		740-866				8 x 2½
2455	740-476	740-472	742-476	742-472	3¾ x 4	8 x 2½
2455¼	740-482	740-478	742-482	742-478	3¾ x 4	8 x 2½
2488½	740-098	740-094	742-098	742-094	3¾ x 4	8 x 2½

Knobs $2\frac{1}{4}$ in. in diameter.

GENERAL CONSTRUCTION

Case Size: Nos. 02262 and 02267, $2\frac{5}{8}$ x $4\frac{1}{2}$ in.; Nos. 2267 and 2267 1/2, $2\frac{5}{8}$ x $4\frac{1}{2}$ in.; No. 2472, $2\frac{3}{4}$ x $1\frac{1}{2}$ in.; Nos. 2455 and 02436 1/4, $2\frac{5}{8}$ x $3\frac{3}{4}$ x $1\frac{1}{2}$ in.; Nos. 2455, 2455 1/4 and 2488 1/2, $2\frac{3}{4}$ x $1\frac{1}{2}$ in.

Front, Bolt, Strike: Cast bronze, polished. Frame: Cast bronze. Front: Beveled. Reverse bevel for doors opening out, furnished when so desired.

Keys: Nickel silver, class 27. Nos. 2455, 2455 1/4 and 2488 1/2 have none.

Backset: 3 in. except Nos. 2455, 2455 1/4 and 2488 1/2, $2\frac{3}{4}$ in.

Reversible: No, except Nos. 2455, 2455 1/4 and 2488 1/2.

Latch Construction: Nos. 02262, 02267, 2267 and 2267 1/2, anti-friction.

Master Keying: Nos. 2455, 2455 1/4 and 2488 1/2, none. Remainder, unlimited.



CORBIN UNIT LOCKS

Prefix Letters for Finish. Description of Finishes, Plate 3
For Other Designs and Complete Details, see Corbin General Catalogue

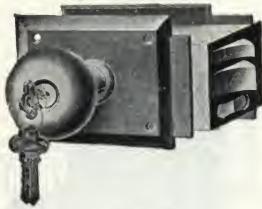
PLATE 36

UNIT LOCKSETS IN SPECIAL DESIGNS

VERTICAL AND HORIZONTAL TYPE LOCKSETS

For Door Stiles Not Narrower Than 5 in.
Knobs $2\frac{1}{4}$ in. in Diameter

*Illustrations
one-fifth size*



742-564
Columbia

Door	Horizontal Type				Vertical Type			
	Set No.	Price, set	Lock No.	Escut., in.	Set No.	Price, set	Lock No.	Escut., in.
COLUMBIA DESIGN								
Office . . .	742-564	\$31.32	02464	$4\frac{3}{8} \times 4$	742-560	\$34.10	02464	8 x $2\frac{1}{2}$
Office . . .	742-570	32.82	02464 $\frac{1}{4}$	$4\frac{3}{8} \times 4$	742-566	35.50	02464 $\frac{1}{4}$	8 x $2\frac{1}{2}$
Office . . .	742-616	28.67	2464	$3\frac{3}{4} \times 4$	742-612	31.32	2464	8 x $2\frac{1}{2}$
Office . . .	742-622	30.17	2464 $\frac{1}{4}$	$3\frac{3}{4} \times 4$	742-618	32.82	2464 $\frac{1}{4}$	8 x $2\frac{1}{2}$
Front . . .	742-876 $\frac{1}{2}$	32.67	2445	$4\frac{3}{8} \times 4$	742-872 $\frac{1}{2}$	38.00	2445	10 x 3

CAMDEN DESIGN								
Office . . .	780-564	36.00	02464	$4\frac{3}{8} \times 4\frac{3}{8}$	780-560	38.65	02464	8 x $2\frac{3}{4}$
Office . . .	780-570	37.50	02464 $\frac{1}{4}$	$4\frac{3}{8} \times 4\frac{3}{8}$	780-566	40.15	02464 $\frac{1}{4}$	8 x $2\frac{3}{4}$
Office . . .	780-616	33.35	2464	$3\frac{3}{4} \times 4\frac{3}{8}$	780-612	36.00	2464	8 x $2\frac{3}{4}$
Office . . .	780-622	34.85	2464 $\frac{1}{4}$	$3\frac{3}{4} \times 4\frac{3}{8}$	780-618	37.50	2464 $\frac{1}{4}$	8 x $2\frac{3}{4}$
Front . . .	780-876 $\frac{1}{2}$	34.65	2445	$4\frac{3}{8} \times 4\frac{3}{8}$	780-872 $\frac{1}{2}$	37.35	2445	9 x 3

CORFU DESIGN								
Office . . .	823-564	39.35	02464	4 x $4\frac{3}{8}$	823-560	42.00	02464	8 x $2\frac{3}{4}$
Office . . .	823-570	40.85	02464 $\frac{1}{4}$	4 x $4\frac{3}{8}$	823-566	43.50	02464 $\frac{1}{4}$	8 x $2\frac{3}{4}$
Office . . .	823-616	36.65	2464	$3\frac{1}{2} \times 4\frac{3}{8}$	823-612	39.35	2464	8 x $2\frac{3}{4}$
Office . . .	823-622	38.15	2464 $\frac{1}{4}$	$3\frac{1}{2} \times 4\frac{3}{8}$	823-618	40.85	2464 $\frac{1}{4}$	8 x $2\frac{3}{4}$
Front . . .	823-876 $\frac{1}{2}$	38.00	2445	4 x $4\frac{3}{8}$	823-872 $\frac{1}{2}$	40.65	2445	10 x 3

ARCO DESIGN								
Office . . .	974-564	36.00	02464	$4\frac{1}{2} \times 4\frac{3}{8}$	974-560	38.65	02464	$9\frac{1}{2} \times 2\frac{3}{4}$
Office . . .	974-570	37.50	02464 $\frac{1}{4}$	$4\frac{1}{2} \times 4\frac{3}{8}$	974-566	40.15	02464 $\frac{1}{4}$	$9\frac{1}{2} \times 2\frac{3}{4}$
Office . . .	974-616	33.35	2464	4 x $4\frac{3}{8}$	974-612	36.00	2464	$9\frac{1}{2} \times 2\frac{3}{4}$
Office . . .	974-622	34.85	2464 $\frac{1}{4}$	4 x $4\frac{3}{8}$	974-618	37.50	2464 $\frac{1}{4}$	$9\frac{1}{2} \times 2\frac{3}{4}$
Front . . .	974-876 $\frac{1}{2}$	34.65	2445	$4\frac{1}{2} \times 4\frac{3}{8}$	974-872 $\frac{1}{2}$	37.35	2445	$11\frac{1}{2} \times 3$

GOTHAM DESIGN								
Office . . .	745-564	36.00	02464	4 x 4	745-560	38.65	02464	9 x $2\frac{1}{2}$
Office . . .	745-570	37.50	02464 $\frac{1}{4}$	4 x 4	745-566	40.14	02464 $\frac{1}{4}$	9 x $2\frac{1}{2}$
Office . . .	745-616	33.34	2464	4 x 4	745-612	36.00	2464	9 x $2\frac{1}{2}$
Office . . .	745-622	34.85	2464 $\frac{1}{4}$	4 x 4	745-618	37.50	2464 $\frac{1}{4}$	9 x $2\frac{1}{2}$
Front . . .	745-876 $\frac{1}{2}$	34.65	2445	4 x 4	745-872 $\frac{1}{2}$	37.34	2445	9 x $2\frac{1}{2}$

GARGAN DESIGN								
Office . . .	746-564	37.00	02464	4 x 4	746-560	39.65	02464	10 x $2\frac{3}{4}$
Office . . .	746-570	38.50	02464 $\frac{1}{4}$	4 x 4	746-566	41.15	02464 $\frac{1}{4}$	10 x $2\frac{3}{4}$
Office . . .	746-616	34.35	2464	4 x 4	746-612	37.00	2464	10 x $2\frac{3}{4}$
Office . . .	746-622	35.85	2464 $\frac{1}{4}$	4 x 4	746-618	38.50	2464 $\frac{1}{4}$	10 x $2\frac{3}{4}$
Front . . .	746-876 $\frac{1}{2}$	35.65	2445	4 x 4	746-872 $\frac{1}{2}$	38.35	2445	10 x $2\frac{3}{4}$

VERTICAL TYPE LOCKSETS

For Door Stiles Not Narrower Than 5 in.
Knobs $2\frac{1}{4}$ in. in Diameter

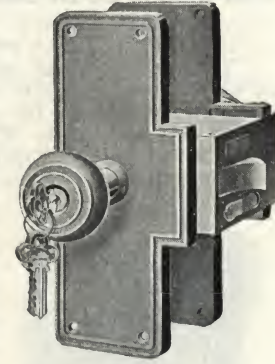
Door								
	Set No.	Price, set	Lock No.	Escut., in.	Set No.	Price, set	Lock No.	Escut., in.
MEANDER DESIGN								
Office . . .	811-560	\$42.65	02464	10 x $3\frac{1}{2}$	815-560	\$38.65	02464	$8\frac{1}{2} \times 2\frac{3}{4}$
Office . . .	811-566	44.15	02464 $\frac{1}{4}$	10 x $3\frac{1}{2}$	815-566	40.15	02464 $\frac{1}{4}$	$8\frac{1}{2} \times 2\frac{3}{4}$
Office . . .	811-612	40.00	2464	10 x $3\frac{1}{2}$	815-612	36.00	2464	$8\frac{1}{2} \times 2\frac{3}{4}$
Office . . .	811-618	41.50	2464 $\frac{1}{4}$	10 x $3\frac{1}{2}$	815-618	37.50	2464 $\frac{1}{4}$	$8\frac{1}{2} \times 2\frac{3}{4}$
Front . . .	811-872 $\frac{1}{2}$	41.30	2445	10 x $3\frac{1}{2}$	815-872 $\frac{1}{2}$	37.30	2445	10 x $2\frac{3}{4}$

NAVARRE DESIGN*								
Office . . .	901-560	48.00	02464	$10\frac{1}{8} \times 3$	942-560	42.65	02464	10 x $2\frac{3}{4}$
Office . . .	901-566	49.50	02464 $\frac{1}{4}$	$10\frac{1}{8} \times 3$	942-566	44.15	02464 $\frac{1}{4}$	10 x $2\frac{3}{4}$
Office . . .	901-612	45.35	2464	$10\frac{1}{8} \times 3$	942-612	40.65	2464	10 x $2\frac{3}{4}$
Office . . .	901-618	46.85	2464 $\frac{1}{4}$	$10\frac{1}{8} \times 3$	942-618	42.15	2464 $\frac{1}{4}$	10 x $2\frac{3}{4}$
Office . . .	901-872 $\frac{1}{2}$	46.65	2445	$10\frac{1}{8} \times 3$	942-874 $\frac{1}{2}$	48.00	2445	12 x 3

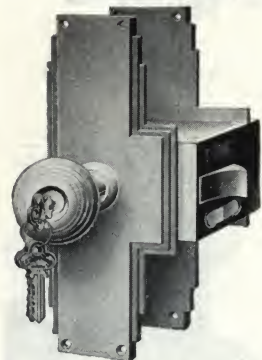
*For illustration, see Plate 11.

**For illustration, see Plate 7.

Note: All office door locks priced masterkeyed.



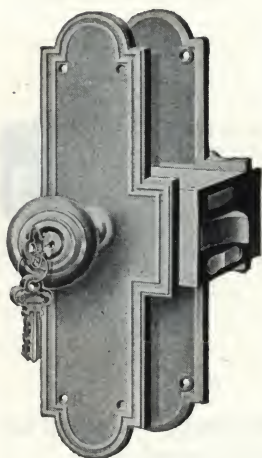
780-872 $\frac{1}{2}$
Camden



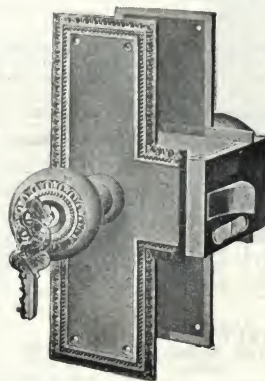
745-872 $\frac{1}{2}$
Gotham



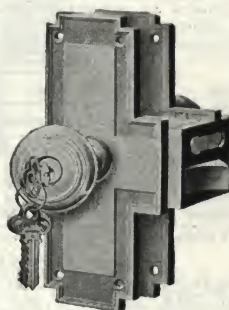
746-872 $\frac{1}{2}$
Gargan



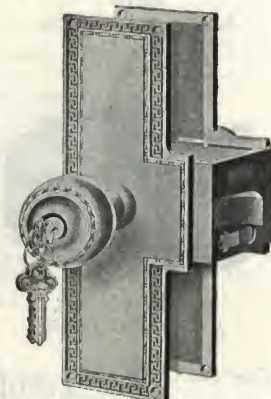
974-872 $\frac{1}{2}$
Arco



815-872 $\frac{1}{2}$
Candia



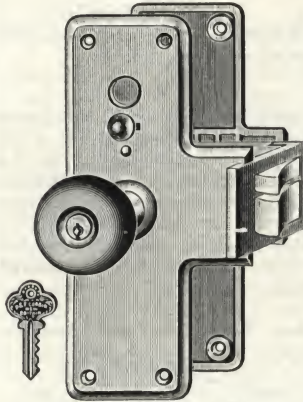
823-612
Corfu



811-872 $\frac{1}{2}$
Meander

COUPON BOOTH LOCKS, DOOR CHECKS AND HOLDERS COUPON BOOTH LOCKSETS

For Doors to Coupon Booths in Banks, etc.



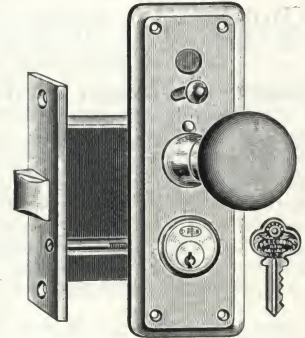
4056

No. 4056—Unit lockset, operated by knob from the inside at all times. Outside knob is always rigid. An auxiliary latch automatically locks the latch bolt so that it cannot be forced back when the door is closed, but does not prevent key or knobs from operating latch bolt. The door must be at least 1 3/8 in. thick.

The indicator in the escutcheon operates the same as that on No. 4055.

With or without master key.

No. 4055—Cylinder lockset complete with knobs and escutcheons operated by key from the outside and by knob from the inside at all times. The outside knob is always rigid. Door must be at least 1 3/8 in. thick. Lock has indicator which when set by attendant shows white when the door is opened and also while the booth is occupied. When the inside knob is turned and the booth vacated a red indicator is automatically set for the attention of the attendant.



4055

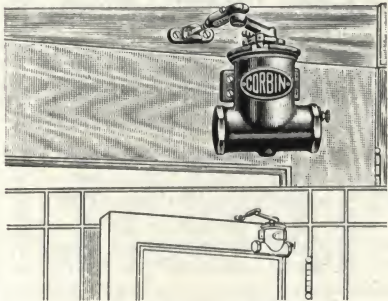
Case: No. 4056, bronze; No. 4055, japanned iron.
Front, Bolt, Knobs, Cylinder and Escutcheons: No. 4056, cast bronze; polished; No. 4055, bronze.
Keys: Nickel silver.

GENERAL CONSTRUCTION

Latch Bolt: No. 4056, swinging type; No. 4055, easy spring.
Reversible: No. Specify hand. *Knobs:* Two, 2 1/4-in. diameter.
Escutcheons: Two, bronze, with indicator one side; No. 4056, 8x2 1/2 in.; No. 4055, 7x2 1/4 in.

COUPON BOOTH DOOR CHECKS AND HOLDERS

For regular door check, see Plate 71



Door Check Applied

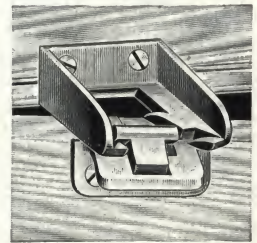
A holding device for use with ordinary door checks on coupon booth doors but is not required with the above Corbin check. Holds the door slightly ajar when set, indicating

Door Checks

Designed to hold the door partly opened, indicating that the booth is ready for use. Closes it when the occupant leaves, locking the door. The door remains locked until the attendant prepares the booth for the next occupant and sets the door ajar.

Cat. No.	Material	Finish	Door
101 3/4	Cast iron	*Columbia bronzed	Regular
102 3/4	Cast iron	*Columbia bronzed	Heavy
111 3/4	Cast iron	Polished and plated	Regular
112 3/4	Cast iron	Polished and plated	Heavy

*Can also be finished in plated finishes.



376 Door Holder

No. 376 Door Holder

the booth is unoccupied. When the door is opened a trigger drops allowing the door to be closed by the door check. After the booth is unoccupied the attendant sets the holder again.

CORBIN VAULT HANDLE LOCKS AND CATCHES

An Excellent Locking Device for Switch Boxes, Metal Lockers, Cabinets, Safes, etc.

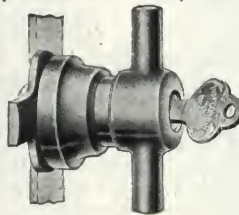
Triplelox

No. S7210 3/4—Three-point catch. Pin tumbler locking mechanism. One-eighth or one-quarter turn. Spring action on bolts. Key may be withdrawn at any time.

Top and bottom bolts or guides not supplied.

No. S7210 1/2—Same as S7210 3/4 but for one-quarter turn only. Can also be used as a catch with key withdrawn and mechanism unlocked.

No. S7210—Same as S7210 3/4 but without spring action on bolts. Key may be with-



S7210

drawn only when bolts are in locked position.

No. S7210 1/2—Same as S7210 3/4 but without spring action and without pin tumbler locking mechanism. Can also be used as one-point catch with three-point feature omitted, when so desired.

Nos. S7400 3/4, S7400, S7400 1/2—Same as Nos. S7210 3/4, S7210 and S7210 1/2 respectively, but furnished with special spindle and without cam, for applying to tongue and groove or step doors.

GENERAL CONSTRUCTION

Finish: Cast bronze, highly polished and lacquered; or in other finishes as ordered.

Handle: 2 3/4 in. width; solid bronze, cast solid with spindle.

Rose: 1 1/2-in. diameter. *Projection:* 1 1/8 in.

Special Lock Nuts: For fastening top and bottom bolts and cam to handle, can be furnished.

Cam: 1 1/8 in. from center to end of cam (1 3/4 in. if so ordered).

Extension Spindle: (Nos. S7400 3/4, S7400, S7400 1/2) 1 3/8 in. from base of rose to end of spindle.

Reversible: By inverting the cam.

One Point Catches

Nos. S7407 3/4, S7407, S7407 1/2—Same handle and finishes as Nos. S7210 3/4, S7210 and S7210 1/2, but with one-point, self latching catch.

GENERAL CONSTRUCTION

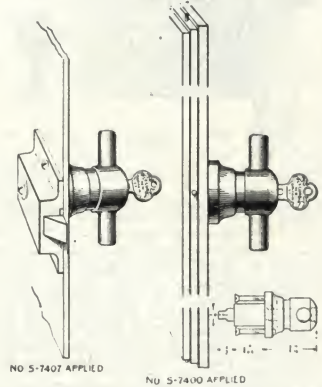
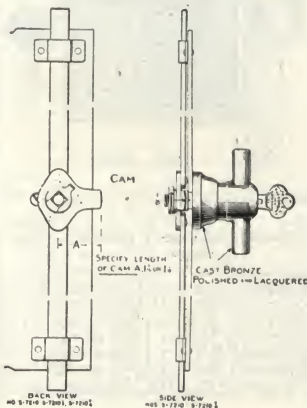
Finish: Cast bronze, highly polished and lacquered; or in other finishes as ordered.

Handle: 2 3/4 in. width; solid bronze, cast solid with spindle.

Rose: 1 1/2-in. diameter. *Projection:* 1 1/8 in.

Case: Cast iron, japanned. 2 1/4 x 1 1/4 x 3/4 in. *Bolt:* Cast iron.

Backset: 1 3/8 in. *Reversible:* By inverting the catch.



COUPON BOOTH HARDWARE—VAULT HANDLE LOCKS

Prefix Letters for Finish, Description of Finishes, Plate 3

PLATE 38

LOCKS FOR PUBLIC BUILDINGS

CHURCHES HOSPITALS STORES LIBRARIES CLUBS FACTORIES
 FRATERNAL MUSEUMS WAREHOUSES BANKS GOVERNMENTAL INSTITUTIONS
 For Office Buildings, Hotels, Apartment Houses, Schools and Residences, see special classification

Selection of Proper Hardware for Public Buildings

A long experience gained in supplying buildings of these types enables us to offer expert advice in regard to the hardware best suited for each service. We are glad to place this experience at the service of the architect without obligation. A hardware expert from one of our branch offices or agencies will be glad to advise in regard to hardware for any of this group of buildings. We suggest, whether our hardware is finally selected or not, that we be consulted before the architect starts to write the hardware specification.

Quality and Finishes

On account of the general hard usage to which hardware is subjected in public buildings, it is necessary to select hardware which will prove satisfactory after many years of use. The design and finish must be attractive as it is seen by many critical people. The finish selected must be one that will wear well and give years of service. The question of design is of course best settled by the architect but for the proper finish which will last we should be consulted before the final selection is made.

INDEX TO LOCKS FOR PUBLIC AND OFFICE BUILDINGS

Arranged in groups according to quality. Group 1 is the highest grade. For catalogue numbers of unit locks in America Design Locksets see plates 35 and 36

Where used	Unit locks				Standard locks								Where used	Unit locks				Standard locks							
	Group 1		Group 2		Group 3		Group 4		Group 5		Group 1			Group 2		Group 3		Group 4		Group 5					
	Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.		Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.				
Entrance doors	2472	36	2472	36	0189	40	0288	40	0288	40	Communicating doors.	2455	36	2455	36	159½	55	159½	55	159	55				
	02262†	36			0288	40	1347	40	1347	40		2455½	36	2455½	36										
					1347	40	1347½	40	1347½	40		2472	36	2472	36	049	58	049	58	045	58				
					1347½	40						2488½	36	2488½	36	570¼	39	570¼	39	049	58				
					2347	40														570¼	39				
	See Exit	Fixtures.			2347½	40																			
Vestibule and corridor doors	2267†	36	2464	35	567†	40	566	40	563	40	Lavatory doors	2464	35	2464	35	567	40	567	40	563	40				
	02267†	36	02464*	35	0567†	40	567	40	0563*	40		02464*	35	02464*	35	0567*	40	0567*	40	0563*	40				
			2467	35	572	39	0567*	40	564	40		2467	35	2467	35										
			02467*	35	572½	39	0568	39	570	39		02467*	35	02467*	35										
							570	39	1323	41															
				580	39	1338	41			Stairwell doors	2267½†	36	02462	36	90¼	58	049	58	049	58					
				581	39	1339	41								567½†	41	567	40	563	40					
						01339	41								0567½†	41	0567*	40	0563*	40					
Individual office doors	2464	35	2464	35	567	40	567	40	563	40	Janitor's closet doors	2472	36	2472	36	570¼	39	570¼	39	570¼	39				
	02464*	35	02464*	35	0567*	40	0567*	40	0563*	40															
	2467	35	2467	35								2488½	36	2488½	36	049	58	049	58	045	58				
	02467*	35	02467*	35												90¼†	58			049	58				
Private office doors	2464	35	2464	35	567	40	567	40	563	40	Pipe chases, wire shaft doors, etc.	132½**	61	132½**	61	132½**	61	132½**	61	132½**	61				
	02464*	35	02464*	35	567½	40	567½	40	0563*	40		137	60	137	60	137	60	137	60	137	60				
	2467	35	2467	35	0567*	40	0567*	40	563½	40		138	60	138	60	138	60	138	60	138	60				
	02467*	35	02467*	35	0567½	40	0567½	40	0563½	40		2267†	36	2267†	36	56½†	41	567½†	41	567½†	41				
					1339½	41	1323½	41				2267½†	36	2267½†	36	0567½†	41	0567½†	41	0567½†	41				

*With auxiliary latches, especially suited for doors opening out.

**Bitted key locks, cannot be master keyed with other locks in the group.

†Latch bolts have ¾-in. throw, approved by New York Board of Fire Underwriters.

CYLINDER KNOB LOCKS FOR ENTRANCE DOORS

If handle and thumbpiece are to be used, see locks in group following this

No. 572—Has anti-friction latch bolt operated by knob from either side at all times. The latch bolt and dead bolt are operated by continuous turn of key from either side. Has master cylinders both sides.

No. 572½—Same as 572 except that it has cylinder on outside only and dead bolt is operated from inside by thumb knob.

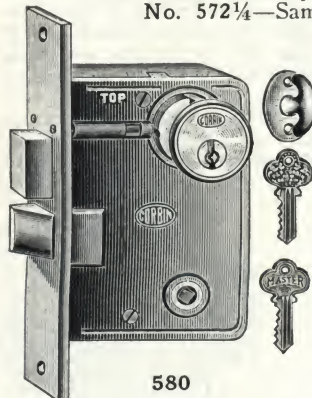
No. 580—Easy spring latch bolt operated by knob from either side, dead bolt by key from either side. Master cylinders both sides.

No. 581—Same as 580 but with ½-in. rabbeted front.

No. 570—A lighter lock than 572 with standard cylinders on both sides. Easy spring latch bolt operated by knob and dead bolt operated by key from either side.

No. 570½—Similar to 570 but dead bolt is operated by key from outside and thumb knob inside.

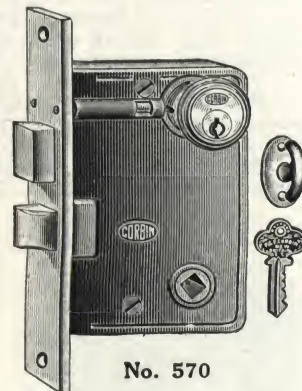
No. 0568—Same operation as 570½ except that it is heavier and has master cylinder.



580

GENERAL CONSTRUCTION

Case: Japanned iron. Front, Bolts, Strike: Cast bronze, polished.
 Bevel: ⅛ in. or 2 in. Cylinder: Bronze.
 Keys: Nickel silver, 3 class 27. Hub: Bronze.
 Spindle: ⅜-in., No. 0568 also ⅜ in.
 Latch Bolt: Nos. 572, 572½ and 573, anti-friction.
 Nos. 570, 570½, 580, 581 and 0568, easy spring.
 Reversible: Nos. 570 and 570½, yes; other locks, no. Specify hand and thickness of door.



No. 570

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.		Cylinders	Master keying	Changes	Thumb knob cast bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Special*		Knob to thumb knob	Knob to cylinder						
572	Bevel	8⅝x1½	6 x4 x1	3	2¼, 3½, 4, 4½	1½	.....	4½	Two, 253½	Class 027	Unlimited	Without	Anti-friction	\$18.76
572½	Bevel	8⅝x1½	6 x4 x1	3	2¼, 3½, 4, 4½	1½	.....	4½	One, 253½	Class 027	Unlimited	One, 2145	Anti-friction	17.65
580	Bevel	8 x1¼	5⅝x3½x⅝	2½	.....	1½	3½	3½	Two, 253½	Class 027	Unlimited	Without	Easy spring	14.25
581	Rabbeted	8 x1½	5⅝x3½x⅝	2½	.....	1½	.....	3½	Two, 253½	Class 027	Unlimited	Without	Easy spring	17.55
570	Flat	7⅝x1½	5⅝x3½x⅝	2½	.....	1½	2½	3½	Two, 253	Limited	Unlimited	Without	Easy spring	11.67
570½	Flat	7⅝x1½	5⅝x3½x⅝	2½	.....	1½	2½	3½	One, 253	Limited	Unlimited	One, 2145	Easy spring	10.55
0568	Bevel	8⅝x1¼	6⅝x3½x⅝	2½	.....	1½	2½	4½	One, 253½	Class 027	Unlimited	One, 2145	Easy spring	16.89

*Width of case 1 in. more than backset.

PLATE 39

LOCKS FOR PUBLIC BUILDINGS

Prefix Letters for Finish. Description of Finishes, Plate 3



Illustrations one-fourth size

CYLINDER HANDLE AND THUMB PIECE LOCKS FOR ENTRANCE AND STORE DOORS

Not for Use with Knobs

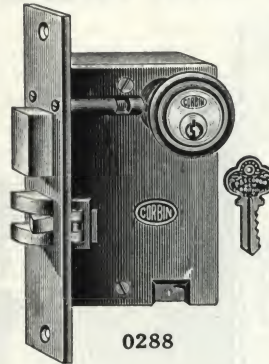
A special type of lock is required when handles and thumb pieces rather than knobs are used for front entrance doors. These locks are for this special service.

No. 0288—Has anti-friction latch bolt operated by thumb piece from either side at all times. Dead bolt only operated by key from either side through two standard cylinders.

No. 0189—Same operation as 0288 but has rabbeted front and easy spring latch bolt.

No. 1347—Has anti-friction latch bolt operated by thumb piece from either side. Both latch bolt and dead bolt operated by key from either side at all times. Outside thumb piece locked by stop in face.

No. 1347½—Has anti-friction latch bolt operated by thumb piece from either side and dead



0288

bolt operated by thumb knob from inside. Both bolts operated by key from outside at all times. Outside thumb piece locked by stop in face.

In both 1347 and 1347½ latch bolt is held back by retracting it with key and pushing in top stop when in this position.

Nos. 2347 and 2347½—Same as 1347 and 1347½ respectively, except that they have rabbeted front and easy spring latch bolt.

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolt, Strike: Cast bronze, polished.

Cylinder: Bronze.

Keys: Nickel silver.

Latch Bolt: Nos. 0288, 1347 and 1347½, anti-friction.

Nos. 0189, 2347 and 2347½, easy spring.

Reversible: Nos. 0288, 1347 and 1347½, yes.

Nos. 0189, 2347 and 2347½, no.

State hand and thickness of door.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Cylinders	Keys, class 27	Master keying	Changes	Thumb knob cast bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Special								
0288	Flat	8 x 1¼	5¼x3¾x3¼	2¾	.....	1½	Two, 253	3	Limited	Unlimited	Without	Anti-friction	\$11.10
0189	Rabbeted	7¾x1½	5¼x3¾x3¼	2¾	.....	1½	Two, 253	3	Limited	Unlimited	Without	Easy spring	14.05
1347	Flat	8 x 1¼	5¼x3¾x3¼	2¾	.....	1½	Two, 253	3	Limited	Unlimited	Without	Anti-friction	12.25
1347½	Flat	8 x 1¼	5¼x3¾x3¼	2¾	.....	1½	One, 253	3	Limited	Unlimited	One 2145	Anti-friction	11.10
2347	Rabbeted	7¾x1½	5¼x3¾x3¼	2¾	.....	1½	Two, 253	3	Limited	Unlimited	Without	Easy spring	15.20
2347½	Rabbeted	7¾x1½	5¼x3¾x3¼	2¾	.....	1½	One, 253	3	Limited	Unlimited	One 2145	Easy spring	14.05

CYLINDER KNOB LOCKS FOR VESTIBULE AND CORRIDOR OFFICE DOORS

High grade locks recommended for all large master keyed jobs such as large office buildings, etc.

Locks with Auxiliary Latch

Especially suited for doors opening out.

No. 0567—Has anti-friction latch bolt operated by knob from either side and by key from the outside at all times. Outside knob is locked by stops in the face.

No. 0567¼—Same as 0567 but with thumb knob inside which deadlocks against operation of key from outside.

No. 0563—Similar to 0567 except that it has easy spring latch bolt and is a slightly smaller lock.

No. 0563¼—Same as 0563 but with thumb knob inside which deadlocks against operation of key from outside.

Locks without Auxiliary Latch

No. 567—Has anti-friction latch bolt which is operated by knobs from either side and by key from outside at all times. Outside knob is locked by stop in face.

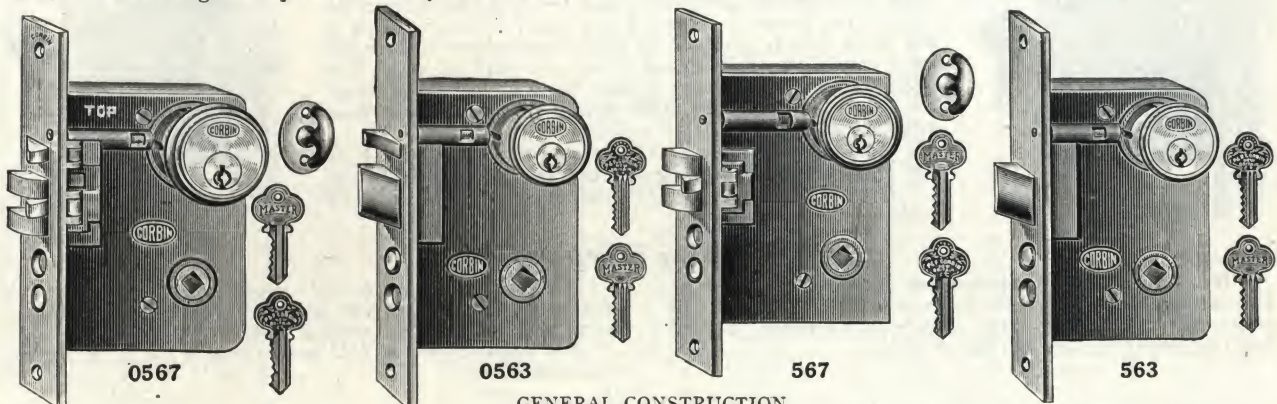
No. 567¼—Same as 567 but with thumb knob inside which deadlocks against operation of key from outside.

No. 563—Similar to 567 except that it has the easy spring latch bolt and is a slightly smaller lock.

No. 563¼—Same as 563 but with thumb knob inside which deadlocks against operation of key from outside.

No. 564—Similar to 563 but has 2¾-in. backset and is reversible as the front is not beveled.

No. 566—Similar to 564 but with ½-in. rabbeted front and anti-friction latch bolt.



GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolt, Strike: Cast bronze, polished.

Cylinders: Bronze.

Keys: Nickel silver.

Hubs: Bronze, ⅝ x ⅞-in. swivel.

Latch Bolt: Nos. 0567¼, 0567, 567, 567¼ and 566, anti-friction.

Nos. 0563, 0563¼, 563, 563¼ and 564, easy spring.

Reversible: Nos. 0567¼, 0567, 567, 567¼, 566, 0563, 0563¼, 563 and 563¼, no.

State hand and thickness of door.

No. 564, yes.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinders	Keys, class 27	Master keying	Changes	Thumb knob cast bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Special*									
0567¼	Bevel	8 x 1¼	5¾x3¾x3¼	2¾	3	1¾	3	One, 253½	3	Class 027	Unlimited	One 2145	Anti-friction	\$14.33
0567	Bevel	8 x 1¼	5¾x3¾x3¼	2¾	3	1¾	3	One, 253½	3	Class 027	Unlimited	Without	Anti-friction	12.44
0563¼	Bevel	7¾x1½	5¼x3¾x3¼	2½	.....	1¼	3	One, 253½	3	Class 027	Unlimited	One 2145	Easy spring	14.33
0563	Bevel	7¾x1½	5¼x3¾x3¼	2½	.....	1¼	3	One, 253½	3	Class 027	Unlimited	Without	Easy spring	12.44
567¼	Bevel	8 x 1¼	5¾x3¾x3¼	2¾	3	1¾	3	One, 253½	3	Class 027	Unlimited	One 2145	Anti-friction	12.11
567	Bevel	8 x 1¼	5¾x3¾x3¼	2¾	3	1¾	3	One, 253½	3	Class 027	Unlimited	Without	Anti-friction	10.22
563¼	Bevel	7¾x1½	5¼x3¾x3¼	2½	.....	1¼	3	One, 253½	3	Class 027	Unlimited	One 2145	Easy spring	12.11
563	Bevel	7¾x1½	5¼x3¾x3¼	2½	.....	1¼	3	One, 253½	3	Class 027	Unlimited	Without	Easy spring	10.22
564	Flat	6¾x1	4¾x3¾x3¼	2¾	.....	1¾	2¾	One, 253½	3	Class 027	Unlimited	Without	Easy spring	10.22
566	Rabbeted	7¾x1½	5¾x3¾x3¼	2¾	3.4	1½	3	One, 253½	3	Class 027	Unlimited	Without	Anti-friction	14.22

*Width of case 1 in. more than backset.



LOCKS FOR PUBLIC BUILDINGS.

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 40

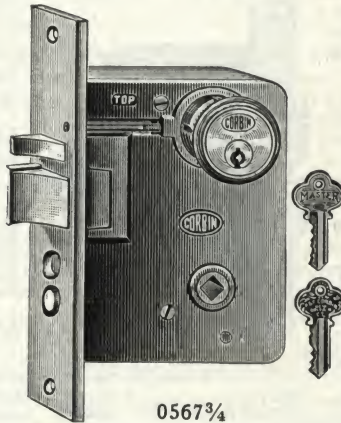
Illustrations one-fourth size

CYLINDER KNOB LOCKS FOR VESTIBULE AND CORRIDOR OFFICE DOORS*Recommended for Fire Doors. Approved by New York Board of Fire Underwriters*

These are heavy locks for metal covered and other fire doors, have master cylinders and are recommended for all large master keyed jobs. Latch bolt has a $\frac{3}{4}$ -in. throw.

No. 0567 $\frac{3}{4}$ —The better lock for this service. The latch bolt is operated by knob from either side and by key from the outside at all times. The outside knob is locked by stop in face of lock.

It also has an auxiliary latch which automatically locks the latch bolt and stops so that they cannot be forced back when the door is closed, but does not prevent key or knobs from operating the latch bolt.

0567 $\frac{3}{4}$

No. 567 $\frac{3}{4}$ —Same as 0567 $\frac{3}{4}$ except that it does not have the auxiliary latch.

No. 0569 $\frac{1}{2}$ —Same as 0567 $\frac{3}{4}$ except that outside knob is locked by key from inside.

No. 569 $\frac{1}{2}$ —Same as 0569 $\frac{1}{2}$ except that it does not have the auxiliary latch.

GENERAL CONSTRUCTION

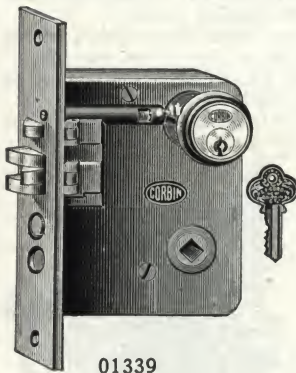
Case: Japanned iron.
Front, Bolt, Strike: Cast bronze, polished.
Cylinder: Bronze.
Keys: Nickel silver.
Hub: Bronze, $\frac{3}{8}$ -in. swivel.
Latch Bolt: Easy spring, winged.
Reversible: No. State hand and thickness of door.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinder	Keys, class 27	Master keying	Changes	Latch bolt	Price, each
	Type	Size, in.		Standard	Special*								
0567 $\frac{3}{4}$	Bevel	8x1 $\frac{1}{4}$	6x4 $\frac{1}{2}$ x3 $\frac{3}{4}$	2 $\frac{3}{4}$	3	1 $\frac{3}{8}$	3 $\frac{3}{8}$	One, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Easy spring	\$18.78
567 $\frac{3}{4}$	Bevel	8x1 $\frac{1}{4}$	6x4 $\frac{1}{2}$ x3 $\frac{3}{4}$	2 $\frac{3}{4}$	3	1 $\frac{3}{8}$	3 $\frac{3}{8}$	One, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Easy spring	16.55
0569 $\frac{1}{2}$	Bevel	8x1 $\frac{1}{4}$	6x4 $\frac{1}{2}$ x3 $\frac{3}{4}$	2 $\frac{3}{4}$	3	1 $\frac{3}{8}$	3 $\frac{3}{8}$	Two, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Easy spring	20.00
569 $\frac{1}{2}$	Bevel	8x1 $\frac{1}{4}$	6x4 $\frac{1}{2}$ x3 $\frac{3}{4}$	2 $\frac{3}{4}$	3	1 $\frac{3}{8}$	3 $\frac{3}{8}$	Two, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Easy spring	18.20

*Width of case 1 $\frac{1}{2}$ in. more than backset.**CYLINDER KNOB LOCKS FOR VESTIBULE AND CORRIDOR OFFICE DOORS***With Standard Cylinder*

The locks in this group are for similar use to the group of locks under the previous heading, except that this group has the standard cylinder which is recommended for smaller

master keyed jobs. The former group should be used for large office buildings. This group costs less than the previous group.



01339

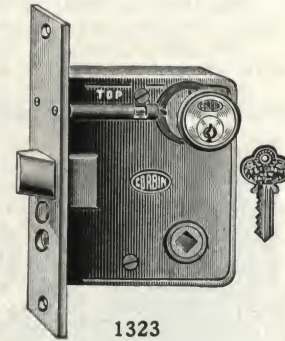
Locks with Anti-friction Latch Bolt

No. 01339—Especially suited for doors opening out as latch bolt is protected by an auxiliary latch and the outside knob can be locked by stops in the face of the lock. It has an anti-friction latch bolt for ease of operation. The auxiliary latch automatically locks the latch bolt when the door is closed, so that the latch bolt cannot be forced back from the outside, but does not prevent key or knob from operating it. The latch bolt is operated by knob from either side except when outside knob is locked by stop in face of lock. The latch bolt can be operated by key from outside at all times.

No. 1339—Same as 01339 except that it does not have auxiliary latch.

No. 1339 $\frac{1}{4}$ —Same as 1339 except that thumb knob on the inside of door locks against the key insuring privacy.

No. 1338—Same as 1339 except that it has a $\frac{1}{2}$ -in. rabbeted front.



1323

Locks with Easy Spring Latch Bolt

No. 1323—Has the easy-spring latch bolt but does not have an auxiliary latch. The latch is operated by knob from either side and by key from outside at all times. Outside knob is locked by stop in face of lock.

No. 1323 $\frac{1}{4}$ —Same as 1323 except that it has a thumb knob inside which deadlocks against the operation of the key from the outside, thus assuring absolute privacy.

No. 2323—Same as 1323 except that it has a $\frac{1}{2}$ -in. rabbeted front.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front, Bolts, Strike: Cast bronze, polished.
Cylinders: Bronze.
Keys: Nickel silver.
Hub: Bronze $\frac{3}{8}$ x $\frac{1}{8}$ -in. swivel.

Latch Bolt: Nos. 01339, 1339, 1339 $\frac{1}{4}$ and 1338, anti-friction.
Nos. 1323, 1323 $\frac{1}{4}$ and 2323, easy spring.
Reversible: Nos. 01339, 1339, 1339 $\frac{1}{4}$, 1338 and 2323, no.
Nos. 1323 and 1323 $\frac{1}{4}$, yes.

Lock No.	Front		Case size, in.	Backset in.		Strike, lip to center, in.	Spacing in.	Cylinder	Keys, class 27	Master keying	Changes	Thumb knob cast bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Special									
01339	Bevel	8 x 1 $\frac{1}{4}$	5 x 3 $\frac{3}{4}$ x3 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{2}$, 3*	1 $\frac{3}{4}$	2 $\frac{1}{2}$	One, 253	3	Limited	Unlimited	Without	Anti-friction	\$11.67
1339	Bevel	8 x 1 $\frac{1}{4}$	5 x 3 $\frac{3}{4}$ x3 $\frac{3}{4}$	2 $\frac{3}{4}$	2, 2 $\frac{1}{2}$, 3, 3 $\frac{1}{2}$, 4, 4 $\frac{1}{2}$ *	1 $\frac{1}{4}$	2 $\frac{1}{2}$	One, 253	3	Limited	Unlimited	Without	Anti-friction	9.44
1339 $\frac{1}{4}$	Bevel	8 x 1 $\frac{1}{4}$	5 x 3 $\frac{3}{4}$ x3 $\frac{3}{4}$	2 $\frac{3}{4}$	2, 2 $\frac{1}{2}$, 3, 3 $\frac{1}{2}$, 4, 4 $\frac{1}{2}$ *	1 $\frac{1}{4}$	2 $\frac{1}{2}$	One, 253	3	Limited	Unlimited	One 2145	Anti-friction	10.55
1338	Rabbet	7 $\frac{7}{8}$ x1 $\frac{1}{2}$	5 x 4 x 3 $\frac{3}{4}$	3	.....	1 $\frac{1}{2}$	2 $\frac{1}{2}$	One, 253	3	Limited	Unlimited	Without	Anti-friction	13.35
1323	Flat	6 $\frac{5}{8}$ x1	4 $\frac{5}{8}$ x3 $\frac{3}{8}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$	2, 2 $\frac{1}{2}$ †	1 $\frac{1}{4}$	2 $\frac{1}{2}$	One, 253	3	Limited	Unlimited	Without	Easy spring	8.89
1323 $\frac{1}{4}$	Flat	6 $\frac{5}{8}$ x1	4 $\frac{5}{8}$ x3 $\frac{3}{8}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$	2, 2 $\frac{1}{2}$ †	1 $\frac{1}{4}$	2 $\frac{1}{2}$	One, 253	3	Limited	Unlimited	One 2145	Easy spring	10.00
2323	Rabbet	6 $\frac{5}{8}$ x1 $\frac{5}{16}$	4 $\frac{5}{8}$ x3 $\frac{3}{8}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$	2, 2 $\frac{1}{2}$	1 $\frac{1}{4}$	2 $\frac{1}{2}$	One, 253	3	Limited	Unlimited	Without	Easy spring	11.90

*Width of case 1 in. more than backset. †Width of case 1 $\frac{1}{8}$ in. more than backset.**PLATE 41****LOCKS FOR PUBLIC BUILDINGS**

Prefix Letters for Finish. Description of Finishes, Plate 3



CORBIN HOTEL LOCKS

The Importance of the Use of Proper Locks for Hotels

The use of proper locks and hardware is a great factor in the smooth running of a hotel and results in the reduction of claims against the hotel management.

It is poor economy to use cheap locks which can be forced or manipulated by thieves. The cost of one robbery of a room with the resulting loss of reputation to the management would probably more than

offset the cost of a good quality of lock for the entire hotel. Good hardware also gives the guest a sense of security and privacy from intrusion which repays the hotel in good will.

The use of proper locks on doors between communicating rooms is also essential as it determines the character of the hotel. These locks should be under the control of the management in order to protect the reputation of the hotel.

GUIDE TO THE SELECTION OF PROPER LOCKS FOR HOTELS

In order to aid the architect in the selection of a type of lock which will fulfill the requirements for almost any condition arising in hotel work, the diagram and table below are given. The plan is drawn to cover the various combinations of rooms, corridors, bathrooms, foyers, etc., which may occur. Each

condition is lettered and an explanation given in the table below with the locks which best meet the condition.

The difference in functions of the various hotel locks can also be easily seen by comparison in the table at the bottom of the page.

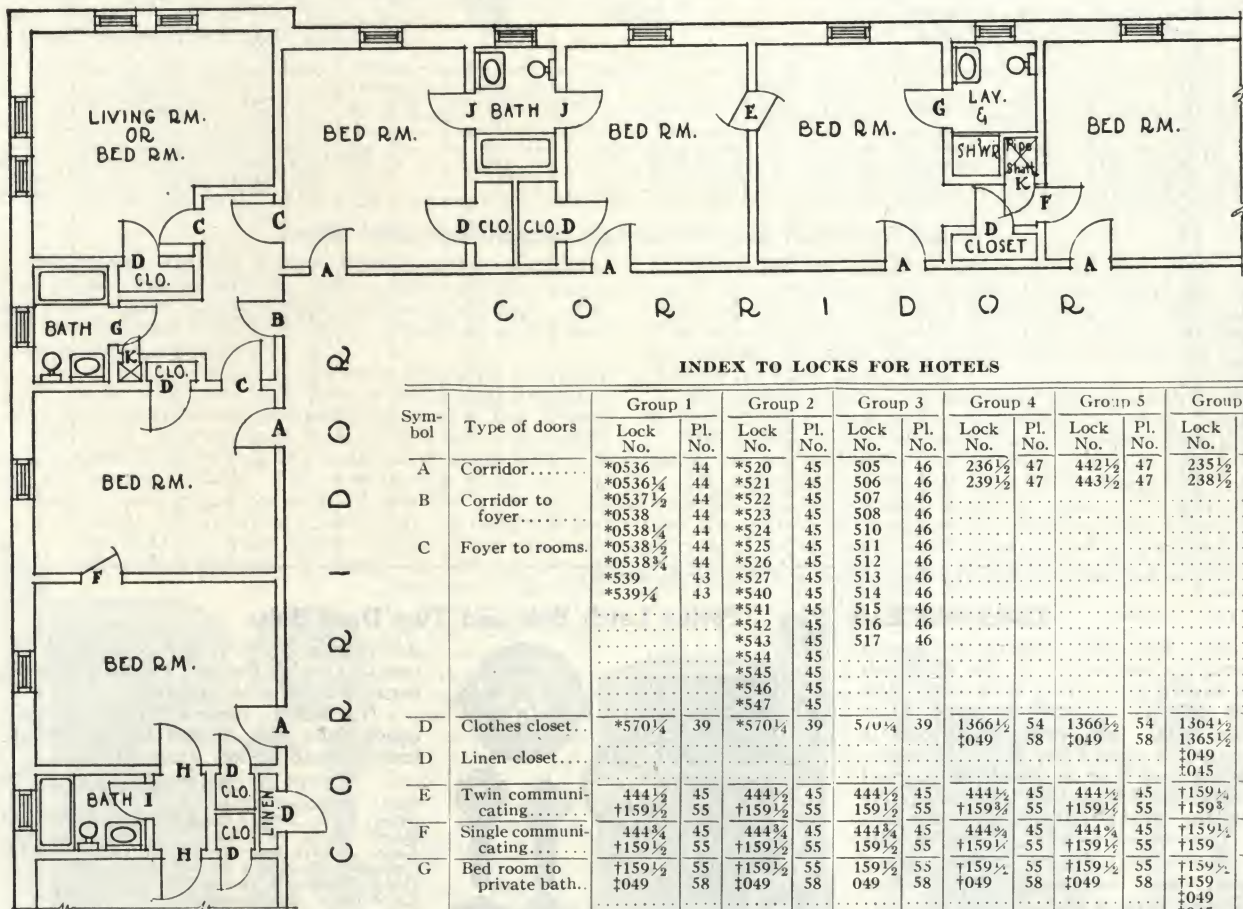


Diagram of Typical Portion of a Modern Hotel Floor Showing Where Each Type of Lock Is Used

INDEX TO LOCKS FOR HOTELS

Symbol	Type of doors	Group 1		Group 2		Group 3		Group 4		Group 5		Group 6	
		Lock No.	Pl. No.	Lock No.	Pl. No.	Lock No.	Pl. No.	Lock No.	Pl. No.	Lock No.	Pl. No.	Lock No.	Pl. No.
A	Corridor.....	*0536 1/4	44	*520 1/4	45	505 1/4	46	236 1/2	47	442 1/2	47	235 1/2	47
B	Corridor to foyer.....	*0536 1/4	44	*521 1/4	45	506 1/4	46	239 1/2	47	443 1/2	47	238 1/2	47
C	Foyer to rooms.	*0538 1/4	44	*523 1/4	45	508 1/4	46						
		*0538 1/4	44	*524 1/4	45	510 1/4	46						
		*0538 1/4	44	*525 1/4	45	511 1/4	46						
		*0538 1/4	44	*526 1/4	45	512 1/4	46						
		*539 1/4	43	*527 1/4	45	513 1/4	46						
		*539 1/4	43	*540 1/4	45	514 1/4	46						
				*541 1/4	45	515 1/4	46						
				*542 1/4	45	516 1/4	46						
				*543 1/4	45	517 1/4	46						
				*544 1/4	45								
				*545 1/4	45								
				*546 1/4	45								
				*547 1/4	45								
D	Clothes closet..	*570 1/4	39	*570 1/4	39	570 1/4	39	1366 1/2	54	1366 1/2	54	1364 1/2	54
D	Linen closet....							1049 1/2	58	1049 1/2	58	1049 1/2	58
E	Twin communicating.....	444 1/2	45	444 1/2	45	444 1/2	45	444 1/2	45	444 1/2	45	1159 1/2	55
F	Single communicating.....	1159 1/2	55	1159 1/2	55	159 1/2	55	1159 1/2	55	1159 1/2	55	1159 1/2	55
G	Bed room to private bath..	1159 1/2	55	1159 1/2	55	159 1/2	55	1159 1/2	55	1159 1/2	55	1159 1/2	55
		1049 1/2	58	1049 1/2	58	049 1/2	58	1049 1/2	58	1049 1/2	58	1049 1/2	58
H	Communicating passage to bed rooms...	444 1/2	45	444 1/2	45	444 1/2	45	444 1/2	45	444 1/2	45	1159 1/2	55
		1159 1/2	55	1159 1/2	55	159 1/2	55	1159 1/2	55	1159 1/2	55	1159 1/2	55
I	Communicating passage to bath	1159 1/2	55	1159 1/2	55	159 1/2	55	1159 1/2	55	1159 1/2	55	1159 1/2	55
J	Communicating bath.....	444 1/2	45	444 1/2	45	444 1/2	45	444 1/2	45	444 1/2	45	1159 1/2	55
		444 1/2	45	444 1/2	45	444 1/2	45	444 1/2	45	444 1/2	45	1159 1/2	55
		1159 1/2	55	1159 1/2	55	159 1/2	55	1159 1/2	55	1159 1/2	55	1159 1/2	55
		1159 1/2	55	1159 1/2	55	159 1/2	55	1159 1/2	55	1159 1/2	55	1159 1/2	55
K	Wire shafts, closets, pipe chases, etc...	*137 1/2	60	*137 1/2	60	137 1/2	60	0145 1/2	61	0145 1/2	61	132 1/2	61
		138 1/2	60	138 1/2	60	138 1/2	60						
		0145 1/2	61	0145 1/2	61	0145 1/2	61						

†Locks with thumb knobs only, no keys. ‡Latches only—no keys.
*Cylinder lock group, separate master key required for communicating locks with this group which are bitted keys.



HOTEL LOCKS

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 42

CYLINDER MORTISE LOCKS FOR HOTEL CORRIDOR DOORS

All of the cylinder locks listed under this heading give adequate protection to the hotel guests but some have more functions than others. As the question of protection and

the type of lock is often a matter of preference of the hotel architect and the owners, the locks are grouped in three types according to their functions.

TABLE OF COMPARATIVE FEATURES AND FUNCTIONS OF HOTEL LOCKS

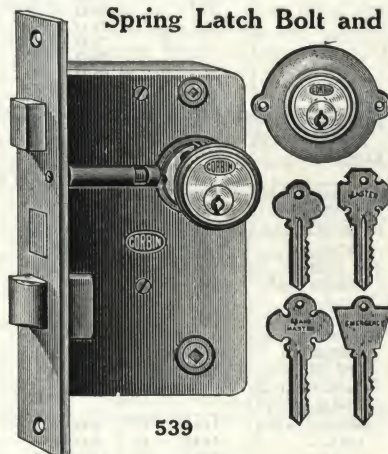
Lock No.	Backset, in.	Cylinder, both sides	Cylinder outside, thumb knob inside	Bitted keys, both sides	Bitted key outside, thumb knob inside	Outside knob always rigid	Outside knob locked by stop in face	Rigid knob acts as indicator when locked from inside	Can be furnished with button indicator	Auxiliary latch prevents latch bolt being forced back from outside	Can be furnished with duplicate guests key operative at all times	Can be furnished with display key	Can be furnished with display key which is operative at all times	Auxiliary latch prevents door from being accidentally locked while opened	When locked from inside emergency key only will operate from outside	When locked from inside grand master key only will operate from outside	When locked by emergency key outside, all other keys are inoperative	When locked by emergency key outside, all keys but display key are inoperative	When locked from inside, all keys are inoperative from outside	When locked from inside, all keys except guest key are inoperative from outside	When locked from inside, all keys except guest and emergency keys are inoperative from outside	When locked from outside by emergency key all other keys but guest key are inoperative	As regularly furnished, when locked by key from inside, key cannot be removed. Can be furnished with key removable when so ordered
235 $\frac{1}{2}$	2 $\frac{3}{4}$				X			X	X			X			X		X						
236 $\frac{1}{2}$	2 $\frac{3}{4}$				X			X	X			X			X		X						
238 $\frac{1}{2}$	2 $\frac{3}{4}$			X				X	X			X			X		X						
239 $\frac{1}{2}$	2 $\frac{3}{4}$			X				X	X			X			X		X						
443 $\frac{1}{2}$	2 $\frac{3}{4}$			X	X											X							
505	2 $\frac{1}{2}$		X				X								X								
506	2 $\frac{1}{2}$		X				X				X				X						X		
507	2 $\frac{1}{2}$		X			X									X								
508	2 $\frac{1}{2}$		X			X					X										X		
510	2 $\frac{1}{2}$		X				X		X						X				X				
511	2 $\frac{1}{2}$		X				X		X														
512	2 $\frac{1}{2}$		X				X		X										X				
513	2 $\frac{1}{2}$		X				X		X												X		
514	2 $\frac{1}{2}$		X			X			X										X			X	
515	2 $\frac{1}{2}$		X			X			X						X								
516	2 $\frac{1}{2}$		X			X			X										X				
517	2 $\frac{1}{2}$		X			X			X												X		
520	2 $\frac{3}{4}$		X				X		X										X				
521	2 $\frac{3}{4}$	X					X		X										X				X
522	2 $\frac{3}{4}$	X	X				X		X						X								
523	2 $\frac{3}{4}$	X					X		X														
524	2 $\frac{3}{4}$	X	X				X		X										X				X
525	2 $\frac{3}{4}$	X					X		X										X				X
526	2 $\frac{3}{4}$	X	X				X		X										X		X		X
527	2 $\frac{3}{4}$	X	X				X		X										X		X		X
536	2 $\frac{1}{2}$	X				X			X			X		X	X								
536 $\frac{1}{4}$	2 $\frac{1}{2}$	X				X			X			X		X	X								
537 $\frac{1}{2}$	2 $\frac{1}{2}$	X				X			X		X			X	X								
538	2 $\frac{1}{2}$	X					X		X					X	X								
538 $\frac{1}{4}$	2 $\frac{1}{2}$	X					X		X					X	X								X
538 $\frac{1}{2}$	2 $\frac{1}{2}$	X					X		X					X	X								X
538 $\frac{3}{4}$	2 $\frac{1}{2}$	X					X		X					X	X								X
539	3	X							X					X	X								
539 $\frac{1}{4}$	3	X							X					X	X								
540	2 $\frac{3}{4}$	X				X			X					X	X				X				
541	2 $\frac{3}{4}$	X				X			X					X	X				X				
542	2 $\frac{3}{4}$	X				X			X					X	X								
543	2 $\frac{3}{4}$	X				X			X					X	X								
544	2 $\frac{3}{4}$	X				X			X					X	X				X				
545	2 $\frac{3}{4}$	X				X			X					X	X				X				
546	2 $\frac{3}{4}$	X	X			X			X					X	X				X		X		
547	2 $\frac{3}{4}$	X	X			X			X					X	X				X		X		

*Display key when furnished with these locks, is also operative at all times.

Locks with Easy

No. 539—This lock gives utmost privacy by means of a double dead bolt and has an easy spring latch bolt. The latch bolt is operated by knob from either side. The upper dead bolt is operated by guest's key from the inside. When locked from the inside, key cannot be removed and all keys are inoperative from the outside except emergency key.

Lower dead bolt is operated outside by guest's key, display, master, grand master and emergency key. When locked by display key all other keys except emergency key are inoperative. When locked by emergency key all other keys except display key are inoperative.



Spring Latch Bolt and Two Dead Bolts

Emergency key will unlock door at all times. Display key and button indicator furnished when so ordered.

No. 539 $\frac{1}{4}$ —Same as 539 except that upper dead bolt is operated by thumb knob instead of key from inside.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front, Bolts, Strike: Cast bronze, polished.
Bevel: $\frac{1}{8}$ in. on 2-in.
Keys: Nickel silver.
Cylinder: Bronze.
Hub: Bronze, $\frac{1}{8}$ and $\frac{3}{8}$ in.
Latch Bolt: Easy spring.
Reversible: No. Specify hand and thickness of door.
Master Keying: In sets as desired with other Corbin master keyed cylinder locks.
Indicator: Furnished on order.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinders	Keys Class 24	Master keying	Changes	Thumb knob bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Special									
539	Bevel	9 $\frac{1}{4}$ x1 $\frac{1}{4}$	7x4x $\frac{3}{4}$	3	.....	1 $\frac{1}{2}$	3 $\frac{3}{4}$ *	One, 253 $\frac{1}{4}$, special One, special	3	Class 024	Unlimited	Without	Easy spring	\$24.65
539 $\frac{1}{4}$	Bevel	9 $\frac{1}{4}$ x1 $\frac{1}{4}$	7x4x $\frac{3}{4}$	3	.....	1 $\frac{1}{2}$	3 $\frac{3}{4}$ †	One, 253 $\frac{1}{4}$, special	3	Class 024	Unlimited	One, 2145	Easy spring	22.00

*Knob to inside cylinder, 5 $\frac{1}{8}$ in. †Knob to thumb, 5 $\frac{1}{8}$ in.

Illustrations
one-fourth size

Locks with Easy Spring Latch Bolt, Auxiliary Latch and Dead Bolt

No. 0538—Latch bolt is operated by knob from either side and by guest key, display key, master key, grand master and emergency key from the outside. This master keyed cylinder lock when deadlocked, guarantees absolute privacy to the guest when in the room, except against the emergency key or the display key if one is used. When the dead bolt is locked from the outside by emergency or display keys, all other keys are inoperative. The display key operates its own lock only, at all times, and is furnished only when so ordered. The emergency key is operative at all times.

As regularly furnished guest or display key to dead lock cannot be removed when deadlocked from the inside but can be furnished so that key can be removed, if so ordered. Can also be furnished with button indicator when so ordered.

Stops in the face of the lock control the outside knob so that when the knob is made inoperative the door is locked when closed. It has an easy spring latch bolt and an auxiliary latch which auto-

matically locks the latch bolt when the door is closed. This prevents the forcing of the latch from the outside but does not prevent key or knobs, when operative, from operating the latch bolt.

No. 0538½—Same as 0538 except it does not have stop in face of lock and the outside knob is always rigid.

No. 0538¼—This lock is the same as 0538 but has a thumb knob instead of a key to operate the dead bolt from the inside.

No. 0538¾—Same as 0538¼ except that it does not have stop in face of lock and the outside knob is always rigid.

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolts, Strike: Cast bronze, polished.

Bevel: ⅛ in. on 2 in.

Keys: Nickel silver.

Cylinder: Bronze.

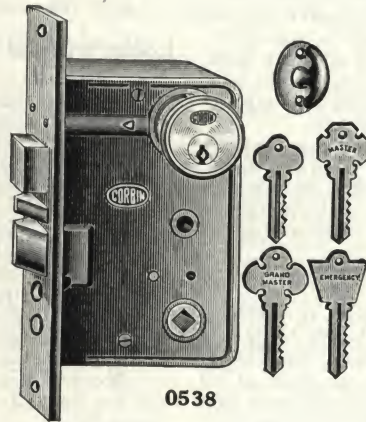
Hub: Bronze, ⅝ x ⅞ in. swivel spindle.

Latch bolt: Easy spring.

Reversible: No. Specify hand and thickness of door.

Master Keyed: In sets as desired with other Corbin master keyed cylinder locks.

Indicator: When specified.



0538

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinders	Keys Class	Master keying	Changes	Thumb knob cast bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Special									
0538	Bevel	8 ⅝ x 1 ¼	6 ⅞ x 3 ⅞ x 1 ⅝	2 ¾	.....	1 ½	4	Two, 253 ½, special	3	Class 024	Unlimited	Without	Easy spring	\$27.40
0538½	Bevel	8 ⅝ x 1 ¼	6 ⅞ x 3 ⅞ x 1 ⅝	2 ¾	.....	1 ½	4	Two, 253 ½, special	3	Class 024	Unlimited	Without	Easy spring	27.40
0538¼	Bevel	8 ⅝ x 1 ¼	6 ⅞ x 3 ⅞ x 1 ⅝	2 ¾	.....	1 ½	4	One, 253 ½, special	3	Class 024	Unlimited	One, 2145	Easy spring	24.75
0538¾	Bevel	8 ⅝ x 1 ¼	6 ⅞ x 3 ⅞ x 1 ⅝	2 ¾	.....	1 ½	4	One, 253 ½, special	3	Class 024	Unlimited	One, 2145	Easy spring	24.75

Locks with Anti-friction Latch Bolt and Auxiliary Latch

No. 0536—Has one master cylinder outside for extensive master keying system, and special cylinder inside. Has guest, master, grand master and emergency keys. Display key furnished when so ordered. Furnished with button indicator when so ordered.

This type of master keyed cylinder lock assures privacy to the guest, when the latch bolt is deadlocked from the inside, except against the emergency and display key if used.

This lock does not have a dead bolt and the outside knob is rigid at all times. It has an anti-friction latch bolt and an auxiliary latch. The anti-friction latch bolt is operated by a key on the outside and the knob on the inside. The auxiliary latch locks the latch bolt and prevents it from being forced from the outside when the door is closed. It does not prevent

the knob on the inside or key from operating the latch. When the door is open the auxiliary latch automatically dogs the thumb slide so that the latch bolt cannot be accidentally deadlocked.

When the latch bolt is deadlocked by key from the inside, all keys except the emergency and display key are inoperative. When deadlocked from corridor side by emergency or display key all other keys are inoperative. Display key operates its own lock at all times. Emergency key operates all locks at all times.

No. 0536¼—Same as 0536 except that the latch bolt is deadlocked from room side by thumb knob instead of key.

No. 0537½—This lock is somewhat similar to 0536 and 0536¼ but has fewer functions and is a smaller lock.

The anti-friction latch bolt is operated by knob only from the inside, the outside knob is always rigid. It is operated from the outside by guest, master, grand master and emergency keys except when deadlocked by thumb knob inside, in which case emergency and duplicate guest key only are operative. The emergency key does not have the shut out feature as in 0536. Duplicate guest key, which is operative at all times, furnished only when so ordered. Cannot be furnished with button indicator.

The auxiliary latch operates the same as in 0536.

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolts, Strike: Cast bronze, polished.

Bevel: ⅛ on 2 in.

Keys: Nickel silver.

Cylinder: Bronze.

Hub: Bronze, ⅝ x ⅞ in. swivel. Nos. 0536 and 0536¼ have ⅞ in. hub also.

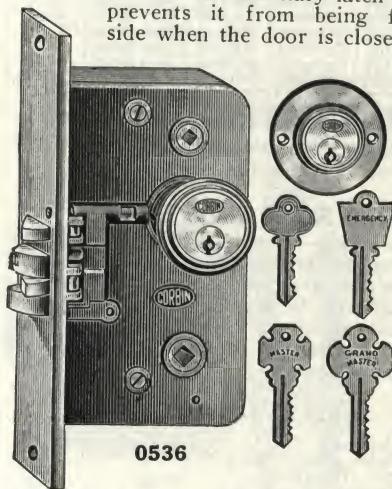
Latch Bolt: Anti-friction.

Reversible: No. Specify hand and thickness of door.

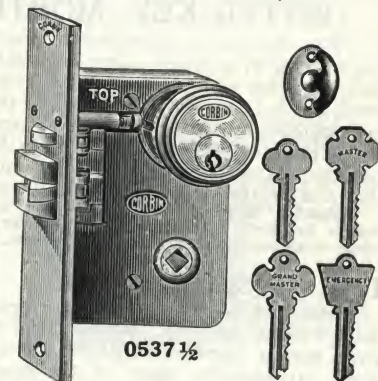
Master Keying: In sets as desired with other Corbin master keyed cylinder locks. (Also see text).

Indicators: Nos. 0536 and 0536¼, when specified.

No. 0537½, not furnished.



0536



0537 ½

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinders	Keys class	Master keying	Changes	Thumb knob cast bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Spec.									
0536	Bevel	9 ⅝ x 1 ¼	7 x 4 x ¾	2 ¾	.....	1 ¾	3*	One, 253 ½, special	3	Class 024	Unlimited	Without	Anti-friction	\$22.67
0536¼	Bevel	9 ⅝ x 1 ¼	7 x 4 x ¾	2 ¾	.....	1 ¾	3†	One, 253 ½, special	3	Class 024	Unlimited	One 2145	Anti-friction	20.44
0537½	Bevel	8 x 1 ¼	5 ⅝ x 3 ⅞ x 1 ¼	2 ¾	.....	1 ¾	3	One, 253 ½, special	3	Class 024	Unlimited	One 2145	Anti-friction	20.00

*Knob to inside cylinder, 4 ⅞ in. †Knob to thumb knob, 4 ⅞ in.



HOTEL LOCKS

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 44

Illustrations one-fourth size

INEXPENSIVE CYLINDER MORTISE LOCKS FOR HOTEL CORRIDOR DOORS**Locks with Outside Knob Locked by Stop in Face***Cylinder Outside—Thumb Knob Inside*

No. 522—Latch bolt is operated by knob from either side and by guest, master, grand master and emergency keys from outside except when dead bolt is projected from the inside, in which case the emergency key only is operative. Emergency key also acts as a shut out against all other keys.

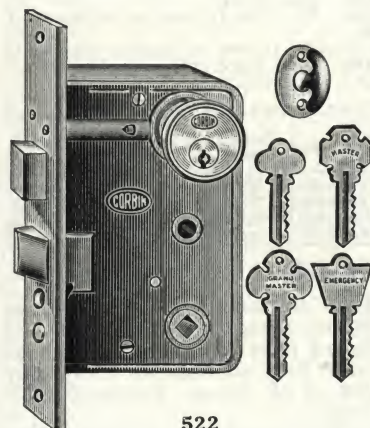
No. 520—Same as 522 but without emergency key. When dead bolt is projected from inside all keys are inoperative and door cannot be opened from the outside.

No. 526—Latch bolt is operated the same as in 522. When dead bolt is projected by thumb knob from the inside or by guest or emergency keys from the outside, master and grand master keys are inoperative. Guest and emergency keys operative at all times. Emergency key does not act as a shut out against guest key.

No. 524—Same as 526 but without emergency key.

Cylinder Both Sides

No. 523—Similar to 522 but dead bolt is operated from inside only by guest key. Emergency key is operative at all times and acts as a shut out against other keys

**522**

Note: In locks with cylinder both sides, as regularly furnished, the key cannot be removed when deadlocked by key from inside. Can be furnished with key removable when so ordered.

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolt, Strike: Cast bronze, polished.

Bevel: $\frac{1}{8}$ on 2 in.

Keys: Nickel silver.

Cylinder: Bronze.

Hub: Bronze $\frac{3}{8} \times \frac{1}{8}$ -in. swivel.

Latch bolt: Easy spring.

Reversible: No. Specify hand and thickness of door.

Master Keying: In sets as desired with other Corbin master keyed cylinder locks.

Indicators: Furnished when specified.

but does not make guest key inoperative from the inside.

No. 521—Same as 523 but without emergency key.

No. 527—Similar to 526 but dead bolt is operated from inside only by guest key.

No. 525—Same as 527 but without emergency key.

Locks without Stop in Face, Outside Knob Always Rigid*Cylinder Outside—Thumb Knob Inside*

No. 542—Same as 522 except that knob operates latch bolt from the inside only.

No. 540—Same as 542 but without emergency key.

No. 546—Same as 526 except that knob operates latch bolt from inside only.

No. 544—Same as 546 but without emergency key.

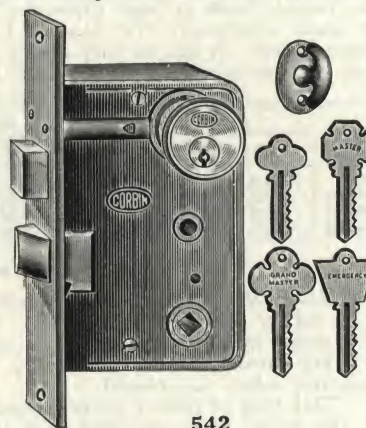
Cylinder Both Sides

No. 543—Same as 523 except that knob operates latch bolt from the inside only.

No. 541—Same as 543 but without emergency key.

No. 547—Same as 527 except that knob operates latch bolt from inside only.

No. 545—Same as 547 but without emergency key.

**542**

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinders	Keys class 23 1/4	Master keying	Changes	Thumb knob cast bronze	Latch bolt	Price each
	Type	Size, in.		Std.	Spec.									
520, 540	Bevel	8 3/8 x 1 1/4	6 1/8 x 3 1/2 x 1 3/8	2 3/4	.....	1 1/2	4	One, 253 1/2 special	3	Class 024	Unlimited	One 2115	Easy spring	\$11.45
522, 542	Bevel	8 3/8 x 1 1/4	6 1/8 x 3 1/2 x 1 3/8	2 3/4	.....	1 1/2	4	One, 253 1/2 special	3	Class 024	Unlimited	One 2145	Easy spring	15.55
524, 544	Bevel	8 3/8 x 1 1/4	6 1/8 x 3 1/2 x 1 3/8	2 3/4	.....	1 1/2	4	One, 253 1/2 special	3	Class 024	Unlimited	One 2145	Easy spring	14.45
526, 546	Bevel	8 3/8 x 1 1/4	6 1/8 x 3 1/2 x 1 3/8	2 3/4	.....	1 1/2	4	One, 253 1/2 special	3	Class 024	Unlimited	One 2145	Easy spring	15.55
521, 541	Bevel	8 3/8 x 1 1/4	6 1/8 x 3 1/2 x 1 3/8	2 3/4	.....	1 1/2	4	Two, 253 1/2 special	3	Class 024	Unlimited	Without	Easy spring	17.20
523, 543	Bevel	8 3/8 x 1 1/4	6 1/8 x 3 1/2 x 1 3/8	2 3/4	.....	1 1/2	4	Two, 253 1/2 special	3	Class 024	Unlimited	Without	Easy spring	18.35
525, 545	Bevel	8 3/8 x 1 1/4	6 1/8 x 3 1/2 x 1 3/8	2 3/4	.....	1 1/2	4	Two, 253 1/2 special	3	Class 024	Unlimited	Without	Easy spring	17.20
527, 547	Bevel	8 3/8 x 1 1/4	6 1/8 x 3 1/2 x 1 3/8	2 3/4	.....	1 1/2	4	Two, 253 1/2 special	3	Class 024	Unlimited	Without	Easy spring	18.35

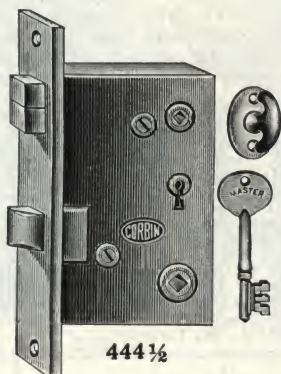
BITTED KEY, MORTISE LOCKS FOR HOTEL COMMUNICATING DOORS

The two locks described in this group are for similar services. One has a split dead bolt, the other a single dead bolt. In each the dead bolt is completely in control of the hotel management by means of a master key. Both are suited for use on single doors between communicating bedrooms or rooms in suites that can be rented separately, if desired.

Master Keying—These locks are set up to master key only. They can be master keyed with other locks having 080 1/4 class master keys.

Lock with Split Dead Bolt

No. 444 1/2—Has latch bolt operated by knob from either side. Each half of the split dead bolt is operated separately by a thumb knob on opposite sides of the door, each locking against the other. Master key deadlocks both halves of the dead bolt either thrown or withdrawn making both thumb

**444 1/2**

knobs inoperative and placing the control in the hands of the management.

Lock with Single Dead Bolt

No. 444 3/4—Has latch bolt operated by knob from either side. Dead bolt is operated by thumb knob from one side only. Master key deadlocks the dead bolt when thrown or withdrawn making the thumb knob inoperative and placing the control in the hands of the management.

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolts, Strike: Cast bronze, polished.

Tumblers: Wrought.

Hubs: Bronze, $\frac{1}{8}$ and $\frac{1}{4}$ in.

Latch Bolt: Easy spring, type D.

Reversible: Yes.

Master Keying: See text and table.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.		Tumblers	Changes	Master keying	Thumb knob cast bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Spec.		Knob to thumb knob	Knob to key						
444 1/2	Flat	7 1/4 x 1 1/8	5 1/4 x 3 1/2 x 1 3/8	2 3/4	.....	1 3/8	3 3/8	2 1/8	4	640	Class 080 1/4	Two, 2145	Easy spring	\$12.00
444 3/4	Flat	7 1/2 x 1 1/8	5 1/4 x 3 1/2 x 1 3/8	2 3/4	.....	1 3/8	3 3/8	2 3/8	4	640	Class 080 1/4	One, 2145	Easy spring	10.65

PLATE 45**HOTEL LOCKS**

Prefix Letters for Finish. Description of Finishes, Plate 3



Illustrations one-fourth size

CYLINDER MORTISE CORRIDOR DOOR LOCKS FOR SMALL HOTELS

The locks in this group are recommended for moderate size hotels of approximately 200 rooms, when furnished with all the key functions as described.

For larger hotels we recommend the use of locks with our large master keyed cylinder. See No. 520 and 540 series on Plate 45.

Locks with Latch Bolt and Dead Bolt**Locks with Outside Knob Locked by Stop in Face***Cylinder Outside—Thumb Knob Inside*

No. 511—Latch bolt is operated by knob from either side and by guest, master, grand master and emergency keys from outside except when dead bolt is projected from the inside, in which case the emergency key only is operative. Emergency key also acts as a shut out against all other keys.

No. 510—Same as 511 but without emergency key. When dead bolt is projected from inside all keys are inoperative and door cannot be opened from the outside.

No. 513—Latch bolt is operated the same as in 511. When dead bolt is projected by thumb knob from the inside or by guest or emergency keys from the outside, master and

grand master keys are inoperative. Guest and emergency keys operative at all times. Emergency key does not act as a shut out against guest key.

No. 512—Same as 513 but without emergency key.

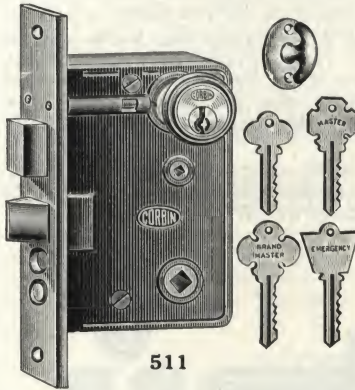
Locks with Outside Knob Always Rigid*Cylinder Outside—Thumb Knob Inside*

No. 515—Same as 511 except that knob operates latch bolt from the inside only.

No. 514—Same as 515 but without emergency key.

No. 517—Same as 513 except that knob operates latch bolt from inside only.

No. 516—Same as 517 but without emergency key.



511

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolt, Strike: Cast bronze, polished.

Bevel: $\frac{1}{8}$ on 2 in. Keys: Nickel silver.

Cylinder: Bronze. Latch Bolt: Easy spring.

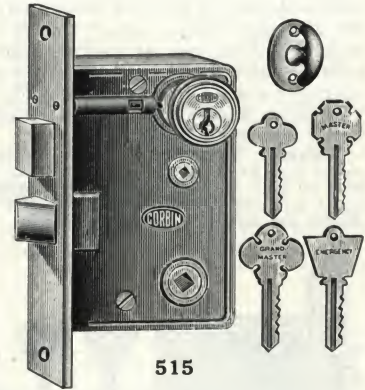
Hub: $\frac{3}{8} \times \frac{1}{8}$ -in. swivel and $\frac{1}{4}$ in.

Reversible: No. Specify hand and thickness of door.

Master Keying: In sets as desired with other Corbin

cylinders at least $1\frac{1}{4}$ in. in length.

Indicators: Furnished when specified.



515

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.		Cylinders	Keys Class 24	Master keying	Changes	Thumb knob	Latch bolt	Price each
	Type	Size, in.		Std.	Spec.		Knob to thumb knob	Knob to cylinder							
510, 514	Bevel	$7\frac{1}{2} \times 1$	$5\frac{5}{8} \times 3\frac{3}{8} \times \frac{1}{2}$	$21\frac{1}{2}$	.....	$11\frac{1}{4}$	$2\frac{3}{8}$	$3\frac{7}{8}$	One, 253 special	3	Class 024	Unlimited	One 2145	Easy spring	\$12.00
511, 515	Bevel	$7\frac{1}{2} \times 1$	$5\frac{5}{8} \times 3\frac{3}{8} \times \frac{1}{2}$	$21\frac{1}{2}$	.....	$11\frac{1}{4}$	$2\frac{3}{8}$	$3\frac{7}{8}$	One, 253 special	3	Class 024	Unlimited	One 2145	Easy spring	13.20
512, 516	Bevel	$7\frac{1}{2} \times 1$	$5\frac{5}{8} \times 3\frac{3}{8} \times \frac{1}{2}$	$21\frac{1}{2}$	.....	$11\frac{1}{4}$	$2\frac{3}{8}$	$3\frac{7}{8}$	One, 253 special	3	Class 024	Unlimited	One 2145	Easy spring	12.00
513, 517	Bevel	$7\frac{1}{2} \times 1$	$5\frac{5}{8} \times 3\frac{3}{8} \times \frac{1}{2}$	$21\frac{1}{2}$	.....	$11\frac{1}{4}$	$2\frac{3}{8}$	$3\frac{7}{8}$	One, 253 special	3	Class 024	Unlimited	One 2145	Easy spring	13.20

Locks with Latch Bolt Only

These locks are lighter and less expensive than those in the preceding group. They have the easy spring latch bolt but no dead bolt. The latch bolt can be dead locked from the inside.

to 505 but with duplicate guest key feature. Guest keys as well as emergency key will unlock door from outside at all times.

Locks with Outside Knob Locked by Stop in Face*Cylinder Outside—Thumb Knob Inside*

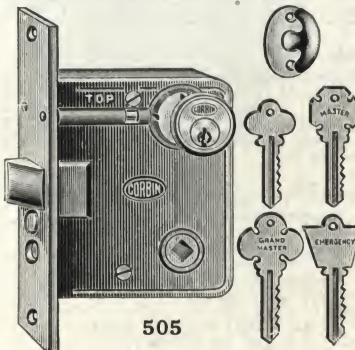
No. 505—Latch bolt is operated by knob from either side and by guest, master, grand master and emergency keys from outside except when latch bolt is dead locked by thumb knob from inside, in which case emergency key only is operative. No shut out feature.

No. 506—Similar

Locks with Outside Knob Always Rigid*Cylinder Outside—Thumb Knob Inside*

No. 507—Same as 505 except that knob operates latch bolt from inside only.

No. 508—Same as 507 but with duplicate guest key feature. Guest keys as well as emergency key will unlock door from outside at all times.



505

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolt, Strike: Cast bronze, polished.

Bevel: $\frac{1}{8}$ on 2 in. Keys: Nickel silver.

Cylinder: Bronze. Hub: $\frac{3}{8} \times \frac{1}{8}$ -in. swivel.

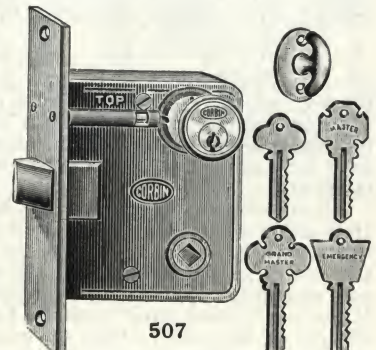
Thumb Knob Disc: No. 1253, special.

Latch bolt: Easy spring.

Reversible: No. Specify hand and thickness of door.

Master Keying: In sets as desired with other Corbin

cylinders at least $1\frac{1}{4}$ in. in length.



507

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.		Cylinders	Keys Class 24	Master keying	Changes	Thumb knob	Latch bolt	Price each
	Type	Size, in.		Std.	Spec.		Knob to thumb knob	Knob to cylinder							
505, 507	Bevel	$6\frac{7}{8} \times 1$	$4\frac{3}{8} \times 3\frac{3}{8} \times \frac{1}{2}$	$21\frac{1}{2}$	.....	$11\frac{1}{4}$	$2\frac{9}{16}$	$2\frac{13}{16}$	One, 253 special	3	Class 024	Unlimited	One 2145	Easy spring	\$14.75
506, 508	Bevel	$6\frac{7}{8} \times 1$	$4\frac{3}{8} \times 3\frac{3}{8} \times \frac{1}{2}$	$21\frac{1}{2}$	.....	$11\frac{1}{4}$	$2\frac{9}{16}$	$2\frac{13}{16}$	One, 253 special	3	Class 024	Unlimited	One 2145	Easy spring	14.75

**HOTEL LOCKS**

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 46

BITTED KEY, MORTISE LOCKS FOR HOTEL CORRIDOR DOORS

The bitted key locks listed under this heading are especially for use on doors from corridor to guest room and offer the greatest security to the guest. With the exception of No. 235½ all locks are of the double dead bolt type with

bolts operated from opposite sides. When the inside bolt is thrown by key or thumb knob, only the emergency key can operate the lock, thus giving absolute privacy to the guest.

High Grade, Bitted Key, Corridor Door Locks

Emergency Key only Will Operate Lock When Locked on Inside

No. 239½—Is the heavier lock and has 5 tumblers. The easy spring latch bolt is operated by knob from either side except that outside knob is rigid when inside bolt is thrown, thus serving the purpose of an extra bolt and indicating that room is occupied. There are two dead bolts. The lower bolt is thrown by guest key from the inside, key cannot be removed, and all keys are inoperative from the outside except the emergency key. Upper dead bolt operated from outside by guest's key, display, master, grand master and emergency keys. When locked with display key, all other keys are inoperative except the emergency key. When locked with the emergency key all other keys are inoperative. The emergency key is operative at all times.

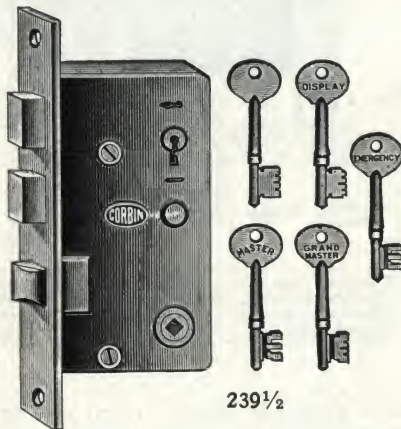
Master Keying—In one set of 2560, all different, with master key to pass, or in 16 sets of 160 each, the 2560 all different, with master keys to pass each set and a grand master key to pass all. Master keyed with other locks having 080¼ class master key. Furnished with display key only when so ordered.

No. 236½—Has 5 tumblers and same key operation as 239½ but is slightly smaller and has the upper bolt operated by thumb knob from the inside instead of by key. When locked by thumb knob from the inside, outside knob is made rigid.

No. 238½—Same as 239½ but a slightly lighter lock with 3 tumblers. Master keyed in 080 7/8 class.

No. 442½—Similar to 236½ except that knobs operate latch bolt at all times. It does not have the display and emergency key. Lower dead bolt locked by key from either side and upper bolt only by thumb knob from the inside. Has 4 tumblers, 640 changes but no indicator features.

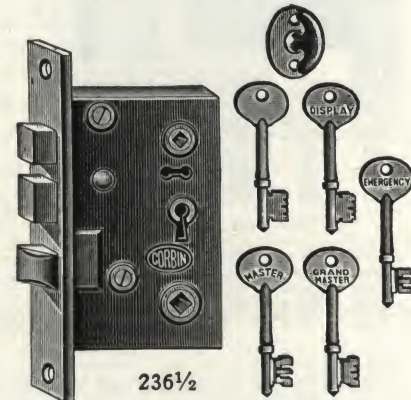
No. 443½—Same as 442½ except that when upper dead bolt is thrown by thumb knob from inside it can only be operated by the grand master key from the outside.



239½

GENERAL CONSTRUCTION

Case: Japanned iron.
Front, Bolts, Strike: Cast bronze, polished.
Bevel: Nos. 239½, 238½, 236½, ¼ in. on 2 in.
Keys: Nickelplated steel.
Tumblers: Wrought.
Hub: Bronze. Nos. 239½ and 238½, ⅝ in. Nos. 236½, 442½ and 443½, ⅞ and ⅝ in.
Latch Bolt: Easy spring.
Reversible: Nos. 239½, 238½ and 236½, no; Nos. 442½ and 443½, yes.
Master Keying: See text and table.
Indicator: Nos. 239½, 238½ and 236½ furnished with button when so ordered.



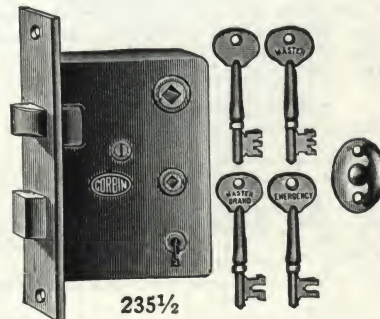
236½

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.		Tumblers	Key	Master keying	Changes	Thumb knob cast bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Spec.		Outside	Inside							
239½	Bevel	8½x1½	6¼x3½x1½	2¾	.....	1¼	2¾	4	5	One, 81¼	Class 080¼	2560	Without	Easy spring	\$15.35
236½	Bevel	7½x1½	5¼x3½x1½	2¾	.....	1¾	2¾	3¾	5	One, 81¼	Class 080¼	2560	One, 2145	Easy spring	13.75
238½	Bevel	8 x 1	6 x 3½x2¼	2¾	.....	1¼	2¾	3¼	3	One, 81¼	Class 080¼	2560	Without	Easy spring	10.85
442½	Flat	7½x1½	5¼x3½x1½	2¾	.....	1½	2¾	3¾	4	One, 80¼	Class 080¼	640	One, 2145	Easy spring	10.65
443½	Flat	7½x1½	5¼x3½x1½	2¾	.....	1½	2¾	3¾	4	One, 80¼	Class 080¼	640	One, 2145	Easy spring	10.65

Inexpensive, Bitted Key, Corridor Door Lock

No. 235½—This is a light, inexpensive lock for use on doors from corridor to guest room. It does not have the display key feature or the double dead bolt, and cannot be furnished with indicator.

Latch bolt can be operated by knob from either side at all times. Dead bolt is operated by thumb knob from the inside and by guest's, master, grand master and emergency keys from the outside. When locked from inside by thumb knob, all keys are inoperative from the outside except the emergency key. When locked by emergency key all other keys are inoperative.



235½

Master Keying—In 4 sets of 160 each or in 16 sets of 40 each, the 640 all different, with master keys to pass each set and, when so ordered, with a grand master key to pass all. Master keyed with other locks having 080¾ class master key.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front, Bolts, Strike: Cast bronze, polished.
Keys: Nickelplated steel.
Tumblers: Wrought.
Hubs: Bronze, ⅝ and ⅞ in.
Latch Bolt: Easy spring.
Reversible: Yes.
Master Keying: See text and table.
Indicator: Cannot be furnished.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Key	Changes	Master keying	Thumb knob cast bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Special									
235½	Flat	6½x1	4¾x3½x¾	2¾	.....	1¾	1¾x3¾	3	One, 80¼	610	Class 080¾	One, 2145	Easy spring	\$7.78

Illustrations
one-fourth size

LOCKS FOR SCHOOL HOUSES

A table is shown below in which are listed locks which are especially adapted to school house work. All locks for entrance, exit and classroom doors can be operated at all times from the inside.

For exterior doors panic or exit fixture should be used and are generally required by school jurisdiction and fire

laws. For these fixtures and locks refer to section Fire Exit Fixtures.

All locks in a building or in a number of schools may be master keyed in one set with a grand master key over all. Bitted key locks and cylinder locks when used in the same building require different master keying systems.

INDEX TO LOCKS FOR SCHOOLS

The locks for each service are arranged under groups according to quality. Group 1 is the highest quality

Use	Group 1		Group 2		Group 3		Use	Group 1		Group 2		Group 3	
	Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.		Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.
Main entrance...	See Corbin automatic exit fixtures, Pl. 64-68						Teachers' rooms...	01339½	51				
Side entrance...	See Corbin automatic exit fixtures, Pl. 64-68							1339	41				
Exits...	See Corbin automatic exit fixtures, Pl. 64-68							01339	41				
Class room...	1339½	51	1272½	48	1273½	48	Teachers', boys', girls' lavatories...	1339½	51	1365½	54	785½	54
	01339½	51	1270½	48	1271½	48	Closets...	01339½	51				
Principal...	1339½	51	1365½	54	785½	54		570¼	39	1365½	54	785½	54
	01339½	51					Pipe chases...	049	58	049	58	045	58
	1339	41						138	60	132½	61	0132½	61
Teachers' rooms...	01339	41					Auditorium...	*132½	61	See Corbin automatic exit fixtures, Pl. 64-68			
	1339½	51	1365½	54	785½	54							

*Bitted key lock. Cannot be master keyed with other locks in the group.

CYLINDER LOCKS FOR ENTRANCE OR CORRIDOR DOORS

Since the laws of most communities require the use of exit fixtures on entrance doors, cylinder locks have been especially developed for this service, and are included with the Exit Fixtures in a separate section (see index).

Cylinder locks as indicated in Group 1 are especially recommended for class room and other interior doors on all fine school buildings.

BITTED KEY LOCKS FOR CLASS ROOM DOORS

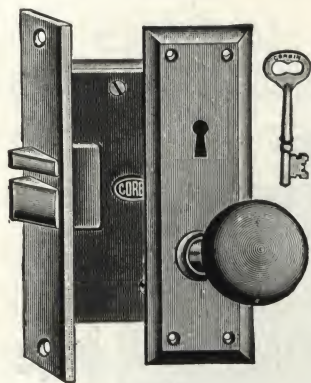
These locks are designed especially for corridor and classroom doors. They allow free operation of the knob for exit from the class room side at all times but afford required protection from entrance from the corridor side.

All locks have the latch bolt operated by knobs from either side. The inside knob is free to operate at all times. The outside knob can be locked rigid from either side by key.

These locks are furnished separately for convenience in ordering, in complete locksets with knobs and escutcheons in both America and Columbia. Designs as illustrated

below. These designs because of their simplicity have been found very appropriate for this service.

Lock No.	America Set No.	Columbia Set No.	Price Set
1272½	740-796	742-796	\$12.80
1273½	740-798	742-798	12.80
1270½	740-792	742-792	10.55
1271½	740-794	742-794	10.55



1272½
Shown in Columbia Design
Lockset 742-796

No. 1272½—Has the added protection of the auxiliary bolt which automatically dead locks the latch bolt when locked. It prevents the latch bolt from being retracted by any instrument inserted between the face of the lock and strike. When unlocked the auxiliary bolt is held retracted.

Master Keying—In 4 sets of 60 each or in 16 sets of 40 each, the 640 all different, with master keys to pass each set and, when so ordered, with a grand master key to pass all. Master keyed with other locks having 080½ master key.

No. 1273½—Is the same as 1272½ except that it has a different key and fewer changes.

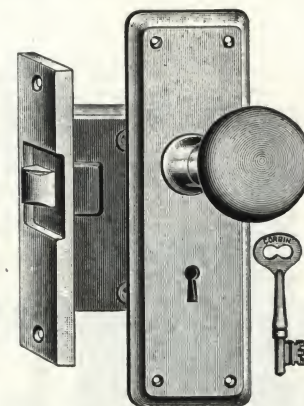
Master Keying—In 5 sets of 50 each, the 250 all different, with master key to pass each set and, when so ordered, with a grand master key to pass all. Master keyed with locks having 195 class master key.

No. 1270½—Has a recessed front with strike to match which gives the same protection to the latch bolt as the auxiliary latch on lock 1272½. The recessed front prevents the retraction of the latch bolt by any instrument inserted between the face of lock and strike.

Master Keying—Same as 1272½.

No. 1271½—Is the same as 1270½ except that it has a different key and fewer changes.

Master Keying—Same as 1273½.



1270½
Shown in America Design Lockset
740-792

GENERAL CONSTRUCTION

Case: Japanned iron.
Front, Bolts, Strike: Cast bronze.
Tumblers: Lever, wrought.
Keys: Nickel plated steel.
Hub: Bronze, ⅝ x ⅞ in. swivel.

Latch Construction: Easy spring.
Reversible: Nos. 1272½ and 1273½, yes.
Nos. 1270½ and 1271½, no. Specify hand.
Master Keying: See text and table.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Master keying	Changes	Latch bolt	Price, lock
	Type	Size, in.		Std.	Spec.								
1272½	Flat	7½ x 1½	5½ x 3¾ x 3½	2¾	.....	1¾	2½	3	One, 80½	Class 080½	640	Easy spring	\$7.55
1273½	Flat	7½ x 1½	5½ x 3¾ x 3½	2¾	.....	1¾	2½	3	One, 179¾	Class 195	250	Easy spring	7.55
1270½	Recessed	6½ x 1½	4½ x 3¾ x 1½	2½	.....	1½	2½	3	One, 80½	Class 080½	640	Easy spring	4.70
1271½	Recessed	6½ x 1½	4½ x 3¾ x 1½	2½	.....	1½	2½	3	One, 179¾	Class 195	250	Easy spring	4.70



LOCKS FOR SCHOOL HOUSES

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 48

ASYLUM OR INSTITUTION LOCKS

Illustrations
one-fourth size

These locks have been developed especially for asylums and institutions where the utmost care must be used to prevent picking and manipulating locks. The locks are of cylinder

der and bitted key types which may be master keyed under their own group for either very large or medium size buildings or groups of buildings.

CYLINDER MORTISE KNOB LOCKS

These are master keyed cylinder locks and special master keyed unit locks developed for this service. They may be master keyed with other cylinder locks in the same master key group.

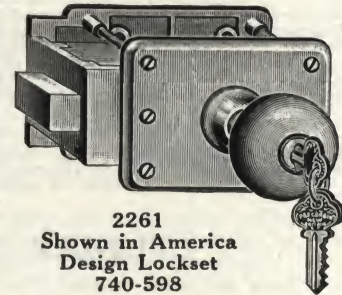
No. 1262—Has bolt operated by knob from either side. Bolt is locked by key from either side, either in thrown or retracted position, so that it cannot be operated by knobs.

Master Keying—In sets with other Corbin master keyed cylinder locks.

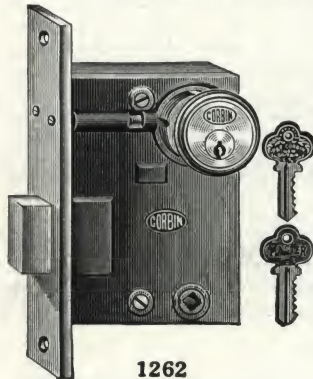
No. 2261—Unit lock, has bolt operated by knob from the outside. It has a cup pull on the inside escutcheon for pulling the door closed. Key from the outside locks the bolt in either thrown or retracted position so that it cannot be operated by the knob.

Furnished in America Design Lockset No. 740-598 with horizontal escutcheon.

Master Keying—In sets with other Corbin master keyed cylinder locks.



2261
Shown in America
Design Lockset
740-598



1262

GENERAL CONSTRUCTION

Case: No. 1262, japanned iron; No. 2261, cast bronze.
Front, Bolt, Strike: Bronze, polished. Bolt of 2261 has $\frac{5}{8}$ -in. throw.

Cylinder: Bronze.

Key: Nickel silver.

Reversible: No. 1262, yes; No. 2261, no. State hand and whether door opens in or out.

Master Keying: See text and table.

Lock No.	Front		Case size, in.	Backset, in.		Spacing in.	Cylinders	Keys class 27	Master keying	Changes	Price, each
	Type	Size, in.		Std.	Spec.						
1262	Flat	$7\frac{7}{8} \times 1\frac{1}{2}$	$5\frac{1}{2} \times 3\frac{3}{4} \times \frac{3}{4}$	$2\frac{3}{4}$	.....	$3\frac{3}{4}$	Two, 253 $\frac{1}{2}$	3	Class 027	Unlimited	\$17.35
2261	Bevel	$2 \times 1\frac{1}{2}$	$2 \times 3\frac{3}{4} \times 1\frac{1}{2}$	3	.....	.....	One, 250 $\frac{1}{2}$	3	Class 027	Unlimited	28.67*

*Price of set 740-598.

BITTED KEY MORTISE KNOB LOCKS

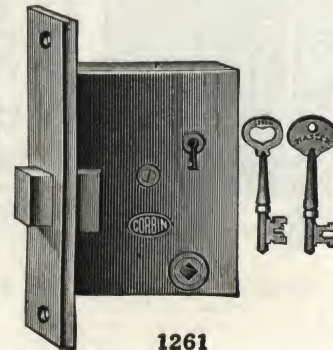
These locks are for the same service as the cylinder locks but are of the bitted key type.

No. 0695 $\frac{7}{8}$ —Is the heavier and better lock. It has a latch bolt operated by knob from either side and dead bolt by key from either side.

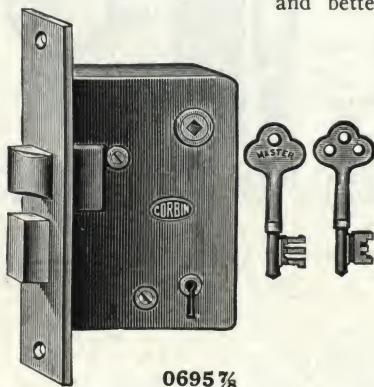
Master Keying—In 40 sets of 84 each, the 3360 all different, with master keys to pass each set and, when so ordered, with a grand master key to pass all.

No. 1261—Has only the dead bolt which can be thrown by knob from either side. Key locks the bolt from either side, either in locked or unlocked position, so that it cannot be operated by knobs. It has fewer changes than 0695 $\frac{7}{8}$.

Master Keying—In 4 sets of 160 each or in 16 sets of 40 each, the 640 all different, with master keys to pass each set and, when so ordered, with a grand master key to pass all.



1261



0695 $\frac{7}{8}$

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolts, Strike: Cast bronze, polished.

Tumblers: Wrought.

Key: Nickel-plated, steel.

Hub: Bronze, $\frac{1}{8}$ in.

Latch Construction: Easy spring, No. 0695 $\frac{7}{8}$, only.

Reversible: Yes.

Master Keying: See text and table.

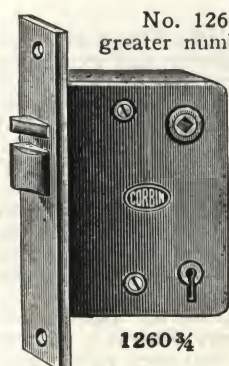
Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Key	Master keying	Changes	Latch bolt	Price, each
	Type	Size, in.		Std.	Spec.								
0695 $\frac{7}{8}$	Flat	$7\frac{7}{8} \times 1\frac{1}{2}$	$5\frac{1}{2} \times 3\frac{3}{4} \times \frac{7}{8}$	$2\frac{3}{4}$	.....	$1\frac{1}{2}$	$3\frac{3}{4}$	4	One, 82 $\frac{1}{2}$	Class 082 $\frac{1}{2}$	3360	Easy spring	\$11.80
1261	Flat	$7 \times 1\frac{1}{2}$	$4\frac{7}{8} \times 3\frac{3}{4} \times \frac{7}{8}$	$2\frac{3}{4}$	.....	.....	$2\frac{3}{4}$	3	One, 80 $\frac{1}{2}$	Class 080 $\frac{1}{2}$	640	.....	7.65

Illustrations
one-fourth size

ASYLUM LATCHES, BITTED KEY, MORTISE TYPE

These latches are for use from rooms to corridors. The knob is always rigid, and the latch bolt is operated by key

only from either side. As the knobs do not control the latch the door is automatically locked when closed.



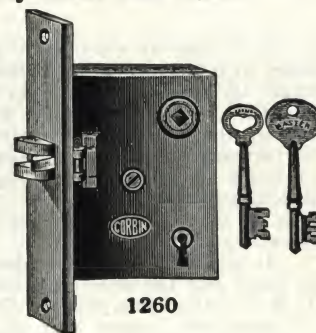
1260 3/4

No. 1260 3/4—Is the heavier lock and has the greater number of changes. It also has the auxiliary latch which prevents forcing of the latch bolt, when the door is closed, but does not prevent key from operating latch bolt. It has an easy spring latch bolt.

Master Keying—In 40 sets of 84 each, the 3360 all different, with master key to pass each set and, when so ordered, with grand master key to pass all.

No. 1260—Is a lighter lock than 1260 3/4. It does not have the auxiliary latch but has anti-friction latch bolt. It has fewer key changes than 1260 3/4.

Master Keying—In 16 sets of 40 each, the 640 all different, with master key to pass each set and, when so ordered, grand master key to pass all.



1260

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolt, Strike: Cast bronze, polished.

Tumblers: Wrought.

Key: Nickel-plated steel.

Hub: Bronze, 3/8 in.

Latch Construction: No. 1260 3/4, easy spring. No. 1260, anti-friction.

Reversible: Yes.

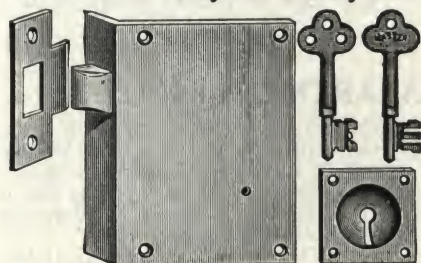
Master Keying: See text and table.

Lock No.	Front Type	Front Size, in.	Case size, in.	Backset, in. Std.	Backset, in. Spec.	Strike, lip to center, in.	Spacing, in.	Tumblers	Key	Master keying	Changes	Latch bolt	Price, each
1260 3/4	Flat	7 3/8 x 1 1/4	5 x 3 3/4 x 7 3/8	2 3/4	.....	1 1/4	3 1/2	4	One, 82 1/2	Class 082 3/4	3360	Easy spring	\$9.55
1260	Flat	6 3/8 x 1 1/8	4 1/4 x 3 1/2 x 7 1/8	2 3/8	.....	1 1/4	2 5/8	4	One, 80 1/4	Class 080 1/4	640	Anti-friction	7.35

ASYLUM LATCHES, BITTED KEY, HALF MORTISE AND RIM TYPES

These latches are both designed for the same service and can be operated only by key from the outside when door is closed. They are of heavy construction with a large

number of key changes for extensive master keying. The spring latch eliminates the necessity of locking the door with a key when leaving the room.

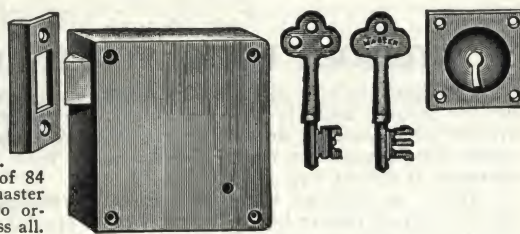


737 1/2

No. 737 1/2 Half Mortise Type—Concealed in the door except for a flush plate on the side. The latch bolt can be reversed for doors opening in.

No. 738 1/2 Rim Type—Secured to the face of the door with the whole case exposed. This latch cannot be reversed.

Master Keying—In 40 sets of 84 each, the 3360 all different, with master key to pass each set and, when so ordered, with grand master key to pass all.



738 1/2

GENERAL CONSTRUCTION

Case: Bronze.

Front, Bolt and Strike: Cast bronze, polished.

Tumblers: Wrought.

Keys: Nickel-plated steel.

Latch Bolt: Easy spring.

Reversible: No, except as noted above for No. 737 1/2, state hand.

Master Keying: With other locks having class 082 3/4 master key.

Escutcheon: Cast bronze, recessed, No. 2594.

Lock No.	Front Type	Front Size, in.	Case size, in.	Backset, in. Std.	Backset, in. Spec.	Strike, lip to center, in.	Tumblers	Escutcheon	Key	Master keying	Changes	Latch bolt	Price, each
737 1/2	Flat	5 1/4 x 1	5 1/4 x 3 3/4 x 7 3/8	2 3/4	.....	1 1/4	4	One, 2x2 in.	One, 82 1/2	Class 082 3/4	3360	Easy spring	\$10.65
738 1/2	Flat	4 x 1 1/8	4 x 3 3/4 x 7 3/8	2 3/8	.....	.....	4	One, 2x2 in.	One, 82 1/2	Class 082 3/4	3360	Easy spring	10.65

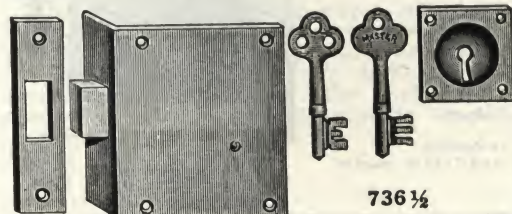
ASYLUM DEAD LOCKS, BITTED KEY, HALF MORTISE AND RIM TYPES

The locks illustrated are both designed for the same service and are locked by key from the outside only. They

are heavy locks with a large number of key changes for extensive master keying.

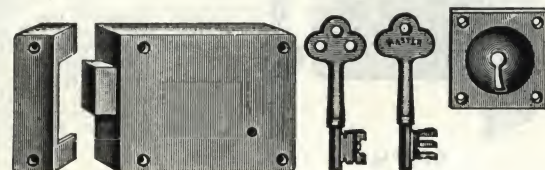
No. 736 1/2 Half Mortise Type—Concealed in the door except for flush plate.

No. 739 1/2 Rim Type—Secured to the face of the door. It costs slightly less than the half mortise type.



736 1/2

Master Keying—In 40 sets of 84 each, the 3360 all different, with master key to pass each set and, when so ordered, with grand master key to pass all.



739 1/2

GENERAL CONSTRUCTION

Case: Bronze.

Front, Bolt and Strike: Cast bronze, polished.

Tumblers: Wrought.

Keys: Nickel-plated steel.

Dead Bolt: Bronze, 1 1/4 x 1/2 in., 5/8 in. throw.

Reversible: No, state hand.

Master Keying: With other locks having class 082 3/4 master key.

Escutcheon: Cast bronze, recessed, No. 2594.

Lock No.	Front Type	Front Size, in.	Case size, in.	Backset, in. Std.	Backset, in. Spec.	Tumblers	Escutcheon	Key	Master keying	Changes	Price, each
736 1/2	Flat	4 1/4 x 1	4 1/4 x 3 3/4 x 7 3/8	2 3/4	.....	4	One, 2x2 in.	One, 82 1/2	Class 082 3/4	3360	\$10.65
739 1/2	Flat	3 x 1 1/8	3 x 3 3/4 x 7 3/8	2 3/8	.....	4	One, 2x2 in.	One, 82 1/2	Class 082 3/4	3360	8.90



ASYLUM LATCHES AND DEAD LOCKS

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 50

LOCKS FOR APARTMENT HOUSES

For Index to Residence Locks, see Plate 53

It is just as essential to the owner of an apartment house as it is to the hotel owner that good hardware be used. Locks for apartment houses must also be built to stand hard usage without any of the annoying inconveniences of jamming or otherwise getting out of order and must have a range of selection in types and keying to take care of the particular service under consideration.

It was with these considerations in mind and the wide experience of P. & F. Corbin in equipping all types of apartment houses that the suggestions given in these pages have been made. The architect is free to use the services of P. & F. Corbin experts to assist in selecting the locks which should be used with the various types of apartments such as apartment hotels, co-operative apartments and the regular apartment house, when, as often happens, the different types of apartments require a different treatment for control of the locks.

But in general, all apartment house locks should be under a com-

plete master keying system in order to afford maximum protection and convenience to the management and the tenant.

It is also essential that the keys of the locks of each apartment operate the locks of the main entrance and vestibule doors. The locks on the rear entrance door of each apartment, the storage room, garage, etc. may be keyed alike or all different but they should be subject to the entrance lock key of each individual apartment to which the storage room, garage, etc. belong.

The table at the left applies more to the type where there is a resident manager who furnishes valet, maid, janitor and dining room service. The individual apartment entrance door key, under these conditions, may be subject to the maids master key, and all sets subject to the grand master key controlled by the resident manager.

Locks for Residences—These are often similar in many ways to those used for apartments and may be keyed as described on Plate 53 to take care of various requirements.

INDEX TO LOCKS FOR APARTMENT HOUSES

Arranged according to use and grouped according to quality. Group 1 the highest quality

Where used	Group 1		Group 2	
	Lock No.	Plate No.	Lock No.	Plate No.
Main entrance doors	1347	40	1347	40
	01339 1/2	51	01339 1/2	51
	1339 1/2	51	1339 1/2	51
	0567 1/2	51	0567 1/2	51
	567 1/2	51	567 1/2	51
	569 1/2	41	569 1/2	41
Entrance doors to individual apartments	0569 1/2	41	0569 1/2	41
	01339	41	1343	53
	1339	41	1324	52
	01339 1/4	51	1325	52
Rear entrance	01339 3/4	51	.....	.....
Interior doors	1343	53	1343	53
	1364	54	785 3/4	54
	1365	54	785	54
Closet doors	049	58	045	58
Bathroom doors	049	58	045	58
French doors	049	58	045	58
	233	55	0159	55
French doors	*1341	52	787 3/4	55
	01365	56	1283	56

*Exterior doors.

CYLINDER LOCKS FOR ENTRANCE DOORS TO APARTMENT HOUSES

The latch bolt is operated by knobs from either side, but the outside knob is also controlled and made inoperative by key when so desired except 01339 1/4 in which the outside knob is always rigid. As the inside knob is always operative it allows exit at all times.

When so ordered the lock can be furnished so that the janitor's or master key only will control operation of outside knob. This is especially desirable in most cases as it allows absolute control of the entrance doors.

This type of lock is better suited for the above service than locks with the outside knob controlled by stop in the face of the lock, as the stops can be changed by any one when the door is open.

Nos. 0567 1/2 and 567 1/2 have master key cylinders and are recommended for large master keyed jobs. Nos. 01339 1/2, 01339 1/4, 01339 3/4 and 1339 1/2 have standard cylinders and are recommended for smaller master keyed jobs.

No. 0567 1/2—For doors

opening out. The latch bolt is operated by knob from either side and by key from outside at all times. The outside knob can be locked and made rigid by key from the inside. An auxiliary latch automatically locks the latch bolt so that it cannot be forced back when the door is closed, but does not prevent key or knobs from operating the latch bolt.

No. 567 1/2—Same as 0567 1/2 but without auxiliary latch.

No. 01339 1/2—Has auxiliary latch and gives the same service as 0567 1/2 but is lighter and is limited in master keying.

No. 01339 1/4—Same as 01339 1/2 but without an outside cylinder. The outside knob is always rigid and the latch bolt is held retracted by turn of key in the inside cylinder.

No. 01339 3/4—Same as 01339 1/2 but without an inside cylinder. Key in outside cylinder locks outside knob. When so ordered can be furnished with cylinder inside to control stop work from the inside instead of outside.

No. 1339 1/2—Same as 01339 1/2 but without auxiliary latch.

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolt, Strike: Cast bronze, polished.

Cylinders: Bronze.

Keys: Nickel silver.

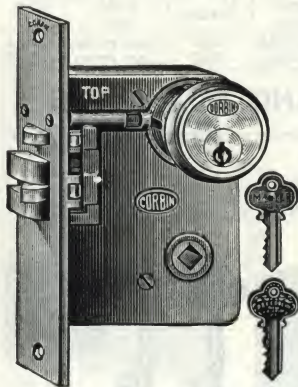
Hub: Bronze, 3/8 x 1/2-in. swivel.

Reversible: No. Specify hand and thickness of door.

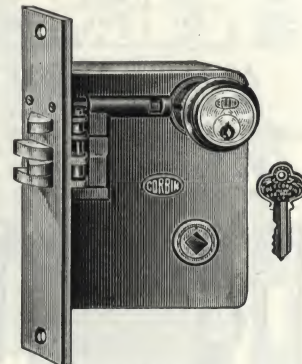
Latch Construction: Anti-friction.

Master Keying: Nos. 0567 1/2 and 567 1/2 in sets as desired.

Nos. 01339 1/2, 01339 1/4, 01339 3/4 and 1339 1/2, master keying limited.



0567 1/2



01339 1/2

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinders	Keys Class 27	Changes	Master keying	Latch bolt	Price, each
	Type	Size, in.		Std.	Special†								
0567 1/2	Bevel	8x1 1/4	5 3/8 x 3 3/4 x 3/4	2 3/4	3	1 1/4	3	Two, 253 1/2*	3	Unlimited	Class 027	Anti-friction	\$15.78
567 1/2	Bevel	8x1 1/4	5 3/8 x 3 3/4 x 3/4	2 3/4	3	1 1/4	3	Two, 253 1/2*	3	Unlimited	Class 027	Anti-friction	13.55
01339 1/2	Bevel	8x1 1/4	5 x 3 3/4 x 3/4	2 3/4	3	1 1/4	2 1/8	Two, 253*	3	Unlimited	Limited	Anti-friction	15.02
01339 1/4	Bevel	8x1 1/4	5 x 3 3/4 x 3/4	2 3/4	3	1 1/4	2 1/8	One, 253**	3	Unlimited	Limited	Anti-friction	12.78
01339 3/4	Bevel	8x1 1/4	5 x 3 3/4 x 3/4	2 3/4	3	1 1/4	2 1/8	One, 253†	3	Unlimited	Limited	Anti-friction	12.78
1339 1/2	Bevel	8x1 1/4	5 x 3 3/4 x 3/4	2 3/4	3	1 1/4	2 1/8	Two, 253	3	Unlimited	Limited	Anti-friction	12.80

†Width of case 1 in. more than backset. *Inside cylinder has short cam. **Cylinder has lazy cam. †Has short cam.

PLATE 51

LOCKS FOR APARTMENT HOUSES

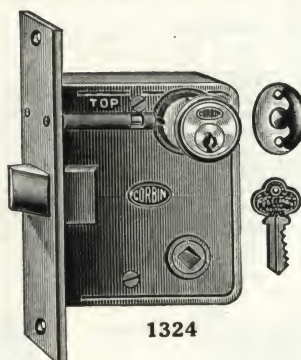
Prefix Letters for Finish. Description of Finishes, Plate 3



CYLINDER LOCKS FOR APARTMENT CORRIDOR DOORS

These locks are designed for use on the entrance doors to the individual apartments in a large apartment house. They are simple in construction, yet provide adequate protection for the occupants of the apartments.

No. 1324—The latch bolt is operated by knob from either side except when the latch bolt is dead locked by thumb piece from the inside or by key from the outside. Change key will unlock the door from the outside at all times.



1324

No. 1325—Same as 1324 except that it is furnished with an emergency key which is operative at all times and which enables the management to gain access to the apartment in case of emergency.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front, Bolt, Strike: Cast bronze, polished.
Cylinders: Bronze.
Keys: Nickel silver.
Hub: Bronze, $\frac{1}{8}$ in.
Reversible: Yes.
Latch Construction: Easy spring.
Master Keying: Limited.

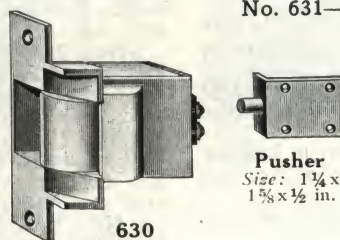
Lock No.	Front		Case size, in.	Backset, in.		Strike lip to center, in.	Spacing in.	Cylinders	Key Class 27	Master keying	Changes Changes	Thumb knob cast bronze	Latch bolt	Price each
	Type	Size, in.		Std.	Spec.									
1324	Flat	6 $\frac{7}{8}$ x1	4 $\frac{5}{8}$ x3 $\frac{3}{8}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$	None	1 $\frac{1}{4}$	2 $\frac{1}{8}$	One, 253	3	Limited	Unlimited	One, 2145	Easy spring	\$12.75
1325	Flat	6 $\frac{7}{8}$ x1	4 $\frac{5}{8}$ x3 $\frac{3}{8}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$	None	1 $\frac{1}{4}$	2 $\frac{1}{8}$	One, 253	3	Limited	Unlimited	One, 2145	Easy spring	13.85

ELECTRIC DOOR OPENERS

In apartment houses where no janitor service is provided it is customary to keep the front entrance door locked to prevent unauthorized persons gaining access to the building. These door openers permit the door to be opened by anyone in an apartment by merely pushing a button and without going to the door.

Operation is by means of an electro magnet which withdraws the strike when energized by pushing the button. The pusher which is mounted in the jamb opens the door beyond the strike, allowing it to be pushed open, giving admittance.

Regularly furnished to operate on 6 to 12 volts d-c.



630

These openers are also used on gates or any other barrier which it may be desirable to open from a distance.

No. 630—For use with standard mortise cylinder locks 1323, 1339, 563, 0563, 567, 0567, etc.

No. 631—For use with standard unit locks.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front and Trip: Cast bronze, polished.

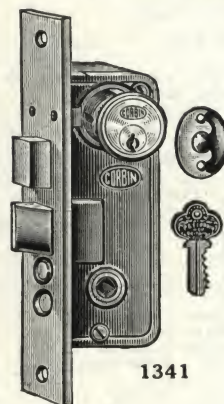
Opener No.	Front size, in.	Case size, in.	Price, each
630	4 $\frac{1}{2}$ x1 $\frac{1}{4}$	2 $\frac{1}{8}$ x3 $\frac{1}{8}$ x1	\$11.10
631	4 $\frac{1}{8}$ x1 $\frac{1}{2}$	2 $\frac{1}{8}$ x3 $\frac{1}{8}$ x1	13.35

CYLINDER NARROW MORTISE LOCKS FOR EXTERIOR FRENCH DOORS

With French Spring for Lever Handles.

These are high grade cylinder locks built especially narrow for French casement doors and lever handles. They give all the protection of the regular cylinder locks with the small cylinder.

No. 1341—Has an easy spring latch bolt operated from either side by lever handles except when outside handle is made inoperative by stops in face of lock. It is operated from outside by key at all times. The dead bolt is operated by key from outside and by thumb knob from inside.



1341

No. 2341—Same as 1341 but with $\frac{1}{2}$ -in. rabbeted front.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front, Bolts, Strike: Cast bronze, polished.
Cylinder: Bronze.
Keys: Nickel silver, 3 class 27.
Hubs: Bronze, $\frac{3}{8}$ x $\frac{1}{8}$ -in. swivel, French spring and $\frac{1}{8}$ in.
Latch Construction: Easy spring.
Reversible: No, state hand and door thickness.
Master Keying: Limited.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing in.	Cylinders	Changes	Thumb knob cast bronze	Price, each
	Type	Size, in.		Std.	Special						
1341	Beveled	7 $\frac{7}{8}$ x1 $\frac{1}{16}$	5 $\frac{3}{4}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	1 $\frac{1}{2}$	1, 1 $\frac{1}{4}$, 1 $\frac{3}{4}$, 2*	1 $\frac{1}{2}$	3 $\frac{7}{8}$	One, 253	Unlimited	One, 2145	\$15.00
2341	Rabbeted	7 $\frac{7}{8}$ x1 $\frac{1}{4}$	5 $\frac{3}{4}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	1 $\frac{1}{2}$	2*	1 $\frac{1}{2}$	3 $\frac{7}{8}$	One, 253	Unlimited	One, 2145	18.35

*Width of case 1 in. more than backset.



LOCKS FOR APARTMENT HOUSES—FRENCH
DOOR LOCKS

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 52

LOCKS FOR RESIDENCES

INDEX TO LOCKS FOR RESIDENCES GROUPED ACCORDING TO QUALITY

Where used	Group 1		Group 2		Group 3		Group 4		Where used	Group 1		Group 2		Group 3		Group 4	
	Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.		Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.	Lock No.	Plate No.
Front entrance doors	1345	53	1345	53	1343	53	1343	53	Exterior French doors	1341	52	1341	52	1341	52	1341	52
	1346	53	1346	53	1346	53	1346	53		2341	52	2341	52	2341	52	2341	52
	1349½	53	1349½	53	1348½	53	1348½	53	Interior French doors	01365½	56	787½	56	787½	56	1283	51
	2349½	53	2349½	53	2349½	53	2349½	53		049	58	045	58	785	54	045	58
Vestibule doors	1349½	53	1349½	53	1348½	53	1348½	53	Closet doors	1364½	54	785½	54	785½	54	785½	54
	1339	41	1339	41	1323	41	1323	41		1365½	51	795½	54	795½	54	795½	54
Side entrance doors	1345	53	1345	53	1343	53	1343	53	Bathroom doors	159½	55	159	55	159	55	159	55
	1346	53	1346	53	1348½	53	1348½	53		233½	55	0159	55	0159	55	0159	55
Rear entrance doors	1343	53	1343	53	1343	53	1343	53	Communicating doors	159½	55	159½	55	159½	55	159½	55
	1364	54	785½	54	785	54	045	58		159½	55	159½	55	159½	55	159½	55
Interior doors	1364½	54	795½	54	785½	54	785	54	Bedroom doors	233	55	327½	55	328	55	785	54
	1365½	54	2785½	54	795½	54	2785	54		233½	55	785½	54	327	55	0159	55
	2364	54	.....	.....	2785½	54	.....	.....		0233	55	795½	54	785	54	785	54
	2364½	54	.....	.....	.....	.....	.....	.....		0233½	55	.....	.....	785½	54	.....	.....
	2365	54	.....	.....	.....	.....	.....	.....		1364	54	.....	.....	.....	.....	.....	.....
	2365½	54	.....	.....	.....	.....	.....	.....		1361½	54	.....	.....	.....	.....	.....	.....
	2365½	54	.....	.....	.....	.....	.....	.....		1365	54	.....	.....	.....	.....	.....	.....
	2365½	58	.....	.....	.....	.....	.....	.....		1365½	54	.....	.....	.....	.....	.....	.....

CYLINDER MORTISE LOCKS FOR ENTRANCE DOORS

Locks with Knobs Both Sides

No. 1345—A heavy lock with standard cylinder. Antifriction latch bolt operated by knob from either side and key from outside at all times. Dead bolt operated by key from outside and by thumb from inside. Outside knob is locked by stop in face.

No. 1346—Same as 1345 but has ½-in. rabbeted front.

No. 1343—Similar to 1345 but lighter and has an easy spring latch bolt.

No. 1353—Similar to 1343 but has double throw dead bolt.

No. 1354—Similar to 1353 but dead bolt is operated by key from either side.

No. 2343—Same as 1343 but has ½-in. rabbeted face.

No. 01350—A heavy lock for doors opening out. Has easy spring latch bolt, dead bolt and auxiliary latch. Operates same as 1345. Auxiliary latch automatically locks latch bolt when door is closed but does not prevent knob or key from operating latch bolt.

Locks with Handle and Thumb Piece Outside and Knob Inside

No. 1349½—A heavy lock with easy spring latch bolt operated by thumb piece from outside and by knob from inside. The thumb piece is locked by stop in face of lock. Also has dead bolt operated by key from outside and thumb knob inside. Both bolts operated by key from outside at all times.

No. 2349½—Same as 1349½ except it has a rabbeted front. When ordering state hand, as it is not reversible.

No. 1349¼—Similar to 1349½ but is without dead bolt and thumb knob. It is used as a vestibule latch.

No. 1348½—Similar to 1349½ but lighter. It gives the same service.

No. 1348¼—Similar to 1349¼ but lighter. It gives the same service.

GENERAL CONSTRUCTION

Case: Japanned iron. Front, Bolts, Strike: Cast bronze, polished.

Cylinders: Bronze. Keys: Nickel silver.

Hub: Bronze, Nos. 1345, 1346, 1343, 1353 and 1354, ⅝ x ⅞ in. swivel and ⅞ in.

Nos. 1349½, 2349½, and 1349¼, ⅞ in.

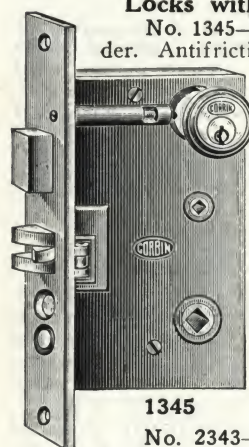
Latch Construction: Nos. 1345 and 1346, anti-friction.

Nos. 1343, 1349½, 2349½, 1349¼, 1353 and 1354, easy spring.

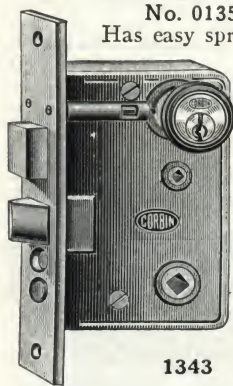
Reversible: Nos. 1345, 1346 and 2349½, no. Specify hand and thickness of door.

Nos. 1343, 1349½, 1349¼, 1353 and 1354, yes.

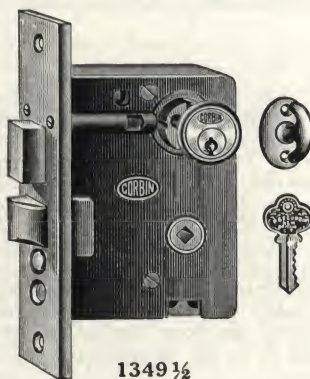
Master Keying: Limited.



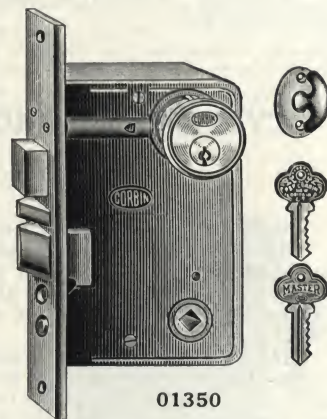
1345



1343



1349½



01350

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.		Cylinder	Keys Class 27	Master keying	Changes	Thumb knob cast bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Special		Knob to thumb	Knob to cylinder							
1345	Bevel	9½ x 11¼	6½ x 3½ x 3¼	2½	2, 2½, 3, 3½, 4, 4½†	1½	2½	4½	One, 253	3	Limited	Unlimited	One, 2145	Anti-friction	\$13.35
1346	Rabbeted	9 x 11½	6¼ x 4 x 3¼	3	2½, 3½†	1½	2½	4½	One, 253	3	Limited	Unlimited	One, 2145	Anti-friction	17.75
1343	Flat	7½ x 1	5½ x 3½ x ¾	2½	2¼*	1¼	2½	3½	One, 253	3	Limited	Unlimited	One, 2145	Easy spring	10.55
2343	Rabbeted	7½ x 1½	5½ x 3½ x ¾	2½	2	1½	2½	3½	One, 253	3	Limited	Unlimited	One, 2145	Easy spring	13.60
1353	Flat	7½ x 1	5½ x 3½ x ¾	2½	2	1¼	2½	3½	One, 253	3	Limited	Unlimited	One, 2145	Easy spring	14.45
1354	Flat	7½ x 1	5½ x 3½ x ¾	2½	2**	1¼	2½	3½	Two, 253	3	Limited	Unlimited	Without	Easy spring	15.55
01350	Beveled	8½ x 11¼	6½ x 3½ x ¾	2½	2	1½	2½	3½	One, 253½	3	Unlimited	Unlimited	One, 2145	Easy spring	14.50
1349½	Flat	7½ x 1¼	5¼ x 3½ x ¾	2¼	2, 3*	1½	2½	2½	One, 253	3	Limited	Unlimited	One, 2145	Easy spring	11.10
2349½	Rabbeted	7½ x 1½	5¼ x 3½ x ¾	2¼	2	1½	2½	2½	One, 253	3	Limited	Unlimited	One, 2145	Easy spring	14.05
1349¼	Flat	7½ x 1¼	5¼ x 3½ x ¾	2¼	2, 3*	1½	2½	2½	One, 253	3	Limited	Unlimited	Without	Easy spring	10.00
1348½	Flat	7½ x 1	5¼ x 3½ x ¾	2½	2	1½	2½	2½	One, 253	3	Limited	Unlimited	One, 2145	Easy spring	10.55
1348¼	Flat	7½ x 1	5¼ x 3½ x ¾	2½	2	1½	2½	2½	One, 253	3	Limited	Unlimited	One, 2145	Easy spring	8.90

*Width of case 1½ in. more than backset. †Width of case 1 in. more than backset.

**Width of case 1¼ in. more than backset.

PLATE 53

LOCKS FOR RESIDENCES

Prefix Letters for Finish. Description of Finishes, Plate 3



Illustrations
one-fourth size

BITTED KEY MORTISE LOCKS FOR INTERIOR DOORS

These locks are for similar service. They all have an easy spring latch bolt operated by knob from both sides and a dead bolt operated by key from either side.

They differ in quality and weight of lock, key changes, master keying and flat or rabbeted face. They are arranged according to quality and master keying facilities.

High Grade Locks

No. 1376½—A heavy high grade lock with four tumblers. 2100 changes and master key.

Master Keying—In 6 sets of 350 each, or in 25 sets of 84 each, the 2100 all different with master key for each set and grand master key to pass all.

No. 1375½—A high grade lock similar to 1376½ but has 3 tumblers and is slightly smaller. Has 2184 changes.

Master Keying—In 6 sets of 364 each, or 26 sets of 84 each, the 2184 all different, with master key for each set and, when so ordered, with grand master key to pass all.

No. 1366½—Similar to 1376½ but with 640 changes and different class master key.

Master Keying—In 16 sets of 40 each, the 640 all different, with master key for each set and, when so ordered, grand master key to pass all.

No. 1366—Same as 1366½ but not master keyed.

No. 1365½—A good grade lock similar to 1375½ but a lighter lock with 640 changes and different class master key.

Master Keying—In 4 sets of 160 each, or 16 sets of 40 each, the 640 all different, with master key for each set and, when so ordered, with grand master key to pass all.

No. 1365—Same as 1365½ but not master keyed.

No. 1364½—Similar to 1365½ but with lighter and smaller case.

No. 1364—Same as 1364½ but not master keyed.

Medium Grade Locks

No. 795½—Similar to 1365, with 3 tumblers but is a less expensive lock having iron hub and cheaper construction. It is master keyed and has 250 changes.

Master Keying—In 5 sets of 50 each, the 250 all different, with master key to pass each set and, when so ordered, with grand master key to pass all.

No. 795¼—Same as 795½ but with 36 changes. Not master keyed.

No. 795—Same as 795¼ but with only 1 tumbler and 24 changes.

Inexpensive Locks

No. 785½—A good but inexpensive lock with small case, iron hub, 3 tumblers and 250 changes.

Master Keying—In 5 sets of 50 each, the 250 all different, with master key to pass each set and, when so ordered, with grand master key to pass all.

No. 785¼—Similar to 785½ but with 36 changes, not master keyed.

No. 785—Similar to 785¼ but with 1 tumbler and 24 changes. Not master keyed.

Rabbeted Face Locks

No. 2375½—Same as 1375½ but with ½-in. rabbeted front.

No. 2365½—Same as 1365½ but with ½-in. rabbeted front.

No. 2365—Same as 1365 but with ½-in. rabbeted front.

No. 2364½—Same as 1364½ but with ½-in. rabbeted front.

No. 2364—Same as 1364 but with ½-in. rabbeted front.

No. 2785½—Same as 785½ but ½-in. rabbeted front.

No. 2785¼—Same as 785¼ but ½-in. rabbeted front.

No. 2785—Same as 785 but with ½-in. rabbeted front.

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolts, Strike: Cast bronze, polished.

Tumblers: Wrought.

Keys: Nickel-plated steel.

Hubs: Nos. 1376½, 1366½, 1366, 1375½, 1365½, 1365, 1364½, 1364, 2375½, 2365½, 2365, 2364½ and 2364, bronze, ¼ in.

Nos. 795½, 795¼, 795, 785½, 785¼, 785, 2785½, 2785¼ and 2785, iron, ¼ in.

Reversible: All locks reversible except those with rabbeted face, for these state hand.

Latch Bolt: Easy spring. Nos. 795½, 795¼, 795, 785½, 785¼, 785, 2785½, 2785¼ and 2785, type B.

Nos. 1364½, 1364, 2364½ and 2364, type C.

Nos. 1376½, 1375½, 1366½, 1366, 1365½, 1365, 2375½, 2365½ and 2365, type D.

Master Keying: See text and table.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Key	Master keying	Changes	Latch bolt	Price, each
	Type	Size, in.		Std.	Special								
1376½	Flat	6½ x 1½	4¼ x 3½ x 1½	2¾	.....	1¾	2½	4	One, 80	Class 080	2100	Easy spring	\$6.65
1375½	Flat	6¼ x 1	4¼ x 3½ x 1½	2¾	.....	1¾	2½	3	One, 81¼	Class 081¼	2184	Easy spring	5.55
1366½	Flat	6½ x 1½	4¼ x 3½ x 1½	2¾	*2¼, 3	1¾	2½	4	One, 80¼	Class 080¼	640	Easy spring	5.45
1366	Flat	6½ x 1½	4¼ x 3½ x 1½	2¾	*2¼, 3	1¾	2½	4	One, 80¼	Without	640	Easy spring	5.00
136½	Flat	6¼ x 1	4¼ x 3½ x 1½	2¾	*3¼	1¾	2½	3	One, 80¾	Class 080¾	640	Easy spring	4.35
1365½	Flat	6¼ x 1	4¼ x 3½ x 1½	2¾	*3¼	1¾	2½	3	One, 80¾	Without	640	Easy spring	3.90
1365	Flat	6¼ x 1	4¼ x 3½ x 1½	2¾	*2¼	1	2½	3	One, 80¾	Class 080¾	640	Easy spring	3.33
136½	Flat	5½ x 1	3¾ x 3½ x 1½	2¾	*2¼	1	2½	3	One, 80¾	Without	640	Easy spring	2.89
136½	Flat	5½ x 1	3¾ x 3½ x 1½	2¾	*2¼	1	2½	3	One, 80¾	Without	640	Easy spring	2.89
795½	Flat	6½ x 1	4¼ x 3½ x 1½	2¾	.....	1	2½	3	One, 179¾	Class 195	250	Easy spring	3.45
795¼	Flat	6½ x 1	4¼ x 3½ x 1½	2¾	.....	1	2½	3	One, 179¾	Without	36	Easy spring	3.00
795	Flat	6½ x 1	4¼ x 3½ x 1½	2¾	.....	1	2½	1	One, 179¾	Without	24	Easy spring	2.65
785½	Flat	5½ x 1½	3¾ x 3½ x 1½	2¾	12¼	1	2½	3	One, 179¾	Class 195	250	Easy spring	2.22
785¼	Flat	5½ x 1½	3¾ x 3½ x 1½	2¾	12¼	1	2½	3	One, 179¾	Without	36	Easy spring	1.78
785	Flat	5½ x 1½	3¾ x 3½ x 1½	2¾	12¼	1	2½	1	One, 179¾	Without	24	Easy spring	1.45
2375½	Rabbeted	6½ x 1½	4¼ x 3½ x 1½	2¾	.....	1½	2½	3	One, 81¼	Class 081¼	2184	Easy spring	7.80
2365½	Rabbeted	6½ x 1½	4¼ x 3½ x 1½	2¾	*1¾, 1½, 2, 2¼	1½	2½	3	One, 80¾	Class 080¾	640	Easy spring	6.55
2365	Rabbeted	6½ x 1½	4¼ x 3½ x 1½	2¾	*1¾, 1½, 2, 2¼	1½	2½	3	One, 80¾	Without	640	Easy spring	6.10
236½	Rabbeted	5½ x 1½	3¾ x 3½ x 1½	2¾	.....	1½	2½	3	One, 80¾	Class 080¾	640	Easy spring	5.55
2364	Rabbeted	5½ x 1½	3¾ x 3½ x 1½	2¾	.....	1½	2½	3	One, 80¾	Without	640	Easy spring	5.11
2785½	Rabbeted	5½ x 1½	3¾ x 3½ x 1½	2¾	.....	1	2½	3	One, 179¾	Class 195	250	Easy spring	3.90
2785¼	Rabbeted	5½ x 1½	3¾ x 3½ x 1½	2¾	.....	1	2½	3	One, 179¾	Without	36	Easy spring	3.45
2785	Rabbeted	5½ x 1½	3¾ x 3½ x 1½	2¾	.....	1	2½	1	One, 179¾	Without	24	Easy spring	3.10

*Width of case ¾ in. more than backset. †Width of case 1½ in. more than backset.



LOCKS FOR INTERIOR DOORS

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 54

Illustrations one-fourth size

BITTED KEY MORTISE LOCKS FOR BEDROOM AND BATH ROOM DOORS

Locks with Latch Bolt and Single Dead Bolt

No. 0233½—The heavier and better lock. The latch bolt is operated by knob from either side at all times. The single dead bolt is operated by key from the outside and thumb knob inside. This lock has 4 tumblers and 640 changes.

Master Keying—In 16 sets of 40 each, the 640 all different, with master keys to pass each set and, when so ordered, is supplied with grand master to pass all.

No. 0233—Same as 0233½ but is not master keyed.

No. 233½—Similar to 0233½ but has 3 tumblers.

Master Keying—In 4 sets of 160 each, or in 16 sets of 40 each, the 640 different, with master keys to pass each set and, when so ordered, with grand master to pass all.

No. 233—Same as 233½ but is not master keyed.

Locks with Latch Bolt and Double Dead Bolt

No. 227½—A three bolt lock with a latch bolt operated by knob from either side at all times, and two dead bolts. The upper dead bolt is operated by key from either side and the lower one by thumb knob from the inside only.

Master Keying—In 4 sets of 160 each, or in 16 sets of 40 each, the 640 all different, with master keys to pass each set and, when so ordered, with grand master key to pass all.

No. 227—Same as 227½ but not master keyed.

No. 327½—Same as 227½ except key and changes.

Master Keying—In 5 sets of 50 each, the 250 all different, with master keys to pass each set and, when so ordered, with a grand master key to pass all.

No. 327—Same as 227 except key and changes.

No. 326—Same as 327 except tumblers and changes.

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolts, Strike: Cast bronze, polished.

Keys: Nickel-plated steel.

Tumblers: Wrought.

Hub: Nos. 0233, 0233½, 233, 233½, 227 and 227½, bronze, ⅝ and ⅞ in.

Nos. 326, 327 and 327½, iron, ⅝ and ⅞ in.

Latch Bolt: Nos. 0233 and 0233½, easy spring type D.

Nos. 233, 233½, 227 and 227½, easy spring type C.

Nos. 326, 327 and 327½, easy spring type B.

Reversible: Yes.

Master Keying: See table and text.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.		Tumblers	Key	Master keying	Changes	Thumb knob cast bronze	Latch bolt	Price each
	Type	Size, in.		Std.	Special		Knob to thumb knob	Knob to key							
0233½	Flat	7¼x1½	5 x 3½x3½	2¾	.....	1¾	2	3½	4	One, 80¾	Class 080¾	640	One, 2145	Easy spring	\$8.25
0233	Flat	7¼x1½	5 x 3½x3½	2¾	.....	1¾	2	3½	4	One, 80¾	Without	640	One, 2145	Easy spring	7.80
233½	Flat	6½x1	4½x3½x3½	2¾	.....	1¾	1¾	3½	3	One, 80¾	Class 080¾	640	One, 2145	Easy spring	7.10
233	Flat	6½x1	4½x3½x3½	2¾	.....	1¾	1¾	3½	3	One, 80¾	Without	640	One, 2145	Easy spring	6.65
227½	Flat	6½x1½	4½x3½x3½	2½	.....	1	3½	2½	3	One, 80¾	Class 080¾	640	One, 2145	Easy spring	6.70
227	Flat	6½x1½	4½x3½x3½	2½	.....	1	3½	2½	3	One, 80¾	Without	640	One, 2145	Easy spring	6.25
327½	Flat	6½x1½	4½x3½x3½	2½	.....	1¼	3½	2½	3	One, 179¼	Class 195	250	One, 2145	Easy spring	4.89
327	Flat	6½x1½	4½x3½x3½	2½	.....	1¼	3½	2½	3	One, 179¼	Without	36	One, 2145	Easy spring	4.45
326	Flat	6½x1½	4½x3½x3½	2½	.....	1¼	3½	2½	1	One, 179¼	Without	24	One, 2145	Easy spring	4.00

BITTED KEY MORTISE LOCKS FOR COMMUNICATING AND BATH ROOM DOORS

These locks are not master keyed. They are satisfactory for residences and apartment houses and are also used for hotels. They do not give the hotel management the control of the rooms which the master keyed locks do.

See index for communicating door locks with key control.

Two types of locks are illustrated. They both have the

Locks with Split Dead Bolt

No. 159¾—A good grade lock for use between communicating bedrooms. The dead bolt is of the split type, each half controlled separately by thumb knobs on opposite sides of the door, one half dead locking against the other. This lock is not master keyed. Latch bolt is operated by knob from either side.

No. 159¼—Same control as 159¾ but a lighter and cheaper lock.



latch bolt operated by knobs from either side at all times. Those having the split dead bolt are for use between communicating bedrooms or between bedrooms and communicating bathroom, as the locks can be deadlocked from opposite sides. Those having single dead bolt are for use in bathrooms off of bedrooms or halls. They have the bolt controlled from the room side only.

Locks with Single Bolt

No. 159½—A good lock of the same grade as 159¾. It has a single dead bolt operated by thumb knob from one side only. Latch bolt is operated by knob from either side.

Nos. 0159 and 159—Lighter and cheaper locks than 159½. They are for the same service but 0159 has the dead bolt operated from the outside by an emergency key as well as by thumb knob from the inside.

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolts, Strike: Cast bronze, polished.

Key: No. 0159 only; nickel-plated steel.

Hubs: Nos. 159¾ and 159½, bronze, ⅝ and ⅞ in.

Nos. 159¼, 0159 and 159, iron, ⅝ and ⅞ in.

Reversible: Yes.

Latch Bolt: Easy spring, Nos. 159¾ and 159½, type D.

Nos. 159¼, 0159 and 159, type B.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing in.	Thumb knob cast bronze	Latch bolt	Price each
	Type	Size, in.		Std.	Special†					
159¾	Flat	6¼x1	4¼x3½x3½	2¾	.....	1	2½	Two, 2145	Easy spring	\$5.55
159½	Flat	5½x1½	3½x3½x3½	2½	.....	1	2½	Two, 2145	Easy spring	2.75
159¼	Flat	6¼x1	4¼x3½x3½	2¾	.....	1	2½	One, 2145	Easy spring	4.35
*0159	Flat	5½x1½	3½x3½x3½	2½	.....	1	2½	One, 2145	Easy spring	1.90
159	Flat	5½x1½	3½x3½x3½	2½	.....	1	2½	One, 2145	Easy spring	1.80

*Furnished with one key, class 359½. †Width of case ⅞ in. more than backset.

Illustrations one-fourth size

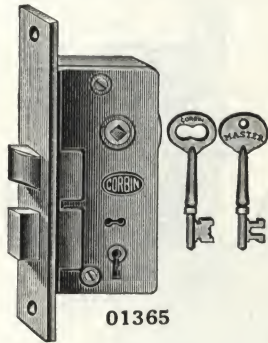
BITTED KEY NARROW MORTISE LOCKS FOR INTERIOR FRENCH DOORS*With French Spring Hubs for Carrying Lever Handles*

When handles are used on French doors a different type of lock from the regular knob lock is required. These locks are made with a latch bolt having a French spring

which offsets the tendency of the weight of the lever handle to unlatch the door. The locks for this service are made narrow to accommodate the usual narrow stiles of this type of door.

High Grade Locks

No. 01365 $\frac{7}{8}$ —A high grade substantial lock for use with either lever handles or knobs. The easy spring latch bolt has a French spring, controlling the hub. Latch bolt is operated by knob or lever handle from either side. The dead bolt is operated by key from either side. This is a 3 tumbler lock with 640 changes, master keyed.

**01365**

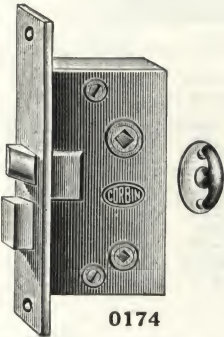
Master Keying—In 4 sets of 160 each, or in 16 sets of 40 each, the 640 all different, with master key for each set and, when so ordered, with grand master key to pass all.

No. 01365—Same as 01365 $\frac{7}{8}$ but is not master keyed.

No. 02365 $\frac{7}{8}$ —Same as 01365 $\frac{7}{8}$ but has $\frac{1}{2}$ -in. rabbeted front. State hand.

No. 02365—Same as 01365 but with $\frac{1}{2}$ -in. rabbeted front. State hand.

No. 0174—Also a high grade substantial lock and differs from 01365 in that the deadlock is operated by thumb knob from one side only instead of by key. The latch bolt is operated by knob or lever handle from either side. Hub has the French spring for lever handles.

**0174**

No. 0174 $\frac{1}{2}$ —Same as 0174 but has $\frac{1}{2}$ -in. rabbeted front. State hand.

Medium Grade Locks

These locks are lighter and less expensive than the previous group and with fewer key changes. They have the French spring hub but hub is made of iron.

No. 787 $\frac{7}{8}$ —Similar to 01365 $\frac{7}{8}$ but lighter and with fewer key changes. Latch bolt operated by knob or lever handle from either side and dead bolt by key from either side.

Master Keying—In 5 sets of 50 each, the 250 all different, with master key for each set and, when so ordered, with grand master key to pass all.

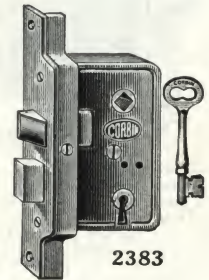
No. 787 $\frac{3}{4}$ —Same as 787 $\frac{7}{8}$ but has 36 changes. Not master keyed.

No. 787—Same as 787 $\frac{3}{4}$ but with 1 tumbler and 24 changes.

No. 2787 $\frac{7}{8}$ —Same as 787 $\frac{7}{8}$ but with $\frac{1}{2}$ -in. rabbeted front.

No. 2787 $\frac{3}{4}$ —Same as 787 $\frac{3}{4}$ but with $\frac{1}{2}$ -in. rabbeted front.

No. 2787—Same as 787 but with $\frac{1}{2}$ -in. rabbeted front.

**2383****Inexpensive Locks**

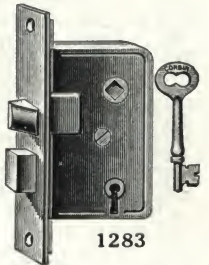
These locks are an inexpensive and lighter type. They have the French spring hub of iron.

No. 1283—Has 1 tumbler and 12 changes. The latch bolt is operated by knob or lever handle from either side and dead bolt by key from either side. Front is of wrought bronze.

No. 2383—Same as 1283 but with reversible rabbeted front.

No. 0173—Without key. Latch bolt is operated by knob or lever handle from either side, dead bolt by thumb knob from inside only.

No. 0173 $\frac{1}{2}$ —Same as 0173 but with $\frac{1}{2}$ -in. reversible rabbeted front.

**1283****GENERAL CONSTRUCTION**

Case: Japanned iron.

Front: Nos. 01365 $\frac{7}{8}$, 01365, 02365 $\frac{7}{8}$, 02365, 0174 $\frac{1}{2}$, 0174, 787 $\frac{7}{8}$, 787 $\frac{3}{4}$, 787, 2787 $\frac{7}{8}$, 2787 $\frac{3}{4}$ and 2787, cast bronze, polished.

Nos. 0173, 0173 $\frac{1}{2}$, 1283 and 2383, wrought bronze, polished.

Bolts and Strike: Cast bronze, polished.

Tumblers: Wrought, except Nos. 1283 and 2383, cast.

Keys: Nickel-plated steel.

Latch Bolt: Easy spring.

Hub: Nos. 01365 $\frac{7}{8}$, 01365, 2365 $\frac{7}{8}$, 2365, 0173, 0173 $\frac{1}{2}$, 0174 and 0174 $\frac{1}{2}$, bronze, $\frac{7}{8}$ in. with French spring. Nos. 0173, 0173 $\frac{1}{2}$, 0174 and 0174 $\frac{1}{2}$ also $\frac{7}{8}$ in.

Nos. 787 $\frac{7}{8}$, 787 $\frac{3}{4}$, 787, 2787 $\frac{7}{8}$, 2787 $\frac{3}{4}$, 2787, 1283 and 2383 iron $\frac{7}{8}$ -in. with French spring.

Reversible: Nos. 02365 $\frac{7}{8}$, 02365, 0174 $\frac{1}{2}$, 2787 $\frac{7}{8}$, 2787 $\frac{3}{4}$ and 2787, no. State hand.

All others, yes.

Master Keying: See text and table.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Thumb knob cast bronze	Key	Master keying	Changes	Latch bolt	Price, each
	Type	Size, in.		Std.	Special									
01365 $\frac{7}{8}$	Flat	6 $\frac{3}{4}$ x1	4 $\frac{3}{4}$ x2 $\frac{3}{8}$ x $\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$, 1 $\frac{3}{4}$, 2*	1 $\frac{1}{8}$	2 $\frac{5}{8}$	3	.....	One, 80 $\frac{7}{8}$	Class 080 $\frac{7}{8}$	640	Easy spring	\$4.90
01365	Flat	6 $\frac{3}{4}$ x1	4 $\frac{3}{4}$ x2 $\frac{3}{8}$ x $\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$, 1 $\frac{3}{4}$, 2*	1 $\frac{1}{8}$	2 $\frac{5}{8}$	3	.....	One, 80 $\frac{7}{8}$	Without	640	Easy spring	4.45
02365 $\frac{7}{8}$	Rabbeted	7 x1 $\frac{1}{4}$	4 $\frac{3}{4}$ x2 $\frac{3}{8}$ x $\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$, 2, 2 $\frac{1}{4}$ *	1 $\frac{1}{4}$	2 $\frac{5}{8}$	3	.....	One, 80 $\frac{7}{8}$	Class 080 $\frac{7}{8}$	640	Easy spring	7.15
02365	Rabbeted	7 x1 $\frac{1}{4}$	4 $\frac{3}{4}$ x2 $\frac{3}{8}$ x $\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$, 2, 2 $\frac{1}{4}$ *	1 $\frac{1}{4}$	2 $\frac{5}{8}$	3	.....	One, 80 $\frac{7}{8}$	Without	640	Easy spring	6.65
0174	Flat	6 $\frac{5}{8}$ x1	4 $\frac{3}{4}$ x2 $\frac{3}{8}$ x $\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$, 2*	1 $\frac{1}{8}$	2 $\frac{5}{8}$	.....	One, 2145	Without	Without	None	Easy spring	5.00
0174 $\frac{1}{2}$	Rabbeted	6 $\frac{7}{8}$ x1 $\frac{1}{8}$	4 $\frac{3}{4}$ x2 $\frac{3}{8}$ x $\frac{5}{8}$	1 $\frac{1}{2}$	.....	1 $\frac{1}{4}$	2 $\frac{5}{8}$	.....	One, 2145	Without	Without	None	Easy spring	7.20
787 $\frac{7}{8}$	Flat	5 $\frac{1}{2}$ x1 $\frac{1}{8}$	3 $\frac{5}{8}$ x2 $\frac{1}{4}$ x $\frac{3}{16}$	1 $\frac{1}{2}$	2**	1	2 $\frac{5}{8}$	3	.....	One, 179 $\frac{3}{4}$	Class 195	250	Easy spring	3.60
787 $\frac{3}{4}$	Flat	5 $\frac{1}{2}$ x1 $\frac{1}{8}$	3 $\frac{5}{8}$ x2 $\frac{1}{4}$ x $\frac{3}{16}$	1 $\frac{1}{2}$	2**	1	2 $\frac{5}{8}$	3	.....	One, 179 $\frac{3}{4}$	Without	36	Easy spring	3.15
787	Flat	5 $\frac{1}{2}$ x1 $\frac{1}{8}$	3 $\frac{5}{8}$ x2 $\frac{1}{4}$ x $\frac{3}{16}$	1 $\frac{1}{2}$	2**	1	2 $\frac{5}{8}$	1	.....	One, 179 $\frac{3}{4}$	Without	24	Easy spring	2.80
2787 $\frac{7}{8}$	Rabbeted	5 $\frac{5}{8}$ x1 $\frac{1}{8}$	3 $\frac{5}{8}$ x2 $\frac{1}{4}$ x $\frac{3}{16}$	1 $\frac{1}{2}$	2**	1	2 $\frac{5}{8}$	3	.....	One, 179 $\frac{3}{4}$	Class 195	250	Easy spring	6.20
2787 $\frac{3}{4}$	Rabbeted	5 $\frac{5}{8}$ x1 $\frac{1}{8}$	3 $\frac{5}{8}$ x2 $\frac{1}{4}$ x $\frac{3}{16}$	1 $\frac{1}{2}$	2**	1	2 $\frac{5}{8}$	3	.....	One, 179 $\frac{3}{4}$	Without	36	Easy spring	5.75
2787	Rabbeted	5 $\frac{5}{8}$ x1 $\frac{1}{8}$	3 $\frac{5}{8}$ x2 $\frac{1}{4}$ x $\frac{3}{16}$	1 $\frac{1}{2}$	2**	1	2 $\frac{5}{8}$	1	.....	One, 179 $\frac{3}{4}$	Without	24	Easy spring	5.40
0173	Flat	5 $\frac{1}{4}$ x $\frac{3}{4}$	3 $\frac{5}{8}$ x2 $\frac{3}{8}$ x $\frac{9}{16}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$, 1 $\frac{3}{4}$, 2†	1	2 $\frac{5}{8}$	0	One, 2140	None	Without	0	Easy spring	2.20
1283	Flat	5 $\frac{1}{4}$ x $\frac{3}{4}$	3 $\frac{5}{8}$ x2 $\frac{3}{8}$ x $\frac{9}{16}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$, 1 $\frac{3}{4}$, 2†	1	2 $\frac{5}{8}$	0	.....	One, 179 $\frac{3}{4}$	Without	12	Easy spring	1.80
0173 $\frac{1}{2}$	Rabbeted	5 $\frac{3}{8}$ x $\frac{1}{2}$	3 $\frac{5}{8}$ x2 $\frac{3}{8}$ x $\frac{9}{16}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$, 1 $\frac{3}{4}$, 2†	1	2 $\frac{5}{8}$	1	One, 2140	None	Without	0	Easy spring	3.35
2383	Rabbeted	5 $\frac{3}{8}$ x $\frac{1}{2}$	3 $\frac{5}{8}$ x2 $\frac{3}{8}$ x $\frac{9}{16}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$, 1 $\frac{3}{4}$, 2†	1	2 $\frac{5}{8}$	1	.....	One, 179 $\frac{3}{4}$	Without	12	Easy spring	2.85

*Width of case $\frac{7}{8}$ in. more than backset. **Width of case $\frac{3}{4}$ in. more than backset. †Width of case $\frac{1}{2}$ in. more than backset.

**LOCKS FOR FRENCH DOORS**

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 56

MORTISE CYLINDER NIGHT LATCHES

Illustrations
one-fourth size

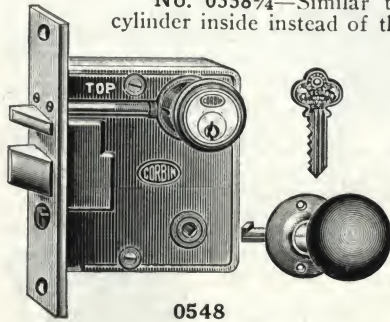
No. 658—Is a heavy latch with a single master cylinder. Latch bolt operated from the outside by key and inside by knob and held retracted by stop in the front.

No. 0548—Is a heavy latch with auxiliary latch which locks latch bolt and prevents it from being forced from the outside when door is closed but does not prevent knob or key from operating the latch. Operates same as 658.

No. 0558—Similar to 658 but is a lighter lock and has single standard cylinder.

No. 658 $\frac{1}{4}$ —Similar to 658 but has extra cylinder inside instead of the knob.

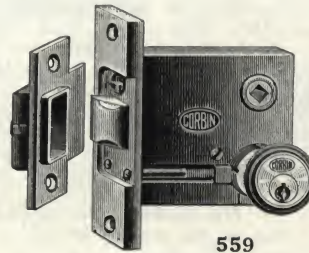
No. 0558 $\frac{1}{4}$ —Similar to 0558 but has extra cylinder inside instead of the knob.



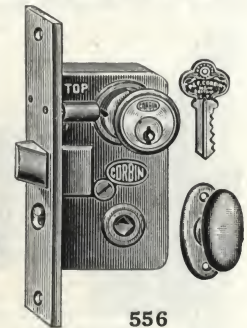
0548



0558



559



556

GENERAL CONSTRUCTION

Case: Japanned iron.

Fronts, Bolts, Strikes: Cast bronze, polished.

Cylinders: Bronze. Keys: Nickel silver.

Hub: Bronze, $\frac{7}{8}$ in. except No. 558 $\frac{1}{2}$, $\frac{7}{8}$ in. No. 556 has $\frac{1}{2}$ in.

French spring hub, type E.

Latch Construction: Easy spring.

Reversible: Nos. 1558, 1558 $\frac{1}{4}$ and 559, no. State hand and thickness of door.

Nos. 658, 658 $\frac{1}{4}$, 0558, 0558 $\frac{1}{4}$, 556 and 558 $\frac{1}{2}$, yes.

Master Keying: See table and text.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinders	Keys Class 27	Master keying	Changes	Thumb knob cast bronze	Latch bolt	Price, each
	Type	Size, in.		Std.	Special									
658	Flat	5 $\frac{1}{2}$ x1 $\frac{1}{16}$	3 $\frac{3}{8}$ x3 $\frac{3}{8}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{2}$	2	One, 253 $\frac{1}{2}$	3	Class 027	Unlimited	One, 1920	Easy spring	\$ 8.80
0548	Flat	6 x1 $\frac{1}{16}$	4 x3 $\frac{3}{8}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{2}$	1 $\frac{3}{4}$	One, 251	3	Limited	Unlimited	One, 1920	Easy spring	9.00
0558	Flat	5 x1	3 $\frac{1}{4}$ x3 $\frac{3}{8}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{16}$ *	1 $\frac{1}{2}$	1 $\frac{3}{16}$	One, 253	3	Limited	Unlimited	One, 1920	Easy spring	8.00
658 $\frac{1}{4}$	Flat	5 $\frac{1}{2}$ x1 $\frac{1}{16}$	3 $\frac{3}{8}$ x3 $\frac{3}{8}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{2}$	2	Two, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Without	Easy spring	12.20
0558 $\frac{1}{4}$	Flat	5 x1	3 $\frac{1}{4}$ x3 $\frac{3}{8}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{16}$ *	1 $\frac{1}{2}$	1 $\frac{3}{16}$	Two, 253	3	Limited	Unlimited	Without	Easy spring	10.45
1558	Rabbeted	5 $\frac{5}{8}$ x1 $\frac{1}{16}$	3 $\frac{1}{4}$ x3 $\frac{3}{8}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{2}$	1 $\frac{1}{16}$	One, 253	3	Limited	Unlimited	One, 1920	Easy spring	11.35
1558 $\frac{1}{4}$	Rabbeted	5 $\frac{5}{8}$ x1 $\frac{1}{16}$	3 $\frac{1}{4}$ x3 $\frac{3}{8}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{2}$	1 $\frac{1}{16}$	Two, 253	3	Limited	Unlimited	Without	Easy spring	13.75
558 $\frac{1}{2}$	Flat	4 $\frac{3}{4}$ x $\frac{7}{8}$	3 $\frac{1}{8}$ x3 $\frac{1}{4}$ x $\frac{3}{8}$	2 $\frac{1}{2}$	.....	1 $\frac{1}{2}$	1 $\frac{5}{8}$	One, 253†	3	Limited	Unlimited	One, 2148	Easy spring	8.00
556	Flat	6 $\frac{1}{4}$ x1 $\frac{1}{16}$	4 $\frac{1}{8}$ x2 $\frac{1}{4}$ x $\frac{1}{16}$	1 $\frac{1}{2}$	2**	1 $\frac{1}{2}$	2 $\frac{1}{16}$	One, 253	3	Limited	Unlimited	One, 02148 $\frac{1}{4}$	Easy spring	8.35
559	Recessed	5 x1 $\frac{1}{16}$	3 $\frac{1}{4}$ x3 $\frac{3}{8}$ x $\frac{3}{4}$	3	.....	1 $\frac{1}{2}$	1 $\frac{1}{16}$	One, 253	3	Limited	Unlimited	One, 1920	Easy spring	9.00

*Width of case $\frac{7}{8}$ in. more than backset. **Width of case 1 in. more than backset. †With special steel cams.

CYLINDER RIM NIGHT LATCHES

Case is made of cast iron, japanned, except Nos. 256 and 256 $\frac{1}{2}$ which are cast bronze, polished. All knobs are wrought bronze.

No. 456 $\frac{3}{8}$ —Has master cylinder and three piece latch. The trip in the center of latch bolt is held retracted by contact with the strike and prevents the latch from being forced when the door is closed. Operated by key from outside and knob inside. The stop deadlocks against the key or holds the bolt retracted.

No. 456 $\frac{3}{4}$ —Same as 456 $\frac{3}{8}$ but standard cylinder.

No. 472—Has a latch bolt with double throw to prevent forcing of the bolt. The screws in the case and strike are concealed and inaccessible when door is closed. Operation same as 456 $\frac{3}{8}$.

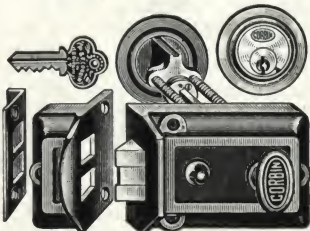
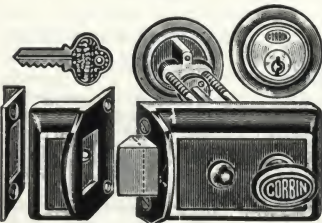
No. 474—Same as 472 except bolt has single throw.

No. 256 $\frac{1}{2}$ —Has single throw dead bolt and master cylinder. Case is cast bronze.

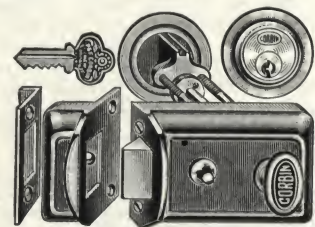
No. 256—Same as 256 $\frac{1}{2}$ but with standard cylinder, not master keyed.

No. 356 $\frac{1}{2}$ —Same as 256 $\frac{1}{2}$ but with cast iron case.

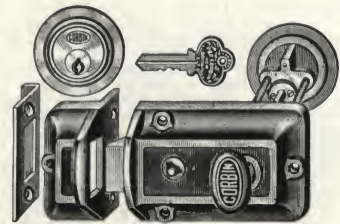
No. 356—Same as 356 $\frac{1}{2}$ but with standard cylinder, not master keyed.

456 $\frac{3}{8}$ 

472



474



256, 356

Lock No.	Case size, in.	Backset, in.	Cylinders	Keys Class 27	Master keying	Changes	Price, each
456 $\frac{3}{8}$	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	2 $\frac{3}{8}$	One, 251 $\frac{1}{2}$	3	Class 027	Unlimited	\$5.35
456 $\frac{3}{4}$	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	2 $\frac{3}{8}$	One, 251	3	Limited	Unlimited	4.65
472	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	2 $\frac{3}{8}$	One, 251	3	Limited	Unlimited	5.00
474	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	2 $\frac{3}{8}$	One, 251	3	Limited	Unlimited	2.70
256 $\frac{1}{2}$	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	2 $\frac{3}{8}$	One, 251 $\frac{1}{2}$	3	Class 027	Unlimited	6.30
256	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	2 $\frac{3}{8}$	One, 251	3	Limited	Unlimited	5.50
356 $\frac{1}{2}$	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	2 $\frac{3}{8}$	One, 251 $\frac{1}{2}$	3	Class 027	Unlimited	3.20
356	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	2 $\frac{3}{8}$	One, 251	3	Limited	Unlimited	2.55

Illustrations
one-fourth size

MORTISE LATCHES

For Closet Doors

No. 90 $\frac{3}{4}$ —Heavy latch having $\frac{3}{4}$ -in. throw for fire doors. Approved by New York Board of Fire Underwriters.

No. 090 $\frac{1}{4}$ —Heavy latch for exit doors. Has auxiliary latch which prevents forcing.

No. 088 $\frac{1}{2}$ —Heavy latch with anti-friction latch bolt.

No. 048—Has French spring hub for lever handles.

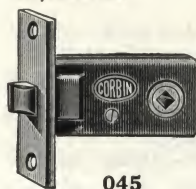
No. 058—Same as 048 but with wrought bronze front.

No. 090—Heavy latch.

No. 049—Similar to 090 but of medium weight.

No. 88 $\frac{1}{4}$ —Somewhat heavier than 090 and has $\frac{1}{2}$ -in. rabbeted front.

No. 045—Light weight, inexpensive latch.



045

For Cabinet Doors

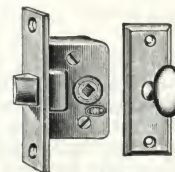
Nos. 68 $\frac{1}{2}$ and 68 $\frac{1}{4}$ —Have flat front and thumb knob.

Nos. 068 $\frac{1}{2}$ and 068 $\frac{1}{4}$ —Same without thumb knob.

No. 68 $\frac{3}{4}$ —Same as 68 $\frac{1}{2}$ but with $\frac{3}{8}$ -in. rabbeted front.

No. 068 $\frac{3}{4}$ —Same without thumb knob.

No. 69—For heavy cabinet door using regular knob.

68 $\frac{1}{2}$

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolt, Strike: Cast bronze, polished, except No. 048 wrought steel, plated front and strike and cast iron brass plated bolt, and No. 058 wrought bronze, polished front and strike and cast bronze polished bolt.

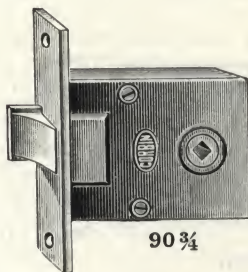
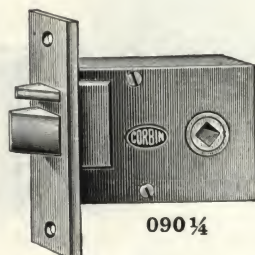
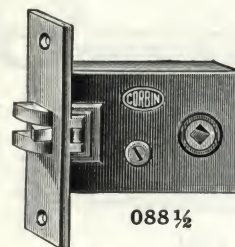
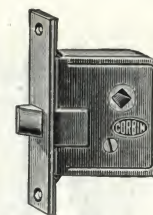
Hub: Nos. 90 $\frac{3}{4}$, 090 $\frac{1}{4}$, 088 $\frac{1}{2}$, 090, 049, 088 $\frac{1}{4}$ and 69, bronze $\frac{1}{8}$ in.

Nos. 68 $\frac{1}{2}$, 68 $\frac{1}{4}$, 068 $\frac{1}{2}$, 068 $\frac{1}{4}$, 68 $\frac{3}{4}$ and 068 $\frac{3}{4}$, bronze $\frac{1}{8}$ in.

Nos. 045, 048 and 058 iron, $\frac{1}{8}$ in.

Latch Construction: Easy spring.

Reversible: Yes.

90 $\frac{3}{4}$ 090 $\frac{1}{4}$ 088 $\frac{1}{2}$ 

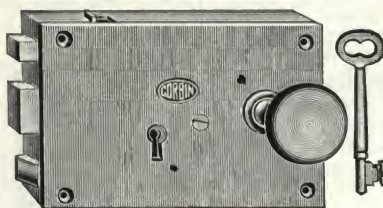
048

Lock No.	Front		Case size, in.	Backset, in.		Width of case more than backset, in.	Strike, lip to center, in.	Latch bolt	Thumb knob, cast bronze	Price
	Type	Size, in.		Std.	Special					
90 $\frac{3}{4}$	Flat	5 $\frac{1}{8}$ x 1 $\frac{1}{4}$	2 $\frac{3}{8}$ x 4 x $\frac{3}{4}$	3			1 $\frac{3}{8}$	Easy spring		\$ 4.45 each
090 $\frac{1}{4}$	Flat	5 x 1 $\frac{1}{8}$	2 $\frac{3}{8}$ x 4 x $\frac{3}{4}$	3			1 $\frac{3}{8}$	Easy spring		4.55 each
088 $\frac{1}{2}$	Beveled	4 $\frac{1}{2}$ x 1 $\frac{1}{8}$	2 $\frac{3}{8}$ x 3 $\frac{3}{8}$ x $\frac{3}{4}$	3	2		1 $\frac{1}{2}$	Anti-friction		3.00 each
090	Flat	4 $\frac{1}{2}$ x 1 $\frac{1}{8}$	2 $\frac{3}{8}$ x 3 $\frac{3}{8}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{4}$, 2 $\frac{3}{8}$, 3		1 $\frac{1}{2}$	Easy spring		2.35 each
049	Flat	4 x 1	2 $\frac{1}{4}$ x 3 $\frac{3}{8}$ x $\frac{3}{8}$	2 $\frac{3}{4}$	2, 2 $\frac{1}{4}$, 2 $\frac{1}{2}$		1 $\frac{1}{2}$	Easy spring		2.00 each
88 $\frac{1}{4}$	Rabbeted	4 $\frac{3}{8}$ x 1 $\frac{1}{8}$	2 $\frac{1}{4}$ x 3 $\frac{3}{4}$ x $\frac{11}{16}$	3			1 $\frac{1}{2}$	Easy spring		4.35 each
045	Flat	3 $\frac{3}{8}$ x $\frac{7}{8}$	1 $\frac{5}{8}$ x 3 $\frac{1}{4}$ x $\frac{9}{16}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$, 2, 2 $\frac{1}{4}$, 2 $\frac{3}{4}$		1	Easy spring		1.00 each
048	Flat	4 $\frac{1}{16}$ x $\frac{7}{8}$	2 $\frac{1}{8}$ x 2 $\frac{3}{8}$ x $\frac{9}{16}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$, 1 $\frac{3}{4}$, 2		1	Easy spring		10.65 doz.
058	Flat	4 $\frac{1}{16}$ x $\frac{7}{8}$	2 $\frac{1}{8}$ x 2 $\frac{3}{8}$ x $\frac{9}{16}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$, 1 $\frac{3}{4}$, 2		1	Easy spring		16.00 doz.
68 $\frac{1}{2}$	Flat	3 $\frac{1}{4}$ x $\frac{5}{8}$	2 x 1 $\frac{1}{2}$ x $\frac{1}{2}$	1			2 $\frac{1}{8}$	Easy spring	One, 2148 $\frac{3}{4}$	20.55 doz.
68 $\frac{1}{4}$	Flat	2 $\frac{7}{16}$ x $\frac{1}{2}$	1 $\frac{5}{8}$ x 1 $\frac{1}{2}$ x $\frac{5}{8}$	1 $\frac{3}{16}$	1		2 $\frac{1}{8}$	Easy spring	One, 2148 $\frac{3}{4}$	20.00 doz.
068 $\frac{1}{2}$	Flat	3 $\frac{1}{4}$ x $\frac{5}{8}$	2 x 1 $\frac{1}{2}$ x $\frac{1}{2}$	1			2 $\frac{1}{8}$	Easy spring	Without	13.90 doz.
068 $\frac{1}{4}$	Flat	2 $\frac{7}{16}$ x $\frac{1}{2}$	1 $\frac{5}{8}$ x 1 $\frac{1}{2}$ x $\frac{5}{8}$	1 $\frac{3}{16}$	1		2 $\frac{1}{8}$	Easy spring	Without	13.35 doz.
68 $\frac{3}{4}$	Rabbeted	2 $\frac{5}{8}$ x $\frac{3}{4}$	1 $\frac{5}{8}$ x 1 $\frac{1}{2}$ x $\frac{5}{8}$	1 $\frac{3}{16}$	1		1	Easy spring	One, 2148 $\frac{3}{4}$	33.35 doz.
068 $\frac{3}{4}$	Rabbeted	2 $\frac{5}{8}$ x $\frac{3}{4}$	1 $\frac{5}{8}$ x 1 $\frac{1}{2}$ x $\frac{5}{8}$	1 $\frac{3}{16}$	1		1	Easy spring	Without	26.65 doz.
69	Flat	3 $\frac{1}{2}$ x 1 $\frac{1}{16}$	2 x $\frac{3}{4}$ x $\frac{1}{2}$	1 $\frac{3}{4}$	?		3 $\frac{1}{4}$	Easy spring	Without	13.35 doz.

COLONIAL RIM LOCKSETS FOR INTERIOR DOORS

These locksets have been developed for use in Colonial type dwellings and carry out on interior doors the spirit and motif of the Colonial design. The lock is mounted on the inside face of the door in the manner so general in houses built during the Pre-revolutionary Period. Four screws pass through the corners of the case to fasten the lock to the door. The knob and key escutcheon for the outside of the door carry out the Colonial idea.

No. 2370—Consists of lock 4551 one pair of cast bronze, polished knobs No. 1923, 1 $\frac{3}{4}$ in. in diam. and one rose



2370

and one cast bronze polished escutcheon No. 2667. Easy spring latch bolt is operated by knob from either side, dead bolt by key from either side and thumb bolt by thumb piece from inside.

No. 3370—Same as 2370 but with lock 551 of cast iron.

GENERAL CONSTRUCTION

Case: No. 2370, cast bronze, polished.

No. 3370, cast iron, japanned.

Bolts: Cast bronze.

Key: Nickel-plated bronze.

Latch Bolt: Easy spring.

Hub: No. 2370, bronze, $\frac{1}{8}$ in.

No. 3370, iron, $\frac{1}{8}$ in.

Reversible: Yes.

Lockset, No.	Front		Case size, in.	Backset		Tumblers	Key	Master keying	Changes	Latch bolt	Price, set
	Type	Size, in.		Hub	Keyhole						
2370	Flat	3 $\frac{3}{4}$ x $\frac{3}{4}$	3 $\frac{3}{4}$ x 5 $\frac{7}{8}$ x $\frac{3}{4}$	4 $\frac{3}{4}$	2 $\frac{3}{8}$	1	One, 145	Without	12	Easy spring	\$12.80
3370	Flat	3 $\frac{3}{4}$ x $\frac{3}{4}$	3 $\frac{3}{4}$ x 5 $\frac{7}{8}$ x $\frac{3}{4}$	4 $\frac{3}{4}$	2 $\frac{3}{8}$	1	One, 145	Without	12	Easy spring	6.65



LATCHES—COLONIAL RIM LOCKSETS

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 58

Illustrations one-fourth size

RIM KNOB LOCKS

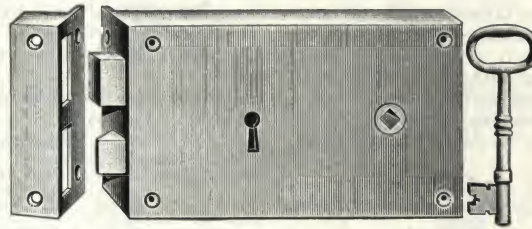
No. 4538—Cast brass lock with latch bolt operated by knob from either side. Dead bolt is operated by key from either side. Case has beveled edge.

No. 4518—Same as 4538 but with square edge.

No. 4532—Similar to 4538 but smaller.

No. 4512—Same as 4532 but with square edge.

No. 3532—Same as 4532 but of cast iron.



No. 4538

No. 3512—Same as 3532 but with square edge.

No. 4530—Similar to 4532 but smaller.

No. 3530—Same as 4530 but of cast iron.

GENERAL CONSTRUCTION
Case: Nos. 4538, 4518, 4532, 4512 and 4530, cast brass, polished.

Nos. 3532, 3512 and 3530, cast iron, dead black.

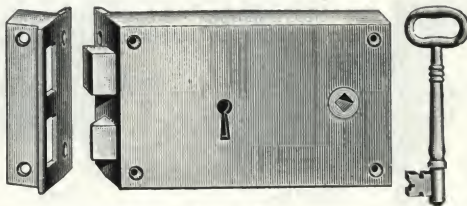
Bolts and Works: Cast brass.

Key: Cast brass.

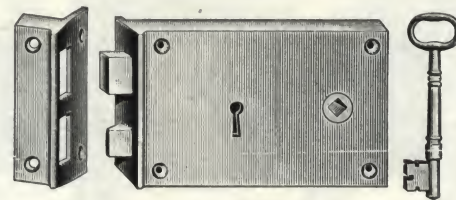
Latch Bolt: Easy spring.

Hub: Brass, $\frac{3}{8}$ in.

Reversible: No, state hand.



No. 4532



No. 4530

Lock No.	Strike		Case size, in.	Backset, in.		Tumblers	Key	Master keying	Changes
	Type	Size, in.		Knob	Keyhole				
4538	Box	4 x 1	4 x 7 x $\frac{7}{8}$	5 $\frac{1}{2}$	2 $\frac{5}{8}$	3	One, 148	Without	54
4518	Box	4 x 1	4 x 7 x $\frac{7}{8}$	5 $\frac{1}{2}$	2 $\frac{5}{8}$	3	One, 148	Without	54
4532	Box	3 $\frac{3}{4}$ x $\frac{3}{4}$	3 $\frac{3}{4}$ x 5 $\frac{3}{4}$ x $\frac{3}{4}$	4 $\frac{3}{4}$	2 $\frac{1}{4}$	3	One, 147	Without	36
4512	Box	3 $\frac{3}{4}$ x $\frac{3}{4}$	3 $\frac{3}{4}$ x 5 $\frac{3}{4}$ x $\frac{3}{4}$	4 $\frac{3}{4}$	2 $\frac{1}{4}$	3	One, 147	Without	36
3532	Box	3 $\frac{3}{4}$ x $\frac{3}{4}$	3 $\frac{3}{4}$ x 5 $\frac{3}{4}$ x $\frac{3}{4}$	4 $\frac{3}{4}$	2 $\frac{1}{4}$	3	One, 147	Without	36
3512	Box	3 $\frac{3}{4}$ x $\frac{3}{4}$	3 $\frac{3}{4}$ x 5 $\frac{3}{4}$ x $\frac{3}{4}$	4 $\frac{3}{4}$	2 $\frac{1}{4}$	3	One, 147	Without	36
4530	Box	3 $\frac{1}{4}$ x 1	3 $\frac{1}{4}$ x 5 $\frac{1}{4}$ x $\frac{3}{4}$	4 $\frac{1}{4}$	2 $\frac{1}{8}$	1	One, 146	Without	12
3530	Box	3 $\frac{1}{4}$ x 1	3 $\frac{1}{4}$ x 5 $\frac{1}{4}$ x $\frac{3}{4}$	4 $\frac{1}{4}$	2 $\frac{1}{8}$	1	One, 146	Without	12

RIM FRONT DOOR LOCK

No. 4580—Latch bolt can be operated by knob from either side and by key from outside at all times. Dead bolt is operated by key from outside and thumb knob from inside. Outside knob is locked by stop in face. Case has square edge.

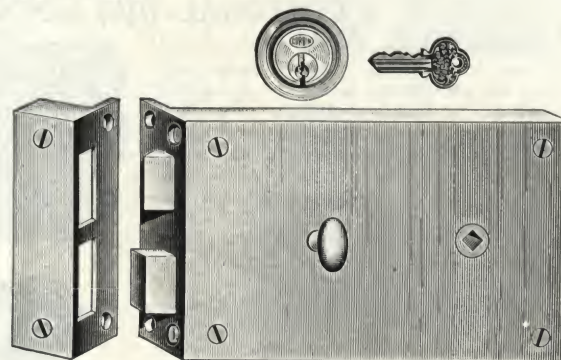
GENERAL CONSTRUCTION

Case, Bolts and Works: Cast brass, polished.

Keys: Nickel silver.

Hub: Brass, $\frac{5}{8}$ x $\frac{1}{8}$ in. swivel.

Reversible: No, state hand.



No. 4580

Lock No.	Strike		Case size, in.	Backset, in.		Thumb knob oval, in.	Cylinder	Keys class 27	Changes	Latch bolt
	Type	Size, in.		Knob	Cylinder					
4580	Box	5 x 1 $\frac{1}{4}$	5 x 8 x 1	6	2 $\frac{3}{4}$	1 $\frac{1}{8}$ x $\frac{5}{8}$	One, 251	3	Unlimited	Easy spring

Illustrations
one-fourth size

CYLINDER MORTISE DEAD LOCKS

Furnished with Rounded, Beveled or Armored Fronts

Large Heavy Locks

With Master Cylinder. Recommended for Large Master Keyed Jobs.

No. 133—A high grade lock with cylinder one side only. The bolt is thrown by key from one side only.

No. 133 $\frac{1}{4}$ —Same as 133 but with cylinder both sides. Operated by key from both sides.

No. 133 $\frac{1}{2}$ —Same as 133 but with cylinder outside and thumb knob inside.

No. 130—Similar to 133 but has dead bolt with 1-in. throw and hardened steel insert.

No. 130 $\frac{1}{4}$ —Same as 130 but with cylinder both sides.

No. 1333—Same as 133 but with $\frac{1}{2}$ -in. rabbetted face.

No. 1333 $\frac{1}{4}$ —Same as 133 $\frac{1}{4}$ but with $\frac{1}{2}$ -in. rabbetted face.

No. 1333 $\frac{1}{2}$ —Same as 133 $\frac{1}{2}$ but with $\frac{1}{2}$ -in. rabbetted face.

With Standard Cylinder. Recommended for Small Master Keyed Jobs.

No. 0141—Similar to 133 with standard cylinder one side only.

No. 141—Same as 0141 but with cylinder both sides.

No. 141 $\frac{1}{4}$ —Same as 0141 but with cylinder outside and thumb knob inside.

No. 140—Very heavy lock same as 141 but heavier.

Small Light Locks

With Master Cylinder. Recommended for Large Master Keyed Jobs.

No. 137—A high grade lock with small case and cylinder one side only. Bolt is thrown by key from one side only.

No. 137 $\frac{1}{4}$ —Same as 137 but with cylinder outside and thumb knob inside.

No. 137 $\frac{1}{2}$ —Same as 137 but with cylinder both sides. Operated by key from both sides.

With Standard Cylinder. Recommended for Small Master Keyed Jobs.

No. 138—Similar to 137 with standard cylinder one side only.

No. 138 $\frac{1}{4}$ —Same as 138 but with cylinder both sides.

No. 138 $\frac{1}{2}$ —Same as 138 but with cylinder outside and thumb knob inside.

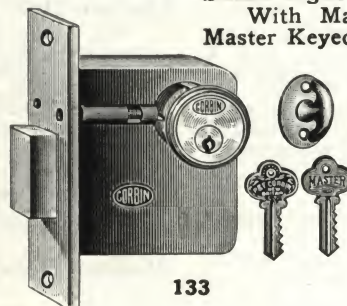
No. 1138—Same as 138 but with $\frac{1}{2}$ -in. rabbetted front.

No. 1138 $\frac{1}{4}$ —Same as 138 $\frac{1}{4}$ but with $\frac{1}{2}$ -in. rabbetted front.

No. 1138 $\frac{1}{2}$ —Same as 138 $\frac{1}{2}$ but with $\frac{1}{2}$ -in. rabbetted front.

No. 158—Bolt is thrown by key from outside. Thumb knob will withdraw bolt from inside, but will not project it.

No. 158 $\frac{1}{4}$ —Same as 158 but with cylinder both sides. Bolt is thrown by key from either side. Thumb knob will withdraw bolt from inside but will not project it.



133



138

Lock No.	Front		Case size, in.	Backset, in.		Cylinders	Keys Class 27	Master keying	Changes	Thumb knob cast bronze	Price, each
	Type	Size, in.		Std.	Special						
133	Flat	6 x 1 $\frac{1}{4}$	3 $\frac{3}{4}$ x3 $\frac{3}{4}$ x1	2 $\frac{5}{8}$	2 $\frac{1}{8}$, 3 $\frac{1}{4}$, 4*	One, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Without	\$ 9.20
133 $\frac{1}{4}$	Flat	6 x 1 $\frac{1}{4}$	3 $\frac{3}{4}$ x3 $\frac{3}{4}$ x1	2 $\frac{5}{8}$	2 $\frac{1}{8}$, 3 $\frac{1}{4}$, 4*	Two, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Without	11.50
133 $\frac{1}{2}$	Flat	6 x 1 $\frac{1}{4}$	3 $\frac{3}{4}$ x3 $\frac{3}{4}$ x1	2 $\frac{5}{8}$	2 $\frac{1}{8}$, 3 $\frac{1}{4}$, 4*	One, 253 $\frac{1}{2}$	3	Class 027	Unlimited	One, 2145	9.80
130	Flat	6 $\frac{1}{2}$ x1 $\frac{1}{4}$	3 $\frac{3}{4}$ x3 $\frac{3}{4}$ x1	2 $\frac{5}{8}$	2 $\frac{1}{8}$, 3 $\frac{1}{4}$, 4*	One, 263 $\frac{1}{2}$	3	Class 027	Unlimited	Without	10.65
130 $\frac{1}{4}$	Flat	6 $\frac{1}{2}$ x1 $\frac{1}{4}$	3 $\frac{3}{4}$ x3 $\frac{3}{4}$ x1	2 $\frac{5}{8}$	2 $\frac{1}{8}$, 3 $\frac{1}{4}$, 4*	Two, 263 $\frac{1}{2}$	3	Class 027	Unlimited	Without	12.90
1333	Rabbetted	6 $\frac{1}{2}$ x1 $\frac{1}{2}$	3 $\frac{3}{4}$ x3 $\frac{3}{4}$ x1 $\frac{15}{16}$	2 $\frac{5}{8}$	2 $\frac{1}{8}$, 3 $\frac{1}{4}$, 4*	One, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Without	11.70
1333 $\frac{1}{4}$	Rabbetted	6 $\frac{1}{2}$ x1 $\frac{1}{2}$	3 $\frac{3}{4}$ x3 $\frac{3}{4}$ x1 $\frac{15}{16}$	2 $\frac{5}{8}$	2 $\frac{1}{8}$, 3 $\frac{1}{4}$, 4*	Two, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Without	11.70
1333 $\frac{1}{2}$	Rabbetted	6 $\frac{1}{2}$ x1 $\frac{1}{2}$	3 $\frac{3}{4}$ x3 $\frac{3}{4}$ x1 $\frac{15}{16}$	2 $\frac{5}{8}$	2 $\frac{1}{8}$, 3 $\frac{1}{4}$, 4*	One, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Without	14.00
0141	Flat	6 $\frac{1}{2}$ x1 $\frac{1}{4}$	4 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	1, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 1 $\frac{3}{4}$ **	One, 253	3	Limited	Unlimited	Without	7.60
141	Flat	6 $\frac{1}{2}$ x1 $\frac{1}{4}$	4 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	2, 2 $\frac{1}{4}$, 2 $\frac{1}{2}$, 3, 3 $\frac{1}{4}$ *	Two, 253	3	Limited	Unlimited	Without	9.30
141 $\frac{1}{4}$	Flat	6 $\frac{1}{2}$ x1 $\frac{1}{4}$	4 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	3 $\frac{3}{4}$, 4***	One, 253	3	Limited	Unlimited	One, 2145	8.20
140	Flat	7 x 1 $\frac{1}{4}$	4 x 3 $\frac{3}{4}$ x1	2 $\frac{5}{8}$	1 $\frac{1}{4}$, 2 $\frac{1}{4}$, 3, 3 $\frac{1}{2}$, 4*	Two, 253	3	Limited	Unlimited	Without	13.35
137	Flat	4 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	1 $\frac{1}{4}$, 2 $\frac{1}{4}$, 3, 3 $\frac{1}{2}$, 4*	One, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Without	5.60
137 $\frac{1}{4}$	Flat	4 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	1 $\frac{1}{4}$, 2 $\frac{1}{4}$, 3, 3 $\frac{1}{2}$, 4*	One, 253 $\frac{1}{2}$	3	Class 027	Unlimited	One, 2145	6.20
137 $\frac{1}{2}$	Flat	4 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	1 $\frac{1}{4}$, 2 $\frac{1}{4}$, 3, 3 $\frac{1}{2}$, 4*	Two, 253 $\frac{1}{2}$	3	Class 027	Unlimited	Without	8.00
138	Flat	4 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	1 $\frac{1}{4}$, 2 $\frac{1}{4}$, 3, 4***	One, 253	3	Limited	Unlimited	Without	4.90
138 $\frac{1}{4}$	Flat	4 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	1 $\frac{1}{4}$, 2 $\frac{1}{4}$, 3, 4***	Two, 253	3	Limited	Unlimited	Without	6.60
138 $\frac{1}{2}$	Flat	4 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	1 $\frac{1}{4}$, 2 $\frac{1}{4}$, 3, 4***	One, 253	3	Limited	Unlimited	One, 2145	5.50
158	Flat	5 $\frac{1}{2}$ x1 $\frac{1}{16}$	3 $\frac{3}{4}$ x3 $\frac{1}{2}$ x $\frac{3}{4}$	2 $\frac{1}{2}$	.....	One, 253	3	Limited	Unlimited	One, 2145	7.20
158 $\frac{1}{4}$	Flat	5 $\frac{1}{2}$ x1 $\frac{1}{16}$	3 $\frac{3}{4}$ x3 $\frac{1}{2}$ x $\frac{3}{4}$	2 $\frac{1}{2}$	.....	Two, 253	3	Limited	Unlimited	One, 2145	8.90
1138	Rabbetted	5 x 1 $\frac{1}{2}$	2 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	.....	One, 253	3	Limited	Unlimited	Without	7.10
1138 $\frac{1}{4}$	Rabbetted	5 x 1 $\frac{1}{2}$	2 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	.....	Two, 253	3	Limited	Unlimited	Without	8.80
1138 $\frac{1}{2}$	Rabbetted	5 x 1 $\frac{1}{2}$	2 $\frac{1}{2}$ x3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{5}{8}$	.....	One, 253	3	Limited	Unlimited	One, 2145	7.70

*Furnished with beveled, rounded (to 4-in. radius unless otherwise ordered) or armored when ordered.

Armored front size, 6 $\frac{1}{4}$ x $\frac{1}{4}$ in. *Armored front size, 4 $\frac{1}{2}$ x1 $\frac{1}{4}$ in. †Same as 253 $\frac{1}{2}$ except that it has long cam.

*Width of case 1 $\frac{1}{2}$ in. more than backset. **Width of case $\frac{3}{4}$ in. more than backset. ***Width of case 1 in. more than backset.

CYLINDER RIM DEAD LOCKS

Operated by key from outside and turn knob inside except 1434 $\frac{1}{2}$ which operates by key from either side.

No. 1432—Has standard cylinder and a double throw bolt to give protection against forcing. Bolt is steel, polished.

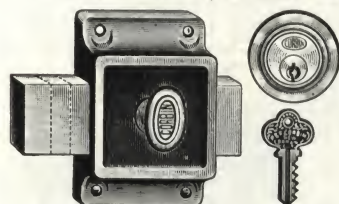
No. 1431—Similar to 1432 but with single throw bolt of cast bronze, polished.

No. 1434 $\frac{1}{2}$ —Has a heavy cast bronze bolt and a standard cylinder both sides.

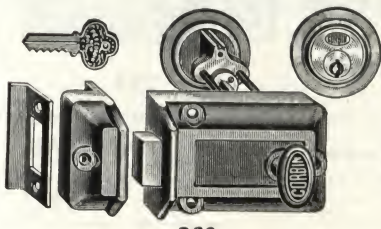
No. 1434—Same as 1434 $\frac{1}{2}$ but with small cylinder outside and turnknob inside.

No. 360 $\frac{1}{2}$ —Has a master keyed cylinder on the outside and turn knob inside.

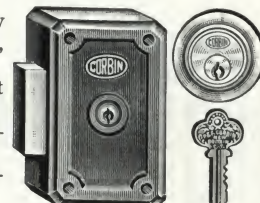
No. 360—Same as 360 $\frac{1}{2}$ but with small cylinder.



1432



360

1434 $\frac{1}{2}$

Lock No.	Case size, in.	Backset in.	Cylinders	Keys Class 27	Master keying	Changes	Turn knob, bronze	Price, each
1432	4 x 2 $\frac{1}{4}$	1 $\frac{1}{4}$	One, 251	3	Limited	Unlimited	Wrought	\$7.00
1431	4 x 2 $\frac{1}{4}$	1 $\frac{1}{4}$	One, 251	3	Limited	Unlimited	Cast	4.65
1434 $\frac{1}{2}$	4 x 2 $\frac{1}{4}$	1 $\frac{1}{4}$	One, 251	3	Limited	Unlimited	Without	5.50
1434	4 x 2 $\frac{1}{4}$	1 $\frac{1}{4}$	One, 251	3	Limited	Unlimited	Cast	4.80
360 $\frac{1}{2}$	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	2 $\frac{5}{8}$	One, 251 $\frac{1}{2}$	3	Class 027	Unlimited	Cast	3.45
360	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	2 $\frac{5}{8}$	One, 251	3	Limited	Unlimited	Cast	2.75



DEAD LOCKS

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 60

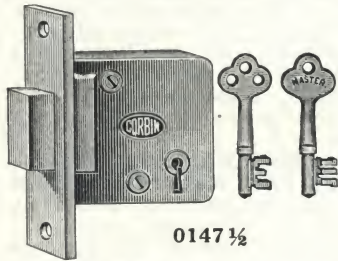
MORTISE BITTED KEY DEAD LOCKS

Illustrations
one-fourth size

These Locks are All for the Same Service which is Similar to the Mortise Cylinder Dead Locks Previously Described

Heavy Locks

No. 0147½—With heavy bolt operated by key from either side. Master keyed with Asylum locks. Has 4 tumblers and 3360 key changes.



0147½

Master Keying—In 16 sets of 40 each, the 640 all different, with master key for each set and, when so ordered, with grand master key to pass all.

No. 0145—Same as 0145½ but not master keyed.

Light, Inexpensive Locks

No. 132½—A light dead lock operated by key from either side. Has 3 tumblers and 640 key changes.

Master Keying—In 4 sets of 160 each, or in 16 sets of 40 each, the 640 all different, with master keys for each set and when so ordered, with grand master key to pass all.

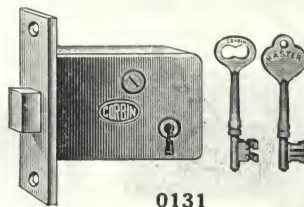
No. 132—Similar to 132½ but not master keyed.

No. 0132½—Similar to 132½ but lighter, with different key and fewer changes.

Master Keying—In 5 sets of 50 each, the 250 all different, with master key for each set, and when so ordered, with grand master key to pass all.

No. 0132—Same as 0132½ but not master keyed.

No. 0131—Similar type to 0132 but a cheaper lock. Has 1 tumbler and 200 key changes, not master keyed.



0131

Medium Heavy Locks

No. 144½—Similar in operation to 0145½ but lighter and with smaller bolt.

Master Keying—In sets same as 0145½.

No. 144—Same as 144½ but not master keyed.

No. 1144—Same as 144 but with ½-in. rabbeted front.

No. 1144½—Same as 144½ but with ½-in. rabbeted front.

No. 1372½—Similar to 144½ but has 3 tumblers and 2184 key changes and is master keyed.

Master Keying—In 6 sets of 364 each, or 26 sets of 84 each, the 2184 all different, with master keys to pass each set and, when so ordered, with grand master key to pass all.

Medium Heavy Locks with Thumb Knob

The locks in this group differ from those in the previous groups in that they have a thumb knob as well as a key. Dead bolt is operated by key from either side. When projected the bolt can be withdrawn by thumb knob from inside, but thumb knob will not project the bolt.

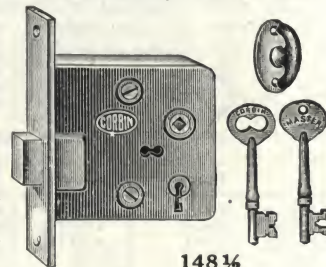
These locks are especially useful in hospitals for operating room and corridor doors to patients rooms for it is impossible to accidentally lock the door.

No. 149¼—Has 4 tumblers and 640 changes.

Master Keying—In 16 sets of 40 each, the 640 all different, with master key to pass each set and, when so ordered, with grand master key to pass all.

No. 148½—Same as 149¼ but with 3 tumblers.

Master Keying—In 4 sets of 40 each, the 640 all different, with master key to pass each set and, when so ordered, with grand master key to pass all.



148½

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolt, Strike: Cast bronze, polished.

Tumblers: Wrought.

Keys: Nickel-plated steel.

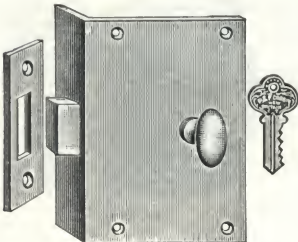
Hub: Nos. 149¼ and 148½, only bronze, ⅜ in.

Reversible: Yes.

Master Keying: See table and text.

Lock No.	Front		Case size, in.	Backset, in.		Spacing, in.	Tumblers	Keys	Master keying	Changes	Thumb knob cast bronze	Price, each
	Type	Size, in.		Std.	Special							
0147½	Flat	5 5/8 x 1 1/8	3 1/4 x 3 5/8 x 7/8	2 3/4	.....	.....	4	One, 82 1/2	Class 082 1/2	3360	Without	\$6.65
0145½	Flat	5 3/8 x 1 1/8	3 x 3 3/8 x 1 1/8	2 3/4	3, 3 1/2*	.....	4	Two, 80 1/4	Class 080 1/4	640	Without	5.80
0145	Flat	5 3/8 x 1 1/8	3 x 3 3/8 x 1 1/8	2 3/4	3, 3 1/2*	.....	4	Two, 80 1/4	Without	640	Without	5.35
144½	Flat	4 7/8 x 1 1/8	2 1/4 x 3 1/2 x 3/4	2 3/4	2 1/2, 3**	.....	4	One, 80 1/4	Class 080 1/4	640	Without	4.90
144	Flat	4 7/8 x 1 1/8	2 1/4 x 3 1/2 x 3/4	2 3/4	2 1/2, 3**	.....	4	One, 80 1/4	Without	640	Without	4.45
144½	Rabbeted	4 7/8 x 1 1/8	2 1/4 x 3 1/2 x 3/4	2 3/4	.....	.....	4	One, 80 1/4	Class 080 1/4	640	Without	7.65
1144	Rabbeted	4 7/8 x 1 1/8	2 1/4 x 3 1/2 x 3/4	2 3/4	.....	.....	4	One, 80 1/4	Without	640	Without	7.20
1372½	Flat	4 1/4 x 1 1/8	2 1/4 x 3 1/2 x 3/4	2 3/4	.....	.....	3	One, 81 3/4	Class 081 3/4	2184	Without	4.00
132½	Flat	4 x 1	2 1/8 x 3 1/4 x 3/8	2 3/4	1 3/8, 2 1/4†	.....	3	One, 80 3/4	Class 080 3/4	640	Without	2.20
132	Flat	4 x 1	2 1/8 x 3 1/4 x 3/8	2 3/4	1 3/8, 2 1/4†	.....	3	One, 80 3/4	Without	640	Without	1.80
0132½	Flat	4 x 1 5/16	2 1/8 x 3 1/4 x 3/8	2 3/4	.....	.....	3	One, 179 3/4	Class 195	250	Without	2.20
0132	Flat	4 x 1 5/16	2 1/8 x 3 1/4 x 3/8	2 3/4	.....	.....	3	One, 179 3/4	Without	250	Without	1.80
0131	Flat	4 x 1 5/16	2 1/8 x 3 1/4 x 3/8	2 3/4	.....	.....	1	One, 179 3/4	Without	200	Without	1.45
149¼	Flat	5 3/8 x 1 1/8	3 1/8 x 3 1/2 x 1 3/8	2 3/4	.....	1 5/8	4	One, 80 1/4	Class 080 1/4	640	One, 2145	6.65
148½	Flat	5 x 1	3 1/8 x 3 1/2 x 3/8	2 3/4	.....	1 5/8	3	One, 80 3/4	Class 080 3/4	640	One, 2145	4.00

*Width of case 7/8 in. more than backset. **Width of case 3/4 in. more than backset. †Width of case 5/8 in. more than backset.



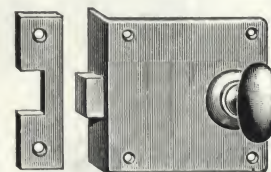
735

HALF MORTISE BOLT AND HALF MORTISE DEAD LOCK

These are half mortised into the face of the door with the plate screwed to the door. The case is cast bronze, polished.

No. 728—A simple bolt operated from one side by a turn knob.

No. 735—A dead lock operated by key, and small cylinder from the outside and by knob from the inside. Not reversible, state hand and thickness of door.



728

Lock No.	Front		Case size, in.	Backset, in.	Cylinders	Keys Class 27	Master keying	Turn knob bronze	Price, each
	Type	Size, in.							
728	Flat	3 1/4 x 7/8	3 1/4 x 3 1/2	2 1/2	Without	Without	.....	Cast	\$ 8.00
735	Flat	4 5/8 x 7/8	4 5/8 x 3 3/8	2 1/4	One, 253	3	Limited	Cast	12.00

PLATE 61

DEAD LOCKS AND BOLTS

Prefix Letters for Finish. Description of Finishes, Plate 3



Illustrations
one-fourth size

CYLINDER MORTISE SLIDING DOOR LOCKS

No. 134—With a small cylinder both sides and operated by key from either side.

No. 134½—Same as 134 but with single cylinder operated from one side only.

No. 1392—Small cylinder both sides and with a pull for single doors. Dead bolt operated by key from either side. When so ordered, furnished with cylinder one side and thumb knob on other side in place of cylinder.

No. 1394—Same as 1392 but for double doors.

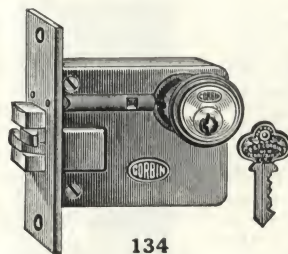
GENERAL CONSTRUCTION

Case: Japanned iron.

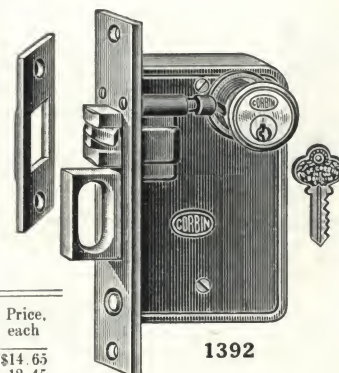
Front, Bolt, Strike, Pull: Cast bronze, polished.

Cylinder: Bronze.

Keys: Nickel silver.



134



1392

Lock No.	Front		Case size, in.	Backset, in.		Width of case more than backset, in.	Cylinders	Keys class 27	Master keying	Changes	Price, each
	Type	Size, in.		Std.	Special						
134	Flat	4 x 1½	2¾ x 3¼ x 3¼	2¾			Two, 253	3	Limited	Unlimited	\$14 65
134½	Flat	4 x 1½	2¾ x 3¼ x 3¼	2¾			One, 253	3	Limited	Unlimited	12 45
1392	Flat	7½ x 1½	5½ x 3¾ x 3¾	2¾	2, 2½	1½	Two, 253	3	Limited	Unlimited	19 20
1394	Flat	7½ x 1½	5½ x 3¾ x 3¾	2¾	2½, 3¼, 3¾, 4, 4½, 5¼, 6	1	Two, 253	3	Limited	Unlimited	22 80

BITTED KEY MORTISE SLIDING DOOR LOCKS

No. 1294—For single doors. Bolt operated by key from either side, 3 wrought tumblers and 9 key changes.

No. 1302—Same as 1294 but for double doors.

No. 160—For single communicating doors, operated by drop handles, each locking against the opposite side.

No. 160½—Same as 160 but for double doors.

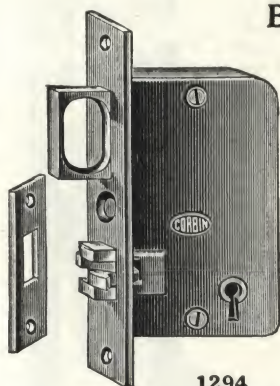
GENERAL CONSTRUCTION

Case: Japanned iron.

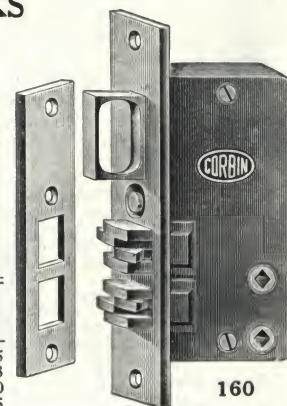
Front, Bolts, Strike, Pull: Cast bronze, polished.

Hubs: Nos. 160 and 160½, bronze, ⅞ in.

Keys: Bronze.



1294



160

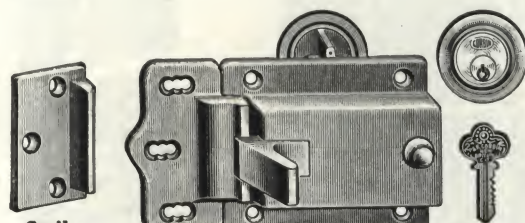
Lock No.	Front		Case size, in.	Backset, in.		Keys class 39	Price, each
	Type	Size, in.		Std.	Special*		
1294	Flat	7½ x 1½	5½ x 3¼ x 1½	2½	{1½, 2, 2½, 2¾, 3, 3¼, 3½, 3¾, 4, 4½, 5¼, 6}	1	\$ 6.55
1302	Flat	7½ x 1½	5½ x 3¼ x 1½	2½	{3½, 3¾, 4, 4½, 5¼, 6}	1	9.33
160	Flat	8½ x 1½	6½ x 3½ x 3½	2¾	3, 3¼, 3½, 3¾	.....	22.80
160½	Flat	8½ x 1½	6½ x 3½ x 3½	2¾	3, 3¼, 3½, 3¾	.....	29.35

*Width of case ¾ in. more than backset.

GARAGE DOOR LOCKS

For Pairs of Hinged Doors

No. 200—A rugged latch for doors 1½ to 2¾ in. thick, opening out. Has self-latching hinged latch bolt. The broad surface of the strike insures a safe grip regardless of how much the doors may sag. Strike No. 1 for single doors, furnished when so ordered. Operated by key from the outside and thumb latch inside. Stop holds bolt retracted when desired.

Strike
No. 1

200

GENERAL CONSTRUCTION

Case: Cast iron, dead black.

Bolt: No. 200 Cast iron, dead black.

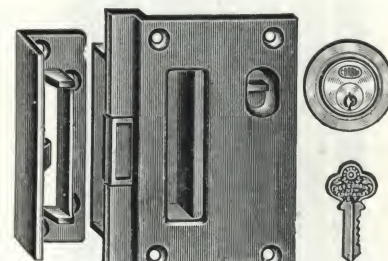
No. 210 Malleable iron.

Keys: Nickel silver.

Cylinder: Bronze.

Latch Bolt: Self-latching.

Reversible: Yes.



210

Lock No.	Case size, in.	Backset, in.	Cylinders	Keys Class 27	Master Keying	Changes	Price each
200	4½ x 4 5/8	3	One, 251	3	Limited	Unlimited	\$3.90
210	5 5/8 x 4	....	One, 251	3	Limited	Unlimited	4.40

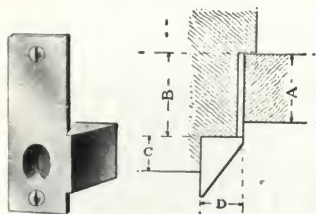


SLIDING DOOR LOCKS—GARAGE LOCKS

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 62

THREE-POINT LOCKS FOR HOLLOW METAL DOORS

**Strike for Top Bolt and Trip**

In ordering state thickness of door (A) and recess (B). If with trim state (C) and (D)

enter sockets in the rear edge of the door. This gives six points at which the door is securely bolted to the frame. The interval between these points, and the fact that the bolts and studs extend $\frac{3}{4}$ in. from the jamb, effectually prevent any possibility of door becoming unfastened by warping through heat.

**Strike for Latch Bolt****Strike for Center and Bottom Bolts**

This device is made for use in steel doors leading to stairways and elevator enclosures. It furnishes protection in case of fires by preventing warping from heat which may cause the door to open. Three bolts are distributed at intervals along the front edge and are supplemented by three steel studs which the door manufacturer supplies and attaches to the jamb, which

**Tubes for Screws Holding Escutcheons**

GENERAL CONSTRUCTION

Lock Case: Japanned iron.

Unit Plate and Parts: Wrought steel, galvanized.

Lock Front, Bolt, Strike: Cast bronze, polished.

Dead Bolts: Tool steel galvanized, $\frac{3}{4}$ in. diam., $\frac{3}{4}$ in. throw. Top bolt has anti-friction roller.

Spacing of Bolts: (Center to center) top to center bolt 27 in., center to bottom bolt 36 in., center to latch bolt 7 $\frac{1}{2}$ in.

Knobs: Cast bronze, polished, 2 $\frac{1}{2}$ in. diam., escutcheons 9x3 $\frac{1}{4}$ in. cast bronze polished.

Push Bar: No. 3001 cast bronze, polished.

Cylinder: Bronze.

Keys: Nickel silver, 3 class 27.

Hub: Swivel $\frac{3}{8}$ in.

Latch Bolt: Broad and heavy, 1 $\frac{1}{4}$ in. wide, $\frac{3}{4}$ in. throw.

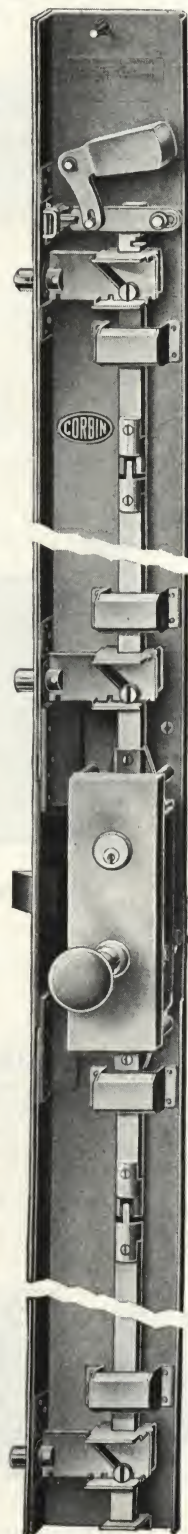
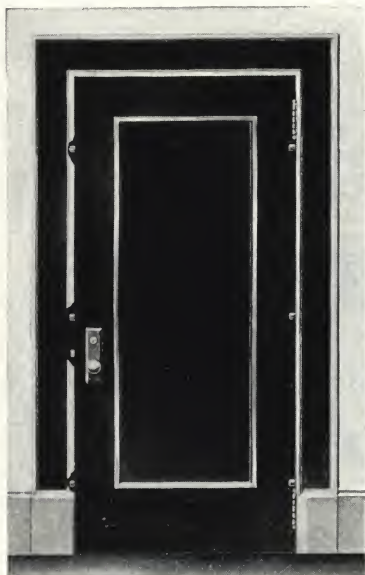
Reversible: No. Specify hand, thickness of door and width of stile which should be not less than 5 in. No. 3001 specify also width of door.

Master Keying: In sets as desired with other Corbin, master-keyed, cylinder locks.

Installation—All parts are mounted on a steel unit plate and adjusted for use before leaving the factory. The device is slipped into the hollow stile of the door and attached by eight machine screws in the edge of the door. The front of the lock, the three bolt heads and the trip are the only parts visible. The screws which fasten escutcheon to door enter tubes which reach from one side of interior to the other preventing bending of the metal stile when screws are tightened.

No. 3000—Furnished with one pair of knobs and two escutcheons all cast bronze, polished. Operates by knob from either side. Key in cylinder outside locks outside knob and has no other function. All bolts are retracted simultaneously by knobs and are automatically projected by closing the door.

No. 3001—Furnished with one exit push bar, one knob and one escutcheon all cast bronze polished. Operated by knob from outside and exit bar inside. Exit bar inside is always operative. Key and bolt functions same as in 3000.

**3000****Studs in Jamb and Sockets in Rear Edge of Door**

Lock No.	Front		Unit plate, in.	Backset, in.	Box strike, lip to center, in.	Spacing, in.	Cylinder	Changes	Master keying	Escutcheon size, in.	Latch bolt	Price, each
	Type	Size, in.*										
3000	Bevel	8 $\frac{3}{8}$ x 1 $\frac{1}{4}$	77 x 4 $\frac{1}{2}$ x 1 $\frac{3}{8}$	3	1 $\frac{3}{8}$	3 $\frac{3}{8}$	One, 253 $\frac{1}{2}$	Unlimited	Class 027	9 x 3 $\frac{1}{4}$	Easy spring	\$70.00
3001	Bevel	8 $\frac{3}{8}$ x 1 $\frac{1}{4}$	77 x 4 $\frac{1}{2}$ x 1 $\frac{3}{8}$	3	1 $\frac{3}{8}$	3 $\frac{3}{8}$	One, 253 $\frac{1}{2}$	Unlimited	Class 027	9 x 3 $\frac{1}{4}$	Easy spring	\$92.00

*Partly concealed so as to require only a 2 $\frac{1}{2}$ x 1 $\frac{1}{4}$ in. cut in edge of door.

PLATE 63**THREE-POINT LOCKS**

Prefix Letters for Finish. Description of Finishes, Plate 3



CORBIN FIRE EXIT DEVICES

Corbin Automatic Exit Fixtures

These fixtures provide a ready exit and can be operated at all times from the inside even when locked against entrance. They yield to a light pressure so that a child can operate them with ease. They are applied to doors opening outward.

Originally designed to prevent loss of life through panics, they are now required upon exits of buildings wherever people congregate. They are especially adapted for theatres, schools, churches, office and public buildings, loft buildings and factories.

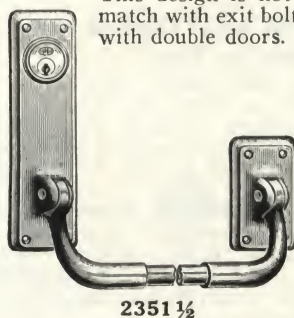
EXIT PUSH BARS FOR SINGLE DOORS AND MOVABLE LEAF OF PAIR OF DOORS

For Use with Locks on Exit and Entrance Doors

These bars are all for the same service. Pressure on the horizontal bar retracts the latch bolt of the lock allowing the door to open. They cannot be used when top and bottom bolts are desired.

No. 2351½—A neat fixture made to fit close to the door. Lock is operated in the same manner as if thumb piece was used.

This design is not made to match with exit bolts for use with double doors.



2351 ½

GENERAL CONSTRUCTION

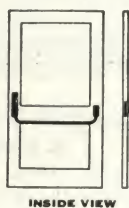
Fixture: Cast bronze, polished, wrought bronze bar.

Escutcheon: 8½x2¼ and 4x2¼ in.

Horizontal Bar: ¾-in. tubing.

Reversible: No, state hand.

Price, each: \$22.00.



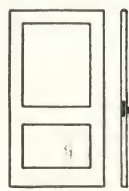
INSIDE VIEW



OUTSIDE VIEW WITH KNOB AND ESCUTCHEON



OUTSIDE VIEW WITH SECTIONAL HANDLE



OUTSIDE VIEW WITH OUT OUTSIDE TRIM

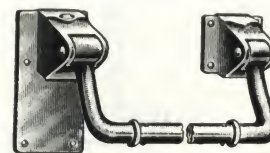
No. 02352½—Heavy bar which matches with exit bolts and may be used on movable leaf of double doors. Latch bolt can be held in retracted position by means of special key.

All bronze, polished.

No. T02352½—Same but unpolished.

No. 03352½—Same but all iron, plated.

No. D03352½—Same but all iron, dead black finish.



02352 ½

GENERAL CONSTRUCTION

Fixture: All bronze: Nos. 02352½ and T02352½.

All iron: Nos. 03352½ and D03352½.

Brackets: 5½x2¾ in. and 2½x2¾ in. Requires stiles at least 4½-in. wide.

Horizontal Bar: 1-in. tubing.

Reversible: No, state hand.

Price, each: No. 02352½, \$22.00; No. T02352½, \$18.35.

No. 03352½, \$16.00; No. D03352½, \$13.35.

SETS FOR SINGLE DOORS

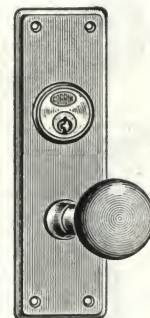
With No. 2351½ Exit Bar						With No. 235½ or T2352½ Exit Bar						
Set No.	Lock* No.	Handle No.	Knob No.	Escutcheon No.	Price, set	Set No.	Lock* No.	Exit Bar No.	Handle No.	Knob No.	Escutcheon No.	Price, set
Set with Sectional Handle Outside												
41186	1386	75282	.....	.....	\$47.70	42386	1386	2352½	75282	.....	.....	\$46.70
						52386	1386	T2352½	75282	.....	.....	43.05
Set with Knob and Escutcheon Outside												
41187	1387	.....	1519½	74029½	\$47.35	42387	1387	2352½	.....	1519½	74029½	\$47.35
41180	1380	.....	1419½PW	70129½	32.15	52387	1387	T2352½	.....	1519½	74029½	43.70
						52380	1380	T2352½	.....	1419½PW	70129½	28.50
Set without Trim Outside												
41176	0176	.....	.....	.....	\$26.50	52376	0176	T2352½	.....	.....	.....	\$22.85

*For description of lock, see plate 68.

Note: For complete details and sets with iron fixtures, see Corbin General Catalogue.



75282



1519 ½ x
74029 ½



EXIT PUSH BARS

Prefix Letters for Finish. Description of Finishes, Plate 3
For Other Items and Complete Details, see Corbin General Catalogue

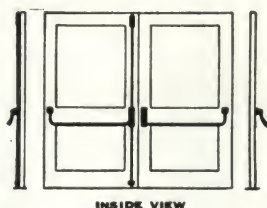
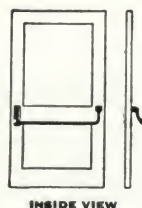
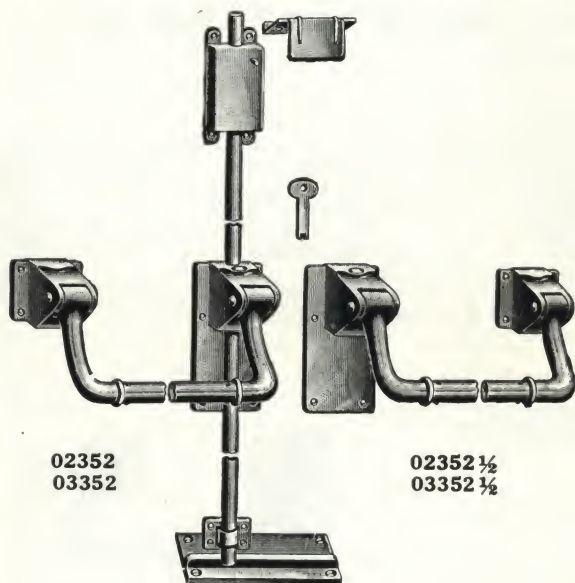
PLATE 64

AUTOMATIC EXIT SETS FOR SINGLE DOOR, AND PAIR OF DOORS WITH ONE DOOR ACTIVE

These sets are a combination of 02352 and 02352½. No. 02352 has the push bar with top and bottom bolt for use on the inactive door. No. 02352½ has the push bar with lock for use on the active entrance door. Sectional handle or knob and escutcheon are furnished for use on the outside of this door with locks No. 1386, 1387 and 1380. Door Pull is used with lock No. 1385. Locks furnished with these sets for double doors have open back strike, allowing either door to open independently of the other.

For complete details and sets with iron fixtures, see Corbin General Catalogue.

For General Construction, see plates 64 and 66.



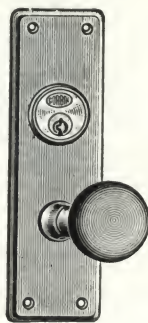
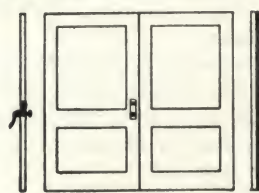
Operation by Key and Sectional Handle or Knob from Outside

Operation of Sets for Single Doors—By exit push bar from inside at all times. Knob or thumb piece outside is controlled by key in inside cylinder. When knob is locked, entrance may be had by turning key in outside cylinder, which retracts the latch bolt but does not release the knob. The auxiliary latch prevents forcing of the latch bolt when door is closed, but does not prevent key or push bar from operating latch bolt.

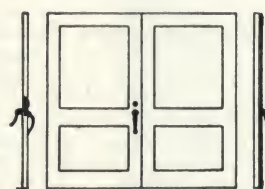
Operation of Sets for Pair of Doors—Similar to the above except that push bar operates both doors from inside at all times, and key in outside cylinder operates only the active door.



75282

1419x
2440½

OUTSIDE VIEW
WITH KNOB AND ESCUTCHEON



OUTSIDE VIEW
WITH SECTIONAL HANDLE

SETS FOR PAIR OF DOORS

Set No.	Lock* No.	Exit bar No.	Handle No.	Knob No.	Escutcheon No.	Exit bolt No.	Price, set
Sets with Sectional Handle Outside							
42486	1386x625	02352½	75282	.....	.....	02352	\$85.00
52486	1386x625	T02352½	75282	.....	.....	T02352	64.55

Sets with Knob and Escutcheon Outside

42487	1387x625	02352½	.....	1519½	74029½	02352	\$85.70
52487	1387x625	02352½	.....	1519½	74029½	T02352	65.20
52480	1380x625	02352½	1419½PW	70129½	T02352	50.00

Sets Without Trim Outside

52476	0176x625	T02352½	T02352	\$44.35
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*For description of locks, see Plate 68.

Operation by Door Pull from Outside When Bolt Is Held Retracted by Key

On these sets latch bolt can be locked in a retracted position and door operated by door pull from the outside. A door check of the proper size should be used with these sets to hold the door closed when latch bolt is held in the retracted position.



75286

Operation of Sets for Single Doors—By exit push bar from the inside at all times. Key in cylinder outside retracts the latch bolt and auxiliary latch and holds them retracted. When latch bolt is held retracted, door can be operated from outside by door pull.

Operation of Sets for Pair of Doors—Similar to the above except that push bar operates both doors from inside at all times and key in outside cylinder operates only the active door.

SETS FOR SINGLE DOORS

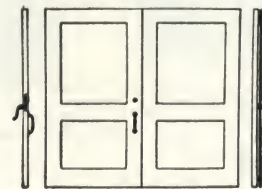
Set No.	Lock No.	Exit bar No.	Door pull No.	Price, set
32385	1385	D03352½	75286	\$35.05
33385	1385	03352½	75286	37.75
42385	1385	02352½	75286	43.70
52385	1385	T02352½	75286	40.05

SETS FOR PAIR OF DOORS

Set No.	Lock No.	Exit bar No.	Door pull No.	Exit bolt No.	Price, set
32485	1385x625	D03352½	75286	D03352	\$51.15
33485	1385x625	03352½	75286	03352	57.05
42485	1385x625	02352½	75286	02352	82.00
52485	1385x625	T02352½	75286	T02352	61.50



OUTSIDE VIEW, SINGLE DOOR



OUTSIDE VIEW, DOUBLE DOOR

PLATE 65

EXIT BOLTS AND SETS

Prefix Letters for Finish. Description of Finishes, Plate 3



EXIT BOLTS FOR SINGLE AND PAIR OF DOORS

Have top and bottom bolts which are retracted by pressure on horizontal bar, allowing the door to open. Bolts held in retracted position as long as the door is open. When the door closes, the bolts are automatically projected into the strikes except when they are locked in retracted position by means of the key.

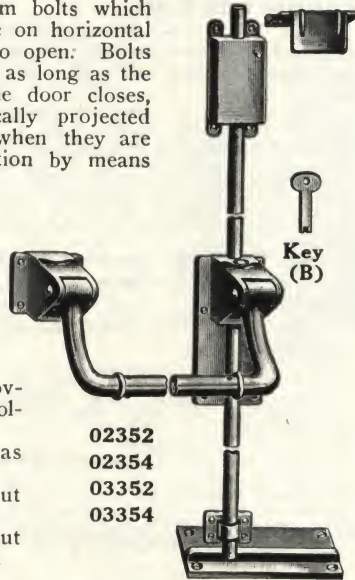
For Exit Only

No. 02352—Used without lock or outside trim on doors for exit only. May be used on both leaves of double doors or on standing leaf with 02352½ on moving leaf. All bronze, polished.

No. T02352—Same as 02352 but unpolished.

No. 03352—Same but all iron, plated.

No. D03352—Same but all iron, dead black finish.



02352
02354
03352
03354

Operation by Key and Knob from Outside

No. 02354—Similar to 02352 but with unit type knob on outside which retracts bolts so that the door may be used for entrance. A complete turn of the key (A) makes the knob inoperative. The knob should always be used to retract the bolts from the outside as the key (A) is furnished to lock and unlock the knob only. May be master keyed with any Corbin master keyed cylinder lock. All bronze, polished.



Knob and Escutcheon for 02354 and 03354

Escutcheon, 6x3 in.
Knob, 2½ in. diam.



Key (A)

No. 03354—Same but iron, plated, with knob and escutcheon cast bronze, polished.

No. D03354—Same but iron, dead black finish, with knob and escutcheon cast bronze, polished.

GENERAL CONSTRUCTION

Fixture: All bronze: Nos. 02352, T02352 and 02354.
Iron: Nos. 03352, D03352, 03354 and D03354.

Bolt Rods: ⅝-in. diam.

Horizontal Bar: 1-in. tubing.

Brackets: 5½x2½ in. and 2½x2½ in.; Nos. 02352 and T02352 require stiles at least 3½ in. wide and No. 02354 requires stiles at least 4 in. wide.

Top Case: 5¼x2½ in.

Top Strike: With return for stop ½ in. thick.

Height of Bar: 38 in. above floor.

Reversible: No, state hand.

Price, each: No. 02352, \$38.30; No. T02352, \$21.50; No. 02354, \$56.00; No. 03352, \$19.35; No. D03352, \$16.10; No. 03354, \$34.65; No. D03354, \$30.65.

Operation by Key, Lever and Door Pull from Outside

Bolts are retracted at top and bottom by lever from the outside. A complete turn of key (A) in the lever makes the lever inoperative. A complete turn of key (A) in the opposite direction again releases the lever.* The lever should always be used to retract the bolts from the outside as the key (A) is furnished to lock and unlock the lever only and should not be used to operate the bolts.

Pressure on the horizontal bar on the inside automatically retracts bolts at top and bottom, at all times, in which position they are held as long as the door is open. When the door closes, the bolts are automatically projected into the strikes, except when they are locked in retracted position by means of key (B), during which time the door operates as a free door.

No. 02344—Used with lock and outside trim on doors for both exit and entrance. May be used on single door, both leaves of double doors or on standing leaf of double doors with 02352½ on moving leaf. All bronze, polished.

No. 03344—Same as 02344 but iron, plated, with lever, pull and plate cast bronze, polished.

No. D03344—Same as 02344 but iron, dead black finish, with lever, pull and plate cast bronze, polished.

Sets for Pair of Doors—The above sets are for use on single doors. When sets for double doors are desired, the above sets are used in combination with other bolts, namely: 02344x02352

03344x03352
D03344xD03352



Lever, Pull and Plate

Plate, 16x3½ in.
Lever, 3 in.
Grip, 10½ in. c.toc.
Projection, 2¾ in.

GENERAL CONSTRUCTION

Fixture: All bronze: No. 02344.

Iron: Nos. 03344 and D03344.

Bolt Rods: ⅝-in. diameter.

Horizontal Bar: 1-in. tubing.

Brackets: 5½x2½ in. and 2½x2½ in. Require stiles at least 4½ in. wide.

Top Case: 5¼x2½ in.

Top Strike: With return for stop ½ in. thick.

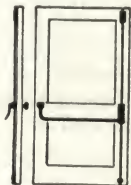
Height of Bar: 38 in. above floor.

Reversible: No, state hand.

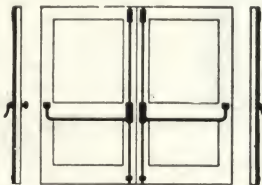
Master Keying: With any Corbin master keyed cylinder lock.

Keys: 3 nickel-silver keys (A), Class 27.

Price, each: No. 02344, \$56.00; No. 03344, \$34.65; No. D03344, \$30.65.



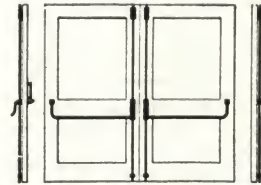
INSIDE SINGLE DOOR WITH 02354 TYPE BOLT



INSIDE VIEW OF DOUBLE DOORS WITH 02354 X 02352 TYPE OF BOLTS



INSIDE SINGLE DOOR WITH 02344 TYPE BOLT



INSIDE VIEW OF DOUBLE DOORS WITH 02344 X 02352 TYPE OF BOLTS



EXIT BOLTS AND SETS

Prefix Letters for Finish. Description of Finishes, Plate 3

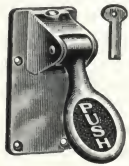
PLATE 66

EXIT PUSH LEVERS

Made for the same service as the Exit Push Bars but are less expensive.

For Use with Lock

No. 02357 $\frac{3}{4}$ —Cast Bronze, polished. For use with the same locks and latches as 02352 $\frac{1}{2}$. Constructed the same as 02352 $\frac{1}{2}$ but has a push lever which is mounted on one stile of the door only instead of the bar which extends all the way across the door.

02357 $\frac{3}{4}$

Pressure on the lever automatically retracts the latch bolt of the lock and allows the door to be opened from the inside at all times. The latch bolt may be held in the retracted position by means of the key.

No. T02357 $\frac{3}{4}$ —Same as 02357 $\frac{3}{4}$ but unpolished.

No. 00357 $\frac{3}{4}$ —Same but all iron, plated.

No. D03357 $\frac{3}{4}$ —Same but all iron, dead black finish.

GENERAL CONSTRUCTION

Fixture: All bronze: Nos. 02357 $\frac{3}{4}$ and T02357 $\frac{3}{4}$.

All iron: Nos. 00357 $\frac{3}{4}$ and D03357 $\frac{3}{4}$.

Bracket: 5 $\frac{1}{2}$ x 2 $\frac{1}{2}$ in.

Price, each: No. 02357 $\frac{3}{4}$, \$8.65; No. T02357 $\frac{3}{4}$, \$6.65

No. 00357 $\frac{3}{4}$, \$6.55; No. D03357 $\frac{3}{4}$, \$5.55

For Use with Bolts

No. 02357 $\frac{1}{4}$ —All bronze, polished. Has top and bottom bolts constructed the same as 02352 but with push lever instead of bar.

Pressure on the push lever automatically retracts the top and bottom bolts, in which position they remain as long as the door is open. When the door closes the bolts are automatically projected into the strikes except when they are locked in the retracted position by means of the key. Stock size for doors 8 ft. 6 in. high; can be fitted to shorter doors by sawing off top bolt.

No. T02357 $\frac{1}{4}$ —Same but unpolished.

No. 03357 $\frac{1}{4}$ —Same but all iron, plated.

No. D03357 $\frac{1}{4}$ —Same but all iron, dead black finish.

GENERAL CONSTRUCTION

Fixture: All bronze: Nos. 02357 $\frac{1}{4}$ and T02357 $\frac{1}{4}$. All iron: Nos. 03357 $\frac{1}{4}$ and D03357 $\frac{1}{4}$.

Bolt Rods: $\frac{1}{2}$ in. diam.

Bracket: 5 $\frac{1}{2}$ x 2 $\frac{1}{2}$ in.; requires stile at least 3 $\frac{1}{2}$ in. wide.

Top Case: 5 $\frac{1}{4}$ x 2 $\frac{1}{2}$ in.

Top Strike: With return for strike $\frac{1}{2}$ in. thick.

Price, each: No. 02357 $\frac{1}{4}$, \$29.50; No. T02357 $\frac{1}{4}$, \$22.35; No. 03357 $\frac{1}{4}$, \$18.35; No. D03357 $\frac{1}{4}$, \$15.35

02357 $\frac{1}{4}$

STOP AND STRIKE FOR EXIT BOLTS

A special form of combination door stop and bolt strike is furnished for use with automatic exit bolts. It is applied off center as shown in the plan view and acts as a stop for both doors and as a strike for the bolt or bolts when used on both doors.

GENERAL CONSTRUCTION

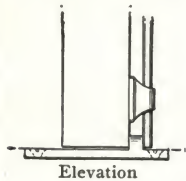
Stop: No. 639 $\frac{1}{2}$, cast bronze, polished.

No. 639, cast iron, dead black finish.

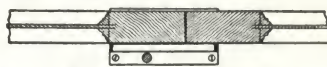
Size: 2 $\frac{3}{8}$ x 6 in.

Price, each: No. 639 $\frac{1}{2}$, \$2.50

No. 639, \$0.60



Elevation

639 $\frac{1}{2}$ 

Plan for pair of doors

Views Applied

EXIT BOLT FOR TOP OR BOTTOM OF STANDING LEAF OF PAIR OF DOORS

No. 2358 exit bolt used at top and bottom of standing or inactive door of a pair of doors instead of exit bolts No. 02352 or 02357 $\frac{1}{4}$. Made of polished cast bronze with gun metal bolt heads and roller.

When the active door is open, pressure on the standing door, releases bolt head from strike. When both doors are closed, latch bolt cannot be retracted, movement of latch bolt being prevented by the auxiliary bolt coming in contact with the strike plate on the edge of the active door. Closing the door causes the bolt head to ride over the lip and into the socket of the strike.

GENERAL CONSTRUCTION

Fixture: Cast bronze polished.

Case: 8 x 1 $\frac{1}{2}$ in.

Offset: 1 $\frac{1}{2}$ x 3 in.

Stop Plate: 1 x 1 $\frac{1}{2}$ in.

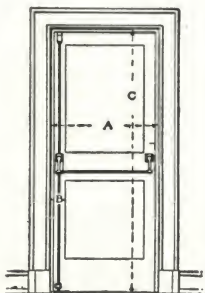
Box Strike: 2 x 3 $\frac{1}{2}$ in.

Price, each: \$13.35



2358

INSTRUCTIONS FOR ORDERING



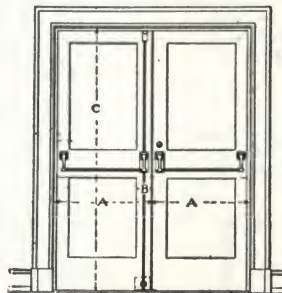
Single Exit Door

Inside view with exit bolt

"A" Width of exit

"B" Width of stile (not less than 4 in.)

"C" Height of door



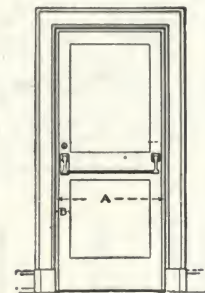
Pair of Entrance Doors

*Inside view with exit bolt and exit push bar

"A" Width of door

"B" Width of stile (not less than 4 $\frac{1}{2}$ in.)

"C" Height of door



Single Entrance Door

Inside view with exit push bar

"A" Width of door

"B" Width of stile (not less than 4 $\frac{1}{2}$ in.)

Thickness of stops figured at $\frac{1}{2}$ in. unless otherwise stated. Standard height of cross bar from floor, 38 in., furnished unless otherwise ordered.

*Same information required for pair of exit doors with exit bolts on both doors.

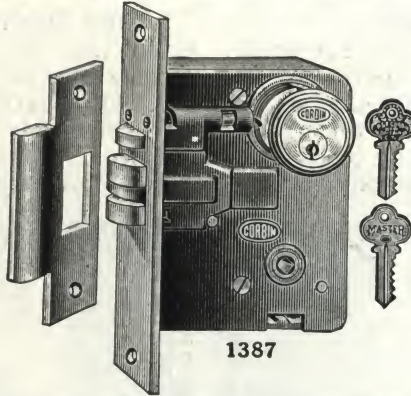
Note: State hand and thickness of door.

CYLINDER MORTISE EXIT DOOR LOCKS

Made Especially for Use with Exit Push Bars or Levers

No. 1387—For use with knob outside. Has auxiliary latch, anti-friction latch bolt and two large master cylinders. For single or pair of doors.

The exit push bar or push lever operates the latch bolt from the inside at all times. Knob outside is controlled by key in inside cylinder. When knob is locked, entrance may be had by turning key in outside cylinder which retracts the latch bolt but does not release the knob. The auxiliary latch prevents forcing of the latch bolt when door is closed but does not prevent key or push bar from operating latch bolt.



1387

No. 1386—Same as 1387 but for use with handle and thumb piece instead of knob outside. Has the same operation as 1837 but thumb piece outside may be locked instead of knob.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front, Bolt, Strike: Cast bronze, polished.
Cylinders: Bronze.
Keys: Nickel silver.
Hub: Bronze, $\frac{7}{8}$ in. for No. 1387.
Latch Construction: Anti-friction.
Reversible: No, state hand and thickness of door and whether for single or double door.
Master Keying: With any Corbin master keyed cylinder lock.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinders	Keys class	Master keying	Changes	Latch bolt	Price, each
	Type	Size, in.		Std.	Special								
1387	Bevel	$7\frac{1}{2} \times 1\frac{1}{2}$	$5\frac{5}{8} \times 4\frac{1}{8} \times 3\frac{3}{4}$	$2\frac{3}{4}$	.....	$1\frac{1}{2}$	3	Two, $253\frac{1}{2}$ †	27	Class 027	Unlimited	Anti-friction	\$20.80
1386	Bevel	$7\frac{1}{2} \times 1\frac{1}{2}$	$5\frac{5}{8} \times 4\frac{1}{8} \times 3\frac{3}{4}$	$2\frac{3}{4}$	.....	$1\frac{1}{2}$	.....	Two, $253\frac{1}{2}$ †	3	Class 027	Unlimited	Anti-friction	20.80

†Inside cylinder has short cam.

BITTED KEY MORTISE EXIT DOOR LOCKS

Made Especially for Use with Exit Push Bars or Lever

No. 1380—For use with knob outside. Has auxiliary latch and anti-friction latch bolt. For single or pair of doors.

Latch bolt operated by exit push bar or push lever at all times from the inside and by knob from the outside. Outside knob may be locked by key from either side. Auxiliary latch automatically locks latch bolt so that it cannot be forced back when the door is closed, but does not prevent exit bar or knob from operating latch bolt.

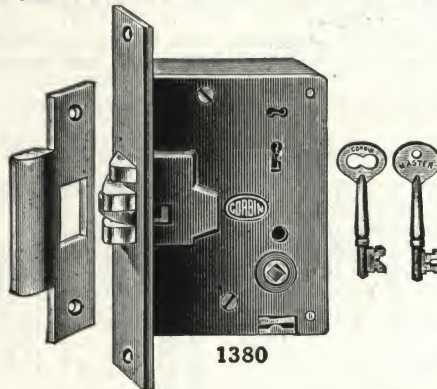
Master Keying—In 4 sets of 160 each, or in 16 sets of 40 each, the 640 all different, with master key for each set and, when so ordered, with grand master to pass all.

No. 1383—Same as No. 1380 but with different key and fewer changes.

Master Keying—In 5 sets of 50 each, the 250 all different, with master key for each set and, when so ordered, with grand master to pass all.

No. 1382—Similar to 1380 but for use with handle and thumb piece instead of knob outside. Then the same operation as 1380 but thumb piece outside may be locked instead of knob.

Master Keying—Same as 1380.



1380

No. 1381—Similar to 1380 but for use with doorpull instead of knob or handle and thumb piece outside. Latch bolt may be locked in retracted position by key from inside only.

Can be used for entrance, only by means of door pull when latch bolt is locked in retracted position by key from inside. Operated by push bar or push lever from inside at all times. Through bolt of door pull, if used on outside, passes through round hole in steel hub. Hub has no operating functions.

Master Keying—Same as 1380.

GENERAL CONSTRUCTION

Case: Japanned iron.
Fronts, Bolt, Strike: Cast bronze, polished.
Tumblers: Wrought.
Keys: Nickel-plated steel.
Hub: Nos. 1380 and 1383 bronze, $\frac{7}{8}$ in.
Latch Bolt: Anti-friction.
Reversible: No, state hand and thickness of door and whether for single or double doors.
Master Keying: See table and text.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Master keying	Changes	Latch bolt	Price, each
	Type	Size, in.		Std.	Special								
1380	Bevel	$7\frac{1}{2} \times 1\frac{1}{2}$	$5\frac{5}{8} \times 3\frac{3}{4} \times 1\frac{1}{8}$	$2\frac{3}{4}$	.....	$1\frac{1}{2}$	$2\frac{3}{4}$	3	One, class 807%	Class 0807%	640	Anti-friction	\$8.45
1383	Bevel	$7\frac{1}{2} \times 1\frac{1}{2}$	$5\frac{5}{8} \times 3\frac{3}{4} \times 1\frac{1}{8}$	$2\frac{3}{4}$	.....	$1\frac{1}{2}$	$2\frac{3}{4}$	3	One, class 179%	Class 195	250	Anti-friction	8.45
1382	Bevel	$7\frac{1}{2} \times 1\frac{1}{2}$	$5\frac{5}{8} \times 3\frac{3}{4} \times 1\frac{1}{8}$	$2\frac{3}{4}$	.....	$1\frac{1}{2}$	$2\frac{3}{4}$	3	One, class 807%	Class 0807%	640	Anti-friction	8.45
1381	Bevel	$7\frac{1}{2} \times 1\frac{1}{2}$	$5\frac{5}{8} \times 3\frac{3}{4} \times 1\frac{1}{8}$	$2\frac{3}{4}$	.....	$1\frac{1}{2}$	$2\frac{3}{4}$	3	One, class 807%	Class 0807%	640	Anti-friction	8.45

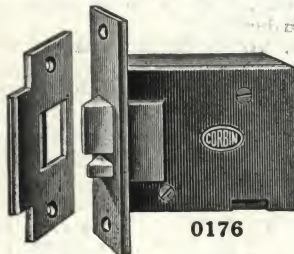
MORTISE EXIT DOOR LATCHES

For Use with Exit Fixtures Having Push Bar or Push Lever

No. 0176—For use without outside trim. Has auxiliary latch and easy spring latch bolt. For single or pair of doors.

Latch bolt operated by exit push bar or push lever from the inside at all times. Auxiliary latch automatically locks latch bolt, so that it cannot be forced back when the door is closed, but does not prevent exit bar from operating latch bolt.

No. 176—Similar to 0176 but does not



0176

have auxiliary latch and can be operated by knob from outside.

Used where access is desired from the outside by knob and a lock is not necessary, yet it can be operated from the inside by push bar or push lever.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front, Bolt, Strike: Cast bronze, polished.
Hub: No. 176, bronze $\frac{7}{8}$ in.
Latch Bolt: Easy spring.
Reversible: Yes.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Latch bolt	Price, each
	Type	Size, in.		Std.	Spec.			
0176	Flat	$5 \times 1\frac{1}{2}$	$3 \times 3\frac{3}{4} \times 5\frac{5}{8}$	$2\frac{3}{4}$	$1\frac{1}{2}$ *	$1\frac{1}{2}$	Easy spring	\$4.50
176	Flat	$5\frac{1}{2} \times 1\frac{1}{2}$	$3\frac{1}{2} \times 3\frac{3}{4} \times 5\frac{5}{8}$	$2\frac{3}{4}$	$1\frac{1}{2}$ *	$1\frac{1}{2}$	Easy spring	3.85

*Width of case 1 in. more than backset.



EXIT DOOR LOCKS AND LATCHES

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 68

CORBIN CAST AND WROUGHT BRONZE BUTT HINGES

Corbin Bronze Loose Pin Butt Hinges

Made of both cast and wrought bronze in standard or templet styles. The grade of bronze used has proven by tests to give the greatest wear possible for the class of work that butts are called on to perform.

Friction wear is reduced by the use of lubricating washers, steel bushings or ball bearings.

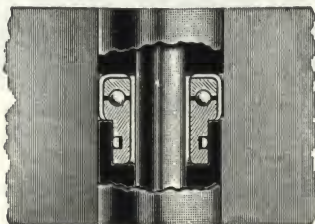
These are assembled in the butt in such a manner that they will not fall out when the leaves are separated.

Lubricating Washers—Made of hardened steel, these washers minimize excessive wear and strain at the joints.

They are used on the lighter grade of cast bronze butts where the work imposed is not heavy.



Lubricating Washer



Full Size Section of Ball Bearing

Steel Bushings—Similar to the steel washers except that they extend the full length of the pin and are used on wrought bronze butts.

Ball Bearings—The ball bearings and runways are snugly enclosed to prevent dust and moisture from working in. They are used when silent operation of heavy doors is required as in hospitals, etc., and where exceptional frequency of operation may be expected.

Furnished on the heavier types of both cast and wrought bronze butts.

Button Tips—Corbin butts are regularly furnished with ball tips, but when so ordered can be furnished with button tips as illustrated.



Button Tip

Cast Bronze with Non-rising Steel Pins

No. 61—Cast bronze, polished, with hardened steel lubricating washers.

No. 61½—Same as No. 61 but heavier.

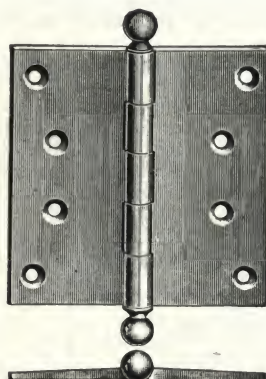
No. 061½—Heavy cast bronze, polished, with ball bearing.

No. 061¾—Same as No. 061½ but extra heavy.

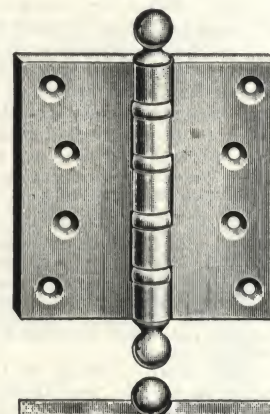
No. 71½—Templet type for metal doors. Heavy cast bronze, polished, with hardened steel lubricating washers.

No. 071½—Same as No. 71½ but with ball bearing instead of washer.

No. 071¾—Same as No. 071½ but extra heavy.



61 and 61½



061¾

Size, in.	Price pair, for various Cat. Nos.					
	61	61½	061½	061¾	71½	071½
3x3	\$ 3.55	\$ 4.10	.....	.....	\$ 4.55	.....
3½x3½	4.00	4.45	.....	.....	4.90	.....
4x4	4.65	5.55	\$ 7.55	\$10.00	6.10	\$ 8.30
4½x4½	6.00	6.55	8.65	11.35	7.35	9.55
5x4	.....	8.25	10.25	12.45	9.05	11.25
5x4½	.....	8.25	10.25	12.45	9.05	11.25
5x5	7.35	8.25	10.25	12.45	9.05	11.25
6x4	.....	.....	14.25	17.35	.....	15.65
6x5	.....	.....	14.25	18.65	.....	15.65
6x6	11.10	12.25	14.25	18.65	13.45	15.65
6x8	.....	.....	.....	20.00	.....	22.00
7x5	.....	.....	.....	19.10	.....	21.00

Wrought Bronze with Non-rising Steel Pins

No. 275—Heavy wrought bronze, polished, steel bushed.

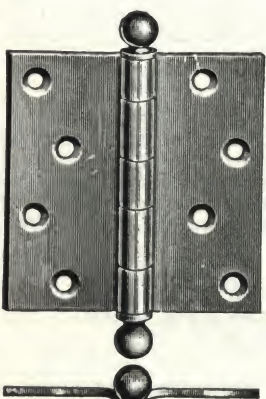
No. 280—Same as No. 275 but with ball bearing instead of bushing.

No. 282—Same as No. 280 but extra heavy.

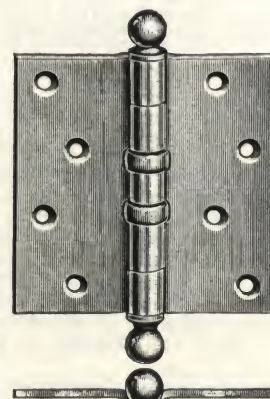
No. 285—Templet type for metal doors. Heavy wrought bronze, plated, steel bushed.

No. 290—Same as No. 285 but with ball bearing instead of bushing.

No. 292—Same as No. 290 but extra heavy.



275



280

Size, in.	Price pair, for various Cat. Nos.					
	275	280	282	285	290	292
2½x2½	\$ 2.80	.....	.....	.....	.....	.....
3x3	3.60	\$ 3.95	.....	\$ 4.15	\$ 4.50	.....
3½x3½	3.90	4.25	.....	4.45	4.80	.....
4x4	4.55	4.90	.....	5.15	5.50	.....
4½x4½	5.70	6.05	\$11.35	6.25	6.60	\$11.90
5x5	6.95	7.30	12.50	7.50	7.85	13.10
6x6	13.25	13.60	18.80	13.80	14.15	19.35

CORBIN CAST IRON BUTT HINGES

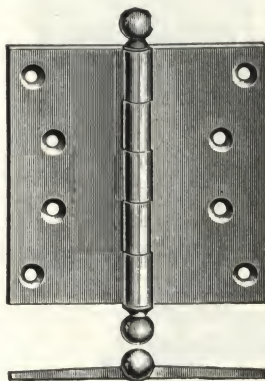
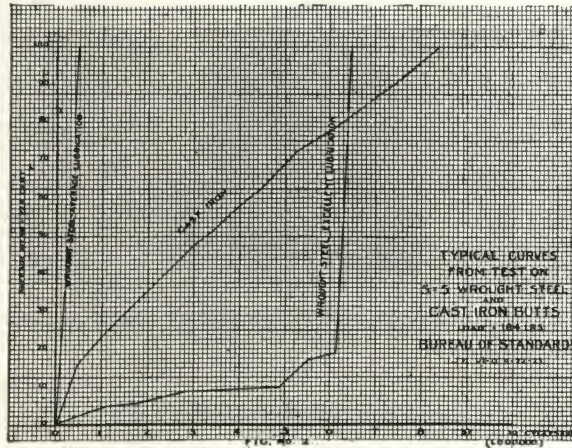
The long wearing qualities of cast iron butts have been known for some time. However, an exhaustive and authoritative test was recently made by the U. S. Bureau of Standards to determine the relative wearing quality of cast iron butts and butts of other materials. The accompanying diagram is a reproduction of the graph made by the bureau from these tests. A pamphlet on the comparative values of cast iron butts and those of other materials will be sent on request.

On account of the nature of its composition, cast iron is a metal which is practically wearproof, and for that reason becomes ideal for butts. After the wearing surfaces have been in contact with each other for a short time they become glazed and highly polished,

and consequently are only slightly affected by constant usage. The graphite in the iron furnishes all the lubricant necessary.

For ordinary usage, Corbin Cast Iron Butts are practically everlasting. They are made of a special grade of iron which chemical analysis and repeated tests have proven to have a superior wearing quality. This iron is also to some extent ductile and is comparatively free from brittleness.

Fine finishes are possible due to the close grain of the metal which takes a high polish. These butts can be plated in bronze and brass in any of the regular Corbin finishes, or in colors to match any other metal fixtures used.



160, 161½ and 161¾

Loose Pin Standard Butt Hinges

These butts are non-rising steel pin type not made to template. Furnished with brass pins when so ordered.

No. 160—Heavy cast iron in plated finishes. Also furnished plain, which costs slightly less.

No. 161½—Heavy cast iron, polished and plated.

No. 161¾—Extra heavy cast iron, polished and plated.

Size, in.	Price pair, for various Cat. Nos.		
	160	161½	161¾
2½x2½	\$.80	\$ 1.45	.....
3x3	.90	1.55	.....
3½x3½	1.00	1.75	.....
4x4	1.20	2.10	\$ 3.55
4½x4½	1.50	2.30	4.00
5x5	1.80	2.65	4.55
6x6	2.40	4.45	6.65

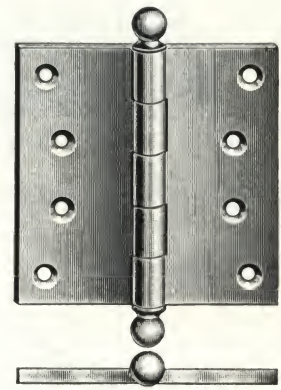
Loose Pin Templet Butt Hinges

Non-rising steel pin type for metal doors. The leaves are of uniform thickness from knuckle to outer edge. They are machined to a gauge and drilled in a jig insuring absolute uniformity in size and location of screw holes.

No. 171½—Heavy cast iron, polished and plated.

No. 171¾—Extra heavy cast iron, polished and plated.

Size, in.	Price pair, for various Cat. Nos.	
	171½	171¾
3x3	\$1.70	.....
3½x3½	1.95	.....
4x4	2.30	\$ 3.90
4½x4½	2.55	4.45
5x5	2.95	5.00
6x6	4.90	7.35



171½ and 171¾

Loose Joint Butt Hinges

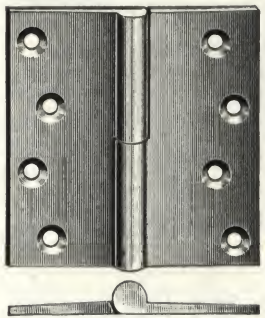
Furnished with steel pin. Not reversible, state hand.

No. 40—Cast iron, plain, without screws.

No. 040—Cast iron, plated, with screws. Also furnished plain, which costs slightly less.

No. 15—Cast bronze, polished, with steel washers.

Size, in.	Price pair, for various Cat. Nos.		
	40	040	15
2½x2½	\$ 0.27	\$0.45	\$ 2.65
3x3	.31	.50	3.55
3½x3½	.42	.60	4.00
4x4	.51	.80	4.65
4½x4½	.71	1.10	6.00
5x5	.98	1.40	7.35
6x6	1.75	2.00	14.45



40, 040 and 15
Right Hand

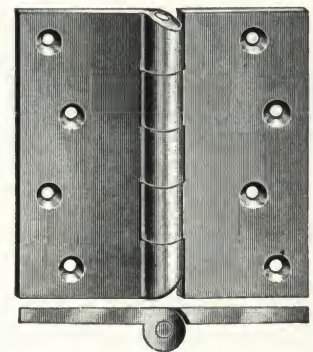
Asylum Butt Hinges

Fast joint type. They have no projecting tips over which sheets, ropes, etc., can be hung.

No. 172—Cast iron, polished and plated, with steel pin.

No. 72—Cast bronze, polished, with bronze pin.

Size, in.	Price pair, for various Cat. Nos.	
	172	72
3½x3½	\$1.80	\$4.90
4x4	2.20	6.10
4½x4½	2.65	7.20
5x5	3.10	9.10



72 and 172



CORBIN CAST IRON BUTT HINGES

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 70

DOOR CHECKS AND SPRINGS

Door Check and Spring

It is very generally recognized that the Corbin door check meets all the conditions of difficult and exacting requirements. It is this recognition which has led to the adoption of the Corbin door check for the entrances of the largest terminal stations of the country where throngs pass in and out and strong draughts are encountered; in public and office buildings where the cost of up-keep and trouble of frequent attention are carefully considered, and in many other places where the requirements are severe.

It is mechanically correct, well made, generous in its design, and contains features of unusual merit which have warranted the favor it has received.

It is right or left hand without change; can be used upon any door and can be easily applied by following the simple instructions packed in each box. It is not affected by extremes of temperature, and by a turn of a screw can be adjusted to any draught. Special adaptations fit it to unusual installations, and it responds satisfactorily to all demands. The

sizes recommended have a large margin of capacity for the work assigned.

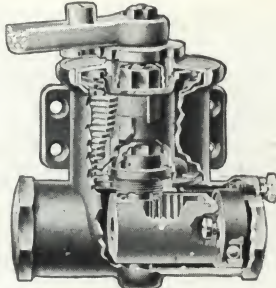
There are but four moving parts.

Spring—Is light, long and resilient. The tension is evenly distributed over twenty coils of flat wire which are so made that they do not touch each other, eliminating internal friction and permitting the full power of the spring to be exerted in performing its function.

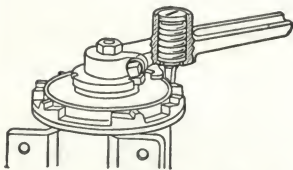
Rack and Pinion—Keep the door under checking control from the moment the motion of closing begins until the door touches the stop noiselessly and is held in close contact with it.

Valve—Is liberally designed, permitting the passage of a goodly amount of liquid and giving a correspondingly large range of adjustment and a freedom from clogging. The bypass is so formed that the movement of the door is rapid at the beginning, gradually becoming slower until the door touches the stop.

Liquid—Is a special Corbin compound of the proper viscosity and not affected by extremes of temperature. Under tests, it functions perfectly at 59° F. below zero.



Door Check and Spring



Three-point Holder Door Check

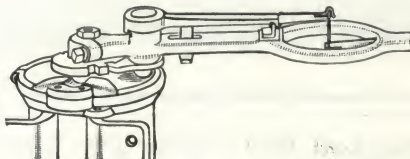
Holds door open at 20, 55 or 90 deg. Cast iron, Columbian bronzed.

No. 723 for inside doors to 7x3½ ft.

Price, each: \$17.35.

No. 724 for inside doors to 7½x4 ft.

Price, each: \$21.00



Door Check and Spring with Fusible Link

Equipped with hold-back attachment and fusible link for fire doors. Link melts in case of fire, releasing the hold-back and causing check to close doors. Cast iron, Columbian bronzed.

No. 523 for inside doors to 7x3½ ft. Price, each: \$28.35

No. 524 for inside doors to 7½x4 ft. Price, each: \$31.00

Approved by the National Board of Fire Underwriters

SIZE AND CLASSIFICATION OF DOOR CHECKS

Size	Classification
1	For light doors such as screen doors, coupon booth doors, etc.
2	For heavy pantry doors, outside or kitchen doors, heavy coupon booth doors, inside or office doors not over 7x3 ft.
3	For vestibule doors, heavy inside doors, outside doors not over 7x2½ ft.
4	For large interior doors, store doors, outside doors not over 7½x3 ft.
5	For doors not larger than 7½x4 ft.
6	For extra large doors or doors subject to heavy drafts, such as are used in public buildings, stores, hotels, railroad depots, etc.

STYLE AND FINISHES

Size	Catalogue number—Cast iron					
	Regular style		With automatic hold-back attachment		Coupon booth style	
	Unpolished Columbian bronzed	Polished and plated	Unpolished Columbian bronzed	Polished and plated	Bronzed	Plated
1	1	11	101	111	101½	111½
2	2	12	102	112	102½	112½
3	3	13	103	113	.....	.....
4	4	14	104	114	.....	.....
5	5	15	105	115	.....	.....
6	6	16	106	116	.....	.....

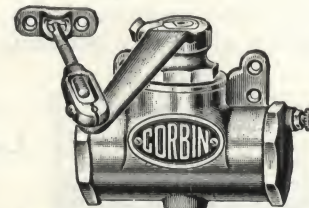
Notes: All checks can be furnished with key adjustment so that only possessors of key may change valve adjustment.

Hold-back checks can be furnished with fusible washer which melts at 160° F., releasing hold-back and causing check to close door.

Can also be furnished in other finishes and cast bronze and brass.

PRICES OF DOOR CHECKS AND SPRINGS

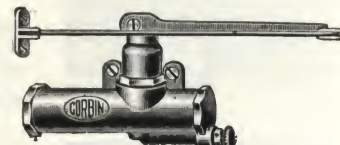
Cat. No.	1	2	3	4	5	6	11	12	13	14	15	16	101	102
Price, each...	\$8.65	\$11.00	\$13.35	\$16.00	\$21.35	\$26.65	\$19.35	\$21.55	\$25.35	\$28.00	\$34.65	\$40.00	\$10.65	\$13.00
Cat. No.	103	104	105	106	111	112	113	114	115	116	101½	102½	111½	112½
Price, each...	\$15.35	\$18.00	\$23.35	\$28.65	\$21.35	\$23.65	\$27.35	\$30.00	\$36.65	\$42.00	\$10.65	\$13.00	\$21.35	\$23.65



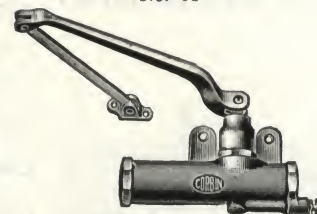
Double-action Door Check No. 303

Reversible. Furnished with interlocking pivot to keep doors in alignment. Cast iron, Columbian bronzed.

Price, each: \$17.50.



No. 01



No. 010

Screen Door Checks

Right or left hand without change. Cast iron, Columbian bronzed.

No. 01 requires only 3-in. space between doors and can be applied to top rail as narrow as 3½ in.

No. 010 is applied to outside for use where space between doors will not permit use of No. 01.

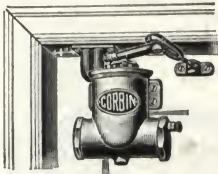
Price, each: \$5.00.

PLATE 71

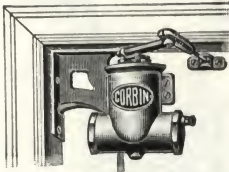
DOOR CHECKS AND SPRINGS

Prefix Letters for Finish: Description of Finishes, Plate 3
For Other Items and Complete Details, See Corbin General Catalogue

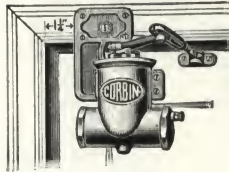




25



26, 26½, 26¾

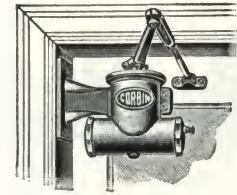


28

DOOR CHECK BRACKETS

Applied to either right or left hand doors without change

Malleable Iron, Columbian Bronze



27

STYLES AND PRICES OF DOOR CHECK BRACKETS

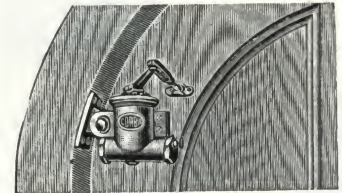
Cat. No.	Style	Price each used with door check, No.					
		1	2	3	4	5	6
25	Overhead....	\$0.95	\$1.05	\$1.20	\$1.45	\$2.00	\$2.15
26	Corner....	1.35	1.75	2.00	2.55	3.05	3.25
*26½	Corner....	.....	1.75	2.00	2.55	3.05	.....
†26¾	Corner....	.....	.....	2.00	2.55	3.05	.....
27	Side....	1.35	1.75	2.00	2.55	3.05	3.25
28	Flush....	1.20	1.35	1.75	2.00	2.40	2.55
§37½	Circular top door	....	3.40	3.40	4.20	4.20	....

Note: In ordering, state number of bracket and number of check with which it is to be used.

*Same as No. 26 but with 1¼ in. base to allow use of 8 screws in attaching.

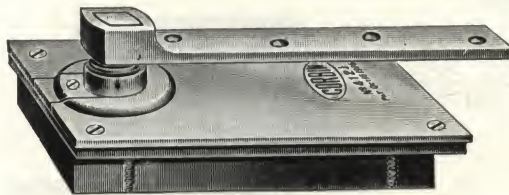
†Same as No. 26½ but with 1 in. greater drop for use with No. 4 Door Holder (see Plate 74).

§Adjustable to curve of door.

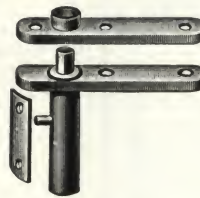


37½

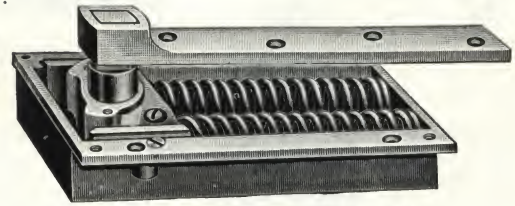
FLOOR SPRING HINGES



412½, 414½



Top Pivot



View with Cover Removed

DOUBLE ACTING FLOOR SPRING HINGES
Cover Plate, Wrought Bronze, Polished

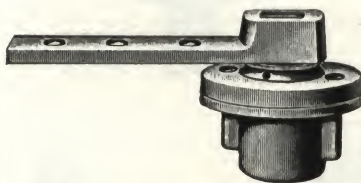
Cat. No.	Size, in.			Use	Price, set
	Width	Length	Depth		
412½	4¼	8¼	1½	For light and medium inside doors, 1¼ to 1¾ in. thick.....	\$ 7.35
414½	4½	8½	1½	For heavy inside and light outside doors, 1¾ to 2¼ in. thick.....	12.00

Note: As regularly furnished will hold the door open at angle of 90°. When so ordered can be furnished without the hold-open feature at the 90° angle, in which case the door will hold open at an angle of 105° unless a door stop is used to stop the door at about a 103° angle just before the hold-back point is reached.

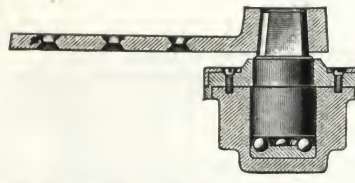
CAST IRON BOXES
For Cement Floors

Cat. No.	Size, in.	Use	Price
011	4½x8½x1½	For No. 412½ floor spring hinge.....	\$1.80
012	5½x9½x1½	For No. 414½ floor spring hinge.....	2.20

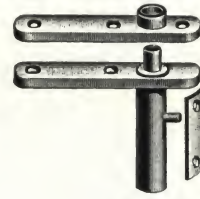
BALL BEARING PIVOTS



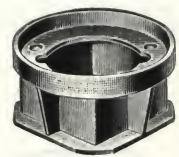
311¼, 312¼, 313¼



Sectional View Showing Parts



Top Pivot



0312, 0313

BALL BEARING PIVOTS WITHOUT SPRINGS
Cover Plate, Wrought Brass, Polished—Levers, Malleable Iron

Cat. No.	Size, in.			Use	Price, set
	Dia.	Depth	Shoe		
311¼	2	1½	5/8x3	For light doors.....	\$ 4.65
312¼	2½	1½	1x5	For doors up to 250 lb.....	5.35
313¼	5	2½	1½x7½	For doors up to 3,500 lb.....	16.00

CAST IRON BOXES
For Cement Floors

Cat. No.	Use	Price
0312	For No. 312¼ pivot	\$2.00
0313	For No. 313¼ pivot	2.00



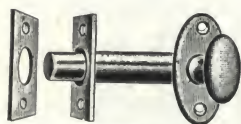
BRACKETS, HINGES AND PIVOTS

Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 72

MORTISE BOLTS

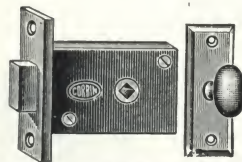
WROUGHT BRONZE MORTISE BOLTS



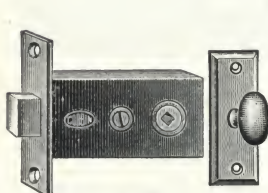
0657 1/2

Cat. No.	Size plate, in.	Backset, in.	Price, doz.
065 5/4	1 3/4 x 1 1/2	7/8	\$5.55
065 5	1 3/4 x 1 1/2	1 1/4	5.55
065 5 1/2	1 3/4 x 1 1/2	1 3/4	6.67
0657 1/4	1 3/4 x 1 1/2	7/8	5.55
0657 1/2	1 3/4 x 1 1/2	1 1/4	5.55
0657 3/4	1 3/4 x 1 1/2	1 3/4	6.67

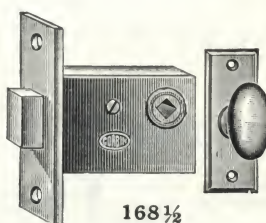
Furnished with cast bronze knob and iron bolt.



163



164



168 1/2

REVERSIBLE MORTISE BOLTS

Cast Bronze Bolt

Cat. No.	Front		Case size, in.	Backset, in.		Hub, in.	Thumb knob	Price, each
	Bronze	Size, in.		Std.	Special			
163	Cast	3 x 1 1/16	1 3/4 x 2 3/4 x 1 1/16	1 3/4	.....	3/16	One, 2148 3/4	\$1.55
0163	Cast	3 x 1 1/16	1 3/4 x 2 3/4 x 1 1/16	1 3/4	.....	3/16	Without	1.20
164	Wrot	3 1/4 x 1/2	1 1/2 x 3 1/2 x 1 1/2	2 3/8	2, 2 1/2, 2 3/4, 3	3/16	One, 2148 3/4	1.55
0164	Wrot	3 1/4 x 1/2	1 1/2 x 3 1/2 x 1 1/2	2 3/8	2, 2 1/2, 2 3/4, 3	3/16	Without	1.20
168 1/2	Cast	4 1/2 x 1 1/16	2 1/2 x 3 1/4 x 3/8	2 3/8	2 3/4	3/16	One, 2148 3/4	3.33
0168 1/2	Cast	4 1/2 x 1 1/16	2 1/2 x 3 1/4 x 3/8	2 3/8	2 3/4	3/16	Without	2.00

Case: Japanned iron. For No. 164 and 0164, case width is 7/8 in. more than backset; for No. 168 1/2 and 0168 1/2, 1 1/8 in. more.
Hub: For Nos. 164 and 0164, furnished 7/8 in. when so ordered.
Operation: By thumb knob from one side only.

DUTCH DOOR BOLTS

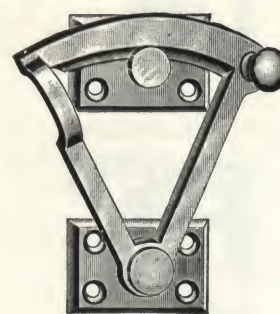
Illustrations one-third size

Cast Bronze, Polished



2257

Size: 1 1/4 x 8 in.
Rabbit: 1/2 in.
Price, each: \$5.30.
Note: Not reversible; state hand when ordering.



364 1/2

Plates: 1 1/2 x 2 3/4 in.
Height, Over All: 4 3/4 in.
Price, each: \$5.30.



169 1/2

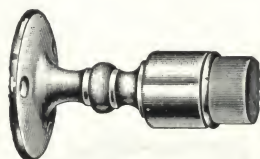
Front: 5 3/8 x 1 in.
Case: Japanned cast iron, 3 3/8 x 2 3/4 x 5/8 in.
Backset: 1 3/8 in.
Price, each: \$3.00.

DOOR STOPS

Cast Bronze



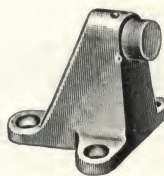
366



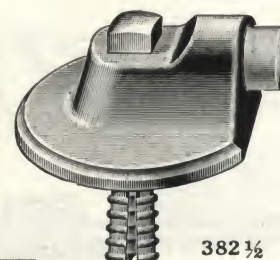
369



365



373



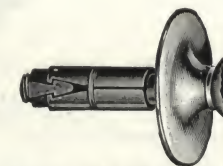
382 1/2

DOOR STOPS WITH RUBBER TIPS

Cat. No.	Height or projection, in.	Type of fastening	Price, each
366	2 3/8	Screw for wood	\$1.10
366 1/8	2 3/8	Expansion bolt	1.55
370	3 1/4	Wood screws	1.90
370 1/2	3 1/4	Expansion bolt	2.25
*373	2 1/8	Wood screws	1.65
†365	3 1/4	Screw for wood	.60
365 1/8	3 1/4	Expansion bolt	1.00
368	2 3/8	Wood screws	1.65
369	3 3/4	Wood screws	1.65
368 1/2	2 3/8	Expansion bolt	2.00
369 1/2	3 3/4	Expansion bolt	2.00
**382	2	Wood screws	2.28
**382 1/2	2	Expansion bolt	2.75

*Base dimensions 2 3/8 x 2 3/8 in. **Base 4 in. in diam.

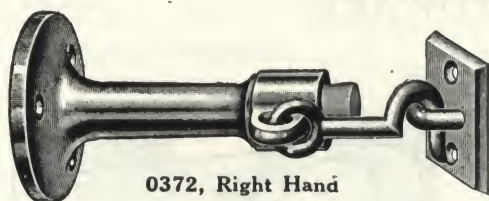
†No. 365 furnished 2, 3 3/4 or 4 3/4 in. projection, when so ordered. Price each as follows: 2-in., \$0.55; 3 3/4 in., \$0.65; 4 3/4 in., \$0.90.



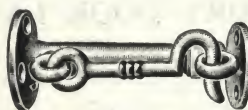
Type of Expansion Bolt Furnished with Door Stops So Listed

Illustrations one-third size

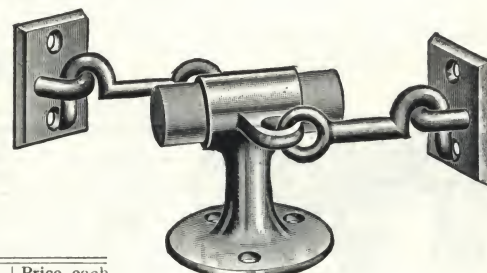
DOOR STOPS AND HOLDERS



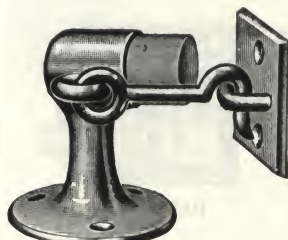
0372, Right Hand



345, Right Hand



0371



0370, Right Hand



0369, Right Hand

DOOR STOPS AND HOLDERS
Cast bronze with rubber tip

Cat. No.	Type of fastening	Height or projection, in.	Price, each
0370	Wood screws.....	3 1/4	\$3.55
0370 1/2	Expansion bolt.....	3 1/4	4.00
0369	Wood screws.....	3 3/4	3.25
0369 1/2	Expansion bolt.....	3 3/4	3.55
345	Wood screws.....	3 1/4	1.80
345 1/2	Expansion bolt.....	3 1/4	2.15
*0371	Wood screws.....	3 1/2	6.65
*0371 1/2	Expansion bolt.....	3 1/2	7.35
†0372	Wood screws.....	5	5.35
†0372 1/2	Expansion bolt.....	5	5.80

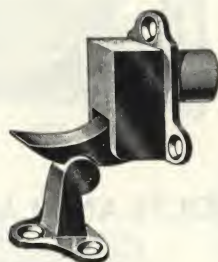
*Width between ends of bumpers, 3 in. Length of hooks, 2 3/4 in.

†Furnished also in projections of 6, 7 and 8 in. Price each as follows:

No. 0372: 6-in., \$6.00; 7-in., \$6.65; 8-in., \$8.00.

No. 0372 1/2: 6-in., \$6.45; 7-in., \$7.20; 8-in., \$8.45.

Note: State size when ordering No. 0372 or 0372 1/2.



367

Cast bronze, polished;
height, 3 3/8 in. Stroke also used
on base board.
Price: \$3.35 each.

2860 and 2863

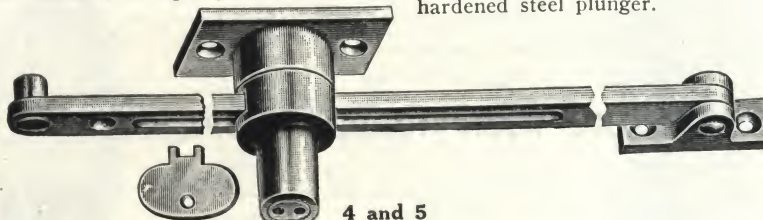
FOOT BOLT DOOR HOLDERS
Cast bronze with rubber tip on bolt head

Cat. No.	Size, in.	Throw, in.	Price, each
2860	7 1/4 x 2 1/8	1 3/8	\$2.90
2863	10 x 2 1/4	2	5.35

OVERHEAD DOOR HOLDER

The ball-head plunger slides without friction in the slot, and snaps into the pocket when in the open position, holding the door firmly.

Furnished in galvanized cast iron with wrought steel rod, gun metal plunger case, adjustable tension spring and hardened steel plunger.



4 and 5

OVERHEAD DOOR HOLDER

Cat. No.	Base plate, in.	Bracket, in.	Rod, in.	Used for doors	Price, each
4	1 3/4 x 3	3/4 x 2 1/4	1/4 x 3/4 x 23	3 ft. and wider..	\$5.65
5	1 3/4 x 3	3/4 x 2 1/4	1/4 x 3/4 x 18 1/2	2 1/2 ft. wide....	5.65

Note: For use with No. 26 3/4 or 27 brackets, shown on Plate 72.

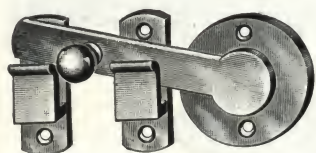


DOOR STOPS AND HOLDERS

Prefix Letters for Finish. Description of Finishes, Plate 3
For Iron Items and Complete Details, see Corbin General Catalogue

PLATE 74

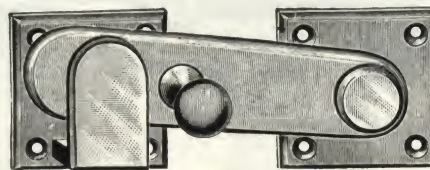
LAVATORY DOOR HARDWARE

Illustrations
one-third sizeCast Bronze
LAVATORY DOOR LATCHES

595 1/2

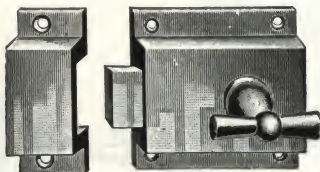
Cat. No.	Plates, size, in.	Length bar, in.	Price, each
595 1/2	2 dia. and 2 1/8 x 3/4	4	\$2.00
599 1/2	2x2	4*	2.70

*Furnished with 3 or 5-in. latch bar when so ordered.



599 1/2

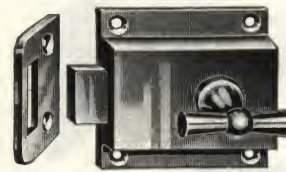
LAVATORY DOOR BOLTS



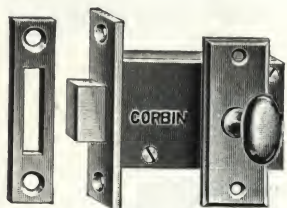
156, 156 1/4



Indicator



0156

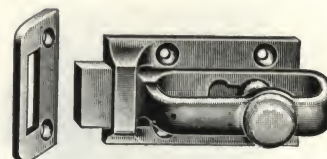


157 1/4

Cat. No.	Description	Size, in.	Backset, in.	Indicator	Price, each
156	Rim	2 1/4 x 2 5/8	1 5/8	With	\$3.15
156 1/4	Rim	2 1/2 x 2 5/8	1 5/8	Without	2.20
0156	Rim	2 1/2 x 2 5/8	1 5/8	With	3.15
157 1/4	Mortise	1 3/4 x 2 3/4*	1 3/4	With†	3.35
155	Slide	1 1/8 x 3	.....	Without	2.50

*Front, 3x1 1/8 in. Case, Japanned iron.

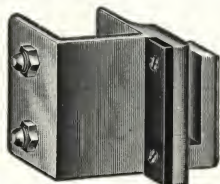
†For 157 1/4 without indicator, see No. 163, Plate 73.



155

STRIKES WITH RUBBER BUFFERS FOR LAVATORY DOOR BOLTS AND LATCHES

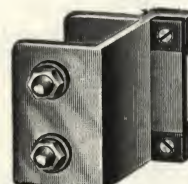
For Use with Marble Partitions



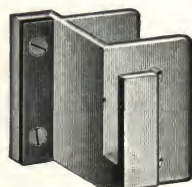
661 1/2



663



663 1/2



661

Cat. No.	For latches or bolts, Nos.	For doors opening	Price, each
*661	595 1/2, 599 1/2	In	\$2.85
*661 1/2	595 1/2, 599 1/2	Out	2.85
663	156, 156 1/4, 0156, 155	In	2.85
663 1/2	156, 156 1/4, 0156, 155	Out	2.85
665	157 1/4	In or out	2.85

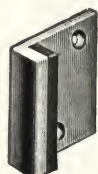
*Not reversible, state hand and number of latch with which it is to be used.

Note: State exact thickness of marble and door.



665

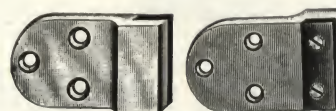
STOPS WITH RUBBER BUFFERS



353 1/2

Cat. No.	Size, in.	Description	Price, each
353 1/2	*1 1/2 x 1 1/2	Applied to edge of door	\$1.00
971 1/2	1 1/2 x 2 1/4	Applied to face of door	.60

*Width of rubber buffer to edge, 1 1/8 in.



Outside

Inside

971 1/2

PLATE 75

LAVATORY DOOR HARDWARE

Prefix Letters for Finish. Description of Finishes, Plate 3



GARMENT HOOKS AND POLE BRACKETS

For Marble Partitions

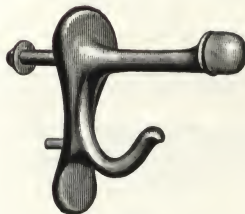


Bolt for Marble
Furnished with 2425

2425



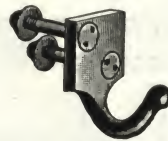
2431



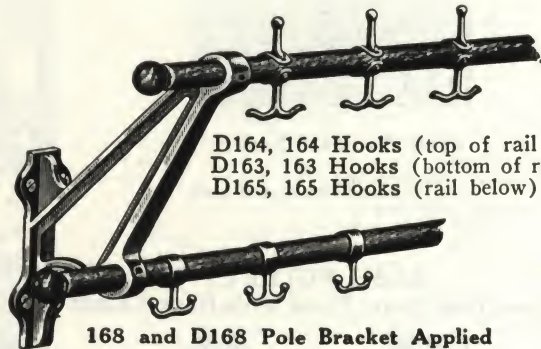
2422

Cat. No.	Size base, in.	Projection, in.	Material, cast	Price
FOR WOOD AND PLASTER PARTITIONS				
1033	.....	3 1/4	Iron, plated	\$ 9.80, gross
01034 1/2	.....	3 1/4	Bronze, polished	5.55, doz.
01034 3/4	.....	3 1/4	Bronze, roll polished	2.85, doz.
*1089	.....	3	Iron, japanned	8.00 gross
*1089 1/2	.....	3	Iron, plated	16.00, gross
1089 1/4	.....	3	Iron, japanned	11.51, gross
1089 3/4	.....	3	Iron, plated	24.00, gross
2421	3 1/4 x 1 1/2	3 1/4	Bronze, polished	1.35, each
FOR POLES				
D163	For 1 1/2 or 2-in. rails	2 1/4	Iron, dead black	1.45, doz.
163		2 1/4	Iron, plated	1.65, doz.
D164		2 1/4	Iron, dead black	1.45, doz.
164	For 1 5/8 in. rail	2 1/4	Iron, plated	1.65, doz.
D165		1 5/8	Iron, dead black	2.75, doz.
165		1 5/8	Iron, plated	3.10, doz.
FOR MARBLE PARTITIONS				
2422	3 1/4 x 1 1/2	3 1/4	Bronze, polished	1.55, each
2425	2 1/2 x 1 3/4	4	Bronze, polished	2.66, each
2430	1 7/8 x 1 1/8	1 5/8	Bronze, polished	1.35, each
2431	1 7/8 x 1 1/8	1 5/8	Bronze, polished	2.00, each

*Same as 1089 1/4 and 1089 3/4 but with single lower hook.



2430



168 and D168 Pole Bracket Applied

Base: 10 1/2 x 2 1/2 in.
Size Pole Used: 1 1/2 in.
Base to Center of Poles: 5 and 10 7/8 in.
Center to Center of Poles: 9 1/4 in.
Price, each: No. 168, \$2.80; No. D168, \$2.20.

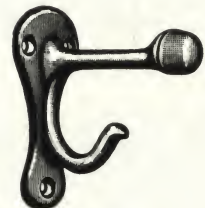
For Wood and Plaster Partitions



1089 1/4, 1089 3/4



1033, 01034 1/2, 01034 3/4



2421

DOOR KNOCKERS

Cast Bronze, Polished



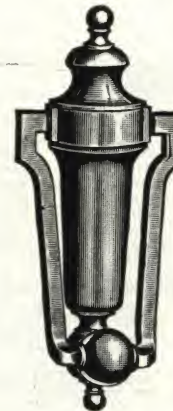
1904



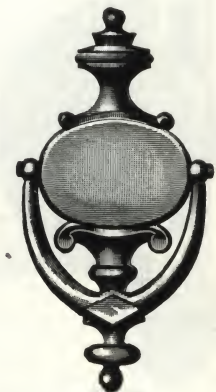
1904 1/2

Cat. No.	Size, in.	Price, each
*1904	9 x 3 1/4	\$13.35
1904 1/2	5 1/2 x 3	4.00
1909	9 1/2 x 4 1/4	4.45
1909 1/2	8 3/4 x 3 1/2	4.65

*Projection, 4 3/4 in.



1909 1/2



1909



HOOKS AND KNOCKERS

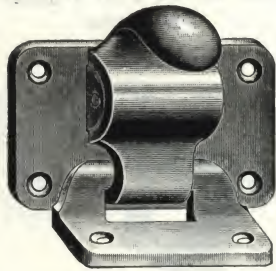
Prefix Letters for Finish. Description of Finishes, Plate 3
For Other Items, see Corbin General Catalogue

PLATE 76

DOUBLE HUNG SASH HARDWARE

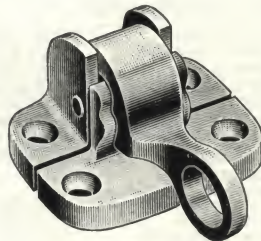
Illustrations
one-half size

SASH LIFTS AND LOCKS



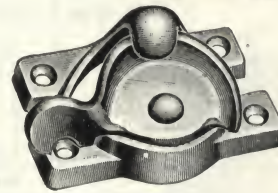
4317 1/2

Cast bronze, polished
Size: 1 3/4 x 2 3/4 in.
Projection: 1 1/4 in.
Price: \$21.35 per dozen.



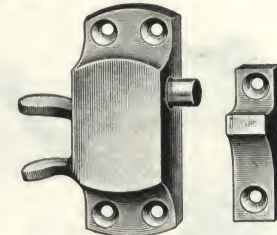
1840 1/2

Cast bronze, polished
Case: 1 1/8 x 2 3/8 in.
Strike: 1 1/8 x 2 3/8 in.
Ht. When Closed: 1 1/2 in.
Price: \$14.80 per dozen.



1830 1/2

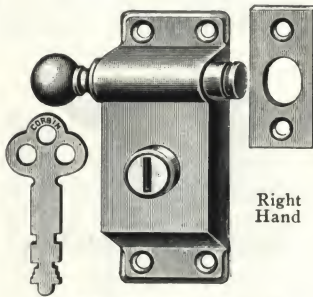
Cat. No.	Case, in.	Strike, in.	Price, doz.
1731 1/2	1 1/4 x 3	5/8 x 3	\$12.20
1830 1/2	1 1/4 x 2 5/8	7/8 x 2 5/8	8.80
1831 1/2	1 1/4 x 3	1 x 3	12.20
1835 1/2	1 1/4 x 3 1/4	1 1/8 x 3 1/4	18.65



2404

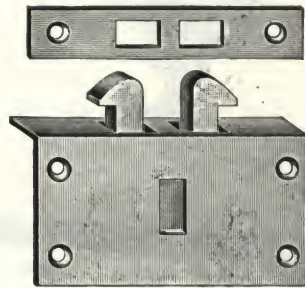
Cat. No.	Size, in.	Price, each
2404	2 3/8 x 1	\$1.10
2405	2 3/8 x 1 1/8	1.90

Note: Furnished with 3 strikes. Not reversible; state hand when ordering.

SASH LOCKS
Cast Bronze

1405 1/2, Rim Sash Lock

Case: 2 3/4 x 1 1/8.
Furnished with 3 strikes and 2 steel keys. Lock consists of 3 tumblers capable of 18 changes. Bolt is held back by a turn of the knob.
Note: Regularly furnished right hand. Left hand furnished when ordered.
Price: \$2.78 each.



4320, Top Sash Lock

Size: 1 3/4 x 2 7/8 in.
Operated with 2286 1/2 sash hook.
(See plate 69.)
Price: \$3.30 each.



170, Mortise Sash Lock

Case: 1 7/8 x 1 1/2 x 1 1/2 in. Backset: 1 in.
Strike Length: 7 in.
Center to Center of Holes: 5 in.
Furnished with one nickel-plated steel key. Lock has 2 tumblers and 9 changes.
Price: \$1.67 each.

SASH PULLEYS
Case, Cast Iron; Front with Round EndsNoiseless
BearingGun Metal
AxleBall
BearingRoller
BearingUniversal
Groove

Cut Views of Turned Wheels

SASH PULLEYS

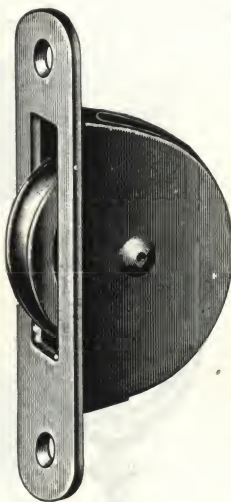
Cat. No.	Bearings	Turned wheel	Prices per doz.; various wheel diameters, in.			
			2	2¼	2½	3
Wrought Bronze, Polished Front						
609½R	Noiseless	Cast iron	\$3.50	\$4.70	\$5.20	\$6.70
619½R	Noiseless	Cast brass	6.70	7.90	8.00	12.00
3609½R	Gun metal axle	Cast iron	4.00	5.20	5.70	7.20
1609½R	Roller	Cast iron	4.10	5.30	5.80	7.30
1619½R	Roller	Cast brass	7.30	8.50	9.50	12.60
2609½R	Ball	Cast iron	5.70	7.20	7.70	9.20
2619½R	Ball	Cast brass	8.90	10.40	11.40	14.50
Cast Iron, Polished, Plated Front						
609R	Noiseless	Cast iron	\$2.80	\$3.40	\$3.90	\$5.40
3609R	Gun metal axle	Cast iron	3.30	3.90	4.40	5.90
1609R	Roller	Cast iron	3.40	4.00	4.50	6.00
2609R	Ball	Cast iron	5.00	5.90	6.40	7.90
Cast Iron, Plain Front						
809R	Noiseless	Cast iron	\$1.60	\$2.00	\$2.50	\$4.00

Note: State size of wheel.
Cast iron wheels furnished galvanized when so ordered.

Designed and shaped for use with either cord or chain. Serves equally well with either. This type is regularly furnished unless otherwise ordered.

SIZE FRONT PER
WHEEL

Wheels, in.	Front, in.
2	4 1/2 x 1 1/8
2 1/4	5 1/4 x 1 1/8
2 1/2	5 3/4 x 1 1/8
3	6 x 1 3/8



609R

PLATE 77

DOUBLE HUNG SASH HARDWARE

Prefix Letters for Finish. Description of Finishes, Plate 3
For Iron Items and Complete Details, see Corbin General Catalogue



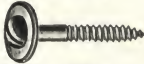
Illustrations
one-half size

DOUBLE HUNG SASH HARDWARE

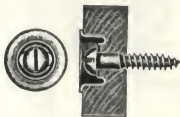
STOP BEAD SCREWS, SASH SOCKETS, POLE HANGER AND SASH PULLS



182 1/2



182



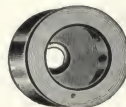
184

STOP BEAD SCREWS
Wrought Bronze, Polished

Cat. No.	No. 8 screw, in.	Price, gross
182 1/2	1 1/4	\$2.35
182	1 1/4	3.80
184	1	3.65



1289



2186 1/2



1287

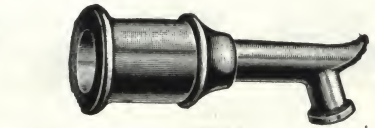
SASH SOCKETS
Bronze, Polished

Cat. No.	Size, in.	Bronze	Price, doz.
1289	1 3/8 x 2 3/8	Cast	\$5.00
1287	1 3/8 x 2	Cast	3.35
2186 1/2	1 dia.	Wrot	1.45

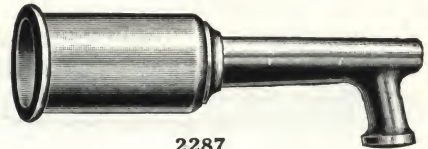


1290

Pole Hanger
Material: Cast bronze, polished.
Size: 2 3/8 x 1 7/8 in.
Price, each: \$0.29.



2286



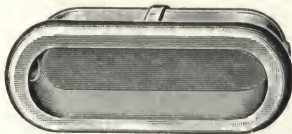
2287

SASH PULLS
Cast Bronze, Polished

Cat. No.	Size, in.		Price, doz.
	Diam.	Length	
2287	1 5/16	4 3/8	\$8.00
2286	1 1/8	2 3/8	6.65
*2286 1/2	1 3/8	2 3/8	7.20

*Has hook to operate No. 4320 sash lock. Shown on plate 77.

FLUSH SASH LIFTS



2213



2227

FLUSH SASH LIFTS

Cat. No.	Size, in.	Price, doz.
Cast Bronze, Polished		
2227	1 7/8 x 4	\$16.00
02219 1/2	2 x 3 1/2	8.00
02219	1 5/8 x 3 3/8	5.35
02220	1 5/8 x 3	5.35
2218	1 1/2 x 3 3/4	5.80
2213	1 1/8 x 3	5.55
Wrought Bronze, Polished		
2217 1/2	1 1/2 x 3 3/4	\$2.00
02215	1 5/16 x 3 1/16	1.55



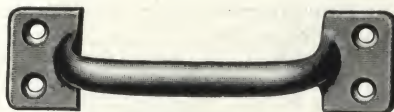
2217 1/2, 2218



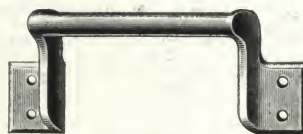
02219, 02220, 02215

BAR SASH LIFTS

Cast Bronze, Polished



09296



2295 1/4

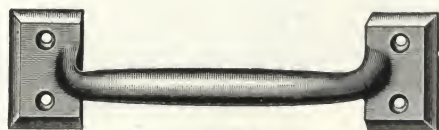


9298, 9299

BAR SASH LIFTS

Cat. No.	Size, in.	Projection, in.	Offset, in.	Price, doz.
3289 1/2	1 3/4 x 6 3/8	1 7/8	1 3/8	\$17.32
3288 1/2	1 5/8 x 6 3/4	1 5/8	.....	20.00
9299	1 1/2 x 5 5/8	1 1/2	1 1/2	13.35
9298	1 3/8 x 5	1 1/2	1 1/2	12.65
2295 1/4	1 5/8 x 4 3/4	1 1/2	1 1/2	7.90
09296	1 x 4	1 1/4	.....	3.90
*09296 1/4	1 x 4	1 1/4	.....	2.75

*Roll polished.



3288 1/2



3289 1/4



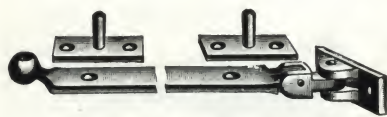
DOUBLE HUNG SASH HARDWARE

Prefix Letters for Finish. Description of Finishes, Plate 3
For Iron and Steel Items and Complete Line, see Corbin General Catalogue

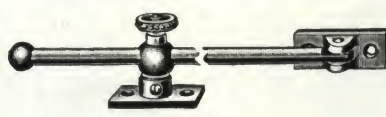
PLATE 78

CASEMENT ADJUSTERS Bronze FOR CASEMENTS OPENING OUT

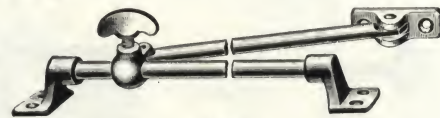
Illustrations
one-third size



043 1/4



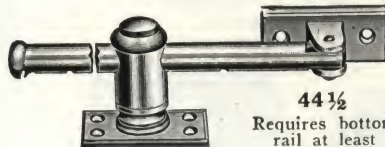
43 1/2



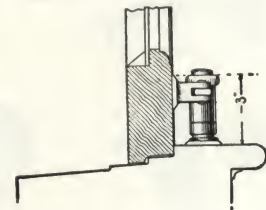
47 1/2



45



44 1/2
Requires bottom
rail at least
3 in. wide



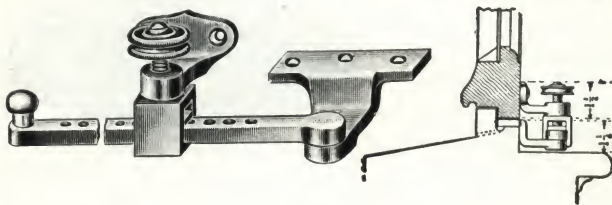
Cat. No.	Bar		*Cast bronze plates, size, in.		Price each, per various lengths of bar, in.				
	Bronze	Size, in.	Sash	Sill	8	10	12	15	18
043 1/4	Cast	3/4	3/4 x 2 1/4	3/4 x 1 3/8			\$ 3.35	\$ 3.65	\$ 4.00
43 1/2	Wrot	3/8	1/2 x 2 1/4	3/8 x 2 1/4		\$ 2.00	2.10	2.35	2.55
44 1/2	Wrot	5/8	1 1/2 x 2 3/4	1 1/2 x 2 3/4			7.56	8.22	8.89
45	Wrot	5/8	3/8 x 1 1/2	**	\$ 1.90	2.00	2.10		
47 1/2	Wrot	5/8	3/8 x 2	3/8 x 1 3/8	1.60	1.75	1.85		
48	Wrot	5/8	1 x 2 1/2	1 1/2 x 1 1/4			11.10		

*Sash plate of No. 45 is wrought bronze.

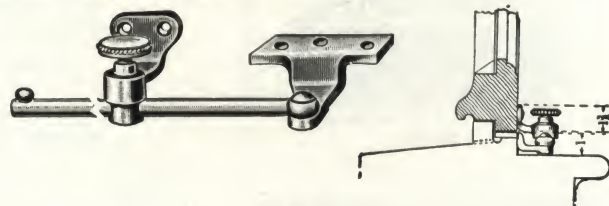
**Made in three sizes depending on length: 8-in. length, 1 1/8 x 8 3/8 in.; 10-in. length, 1 1/8 x 10 3/8 in.; 12-in. length, 1 1/8 x 12 3/8 in.

†Length of bar is measured between brackets.

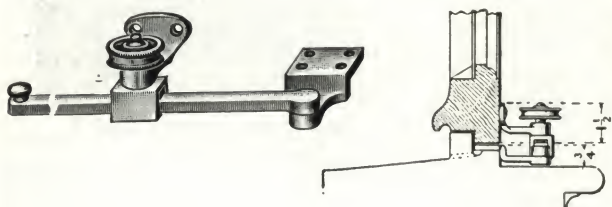
FOR CASEMENTS OPENING IN



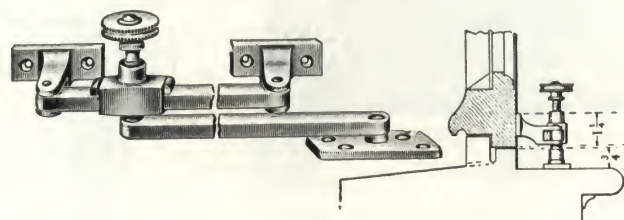
41



44 3/4



46 1/2



50

Cat. No.	Bar		Cast bronze plates, size, in.		Price each, per various lengths of bar, in.			
	Bronze	Size, in.	Sash	Sill	10	12	15	18
041 1/4	Cast	1/2 x 3/4	2 1/4 x 3	3/8 x 4		\$10.65	\$11.65	\$12.65
41	Cast	3/8 x 3/8	1 x 2 1/8	3/8 x 3		6.65	7.35	8.00
44 3/4	Wrot	3/8	1 x 1 1/2	3/8 x 2 3/4	\$2.10	2.20	2.45	2.90
46 1/2	Cast	3/4 x 1 1/2	1 x 2	3/8 x 2 3/4		3.82	4.00	4.45
*50	Cast	3/2 x 3/8	3/4 x 2	3/8 x 2 1/2		7.00	7.53	8.00

*Slide bar 10 1/2 in.

FOR CASEMENTS OPENING IN OR OUT



55, for Casements Opening Out
56, for Casements Opening In

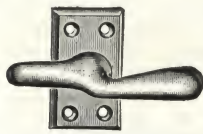
Cat. No.	Wrot bronze		Price each, per various overall lengths of bar closed, in.		
	Bar, in.	Tube, in.	10	12	15
55.5	3/8	3/8	\$1.80	\$2.20	\$2.40

Note: When adjuster is extended it has overall lengths of 16 1/4, 20 1/8 and 26 1/2 in.



Application View

CASEMENT FASTENERS

Cast Bronze
SURFACE TYPE

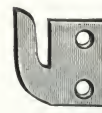
02169



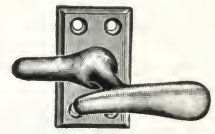
(M) Mortise



(S) Surface



(R) Rim



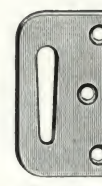
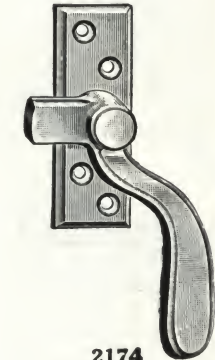
02170



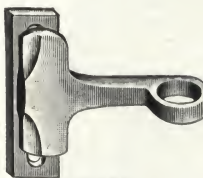
02162



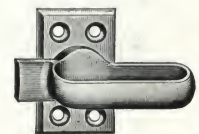
(M) Mortise

(S) Surface
Type for 02162 and 02163(R) Rim
Type for 02163 and 2164

2174



02163



2164

CASEMENT FASTENERS

Priced with Strikes
Affix Letter to Catalogue Number Indicating Type of Strike Required

Cat. No.	Plate size, in.	Projection, in.	Reversible	Price, doz.
02162	2 1/2 x 5/8	1 1/4	No*	\$ 8.40
02163	2 1/2 x 5/8	1 1/4	Yes	10.65
2164	2 x 1 1/4	1 1/4	Yes	13.90
02164	3 1/2 x 1 1/2	1 1/4	Yes	20.00
02169	1 1/2 x 1 1/2	1 1/4	Yes	8.00
02170	1 1/2 x 1 1/2	1 1/4	Yes	8.00
†2174	3 3/8 x 1 1/2	1 3/8	No*	34.65

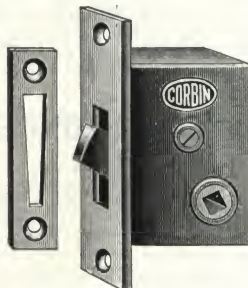
*State hand.

†Length of lever, 3 5/8 in.

MORTISE TYPE

Cat. No.	Front		Case size, in.
	Type	Size, in.	
76	Flat	3 1/2 x 1 3/8	2 1/2 x 1 3/8 x 1 1/2
77	Flat	4 1/2 x 2 1/8	2 3/4 x 2 1/8 x 1 1/2
78 1/4	Flat	5 x 2 1/8	3 1/2 x 2 1/8 x 1 1/2
*78 1/2	Rabbeted	5 3/8 x 1	3 5/8 x 2 1/8 x 1 1/2

*Not reversible, state hand.



77

Cat. No.	Hub, in.	Backset, in.		Price, each
		Std.	Special	
76	3/16	3/4	1, 1 1/4	\$2.00
77	3/16	1 1/8	2, 3	2.22
78 1/4	3/16	1 1/2	2, 3	2.80
*78 1/2	3/16	1 1/2	1, 1 1/4, 3	4.10

CONCEALED CASEMENT OPERATOR

For Windows Opening Out

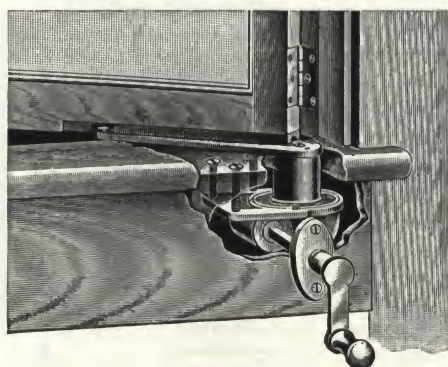
Made of galvanized wrought steel and cast iron with crank handle and rose of cast bronze, polished.

Turning the crank handle will open or close the sash without interference with curtains or window screens. The sash is securely locked at any point from closed to wide open.

The concealed casement operator can be applied to either right or left hand sash. A simple reversal of parts will change the hand.

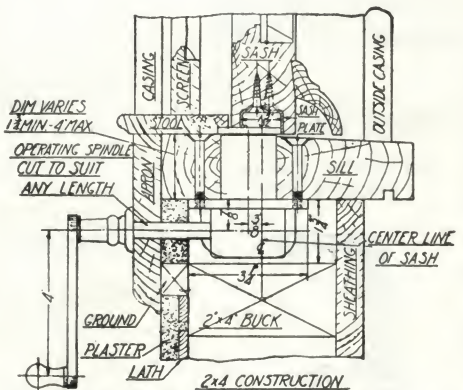
The only visible parts are the crank handle and rose. The crank handle can be made detachable if desired.

Price: \$11.35.



No. 60

Concealed Casement Operator Applied



Space Requirement Diagram



CASEMENT HARDWARE

Prefix Letters for Finish. Description of Finishes, Plate 3

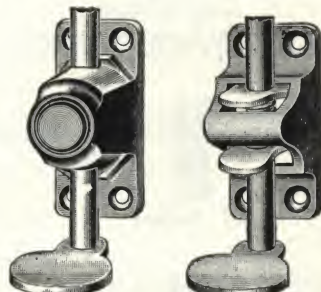
PLATE 80

TRANSOM LIFTERS

Corbin Transom Lifters are made for top, bottom and center hung transoms opening in or out. They are the sliding rod type and are securely held in a true line by plates and guides. Transoms are thus opened and closed smoothly and noiselessly.

The arrangement is simple and small enough to be placed on narrow trims, yet powerful enough to easily control heavy transoms.

The transom lifter grips are furnished in two types: Button and Pincher. The

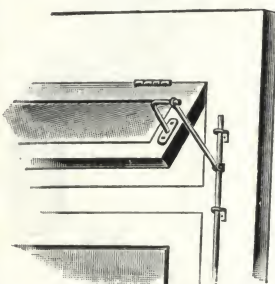


Button
Grip

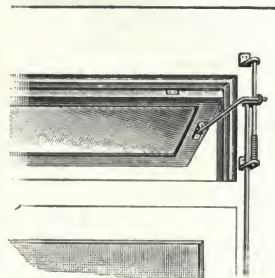
Pincher
Grip

button grip consists of a tension spring which holds the clamp against the rod when the button is released. To move the rod up or down the button is pressed which releases the clamp. The pincher grip has two lips in each of which is a hole through which the rod runs. When released, the two holes are staggered and the rod is held by friction. When the lips are pinched toward each other the holes are brought into line and the rod slides freely. A small spring keeps the lips apart when released.

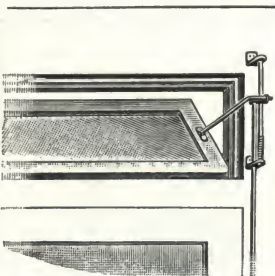
FOR TRANSOMS HINGED AT TOP OR HUNG ON CENTERS



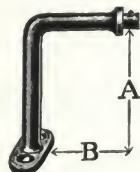
Hinged at Top,
Opening In



Hinged at Top,
Opening Out



Hinged at Bottom
Opening Out



Bracket

Catalogue No.		Plate width, in.	Rod dia., in.	Price each, various lengths					
Button grip	Pincher grip			Length, feet					
				3	4	5	6	8	10

OPENING IN, WROUGHT BRONZE, POLISHED

083 1/2	0083 1/2	7/8	1/4	\$3.90	\$4.65	\$5.10	\$5.55	.....	.....
084 1/2	0084 1/2	1 1/16	5/16	4.90	5.55	6.35	7.35	\$8.90	.....
085 1/2	0085 1/2	1	3/8	.....	7.45	8.45	9.45	11.65	\$16.00
*086 1/2	*0086 1/2	1 1/8	1/2	.....	12.00	12.45	12.90	16.65	21.80

OPENING IN, WROUGHT STEEL, PLATED§

083	0083	7/8	1/4	0.80	0.85	1.05	1.25	.....	.....
084	0084	1 1/16	5/16	0.95	1.05	1.20	1.40	1.75	.....
085	0085	1	3/8	.....	1.35	1.55	1.65	2.10	2.80
**086	**0086	1 1/8	1/2	.....	2.90	3.00	3.20	3.75	4.45

OPENING OUT, WROUGHT BRONZE, POLISHED

†088 1/2	†0088 1/2	1 1/16	5/16	6.20	7.00	7.75	9.20	12.00	.....
†089 1/2	†0089 1/2	1	3/8	8.45	9.20	10.45	11.65	15.55	19.10

OPENING OUT, WROUGHT STEEL, PLATED§

†088	†0088	1 1/16	5/16	1.20	1.25	1.45	1.65	2.20	.....
†089	†0089	1	3/8	1.55	1.65	1.90	2.10	2.60	3.75

*Have cast bronze brackets. **Have malleable iron brackets.
†Brackets regular with 2-in. offset and for transoms with 4-in. recess.
§Can also be furnished coppered at lower cost. Prefix "C" to number.
Note: State size when ordering.

FOR TRANSOMS HINGED AT BOTTOM

Catalogue No.		Plate width, in.	Rod dia., in.	Price each, various lengths					
Button grip	Pincher grip			Length, feet					
				3	4	5	6	8	10

OPENING IN, WROUGHT BRONZE, POLISHED

093 1/2	0093 1/2	7/8	1/4	\$5.00	\$5.40	\$6.20	\$7.35	.....	.....
094 1/2	0094 1/2	1 1/16	5/16	6.20	7.00	7.75	9.20	\$12.00	.....
095 1/2	0095 1/2	1	3/8	.....	9.20	10.45	11.65	15.55	\$19.10
*096 1/2	*0096 1/2	1 1/8	1/2	.....	13.10	13.55	15.20	17.00	23.35

OPENING IN, WROUGHT STEEL, PLATED§

093	0093	7/8	1/4	1.05	1.10	1.25	1.40	.....	.....
094	0094	1 1/16	5/16	1.20	1.25	1.45	1.65	2.20	.....
095	0095	1	3/8	.....	1.65	1.90	2.10	2.60	3.75
**096	**0096	1 1/8	1/2	.....	3.15	3.40	3.60	4.20	6.00

OPENING OUT, WROUGHT BRONZE, POLISHED

†Same as shown above for top or center hung transoms.

OPENING OUT, WROUGHT STEEL, PLATED§

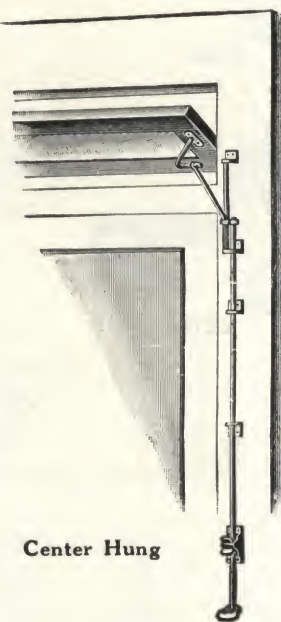
†Same as shown above for top or center hung transoms.

*Have cast bronze brackets. **Have malleable iron brackets.
†Brackets regular with 2-in. offset and for transoms with 4-in. recess.
§Can also be furnished coppered at lower cost. Prefix "C" to number.
Note: State size when ordering.

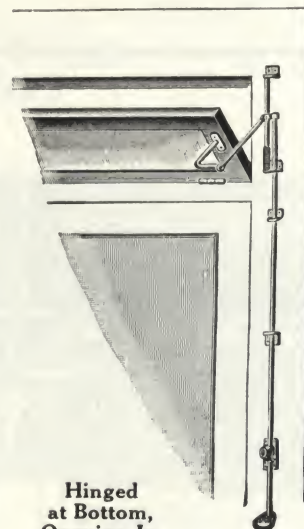
REGULAR BRACKETS

For rod dia., in.	Size of base, in.	A, in.	B, in.
1/4	2 x 3/4	2 3/4	1 1/4
5/16	2 x 3/4	3 3/8	1 1/4
3/8	2 1/2 x 1 1/2	5	1 1/4
1/2	3 1/2 x 1 1/2	5 3/8	2

Special brackets furnished to order. State recess and offset.



Center Hung



Hinged
at Bottom,
Opening In

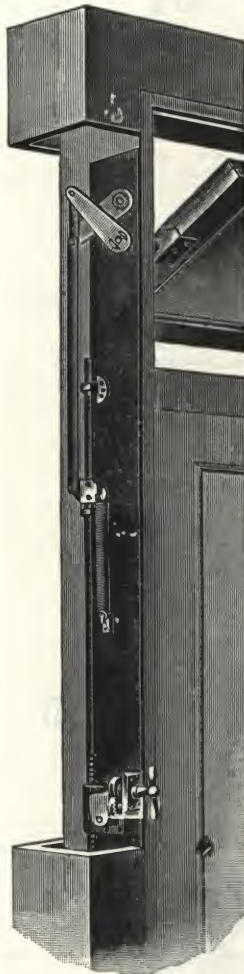
CONCEALED TRANSOM OPERATORS

These Lifters will operate a transom of any size or height, are applied in casing at hinge side of door and can be applied to either wood or metal trim and in partitions as thin as 2 in. All parts except T-handle and Rose are entirely concealed when operator is applied.

The sash is operated by merely turning the T-handle;

$3\frac{3}{4}$ revolutions of handle opens the transom to 45 degrees. The sash is securely locked at any point from closed to wide open.

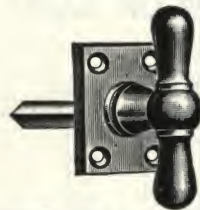
The standard rod applied to a 24-in. transom over a 7-ft. door and a 3-in. transom bar, will bring the operating box or T-handle 4 ft. from the floor.



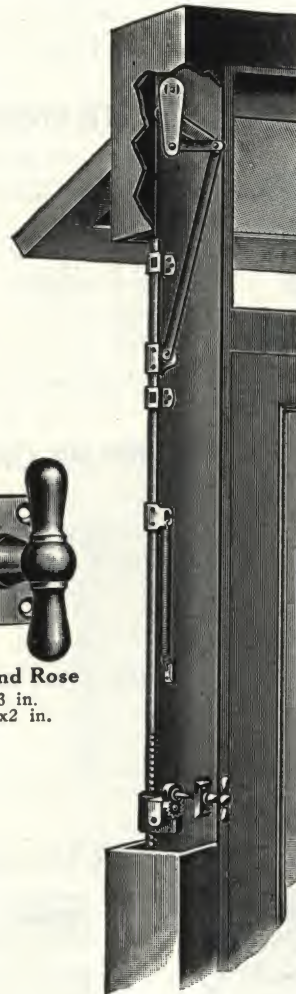
074
Left hand
For center-hung transoms



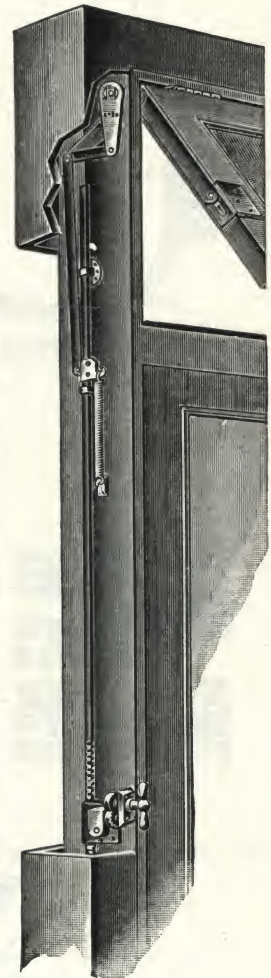
075
Left hand
For bottom-hung transoms,
opening in



T-Handle and Rose
Handle, 3 in.
Rose, $1\frac{1}{2} \times 2$ in.



072
Left hand
For top-hung transoms,
opening out



073
Left hand
For top-hung transoms,
opening in

Details—All working parts are attached to a steel back plate, allowing the device to be attached as a unit.

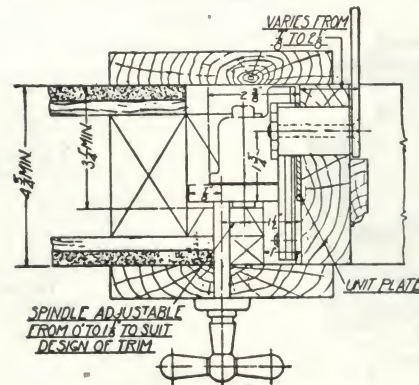
The T-handle and Rose can be adjusted to varying backsets, from $1\frac{1}{2}$ to $2\frac{3}{8}$ in. from unit plate to center of T-handle. When space is less than $2\frac{3}{8}$ in. low gear box is used and backset from unit plate to T-handle is $1\frac{1}{8}$ in.

The standard rod applied to a 24-in. transom over a 7-ft. door and 3-in. transom bar, brings the operating box or T-handle 4 ft. from the floor. Any length rod will be furnished to order.

Full instructions for installing are packed with sash lifters.

Material and Finish—Operator is made of wrought steel with galvanized finish. T-handle and Rose are of cast bronze with polished finish as standard but can be furnished in any finish.

Ordering Information—Size and thickness of transom, height of door, hand of operator, full size section of transom bar, jamb and trim. Butts must be ordered separately.



Space Requirement Diagram



CONCEALED TRANSOM OPERATORS

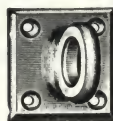
Prefix Letters for Finish. Description of Finishes, Plate 3

PLATE 82

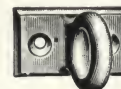
TRANSOM FIXTURES

TRANSOM EYES

Cast Bronze



197



197 1/2

Cat. No.	Plate size, in.	Projection, in.	Price, each
197	1 3/4 x 1 3/4	1 1/2	\$0.65
197 1/2	1 x 1 3/4	1 1/8	.38

TRANSOM CHAIN

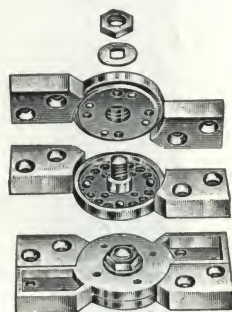


200 1/2, 0200 1/2

Cat. No.	Plates, size, in.	Chain Weight	Material	Price per doz., various lengths, in.*			
				9	12	15	18
200 1/4	1 3/8 x 3/8	Light	Wrot bronze	\$3.65	\$ 4.00	\$ 4.55	....
200 1/2	1 3/4 x 1	Medium	Wrot bronze	4.45	4.70	4.95	....
199 1/2	1 5/8 x 1 1/4	Heavy	Wrot bronze	....	7.35	7.85	\$ 8.85
199 3/4	2 1/4 x 1	Extra heavy	Cast bronze	....	16.35	18.20	20.00
0200 1/4	1 3/8 x 3/8	Light	Wrot steel	1.85	1.95	2.00	....
0200 1/2	1 3/4 x 1	Medium	Wrot steel	1.85	1.95	2.05	....
0199 1/2	1 5/8 x 1 1/4	Heavy	Wrot steel	....	3.10	3.30	3.70

*With spring snap on one end add \$2.40 per doz. With rubber covered chain add \$8.00 per doz.

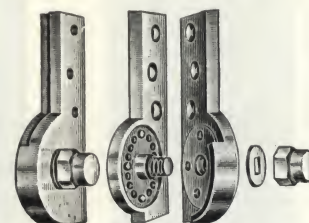
TRANSOM OR SASH CENTERS



1318, 3318

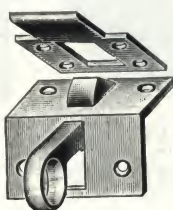
Cat. No.	Size, in.		Price, set
	Width*	Length	
CAST BRONZE, POLISHED			
1318	1 ³ / ₈	4 ¹ / ₈	\$ 6.20
1318	1 ³ / ₄	4 ¹ / ₈	6.65
1318	2	4 ¹ / ₈	8.00
1318	2 ¹ / ₄	5	9.45
1317	2 ³ / ₈	4 ¹ / ₄	10.65
MALLEABLE IRON, PLATED			
3318	1 ³ / ₈	4 ¹ / ₈	\$ 2.85
3318	1 ³ / ₄	4 ¹ / ₈	3.20
3318	2	4 ¹ / ₈	3.55
3318	2 ¹ / ₄	5	3.85
3317	2 ³ / ₈	4 ¹ / ₄	6.65

*State size in ordering.

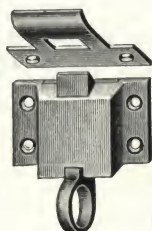
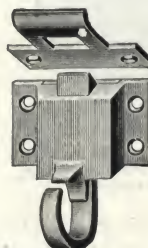
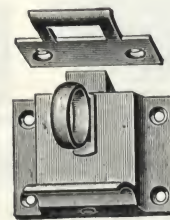
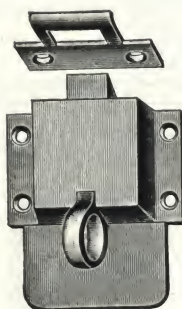


1317, 3317

TRANSOM CATCHES

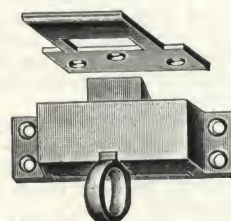


1379

02278 1/2
13278 3/42278 1/2
3278 3/402279 1/2
03279 3/402277 1/2
3277 3/4

Cat. No.	Size, in.	Price, doz.
CAST BRONZE, POLISHED		
02277 1/2	3 1/8 x 2 3/4	\$18.65
02279 1/2	1 7/8 x 2 1/2	17.30
02275 1/2	1 x 3 1/2	22.20
1379	1 1/4 x 2	33.35
2278 1/2	1 1/4 x 2 1/8	10.00
02278 1/2	1 1/4 x 2 1/8	10.00
IRON, POLISHED, PLATED		
*3277 3/4	3 1/8 x 2 3/4	\$13.35
†03279 3/4	1 7/8 x 2 1/2	11.10
3278 3/4	1 1/4 x 2 1/8	5.55
13278 3/4	1 1/4 x 2 1/8	6.00

*Malleable. †Cast.



02275 1/2

PLATE 83

TRANSOM FIXTURES

Prefix Letters for Finish. Description of Finishes, Plate 3
For Other Items, see Corbin General Catalogue





245 to 248

LETTERS AND NUMERALS

Cast Bronze, Polished

Cat. No.	Size, in.	Price, each
245	1 1/2	\$0.95
246	2 5/8	1.35
247	4	2.00
248	6 1/2	3.75

Cat. No.	Size, in.	Price, each
0127 1/2	1 1/4	\$0.30
128	3	.45
0128	4	.80
128 1/4	5	1.10
0128 1/4	6 1/2	2.00



0127 1/2 to 0128 1/4

A B C D E F G H I J K L M N
O P Q R S T U V W X Y

1 2 3 4 5 6 7 8 9 0

LETTER DROP PLATES

Cast Bronze, Polished

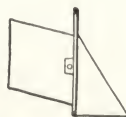
With Hooded Back Plate and Chute for Hollow Metal Doors

The letter drop plate is attached by two machine screws through the door from the inside. The back plate is attached by four machine screws.



002427

Size: Letter drop plate, 2 1/4 x 7 in., opening, 1 x 4 1/2 in.
Hooded back plate, 2 1/2 x 7 in.
Price: \$6.60 each.



Outline of Back Plate Showing Chute

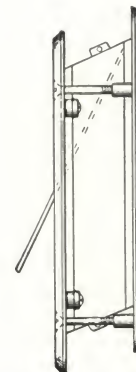
Vertical Type with Back Plate and Chute

Attached by four machine screws which pass through the back plate and door into lugs on the back of the letter drop plate.



02428

Size: 8 1/4 x 3 in., opening, 5 5/8 x 1 1/2 in.
Price: \$8.90 each.

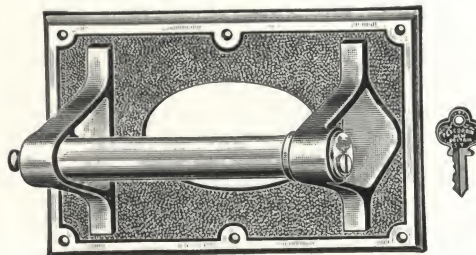


Outline Showing Back Plate and Chute

TOILET PAPER HOLDER

Cast Bronze, Plated

With cylinder locking mechanism. For use in public toilets where it is desirable to lock the roll of toilet paper to the holder to prevent theft.



S6937

Size: 5 x 8 in., projection 4 in.
Price: \$12.50 each.



NUMERALS—LETTER DROPS—PAPER HOLDERS

Prefix Letters for Finish. Description of Finishes, Plate 3
For Other Items, see Corbin General Catalogue

PLATE 84



HARDWARE

COPPER AND BRASS RESEARCH ASSOCIATION

25 Broadway, NEW YORK, N. Y.

MIDWESTERN OFFICE
Builders' Building
CHICAGO, ILL.

CANADIAN OFFICE
67 Yonge Street
TORONTO, ONT.

SOUTHERN OFFICE
Shoreham Building
WASHINGTON, D. C.

PACIFIC COAST OFFICE
Architects Building
LOS ANGELES, CAL.

Hardware

Hardware is made in a great variety of designs and of different materials to suit all pocketbooks.

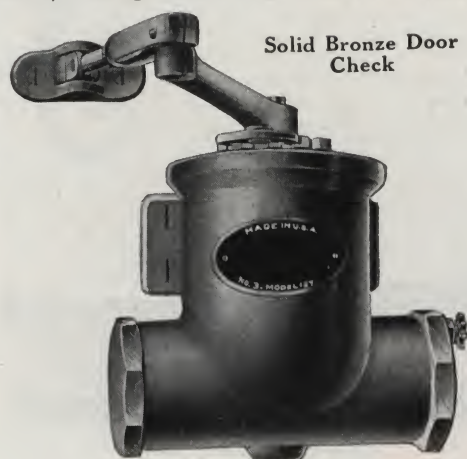
Solid brass or bronze hardware is indisputably the best.

All good door knobs, latches, knockers, mail boxes, lighting fixtures, railings, door closers, hooks,

The scientific knowledge and practical experience of our Research and Building Service Departments are at your disposal. We will be glad to consult with you on all problems pertaining to the uses and applications of Copper, Brass and Bronze.

catches, plates—in fact, all good pieces of outdoor hardware—are made of solid brass or bronze.

Leading manufacturers publish illustrated catalogues giving complete lists of their products. This Association will be glad to furnish names of manufacturers who make solid brass or bronze hardware.



Solid Bronze Door Check



Brass Knob and Escutcheon of Special Design for a Fine Building

Brass Door Knocker in Use More Than 50 Years

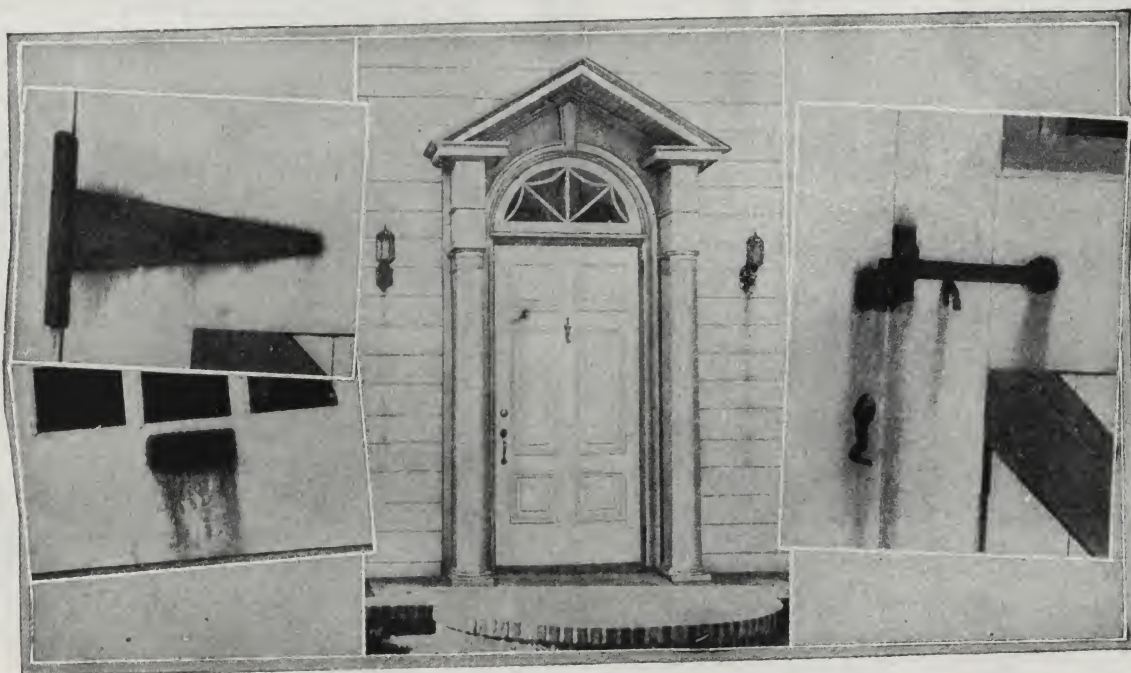


The Unsightliness of Corroded Hardware

The illustration below shows the marring effect of corrosion which has not only spoiled the appearance of the plated hardware used but has also streaked and stained the surrounding woodwork. It is a good example of the unsightly results of trying to save a few dollars on the cost of outdoor hardware.

Plated hardware, at best, is but temporarily attractive. Because of the severe service to which door knobs,

knockers, latches, door checks, catches and all such pieces are constantly subjected, the plating soon wears off, the corrodible base becomes exposed and the whole piece starts to go, becoming unsightly itself and staining all the surrounding woodwork. This is especially distasteful from the architect's point of view when it is realized that every house he builds must stand as an example of his work.



THE W. IRVING FORGE, INC.

Hand Forged Wrought Iron Hardware

TELEPHONE
CALEDONIA 2485, 2940

326-328 East 38th Street, NEW YORK, N. Y.

Products

COLONIAL, ENGLISH, SPANISH and ITALIAN HARDWARE of HAND FORGED WROUGHT IRON, BRASS and MONEL METAL; DOOR and SHUTTER HARDWARE, reproduced from authentic hand forged specimens in the W. Irving Collection.

Also manufacturers of Lighting Fixtures, Fireplace Fittings, etc.

Description

Two things must be present in a true piece of hand forged wrought iron hardware; design and craftsmanship. Only when wrought iron designs are faithfully reproduced by the same methods the smiths of olden time used in creating them, can the product be honestly called *hand forged wrought iron hardware*. When the design is copied the result is merely imitative and not real.

Door Hardware

Knobs, lever handles, pull handles, etc., are also reproduced in a combination of brass and iron or all brass.

Finishes

Dead Black—As the name implies, this finish gives a dull, flat black appearance to the iron.

Half Polish Iron—This finish brings out the hammer marks in relief as shown in the majority of the reproductions on this page.

Brass—All standard finishes regularly applied to brass and bronze.

Rustproofing—All hardware exposed to the weather is subjected to a special process of cadmium plating before finishing which resists rust.



Preserving the True Hand Forged Character

Here at THE W. IRVING FORGE, INC., something is done which we do not believe is being done elsewhere today.

Hand forged wrought iron hardware is made just as it was made a century and a half ago by unhurried smiths in the Irving way, and the result justifies all the extra trouble it may take.

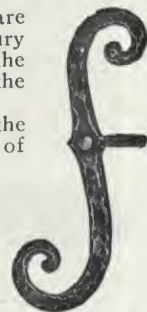
The holly leaf trade-mark is the pledge of the painstaking execution—"free from the hallmark of rolling mill."

Service

We can develop any ideas submitted by architects, decorators or builders. We also work from architects' drawings and specifications.

Catalogue

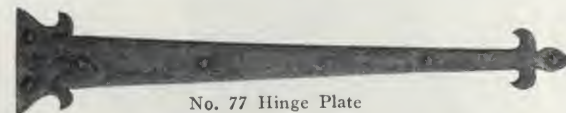
Our catalogue will be sent on request.



No. 408A
Shutter Hold
Back
Length, 8 in.



No. 613
Door Knocker
Length, 6 1/2 in.



No. 77 Hinge Plate



No. 54 Hinge Plate



No. 65 Hinge Plate



No. 29 Escutcheon Plate and No. 706
Drop Ring
Sizes 9x7 in. and 4 1/2-in. diameter,
respectively



No. 18H Hinge
Lengths 3, 4,
6, 7 and 8 in.



No. 229
Top and
Bottom
Bolts
Lengths
12, 18,
24 in.



No. 73 Hinge
Plate
Standard lengths
21, 24, 28 and
32 in. Other
sizes to order



No. 652
Knob
1 3/4, 2,
2 3/4-in.
diameter



No. 186
Cylinder
Collar



No. 323 Lever Handle
Length 4 1/4 in.



No. 186 Thumb
Latch Handle
Length 10 1/2 in.



Hand Chased Brass Rim Lock and Ring Handle

A Few Hand Forged Wrought Iron Hardware Designs

DISTINCTIVE BUILDERS HARDWARE

By
RUSSWIN
Since 1839



RUSSELL & ERWIN MFG. CO.

THE AMERICAN HARDWARE CORPORATION, SUCCESSOR
NEW BRITAIN, CONN.

NEW YORK

CHICAGO

LONDON

Foreword

The Company and Its Reliability

THE RUSSELL & ERWIN MFG. CO. has been making RUSSWIN Distinctive Hardware since 1839. During this time it has supplied hardware for buildings of every type and description, from inexpensive residences to the most ornate and monumental buildings.

A Complete Hardware Line

In offering our hardware to the Architectural profession, we can assure a varied and complete selection of hardware of RUSSWIN manufacture. The line includes locks of every description, trim, butts, fire door hardware, garage hardware and all other finished hardware necessary for a complete installation.

Special Hardware Service for the Profession

The experience gained in designing and supplying hardware to best fulfill various requirements enables us to offer a complete service for all types of buildings.

This experience also enables us to be of assistance to the architect in offering suggestions as to the selection of hardware which will best answer the requirements of the building under consideration. This applies especially to the proper locking arrangements for specific services. Suggestion for trim, which will be consistent with the character of the building in regard to cost, design and use, will also be given when requested.

A highly specialized department is maintained at the general offices, as well as in the New York and Chicago offices, for the purpose of assisting architects by scheduling their requirements in builders' hardware.

Requests for this type of service should be accompanied by preliminary drawings and the approximate cost of the building. With this information at hand, complete layouts will be furnished, including a schedule of the trim hardware required, properly specified, based on the individual contract.

For General Index, See Page 2

1839

1931

Since 1839
RUSSWIN
DISTINCTIVE
BUILDERS' HARDWARE

*A Hardware Catalogue from the
Architect's Angle*

This catalogue was prepared by a committee of architects collaborating with the hardware specialists of this company. It has been their endeavor to present the subject in a clear, concise manner, not from the viewpoint of the manufacturer but from that of the user of hardware. The information has been tabulated and condensed so that comparisons may be easily made between similar types. The locks have been classified in regard to their uses and a number of lists of locks for various types of buildings have been included.

RUSSELL & ERWIN MFG. CO.

THE AMERICAN HARDWARE CORPORATION, SUCCESSOR

GENERAL OFFICES AND FACTORIES
NEW BRITAIN, CONN.

BRANCH OFFICES

NEW YORK: 285 Madison Ave.

CHICAGO: 435 No. Michigan Ave.

LONDON: E. C. Brooks Wharf, 48 Upper Thames Street

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SINCE 1839

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Granby	10	Entrance handle	7	Sockets, pull, sash.....	70
Hadrian	20	Lock terms	37-38	Springs, types of, for locks...	37
Hague	14	Locking devices, fire exit bolt...	76	Stop bead screws.....	70
Hardwick	14	Locks:		Stops, door	63
La Londe	19	Bitted key:		Store door handle	26-27
Lancaster	14	Dead	56	Store door locks	46
Ledoux	19	Fire exit bolts, for.....	77	Strikes:	
Lenox	24	Hotel bathroom	50	Fire exit bolt.....	76
Leyden	14	Hotel closet	51	Lavatory door	65
Litchfield	25	Hotel communicating doors..	51	Surface bolts	61
Madison	25	Hotel corridor doors.....	50	Transom:	
Malos	14	Index	34	Catches	68
Mazarin	18	Interior French doors	55	Eyes	70
Minerva	17	Interior doors for residences.	53	Lifters	69
Modart	22	School house	46	Trim, inside	7
Monica	20	Communicating doors of resi-		Trim sets, entrance doors.....	4-6
Niantic	25	dences	54		

For Description of Finishes, see Page 3

RUSSWIN**RUSSWIN STANDARD FINISHES****REFERENCES**

Skilled and experienced workmen are employed in the production of our finishes, and the greatest possible care is always exercised to obtain the best results and the same harmony of coloring throughout. It should be understood, however, that the same results cannot be obtained on plain and ornamental hardware, nor on a design having a matted surface as on one having a large area of polished surface. This is especially true of the oxidized, statuary and verde antique finishes. Designs having very little ornament will differ slightly in coloring and shading from those having

a great deal of ornamental surface. Owing to the special process employed in developing finishes 10W, 11W, 16½ and 36, slight variations will occur in two pieces of the same pattern, thus conveying to each piece an individuality of its own.

All finishes except 4, 10W, 11W, 11Z, 24, 34, 44, 45B, 45H, 45R, 46, 47 and japanned have a coating of transparent lacquer which is applied to preserve the finish. If finishes 10, 11, 11C and 11D are wanted without lacquer suffix "NL" to these numbers.

RUSSWIN STANDARD FINISHES

Arranged in Numerical Order According to RUSSELL & ERWIN MANUFACTURING Co.'s Symbol Numbers with Comparative Symbols Established by the U. S. Bureau of Standards, Descriptions and References

R. & E. Symbols	U. S. Symbols	Surface	Description Color or Shade	Reference	Description of Reference Letters	
					Letters	Description
2	US20	Dull	Statuary Bronze	A	A	We advise and urge the use of this finish on bronze metal only.
2D	US20A	Dull	Statuary Bronze, Dark	A		
02	US21	Sanded	Statuary Bronze, Medium	A	B	We advise and urge the use of this finish on brass metal only.
4	US14	Buffed	Nickelplated	B	C	Can be used on brass, iron or steel.
7½	US 8	Buffed	Antique Copper	C	D	Limited to use on cast brass metal only.
8C	US23	Dull	Silver Plated, Oxidized, Relieved	D	E	Limited to ornamental design goods, for plain goods use Finish 9.
9	US 4	Dull	Natural	C	F	Limited to ornamental design goods, for plain goods use Finish 09C.
9C	US 5	Dull	Brass, Oxidized, Relieved	C-E	G	Limited to ornamental designs or goods with rough surfaces.
9E	Special	Dull	Antique Brass (Old English)	D	H	These finishes are treated with a heavy black oil, which causes a gradual oxidization varying with age, temperature and exposure, the shade or color thus produced depending on one or the other, or all three of these conditions. It is therefore characteristic of these finishes not to be uniform in either shade or color.
09B	US 7	Sanded	Brass, Oxidized, Relieved, High Lights Polished	C-F	I	Limited to ornamental design goods, for plain goods use Finish 11D.
09C	US 6	Sanded	Brass, Oxidized, Relieved	C	J	This finish is treated with wax, which causes a gradual oxidization varying with age, temperature and exposure, the shade or color thus produced depending on one or the other or all three of these conditions.
10	US 3	Buffed	Natural	B	K	Limited to ornamental design goods, for plain goods use Finish 14.
10W	Special	Natural	Brass, Relieved, Oil Rubbed	B-G-H	L	Limited to plain brass goods with flat surfaces.
11	US 9	Buffed	Natural	A	M	Limited to brass or bronze metal.
11C	US11	Dull	Bronze, Oxidized, Relieved	A-I	N	Limited to articles regularly catalogued in cast brass or bronze, with the exception of wrought butts (No. 80 Line). Furnished on <i>Special order</i> and then only in quantities. This finish is produced by the base metal, which is of a uniform shade or color throughout, and when buffed or polished is very similar to RUSSWIN Finish 4. As the finish does not change with wear, it is greatly superior to Finish 4 (nickelplate) and is therefore especially suited for hardware used in lavatories, bathrooms, swimming pools, etc.
11D	US10	Dull	Natural	A		
11W	Special	Natural	Bronze, Oxidized, Relieved, Oil Rubbed	A-G-H	O	Limited to cast iron or steel. This is a Black Finish commonly known as Rustproof. It is not a finish that will stand exposure to the weather in damp climates, and for that reason is recommended particularly for inside work. Under ordinary conditions in dry climates, either for inside or outside use, it is substantially rustproof.
11Z	Special	Dull	Statuary Bronze, Light, Waxed	A-J	P	Limited to iron or steel.
011C	US12	Sanded	Bronze, Oxidized, Relieved	A	Q	Goods furnished in these finishes are indicated by the number of the article and need no symbol.
13	Special	Dull	Statuary Bronze, Light	A	R	Limited to cast RUSSWIN metal.
14	US15	Dull	Nickelplated	C		
14C	Special	Dull	Nickelplated, Oxidized, Relieved	C-K		
16½	Special	Dull	Imitation Half Polished, Iron	C		
19	US24	Dull	Gold Plated	D		
22	Special	Fine wheel	Brass, Natural (Ship Finish)	L		
24	US26	Buffed	Chromium Plate	A		
34	US260	Dull	Chromium Plate	A		
36	US22	Sanded	Verde Antique	M		
44	US25	Buffed	White Bronze (Nickel-ene)	N		
45B	....	Hammered	Imitation Black Iron	R		
45H	....	Hammered	Half Polished Iron	R		
45R	....	Hammered	Rusty Iron	R		
46	US18	Sanded	Genuine Barff	O		
47	US19	Sanded	Dull Black	C		
G	US 2G	Natural	Electro-galvanized	P		
—	US 1B	Natural	Japanned	Q		

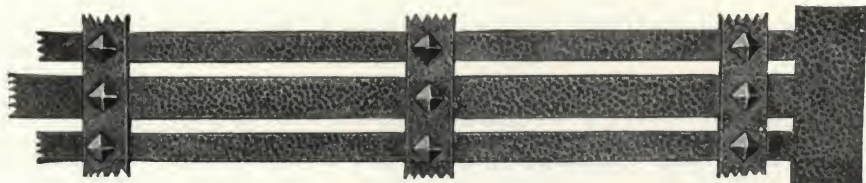
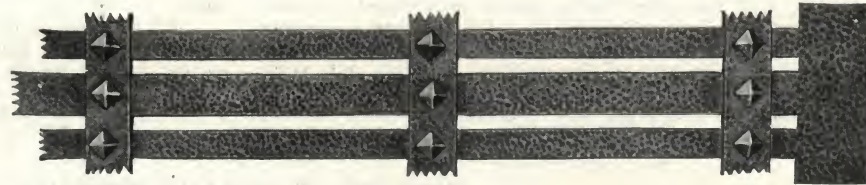
RUSSWIN**DISTINCTIVE ENTRANCE DOOR TRIM SETS****R&E**
SINCE 1839**Cast Russwin Metal**

Cast RUSSWIN Metal: A cast metal which is the same material and color throughout. It is rustless, stainless, and weather resisting. Furnished in Imitation Black Iron (45B), Imitation Half Polished Iron (45H), and Imitation Rusty Iron (45R).

*Illustrations
one-quarter size*

ALAMEDA DESIGN

5450



5418



54013



5402

**NO. 5400 ALAMEDA ENTRANCE DOOR SET COMPLETE
CONSISTS OF**

Cat. No.	Size, in.	Description
54013	15 x 2 3/4	Entrance handle lock set
5402	3 1/2 x 2 3/4	Push button
5450	5 1/4 x 3	Door knocker
5418	4 x 18	Hinge strap (2 only) 18-in.

Specify number and finish. One set in a box with screws.

MONTEREY DESIGN

5450



5418



54013



5402

**NO. 5400 MONTEREY ENTRANCE DOOR SET COMPLETE
CONSISTS OF**

Cat. No.	Size, in.	Description
54013	13 1/2 x 2 3/4	Entrance handle lock set
5402	3 x 2 3/4	Push button
5450	6 x 3	Door knocker
5418	4 x 18	Hinge strap (2 only) 18-in.

Specify number and finish. One set in a box with screws.

For Description of Finishes, see Page 3

RUSWIN**DISTINCTIVE ENTRANCE DOOR
TRIM SETS****R&E**
SINCE 1899

Cast Russwin Metal

*Illustrations
one-quarter size***POMONA DESIGN**

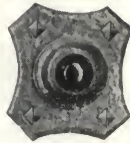
5450



5418



54013



5402

**NO. 5400 POMONA ENTRANCE DOOR SET COMPLETE
CONSISTS OF**

Cat. No.	Size, in.	Description
54013	12 7/8 x 2 1/2	Entrance handle lock set
5402	2 3/4 x 2 1/2	Push button
5450	6 1/4 x 3	Door knocker
5418	4 x 18	Hinge strap (2 only) 18-in.

Specify number and finish. One set in a box with screws.

WALES DESIGN

5450



5418



54113



5402

**NO. 5400 WALES ENTRANCE DOOR SET COMPLETE
CONSISTS OF**

Cat. No.	Size, in.	Description
54113	16 1/2 x 3	Entrance handle lock set
5402	3 1/4 x 2 1/2	Push button
5450	6 3/4 x 3 3/4	Door knocker
5418	4 x 18	Hinge strap (2 only) 18-in.

Specify number and finish. One set in a box with screws.

For Description of Finishes, see Page 3; for Description of Cast Russwin Metal, see Page 4

RUSWIN**DISTINCTIVE ENTRANCE DOOR TRIM SETS****R&E**
SINCE 1899

Cast Russwin Metal

WARDEN DESIGN*Illustrations
one-quarter size*

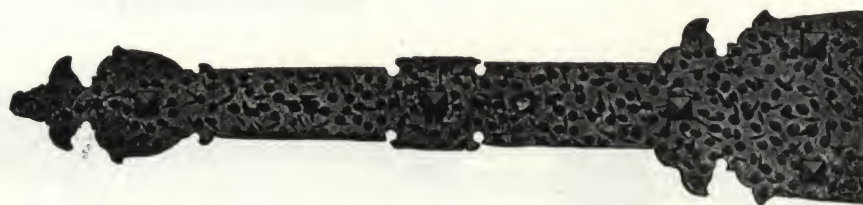
54013



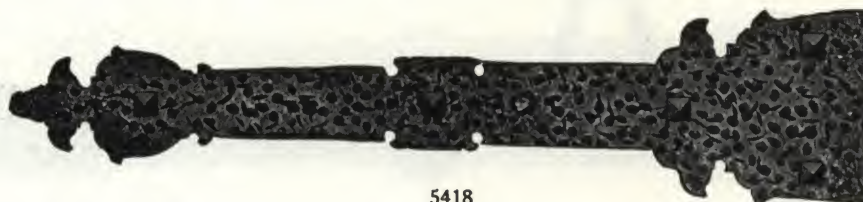
5450



5402



5418

**NO. 5400 WARDEN ENTRANCE DOOR SET COMPLETE
CONSISTS OF**

Cat. No.	Size, in.	Description
54013	16½ x 2½	Entrance handle lock set
5402	4½ x 2½	Push button
5450	7 x 3	Door knocker
5418	4 x 18	Hinge strap (2 only) 18-in.

Specify number and finish. One set in a box with screws.

WYMAN DESIGN

54013



5450



5402



5418

**NO. 5400 WYMAN ENTRANCE DOOR SET COMPLETE
CONSISTS OF**

Cat. No.	Size, in.	Description
54013	16½ x 2½	Entrance handle lock set
5402	3½ x 2	Push button
5450	6½ x 3	Door knocker
5418	4 x 18	Hinge strap (2 only) 18-in.

Specify number and finish. One set in a box with screws.

For Description of Finishes, see Page 3; for Description of Cast Russwin Metal, see Page 4

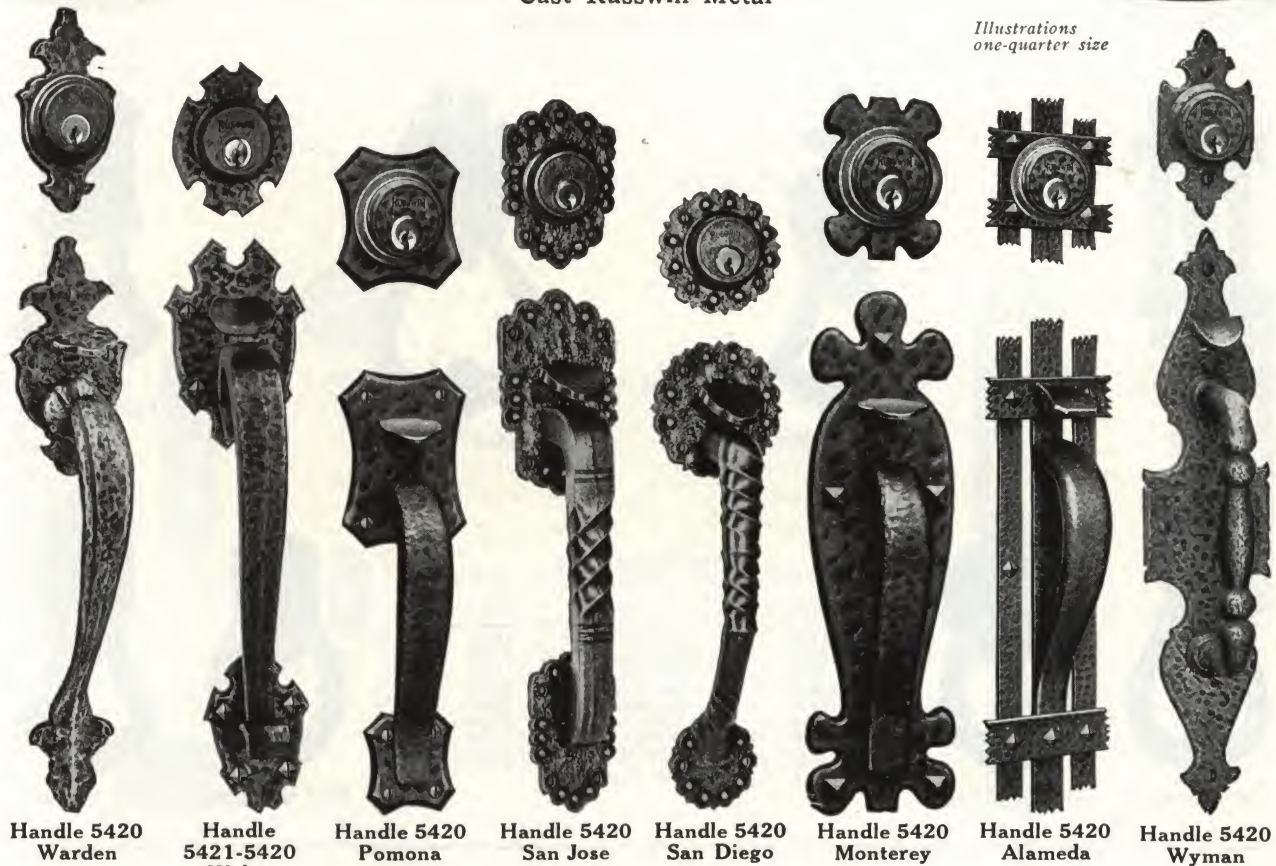
RUSSWIN

ENTRANCE HANDLE LOCK SETS

Cast Russwin Metal



*Illustrations
one-quarter size*



Set Number	Handle		Grip Number	Size Over all, in.	Cylinder Collar, in.	Plates, in.
	Number	Design				
54013 Alameda.....	5420	Alameda	5494	15 x2 3/4	3 1/2 x2 3/4	10 1/4 x2 3/4
54013 Monterey.....	5420	Monterey	5493	13 1/2 x2 3/4	3 x2 3/4	9 1/4 x2 3/4
54013 Pomona.....	5420	Pomona	5493	12 7/8 x2 1/2	2 1/2 x2 3/8	2 3/4 x 2 1/2 x2 1 5/8
54013 Wales.....	5420	Wales	Wales	18 1/4 x3 1/2	3 3/8 x2 1/2	5 3/8 x 3 1/2 x3 3/8 x2 1/2
54113 Wales.....	5421	Wales	Wales	16 1/2 x3	3 x2 1/4	4 1/2 x 3 x3 1/4 x2 1/4
54013 Warden.....	5420	Warden	Warden	16 1/2 x2 1/2	4 1/8 x2 3/8	5 x2 1/2
54013 Wyman.....	5420	Wyman	Wyman	16 1/2 x2 3/8	3 3/8 x2	12 1/4 x2 3/8
54013 San Diego.....	5420	San Diego	San Diego	14 1/2 x2 1 1/16	2 1 1/16	2 3/8 x2
54013 San Jose.....	5420	San Jose	San Jose	15 x2 3/16	3 3/16 x2 1/16	4 1/4 x 2 3/16 x3 3/16 x1 7/8

INSIDE TRIM

Cast Russwin Metal



Escutcheon		Knob		Escutcheon		Knob	
Number	Size, in.	Number	Size, in.	Number	Size, in.	Number	Size, in.
5435 Alameda	6 1/2 x1 7/8	5475	2	5435 Wales	6 3/4 x1 3/8	5475	2
5435 Monterey	6 1/2 x1 7/8	5475	2	5435 Warden	6 1/2 x2	5475	2
5435 Pomona	5 7/8 x2	5475	2	5435 Wyman	6 3/4 x2	5475	2

For Description of Finishes, see Page 3; for Description of Cast Russwin Metal, see Page 4

RUSSWIN**DOOR KNOCKERS**

Cast Russwin Metal

R&E
SINCE 1839*Illustrations
one-quarter size*

5450 Alameda



5450 Warden



5450 Wales



5450 Pomona



5450 Monterey

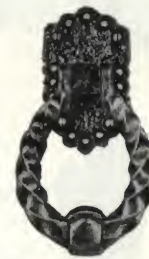


5450 San Diego

DOOR KNOCKERS

No.	Design	Size, in.
5450	Alameda	5 3/4 x 3
5450	Monterey	6 x 3
5450	Pomona	6 1/4 x 3
5450	San Diego	5 1/2 x 3
5450	San Jose	5 3/8 x 3
5450	Wales	6 1/8 x 3 3/4
5450	Warden	7 x 3
5450	Wyman	6 1/2 x 3

One in a box, with screws.



5450 San Jose



5450 Wyman

DOOR PULLS

Cast Russwin Metal



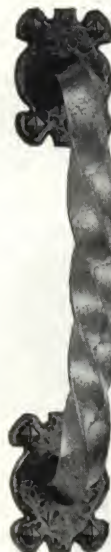
5437 Wales



5437 Warden



5437 Pomona



5437 Monterey



5437 Alameda



5437 Wyman

Number	Design	Length overall, in.	Number	Design	Length overall, in.
5437	Alameda	12 1/4 x 2 1/4	5437	Wales	12 1/4 x 2 1/4
5437	Monterey	11 1/2 x 2 1/4	5437	Warden	13 3/8 x 2 3/8
5437	Pomona	12 x 2 3/4	5437	Wyman	13 1/4 x 2

Specify number, design and finish. Two in a box, with screws.

For Description of Finishes, see Page 3; for Description of Cast Russwin Metal, see Page 4

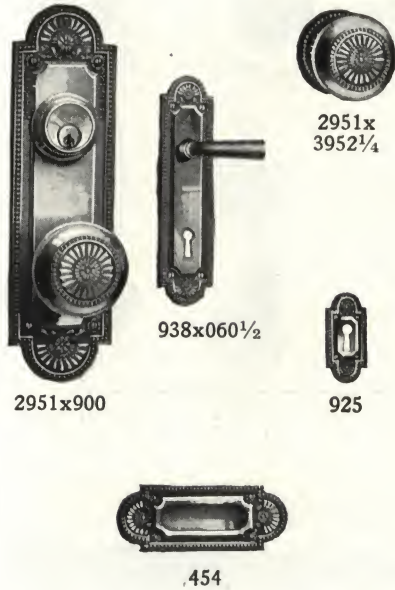
RUSSWIN

ADAM SCHOOL



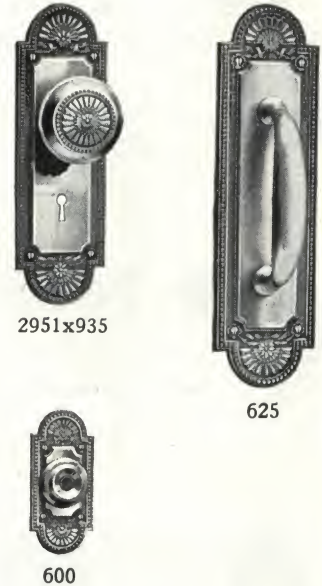
Cast Brass or Bronze

CARLTON DESIGN



CARLTON DESIGN (Symbol Carl.)

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3952 1/4	2 1/4	Door knob roses, round
		Escutcheons for:
910	2 1/4	Cylinder locks (cyl. collar)
900	10 x 2 3/4	Cylinder locks, outside, 5 1/2-in. and larger
901	8 x 2 1/2	Cylinder locks, inside, 5 1/2-in. and larger
940	8 x 2 1/2	Mortise locks, 4, 4 1/4 & 4 1/2-in.
935	8 x 2 1/2	Mortise locks, 3 1/2-in.
970	8 x 2 1/2	Mortise locks, sliding door
938	6 1/4 x 1 1/2	Mortise locks, lever handle No. 060 1/2
925	2 1/2 x 1 1/4	Bit-key locks (key-plate)
454	1 3/4 x 4 3/8	Sash lift, flush
600	4 x 1 3/4	Push button
625	10 x 2 3/4	Door pull with grip No. 073



CAENWOOD

CALMAN



CAENWOOD DESIGN (Symbol Caen.)

Cat. No.	Size, in.	Description of parts
3981	2 1/2 x 1 1/8	Door knobs, screwless shanks, 5/16-in. spindle No. 30
3962	2	Door knob roses, square
		Escutcheons for:
940	8 3/4 x 2 3/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	8 3/4 x 2 3/8	Mortise locks, 3 1/2-in.
925	2 5/8 x 1 1/8	Bit-key locks (key-plate)
454	1 1/2 x 4 3/8	Sash lift, flush

CALMAN DESIGN (Symbol Cal.)

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shanks, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shanks, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
		Escutcheons for:
910	2 1/4	Cylinder locks (cylinder collar)
940	8 1/2 x 2 1/2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	8 1/2 x 2 1/2	Mortise locks, 3 1/2-in.
925	2 3/4 x 1 1/8	Bit-key locks (key-plate)
454	1 3/8 x 3 3/4	Sash lift, flush
920	2 3/4 x 1 1/8	Turn knob, 5/16-in. spindle



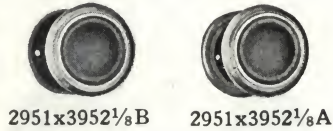
For Description of Finishes, see Page 3

RUSSWIN**COLONIAL SCHOOL****R&E**
SINCE 1839

Cast Brass or Bronze

For Full Line of Colonial Door Knobs, see Page 30

For Colonial Wrought Iron Hardware, see Pages 11 to 13

ARDEN

2951x3952 1/8 B

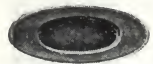
2951x3952 1/8 A



925



926



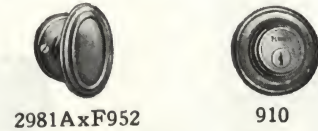
454 1/2



454

ARDEN DESIGN (Symbol Ard.)

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3952 1/8 A	2 1/4	Door knob roses, round
3952 1/8 B	2 1/4	Door knob roses, round
925	2 x 1	Escutcheons for: Bit-key locks (key-plate)
926	2 x 1	Bit-key locks (key-plate)
454	1 1/4 x 3 1/4	Sash lift, flush
454 1/2	1 1/4 x 3 1/4	Sash lift, flush

BEDFORD

2981AxF952

910

BEDFORD DESIGN (Symbol Bed.)

Cat. No.	Size, in.	Description of parts
2981A	2 1/2 x 1 1/2	Door knobs, simplex shank, 5/16-in. spindle No. 20
F952	2	Door knob roses, round
910	2 1/2	Escutcheons for: Cylinder locks (cylinder collar)
925	1 1/4 x 7/8	Bit-key locks (key-plate)
454	1 1/4 x 4	Sash lift, flush
920	1 3/4 x 7/8	Turn knob, 5/16-in. spindle



925



454

CLINTON**CLINTON DESIGN (Symbol Clin.)**

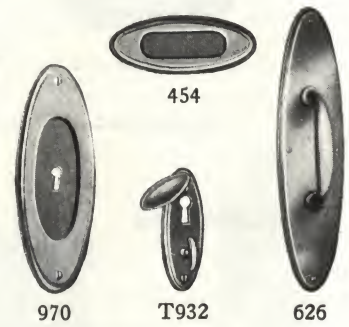
Cat. No.	Size, in.	Description of parts
3390	2 5/8 x 1 5/8	Door knobs, screwless shank, 5/16-in. spindle No. 30
2981A	2 1/4 x 1 1/2	Door knobs, simplex shank, 5/16-in. spindle No. 20
3952 1/4	2 1/4	Door knob roses, round
980	1 3/4 x 1	Mortise bolt knob, rose No. 980, spindle No. 5
901	9 x 2 7/8	Escutcheons for: Cylinder locks, 5 1/2-in. and larger
940	7 x 2 1/2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	7 x 2 1/2	Mortise locks, 3 1/2-in.
970	7 x 2 1/2	Mortise locks, sliding door
T932	3 3/4 x 1 3/4	Bit-key locks, turn No. 059
925	1 7/8 x 7/8	Bit-key locks (key-plate)
930	1 7/8 x 7/8	Bit-key locks (key-plate) with drop
454	1 1/2 x 4	Sash lift, flush
616	15 x 3 3/4	Push plate
626	15 x 3 3/4	Door pull with grip No. 076



3390x901

3390x935

925



970

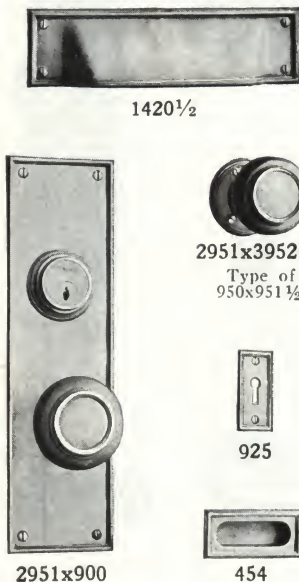
T932

626

GRANBY**GRANBY DESIGN (Symbol Gby.)**

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
950	1 1/2	Mortise bolt knob, rose No. 951 1/2, spindle No. 5
900	10 1/2 x 3	Escutcheons for: Cylinder locks, outside, 5 1/2-in. and larger
902	8 x 2 1/4	Cylinder locks, outside, 5 1/2-in. and larger
940	6 3/8 x 2 1/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	6 3/8 x 2 1/4	Mortise locks, 3 1/2-in.
925	2 1/4 x 1	Bit-key locks (key-plate)
454	1 3/8 x 3	Sash lift, flush
525	1 5/8 x 5 1/8	Sash lift, bar
600	4 x 1 3/4	Push button
615	10 1/2 x 3	Push plate
625	10 1/2 x 3	Door pull with grip No. 073
1420	2 1/4 x 7 3/4	Letter box plate, outside
1420 1/2	2 1/4 x 7 3/4	Letter box hood, inside

Note: For Unit Locks in this Design, see Page 43.



1420 1/2

2951x3952 1/4

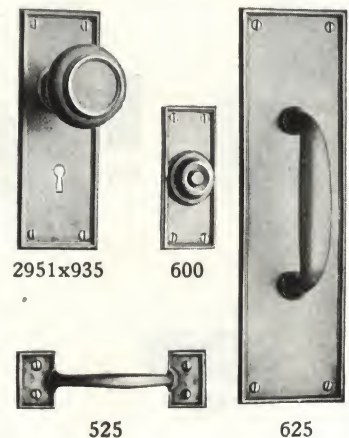
Type of
950x951 1/2

925

454



1420



2951x935

600

525

625

For Description of Finishes, see Page 3

RUSWIN

COLONIAL WROUGHT IRON HARDWARE

R&E
SINCE 1839

STYLE A



3555



3506



3532



3506 1/2



3506 3/4



3554



3505 3/4



3505 1/2

STYLE A

Cat. No.	Size, in.	Description of parts
3506	13 x 2 3/8	Entrance door handle and thumb latch
3506 1/2	3 3/8 x 2	Cylinder collar
3532	9 1/2 x 2 3/8	Door knocker
3555	1 1/2 x 14	Hinge plate
3555	1 1/2 x 22	Hinge plate
3555	1 1/2 x 30	Hinge plate
3506 3/4	2 3/8 x 1 1/2	Electric push button

STYLE B

3505	11 1/2 x 3 3/4	Entrance door handle and thumb latch
3505 1/2	2 1/8 x 2 1/2	Cylinder collar
3522	8 3/4 x 2 1/2	Thumb latch
3554	1 1/2 x 14	Hinge plates
3554	1 1/2 x 22	Hinge plates
3554	1 1/2 x 30	Hinge plates
3570	11 x 3 3/8	Door pull (see page 13)
3505 3/4	1 3/4 x 1 1/2	Electric push button



3522



3505

STYLE C



3550



3503



3572



3503 1/2



3503 3/4



3548



3510 3/4



3510 1/2

STYLE C

Cat. No.	Size, in.	Description of parts
3503	12 x 3	Entrance door handle and thumb latch
3503 1/2	2 3/8 x 2 1/4	Cylinder collar
3550	1 1/2 x 14	Hinge plate
3550	1 1/2 x 22	Hinge plate
3550	1 1/2 x 30	Hinge plate
3772	12 x 3	Door pull
3503 3/4	2 1/4 x 1 5/8	Electric push button

STYLE D

3510	9 1/2 x 3 1/2	Entrance door handle and thumb latch
3510 1/2	2 3/8 x 2 1/4	Cylinder collar
3534	6 1/4 x 2 1/4	Door knocker
3548	1 1/2 x 14	Hinge plate
3548	1 1/2 x 22	Hinge plate
3548	1 1/2 x 30	Hinge plate
3510 3/4	1 7/8 x 1 5/8	Electric push button



3534



3510

STYLE E

Cat. No.	Size, in.	Description of parts
3504	10 3/4 x 3	Entrance door handle and thumb latch
3504 1/2	2 x 2	Cylinder collar
3521	7 5/8 x 2 3/8	Thumb latch
3530	5 x 2	Door knocker
3504 3/4	1 1/2 x 1 1/2	Electric push button



3521



3530



3504 1/2



3504 3/4



3504

For Description of Finishes, see Page 3

RUSSWIN

COLONIAL WROUGHT IRON HARDWARE

R&E
SINCE 1839

Thumb Latch Handles for Outside Doors

3501
Size:
20x3 3/83502
Size:
23 1/2 x 3 3/83508
Size: 10 3/4 x 33513
Size: 9 7/8 x 2 3/43523
Size: 12 x 2 3/43511
Size: 10 7/8 x 33514
Size:
11 1/4 x 2 3/4

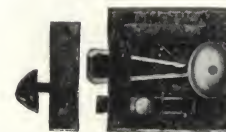
3509 1/2

3509
Size: 9 3/4 x 3 1/43500
21 1/4 x 3 1/4

Lever Handle

3542
Size: Lever 3 1/2, Rose 2 1/8 x 1 3/8

Thumb Latches for Inside Doors

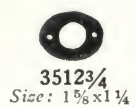
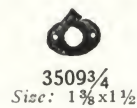
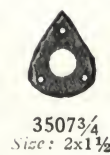
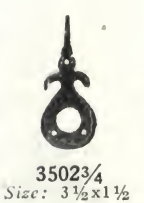
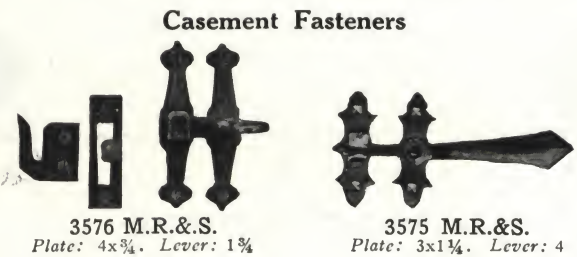
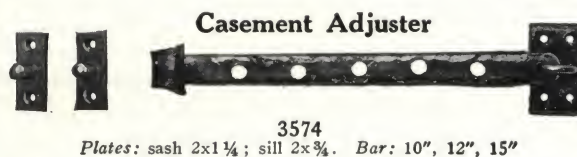
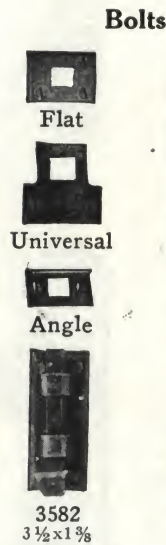
3520
Size: 7 x 2 1/23527
Size: 9 x 2 1/43525
Size: 9 x 1 3/83518
Size: 9 x 2 1/83524
Size: 9 1/4 x 23519
Size: 10 x 2 1/43526
Size: 8 x 33578 Spring Latch
Size: 3x33580 Spring Latch
Size: 3x53579 Spring Latch
and Bolt
Size: 3 1/4 x 3 1/43515 Latch Bar
Length: 6 7/83536
Knob
Size: 1 7/8 x 1 3/83537
Key Plate
Size: 1 7/8 x 1 3/83539
Cylinder
Collar Drop
Size: 2 x 3 1/83516 Latch Bar
Length: 8 in.

For Description of Finishes, see Page 3

RUSSWIN

COLONIAL WROUGHT IRON HARDWARE

R&E
SINCE 1879



For Description of Finishes, see Page 3

RUSSWIN**HARDWICK****ELIZABETHAN SCHOOL**

Cast Brass or Bronze

HARDWICK DESIGN (Symbol Hard.)

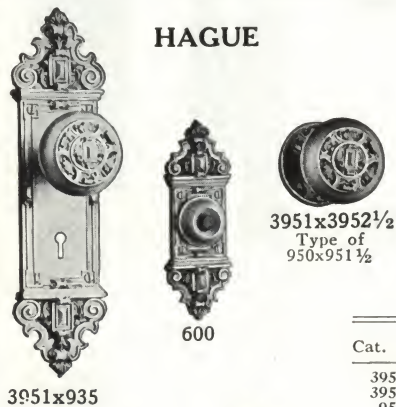
Cat. No.	Size, in.	Description of parts
3981	2 7/8 x 1 3/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3981 3/4	3 x 1 3/4	Door knob roses, oval
		Escutcheons for:
901	12 3/4 x 3 1/2	Cylinder locks, outside, 5 1/2-in. and larger
940	10 1/4 x 3	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	10 1/4 x 3	Mortise locks, 3 1/2-in.
600	4 3/8 x 1 1/2	Push button

LANCASTER DESIGN (Symbol Lan.)

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
		Escutcheons for:
900	12 3/4 x 3 3/8	Cylinder locks, outside, 5 1/2-in. and larger
940	9 1/4 x 2 5/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	9 1/4 x 2 5/8	Mortise locks, 3 1/2-in.
600	4 3/4 x 1 1/2	Push button

LANCASTER**HAGUE****FLEMISH SCHOOL**

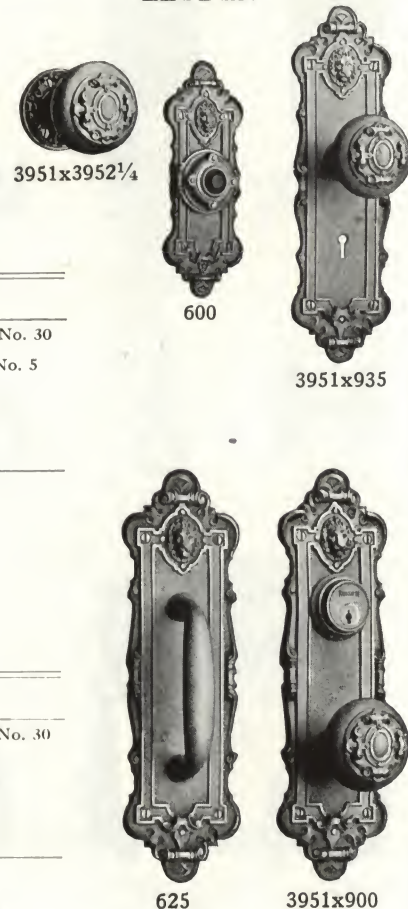
Cast Brass or Bronze

**HAGUE DESIGN (Symbol Hag.)**

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
950	1 1/2	Mortise bolt knob, rose No. 951 1/2 spindle No. 5
		Escutcheons for:
900	13 1/4 x 3 1/4	Cylinder locks, outside, 5 1/2-in. and larger
940	10 1/4 x 2 5/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	10 1/4 x 2 5/8	Mortise locks, 3 1/2-in.
600	5 1/2 x 2	Push button
625	13 1/4 x 3 1/4	Door pull, with grip No. 073

LEYDEN DESIGN (Symbol Ley.)

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
		Escutcheons for:
900	11 x 3 1/4	Cylinder locks, outside, 5 1/2-in. and larger
940	10 x 2 3/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	10 x 2 3/4	Mortise locks, 3 1/2-in.
600	6 1/2 x 2 1/2	Push button
625	11 x 3 3/4	Door pull, with grip No. 073

LEYDEN

For Description of Finishes, see Page 3

RUSSWIN

EMPIRE SCHOOL

Cast Brass or Bronze

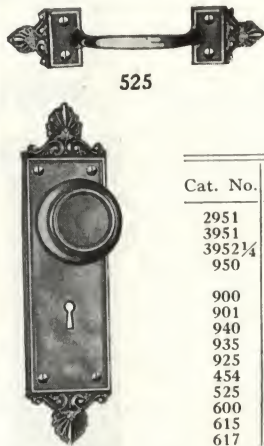
MALOS

MALOS DESIGN (Symbol Mal.)

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
950	1 1/2	Mortise bolt knob, rose No. 951 1/2, spindle No. 5
		Escutcheons for:
900	12 x 3	Cylinder locks, outside, 5 1/2-in. and larger
901	10 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
940	9 3/8 x 2 1/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	9 3/8 x 2 1/4	Mortise locks, 3 1/2-in.
925	3 3/4 x 1 1/8	Bit-key locks (key-plate)
454	1 1/2 x 4 3/4	Sash lift, flush
525	1 5/8 x 6 1/8	Sash lift, bar
600	4 3/4 x 1 3/8	Push button
615	12 x 3	Push plate
617	18 3/4 x 3	Push plate



615



2951x935



454



2951x900



600

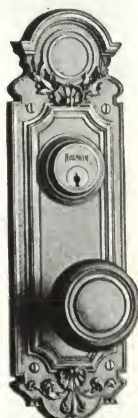
FRENCH RENAISSANCE SCHOOL

Cast Brass or Bronze

BEAUMONT

BEAUMONT DESIGN (Symbol Beau.)

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round (Madison)
950	1 1/2	Mortise bolt knob, rose No. 951 1/2 (Madison), spindle No. 5
		Escutcheons for:
900	11 x 3 1/4	Cylinder locks, outside, 5 1/2-in. and larger
940	9 x 2 1/2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	9 x 2 1/2	Mortise locks, 3 1/2-in.
454	1 3/8 x 5 3/8	Sash lift, flush
525	1 5/8 x 6 1/8	Sash lift, bar
600	5 x 1 3/4	Push button
625	11 x 3 3/4	Door pull, with grip No. 073



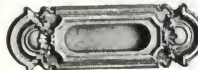
3951x900



3951x935



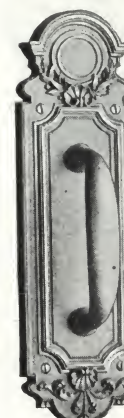
525



454

3951x3952 1/4
Type of
950x951 1/2

600



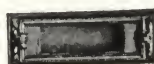
625

CERES

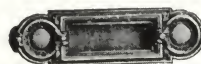
DARCY



3951x3952 1/4



454



454



3951x3952 1/4



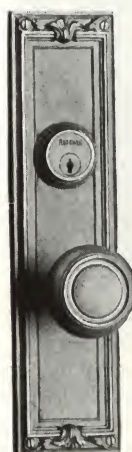
600



3951x935



600



3951x900



625

CERES DESIGN (Symbol Cer.)

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round (Madison)
		Escutcheons for:
900	12 x 3	Cylinder locks, outside, 5 1/2-in. and larger
901	9 x 3	Cylinder locks, outside, 5 1/2-in. and larger
B902	8 1/4 x 2 5/8	Cylinder locks, inside, blank
T902	8 1/4 x 2 5/8	Cylinder locks, inside, turn No. 067
940	8 1/4 x 2 5/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	8 1/4 x 2 5/8	Mortise locks, 3 1/2-in.
454	1 1/2 x 4	Sash lift, flush
600	4 x 1 1/2	Push button
625	12 x 3	Door pull, with grip No. 780

DARCY DESIGN (Symbol Dey.)

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
		Escutcheons for:
900	12 5/8 x 3	Cylinder locks, outside, 5 1/2-in. and larger
940	10 1/4 x 2 1/2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	10 1/4 x 2 1/2	Mortise locks, 3 1/2-in.
454	1 1/2 x 5 1/2	Sash lift, flush
600	5 1/2 x 1 1/2	Push button
625	12 5/8 x 3	Door pull, with grip No. 073



3951x935



3951x900

For Description of Finishes, see Page 3

RUSSWIN

GOTHIC SCHOOL

R&E
SINCE 1839

Cast Brass or Bronze

BRESLAU

BRESLAU DESIGN (Symbol Bres.)

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
900	14 x 3 5/8	Escutcheons for:
B901	11 1/4 x 3 1/8	Cylinder locks, outside, 5 1/2-in. and larger
T901	11 1/4 x 3 1/8	Cylinder locks, inside, 5 1/2-in. and larger
950	11 1/4 x 3 1/8	Cylinder locks, inside, turn No. 067
940	11 1/4 x 3 1/8	Mortise locks, 5-in. and larger
935	11 1/4 x 3 1/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
625	14 x 3 3/8	Mortise locks, 3 1/2-in.
		Door pull, with grip No. 076



3951x900

625



3951x935



3951x3952 1/4



3951x3952 1/4



525

NORTHMOOR DESIGN (Symbol Nmr.)

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30.
3952	2 1/2 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30.
3953	2 1/2 x 2 1/2	Door knobs, screwless shank, 5/16-in. spindle No. 30.
3952 1/4	2 1/4	Door knob roses, round
900	12 1/4 x 3 3/8	Escutcheons for:
940	8 x 2 3/4	Cylinder locks, outside, 5 1/2-in. and larger
935	8 x 2 3/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
525	1 5/8 x 6	Mortise locks, 3 1/2-in.
600	4 3/4 x 2	Sash lift, bar
625	12 1/4 x 3 3/8	Push button
		Door pull, with grip No. 073



625

3953x900



600

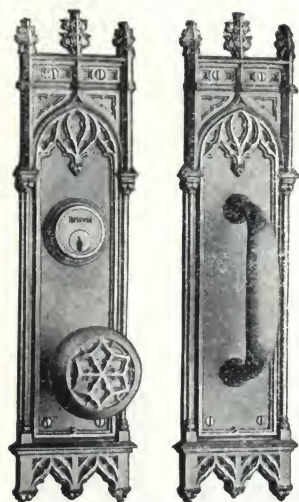


3951x935

TOULON

TOULON DESIGN (Symbol Tou.)

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952	2 1/2 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3953	2 1/2 x 2 1/2	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
900	13 1/4 x 3 5/8	Escutcheons for:
901	11 1/4 x 2 3/8	Cylinder locks, outside, 5 1/2-in. and larger
940	10 x 2 3/8	Cylinder locks, outside, 5 1/2-in. and larger
935	10 x 2 3/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
600	5 3/4 x 2 1/8	Mortise locks, 3 1/2-in.
625	13 1/4 x 3 5/8	Push button
		Door pull, with grip No. 073



3953x900

625



3951x935



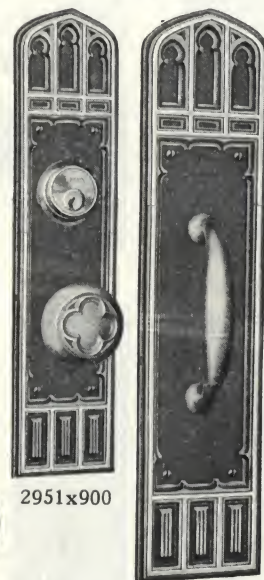
3951x3952 1/4



600

WARWICK DESIGN (Symbol War.)

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3952 1/4	2 1/4	Door knob roses, round
900	12 1/4 x 3 1/4	Escutcheons for:
B902	9 1/4 x 2 3/4	Cylinder locks, outside, 5 1/2-in. and larger
T902	9 1/4 x 2 3/4	Cylinder locks, inside, blank
940	9 1/4 x 2 3/4	Cylinder locks, inside, turn No. 067
935	9 1/4 x 2 3/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
925	2 1/4 x 1 1/8	Mortise locks, 3 1/2-in.
625	5 x 3 1/2	Bit-key locks (key-plate)
626	8 x 3 3/4	Door pull, with grip No. 076
627	22 x 4	Door pull, with grip No. 076 1/4



2951x900

625

Type 626-627



2951x935



2951x3952 1/4



925

For Description of Finishes, see Page 3

RUSSWIN

2951x935



2951x900

MINERVA

3951x3952 1/4



600



3951x900



3951x935

GREEK SCHOOL

Cast Brass or Bronze

OLYMPUS**OLYMPUS DESIGN (Symbol Olmp.)**

Cat. No.	Size, in.	Description of parts
2951 3952 1/4	2 1/4 x 2 1/4 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20 Door knob roses, round (No. 952 1/4 Madison) Escutcheons for: Cylinder locks, outside, 5 1/2-in. and larger Mortise locks, 4, 4 1/4 and 4 1/2-in. Mortise locks, 3 1/2-in. Bit-key locks (key-plate) Push button
900 940 935 925 600	10 1/4 x 2 1/2 8 1/4 x 2 1/4 8 1/4 x 2 1/4 2 5/8 x 1 1/8 4 3/4 x 1 1/8	



2951x3952 1/4



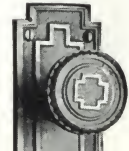
925



600

THETIS

3951x3962 1/4



3951x935



625



3951x900

MINERVA DESIGN (Symbol Mva.)

Cat. No.	Size, in.	Description of parts
3951 3952 1/4	2 1/4 x 2 1/4 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30 Door knob roses, round Escutcheons for: Cylinder locks, outside, 5 1/2-in. and larger Mortise locks, 4, 4 1/4 and 4 1/2-in. Mortise locks, 3 1/2-in. Push button Push plate Door pull, with grip No. 073
900 940 935 600 615 625	13 1/4 x 3 1/4 10 1/4 x 2 1/2 10 1/4 x 2 1/2 5 3/4 x 1 1/8 13 1/4 x 3 1/4 13 1/4 x 3 1/4	

THETIS DESIGN (Symbol The.)

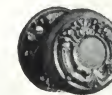
Cat. No.	Size, in.	Description of parts
3951 3962 1/4	2 1/4 x 2 1/4 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30 Door knob roses, square Escutcheons for: Cylinder locks, outside, 5 1/2-in. and larger Cylinder locks, outside, 5 1/2-in. and larger Mortise locks, 4, 4 1/4 and 4 1/2-in. Mortise locks, 3 1/2-in. Sash lift, bar Push button Door pull, with grip No. 780
900 901 940 935 525 600 625	12 x 3 1/2 9 x 3 7 1/4 x 2 1/2 7 1/4 x 2 1/2 1 5/8 x 5 3/4 4 x 1 1/4 15 x 3 1/2	

ITALIAN RENAISSANCE SCHOOL

Cast Brass or Bronze

BRAMANTE**BRAMANTE DESIGN (Symbol Bram.)**

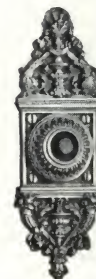
Cat. No.	Size in	Description of parts
3951 3952 3953 3952 1/4	2 1/4 x 2 1/4 2 1/4 x 2 1/4 2 1/4 x 2 1/4 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30 Door knobs, screwless shank, 5/16-in. spindle No. 30 Door knobs, screwless shank, 5/16-in. spindle No. 30 Door knob roses, round Escutcheons for: Cylinder locks, outside, 5 1/2-in. and larger Cylinder locks, inside, blank Cylinder locks, inside, turn No. 067 Mortise locks, 5-in. and larger Mortise locks, 4, 4 1/4 and 4 1/2-in. Mortise locks, 3 1/2-in. Bit-key locks (key-plate) Sash lift, flush Push button Push plate Push plate Door pull, with grip No. 073
900 B901 T901 950 940 935 925 454 600 615 616 625	15 x 3 3/4 13 x 3 1/4 13 x 3 1/4 13 x 3 1/4 13 x 3 1/4 13 x 3 1/4 2 3/4 x 1 1/8 1 1/4 x 4 3/8 7 1/4 x 2 1/2 15 x 3 3/4 18 1/2 x 3 3/4 15 x 3 3/4	



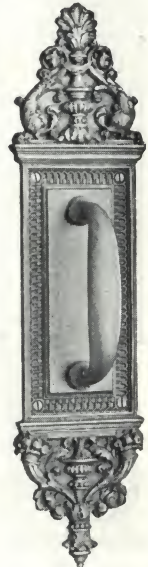
3951x3952 1/4



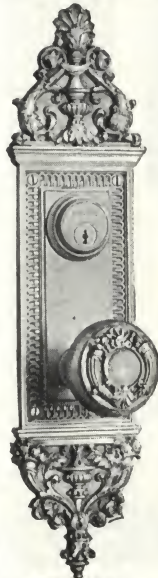
925



600



625



3953x900



3951x935

For Description of Finishes, see Page 3

RUSWIN**ITALIAN RENAISSANCE SCHOOL****R&E**
SINCE 1858

Cast Brass or Bronze

VIGNOLA**VIGNOLA DESIGN (Symbol Vig.)**

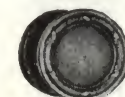
Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
901	12 x 2 7/8	Escutcheons for:
940	10 1/2 x 2 1/8	Cylinder locks, outside, 5 1/2-in. and larger
935	10 1/2 x 2 1/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
600	6 x 2 1/2	Mortise locks, 3 1/2-in.
625	12 x 3 3/8	Push button
		Door pull, with grip No. 073



3951x901



3951x935



3951x3952 1/4



600



625

LOUIS XIV SCHOOL

Cast Brass or Bronze

MAZARIN**MAZARIN DESIGN (Symbol Maz.)**

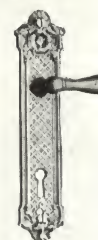
Cat. No.	Size, in.	Description of parts
3983	2 7/8 x 1 3/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3981 1/2	2 1/2 x 1 1/2	Door knob roses, oval
901	12 1/4 x 3 1/2	Escutcheons for:
940	10 x 3 1/4	Cylinder locks, outside, 5 1/2-in. and larger
935	10 x 3 1/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
938 1/4	6 1/2 x 1 5/8	Mortise locks, 3 1/2-in.
925	3 1/2 x 1 3/8	Mortise locks, with lever No. 728
454	1 5/8 x 4 1/4	Bit-key locks (key-plate)
		Sash lift, flush



3983x901

3983x935
3983x940

3983x3981 1/2



938 1/4



925



454

LOUIS XVI SCHOOL

Cast Brass or Bronze

CAMDEN**CAMDEN DESIGN (Symbol Cam.)**

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round (Madison)
950	1 1/2	Mortise bolt knob, rose 951 1/2 Mad., spindle No. 5
901	10 1/2 x 3	Escutcheons for:
B903	9 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
T903	9 x 2 1/2	Cylinder locks, inside, blank
950	9 x 2 1/2	Cylinder locks, inside, turn No. 067
940	7 1/4 x 2 1/2	Mortise locks, 5-in. and larger
935	7 1/4 x 2 1/2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
970	7 1/4 x 2 1/2	Mortise locks, 3 1/2-in.
938	5 1/2 x 1 1/2	Mortise locks, sliding door
925	2 1/4 x 1 1/4	Mortise locks, with lever No. 060 1/2
454	1 1/2 x 4 1/4	Bit-key locks (key-plate)
600	4 1/4 x 1 1/2	Sash lift, flush
625	12 x 3	Push button
1420	2 1/2 x 9 1/2	Door pull, with grip No. 073
1420 1/2	2 1/2 x 9 1/2	Letter box plate, outside
		Letter box hood, inside

Note: For Unit Locks in this Design, see Page 43.

For Description of Finishes, see Page 3



2951x901



2951x935



600

2951x3952 1/4
Type of
950x951 1/2

925



1420



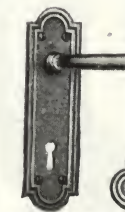
1420 1/2



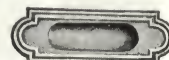
970



625



938x060 1/2



454

RUSSWIN

LOUIS XVI SCHOOL

Cast Brass or Bronze

R&E
SINCE 1839

CLODIAN



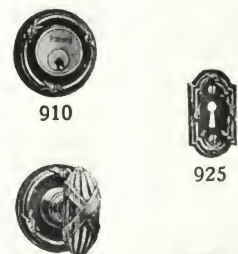
CLODIAN DESIGN (Symbol Clo.)

Cat. No.	Size, in.	Description of parts
3981A	2 5/8 x 1 5/8	Door knobs, screwless shank, 5/16-in. spindle No. 30
F3952 1/4	2 1/4	Door knob roses, round
3931 1/2	2 1/2 x 1 1/2	Door knob roses, with auxiliary spring
910	2 1/4	Escutcheons for:
970	4 1/2 x 2 1/4	Cylinder locks (cylinder collar)
925	2 1/8 x 1 1/8	Mortise locks, sliding door
454	1 5/8 x 3 1/4	Bit-key locks (key-plate)
		Sash lift, flush

FALCONET DESIGN (Symbol Fal.)

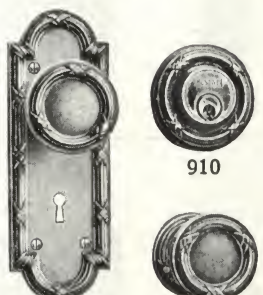
Cat. No.	Size, in.	Description of parts
3981A	2 1/2 x 1 1/2	Door knobs, screwless shank, 5/16-in. spindle No. 30
F3952	2	Door knob roses
3931 3/4	1 3/4	Door knob roses, with auxiliary spring
910	2 1/2	Escutcheons for:
925	2 1/2 x 1 3/8	Cylinder locks (cylinder collar)
		Bit-key locks (key-plate)

FALCONET



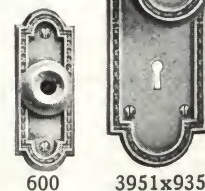
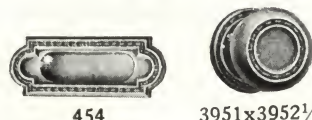
3981AxF3952 1/4
Type of
980x951 1/2

3981AxF3952



LA LONDE

LEDOUX



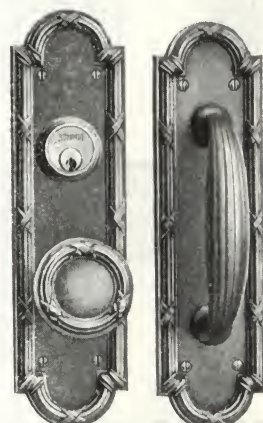
LA LONDE DESIGN (Symbol La L.)

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
3931 3/4	1 3/4	Door knob roses, with auxiliary spring
3779	4	Lever handle, screwless shank, 5/16-in. spindle No. 30
910	2 1/2	Escutcheons for:
600	11 x 3	Cylinder locks (cylinder collar)
940	7 x 2 5/8	Cylinder locks, outside, 5 1/2-in. and larger
935	7 1/4 x 2 5/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
925	2 1/4 x 1 1/4	Mortise locks, 3 1/2-in.
600	4 x 1 1/8	Bit-key locks (key-plate)
625	1 x 3	Push button
		Door pull, with grip No. 776

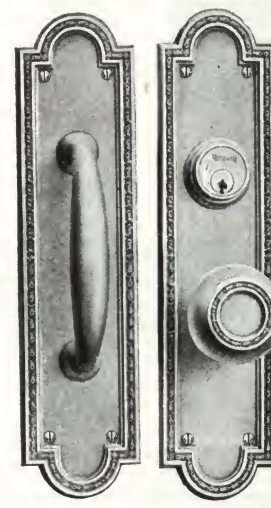
LEDOUX DESIGN (Symbol Ldx.)

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
900	12 x 3	Escutcheons for:
940	7 1/4 x 2 5/8	Cylinder locks, outside, 5 1/2-in. and larger
935	7 1/4 x 2 5/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
454	1 1/2 x 4 1/4	Mortise locks, 3 1/2-in.
600	4 1/4 x 1 1/2	Sash lift, flush
625	2 x 3	Push button
		Door pull, with grip No. 076

3951x935 3951x3952 1/4



3951x900 625



625 3951x900

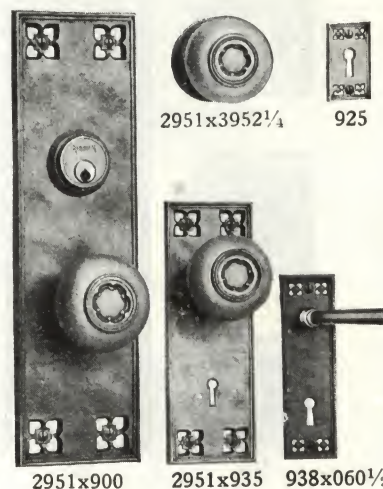
MISSION SCHOOL

Cast Brass or Bronze

ALAMO

ALAMO DESIGN (Symbol Amo.)

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3952 1/4	2 1/4	Door knob roses, round
900	12 x 3 1/2	Escutcheons for:
B902	7 x 2 1/4	Cylinder locks, outside, 5 1/2-in. and larger
T902	7 x 2 1/4	Cylinder locks, inside, blank
940	7 x 2 1/4	Cylinder locks, inside, turn No. 067
935	7 x 2 1/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
970	7 x 2 1/4	Mortise locks, 3 1/2-in.
938	5 1/2 x 1 1/4	Mortise locks, sliding door
925	2 x 1 1/4	Mortise locks, with lever No. 060 1/2
454	1 1/2 x 3 3/8	Bit-key locks (key-plate)
525	1 1/2 x 4 3/4	Sash lift, flush
600	3 3/8 x 1 1/2	Sash lift, bar
625	12 x 3 1/2	Push button
		Door pull, with grip No. 780



2951x900 2951x935 938x060 1/2



600



454



525



625

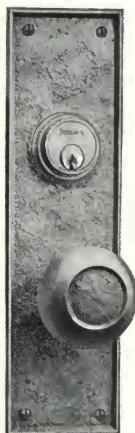
For Description of Finishes, see Page 3

RUSSWIN

MISSION SCHOOL

Cast Brass or Bronze

MONICA

R&E
SINCE 1839

2951x900



2951x3952 1/4 925



2951x935

MONICA DESIGN (Symbol Mca.)

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3952 1/4	2 1/4	Door knob roses, round
Escutcheons for:		
900	10 5/8 x 2 7/8	Cylinder locks, outside, 5 1/2-in. and larger
B902	7 3/4 x 2 1/8	Cylinder locks, inside, blank
T902	7 3/4 x 2 1/8	Cylinder locks, inside, turn No. 067
940	6 1/4 x 2 1/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	6 1/4 x 2 1/8	Mortise locks, 3 1/2-in.
938	4 1/2 x 1	Mortise locks, with lever No. 060 1/2
925	2 1/8 x 1	Bit-key locks (key-plate)
600	3 1/8 x 1 5/8	Push button
615	10 5/8 x 2 7/8	Push plate
625	10 5/8 x 2 7/8	Door pull, with grip No. 073



600



938x060 1/2



625

MOORISH SCHOOL

Cast Brass or Bronze

CADIZ



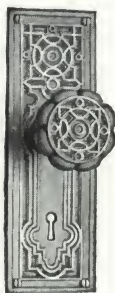
454

CADIZ DESIGN (Symbol Cdz.)

Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3962	2 x 2	Door knob roses, square
Escutcheons for:		
900	12 x 3 1/4	Cylinder locks, outside, 5 1/2-in. and larger
940	7 3/8 x 2 3/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	7 3/8 x 2 3/8	Mortise locks, 3 1/2-in.
454	1 5/8 x 4 1/2	Sash lift, flush
600	4 x 1 5/8	Push button
615	12 x 3 1/4	Push plate
625	12 x 3 1/4	Door pull, with grip No. 774



3951x900



3951x935



600



3951x3962



625

ROMAN SCHOOL

Cast Brass or Bronze

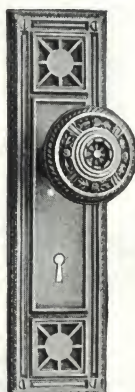
HADRIAN

HADRIAN DESIGN (Symbol Had.)

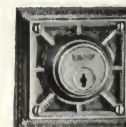
Cat. No.	Size, in.	Description of parts
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952	2 1/2 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3953	2 1/2 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3962 1/2	2 1/2 x 2 1/2	Door knob roses, square
Escutcheons for:		
910	3 1/4 x 3 3/4	Cylinder locks (cylinder collar)
900	13 1/4 x 4	Cylinder locks, outside, 5 1/2-in. and larger
B901	10 1/4 x 2 7/8	Cylinder locks, inside, blank
940	10 1/4 x 2 7/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
600	3 x 3	Push button
615	12 1/2 x 4	Push plate
616	18 x 4	Push plate
625	12 1/2 x 4	Door pull, with grip No. 783
626	18 x 4	Door pull, with grip No. 783



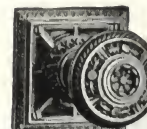
3953x900



3951x940



910



3951x3962 1/2



600



625

For Description of Finishes, see Page 3

RUSSWIN**DESIGNS FOR COMMERCIAL BUILDINGS****R&E**
SINCE 1839

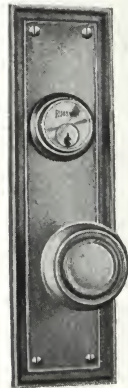
For Unit Locks, see Pages 40 to 43, inclusive

MODERN SCHOOL**Cast Brass or Bronze**

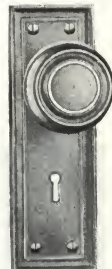
The following designs were developed especially for use in commercial and public buildings and offer a complete line from which to select high grade trim for such buildings.

They are listed under this heading on account of answering the special requirements demanded for buildings of this character.

The hardware is of the highest grade cast bronze and the designs are simple and dignified. They have a character which recommends them for commercial and public buildings of all classes where a high grade product is desired. They are made extra heavy to withstand the years of constant hard use to which such hardware is subjected.



2951x900



2951x935



525



454



2951x3952 1/4



600



615



1420 1/2

ARDSLEY DESIGN (Symbol Ards.)

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 26
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 31
3952 1/4	2 1/4	Door knob roses, round
Escutcheons for:		
900	10 x 2 3/4	Cylinder locks, outside, 5 1/2-in. and larger
901	8 1/2 x 2 3/8	Cylinder locks, outside, 5 1/2-in. and larger
950	8 1/2 x 2 3/8	Mortise locks, 5-in. and larger
940	7 x 2 1/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	7 x 2 1/4	Mortise locks, 3 1/2-in.
454	1 5/8 x 3 1/2	Sash lift, flush
525	1 5/8 x 5 3/4	Sash lift, bar
600	3 1/2 x 1 1/2	Push button
615	10 x 2 3/4	Push plate (type of Pull Plate 625)
616	15 x 3 1/2	Push plate (type of Pull Plate 626)
1420	2 5/8 x 8 1/2	Letter box plate, outside
1420 1/2	2 5/8 x 8 1/2	Letter box hood, inside



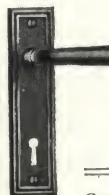
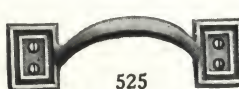
1420

COPLEY

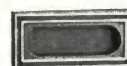
2951x901



2951x935

2951x3962 1/4
Type of
950x961 1/2938x
060 1/2

525



454

COPLEY DESIGN (Symbol Cop.)

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3962 1/4	2 1/4 x 2 1/4	Door knob roses, square
950	1 1/2 x 1 1/2	Mortise bolt knob, rose No. 961 1/2, spindle No. 5
Escutcheons for:		
910 1/4	2 1/4 x 2 1/4	Cylinder locks (cylinder collar)
901	10 1/4 x 2 3/4	Cylinder locks, outside, 5 1/2-in. and larger
902	9 x 2 3/4	Cylinder locks, outside, 5 1/2-in. and larger
B903	7 x 2 1/2	Cylinder locks, inside, blank
T903	7 x 2 1/2	Cylinder locks, inside, turn No. 067
940	7 x 2 1/2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	7 x 2 1/2	Mortise locks, 3 1/2-in.
970	7 x 2 1/2	Mortise locks, sliding door
938	5 x 1 1/4	Mortise locks, lever handle No. 060 1/2
925	2 x 1 1/4	Bit-key locks (key-plate)
454	1 1/2 x 3	Sash lift, flush
525	1 5/8 x 6	Sash lift, bar
600	3 x 1 1/2	Push button
615	10 1/4 x 3 1/4	Push plate
616	16 x 3 1/4	Push plate
617	20 x 4	Push plate
625	10 1/4 x 3 1/4	Door pull, with grip No. 073
626	16 x 3 1/4	Door pull, with grip No. 076
1420	2 1/2 x 7 5/8	Letter box plate, outside
1420 1/2	2 1/2 x 7 5/8	Letter box hood, inside



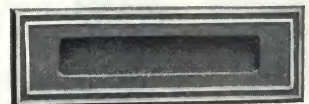
970



600



625



1420

For Description of Finishes, see Page 3

RUSWIN**DESIGNS FOR COMMERCIAL BUILDINGS****MODERN SCHOOL**

Cast Brass or Bronze

For Unit Lock Sets, see Pages 40 to 43, inclusive

AETNA**AETNA DESIGN (Symbol Aetna)**

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3962 1/4	2 1/4 x 2 1/4	Door knob roses, square
910	2 3/8 x 2 3/8	Escutcheons for: Cylinder locks (cylinder collar, square)
901	9 1/2 x 2 3/8	Cylinder locks, outside, 5 1/2-in. and larger
940	7 1/4 x 2 3/8	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	7 1/4 x 2 3/8	Mortise locks, 3 1/2-in.
925	2 x 1	Bit-key (key-plate)
616	15 x 3 1/2	Push plate
626	15 x 3 1/2	Door pull, grip No. 076
1424 1/2	9 1/2 x 2 3/4	Letter chutes with vertical plates, Government approved, opening, 7 x 1 1/2-in.



2951x901



2951x935



2951x3962 1/4



925



910



1424 1/2



626

MODART**MODART DESIGN (Symbol Modart)**

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3981	2 1/2 x 1 3/8	Door knobs, oval, screwless shank, 5/16-in. spindle No. 30
3952 3/8	2 3/8	Door knob roses, round
3962 1/4	2 1/4 x 2 1/4	Door knob roses, square
910	2 5/8 x 2 3/8	Escutcheons for: Cylinder locks (cylinder collar, square)
910 1/2	2 3/8	Cylinder locks (cylinder collar, round)
901	9 x 2 5/8	Cylinder locks, outside, 5 1/2-in. and larger
T903	7 1/2 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
940	7 1/2 x 2 1/2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	7 1/2 x 2 1/2	Mortise locks, 3 1/2-in.
990	4 x 2	Mortise latches
925	2 1/8 x 1 1/16	Bit-key (key-plate)
616	15 x 3 1/2	Push plate
626	15 x 3 1/2	Door pull, grip No. 0795
1424	9 3/4 x 3	Letter box plates with chute



925



2951x3962 1/4



3981x901



2951x935



910



626

For Description of Finishes, see Page 3

RUSSWIN**DESIGNS FOR COMMERCIAL BUILDINGS****MODERN SCHOOL**

Cast Brass or Bronze

For Unit Lock Sets, see Pages 40 to 43, inclusive

CAIRO**CAIRO DESIGN (Symbol Cairo)**

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3962 1/8	2 1/8 x 2 1/8	Door knob roses, square
910	2 5/8 x 2 3/8	Escutcheons for:
901	9 x 2 5/8	Cylinder locks (cylinder collar, square)
T903	7 1/2 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
940	7 1/2 x 2 1/2	Cylinder locks, inside, 5 1/2-in. and larger
935	7 1/2 x 2 1/2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
925	2 1/8 x 1 5/16	Mortise locks, 3 1/2-in.
616	15 x 3 1/2	Bit-key (key-plate)
626	15 x 3 1/2	Push plate
1424 1/2	9 15/16 x 2 3/4	Door pull, grip No. 775
		Letter chutes with vertical plates, Government approved, opening 7 x 1 1/2-in.



925



2951x901



2951x935



910



2951x3962 1/8

1424 1/2
Government
Approved

626

PYRAMID**PYRAMID DESIGN (Symbol Pyd.)**

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3981	2 1/2 x 1 7/8	Door knobs, oval, screwless shank, 5/16-in. spindle No. 30
3952 3/8	2 3/8	Door knob roses, round
3962 1/4	2 1/4 x 2 1/4	Door knob roses, square
910	2 5/8 x 2 3/8	Escutcheons for:
910 1/2	2 3/8	Cylinder locks (cylinder collar, square)
901	9 x 2 5/8	Cylinder locks (cylinder collar, round)
T903	7 1/2 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
940	7 1/2 x 2 1/2	Cylinder locks, inside, 5 1/2-in. and larger
935	7 1/2 x 2 1/2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
990	4 x 2	Mortise latches
925	2 1/8 x 1 5/16	Bit-key locks (key-plate)
616	15 x 3 1/2	Push plate
626	15 x 3 1/2	Door pull, grip No. 0795
1424	9 3/4 x 3	Letter box plates with chute, vertical, outside
1424 1/2	9 3/4 x 3	Letter box plates, vertical, inside



2951x935



3981x901



2951x990



910



910 1/2



925



626



1424



1424 1/2

For Description of Finishes, see Page 3

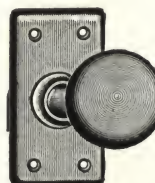
RUSWIN**DESIGNS FOR COMMERCIAL BUILDINGS****R&E**
SINCE 1859

Cast Brass or Bronze

For Unit Locks, see Pages 40 to 43, inclusive

ENFIELD**ENFIELD DESIGN (Symbol En.)**

Cat. No.	Size, in.	Description of parts
910	2 1/2 x 2 1/2	Escutcheons for:
901	10 x 2 1/4	Cylinder locks (cylinder collar), square
902	9 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
902 1/2	8 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
903	7 1/2 x 2 1/4	Cylinder locks, outside, 5 1/2-in. and larger
906 1/2	7 1/2 x 2 1/4	Bit-key locks, No. 0122, etc.
952	7 1/2 x 2 1/4	Mortise locks, 5-in. and larger
941	7 1/2 x 2 1/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
936	7 1/2 x 2 1/4	Mortise locks, 3 1/2-in.
940	6 x 2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	6 x 2	Mortise locks, 3 1/2-in.
990	3 3/4 x 2	Mortise latches
T927	2 3/4 x 1 1/4	Bit-key locks, turn No. 059
925	1 3/4 x 1 1/8	Bit-key locks (key-plate)
972	8 x 3	Sliding door locks (cup, 6 1/8 x 2 1/4)
972 1/2	8 x 3	Sliding door locks with drop handle (cup, 6 1/8 x 2 1/4)



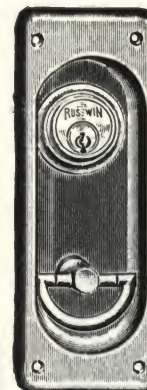
2376x990



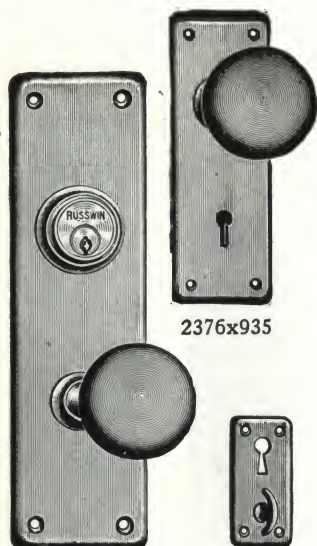
2376x3112 1/4



925



972 1/2

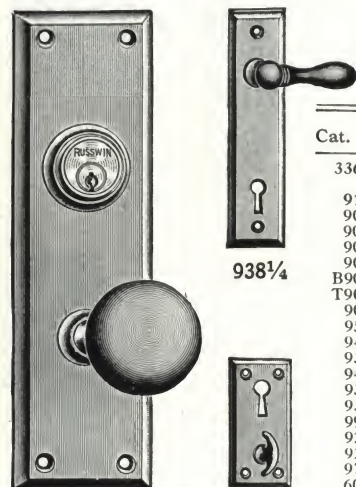


2376 3/4 x 901

T927

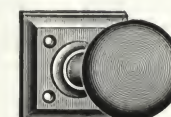
LENOX**LENOX DESIGN (Symbol Lnx.)**

Cat. No.	Size, in.	Description of parts
3362 1/4	2 1/4 x 2 1/4	Door knob rose, square
910	2 1/4 x 2 1/4	Escutcheons for:
901	10 x 2 1/4	Cylinder locks (cylinder collar), square
902	9 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
902 1/2	8 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
902 3/4	7 1/4 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
B903	7 1/2 x 2 1/4	Cylinder locks, inside, 5 1/2-in. and larger
T903	7 1/2 x 2 1/4	Cylinder locks, inside, turn No. 067
906 1/2	7 1/2 x 2 1/4	Bit-key locks, No. 0122, etc.
952	7 1/2 x 2 1/4	Mortise locks, 5-in. and larger
941	7 1/2 x 2 1/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
936	7 1/2 x 2 1/4	Mortise locks, 3 1/2-in.
940	6 x 2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
935	6 x 2	Mortise locks, 3 1/2-in.
938 1/4	5 x 1	Mortise locks with lever No. 728
990	4 x 2 1/4	Latches
926	2 x 1 1/2	Mortise locks (key-plate)
925	1 3/4 x 1 1/8	Mortise locks (key-plate)
970	6 x 2	Sliding door locks
600	3 1/2 x 1 5/8	Push button



2376 3/4 x 901

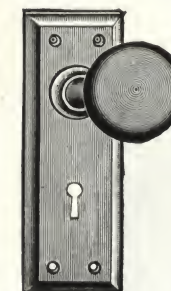
T927



2376x3362 1/4



600



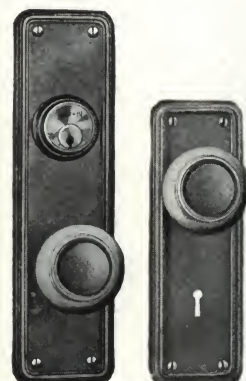
2376x935



925

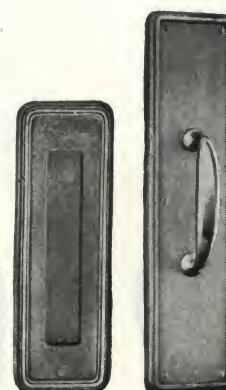
ENGLISH SCHOOL**FIDELITY****FIDELITY DESIGN (Symbol Fid.)**

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
901	8 1/2 x 2 5/8	Escutcheons for:
T903	7 1/2 x 2 1/4	Cylinder locks, outside, 5 1/2 in. and larger
940	7 1/2 x 2 1/4	Cylinder locks, outside, 5 1/2 in. and larger
935	7 1/2 x 2 1/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
616	16 x 4	Mortise locks, 3 1/2-in.
626	16 x 4	Push plate
1420	2 1/2 x 8	Door pull, grip No. 076
1420 1/2	2 1/2 x 8	Letter box plate, outside
1424	8 7/8 x 3	Letter box hood, inside
		Letter box plates with chute, vertical, outside



3951x900

900



1424

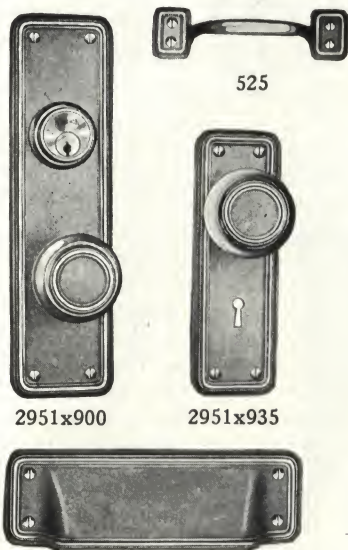
626

For Description of Finishes, see Page 3

RUSWIN**DESIGNS FOR COMMERCIAL BUILDINGS****R&E**
SINCE 1839

Cast Brass or Bronze

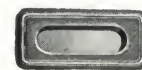
For Unit Locks, see Pages 40 to 43, inclusive



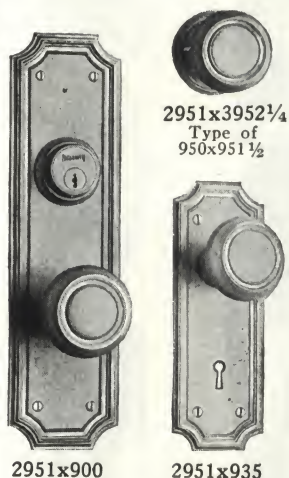
525

ENGLISH SCHOOL**LITCHFIELD****LITCHFIELD DESIGN (Symbol Lit.)**

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
900	10 x 2 3/4	Escutcheons for:
901	8 1/2 x 2 3/4	Cylinder locks, 5 1/2-in. and larger
940	7 x 2 1/4	Cylinder locks, 5 1/2-in. and larger
935	7 x 2 1/4	Mortise locks, 4, 4 1/4 and 4 1/2-in.
454	1 5/8 x 3 1/2	Mortise locks, 3 1/2-in.
525	1 5/8 x 5 3/4	Sash lift, flush
600	3 1/2 x 1 5/8	Sash lift, bar
615	10 x 2 3/4	Push button
616	15 x 3 1/2	Push plate
1420	2 1/2 x 8 1/2	Push plate
1420 1/2	2 1/2 x 8 1/2	Letter box plate, outside
		Letter box hood, inside



1420

LOUIS XVI SCHOOL

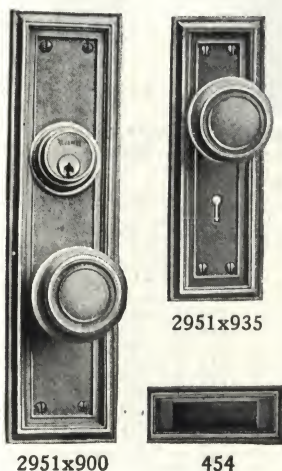
526

MADISON**MADISON DESIGN (Symbol Mad.)**

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3952 1/4	2 1/4	Door knob roses, round
3962 1/4	2 1/4 x 2 1/4	Door knob roses, square
950	1 1/2 x 1 1/2	Mortise bolt knob, rose No. 951 1/2, spindle No. 5
900	11 x 3	Escutcheons for:
901	9 x 2 3/4	Cylinder locks, outside, 5 1/2-in. and larger
940	7 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
935	7 x 2 1/2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
970	7 x 2 1/2	Mortise locks, 3 1/2-in.
925	2 x 1 1/4	Mortise locks, sliding door
454	1 5/8 x 4	Bit-key locks (key-plate)
526	1 5/8 x 5 3/4	Sash lift, flush
600	4 x 1 5/8	Sash lift, bar
625	11 x 3	Push button
1420	2 1/2 x 9	Door pull, with grip No. 076
1420 1/2	2 1/2 x 9	Letter box plate, outside
		Letter box hood, inside

**FRENCH RENAISSANCE SCHOOL****NIANTIC****NIANTIC DESIGN (Symbol Ntic.)**

Cat. No.	Size, in.	Description of parts
2951	2 1/4 x 2 1/4	Door knobs, simplex shank, 5/16-in. spindle No. 20
3951	2 1/4 x 2 1/4	Door knobs, screwless shank, 5/16-in. spindle No. 30
3962 3/4	2 1/4 x 2 1/4	Door knob roses, square
950	1 1/2 x 1 1/2	Mortise bolt knob, rose No. 961 1/2 Copley, spindle No. 5
910	2 1/2 x 2 1/2	Escutcheons for:
900	11 1/2 x 3	Cylinder locks (cylinder collar)
901	8 x 3	Cylinder locks, outside, 5 1/2-in. and larger
B002	7 1/2 x 2 1/2	Cylinder locks, outside, 5 1/2-in. and larger
T002	7 1/2 x 2 1/2	Cylinder locks, inside, blank
940	7 1/2 x 2 1/2	Cylinder locks, inside, turn No. 067
935	7 1/2 x 2 1/2	Mortise locks, 4, 4 1/4 and 4 1/2-in.
970	7 1/2 x 2 1/2	Mortise locks, 3 1/2-in.
925	1 1/2 x 1	Mortise locks, sliding door
454	1 1/2 x 3 3/4	Bit-key locks (key-plate)
525	1 3/4 x 6	Sash lift, flush
600	3 3/4 x 1 1/2	Sash lift, bar
602	2 1/2 x 2 1/2	Push button
625	11 1/2 x 3	Push button
1420	2 3/8 x 7	Door pull, grip No. 780
1420 1/2	2 3/8 x 8 1/2	Letter box plate, outside
		Letter box hood, inside



525

625

For Description of Finishes, see Page 3

RUSWIN

ENTRANCE DOOR HANDLES —SECTIONAL DESIGNS

R&E
SINCE 1838

FOR STORE AND RESIDENCE FRONT AND VESTIBULE DOORS

Store Door Sets

Fig. 1—Illustrates an installation especially adapted for entrance doors where a handle is desired on both sides.

Entrance Handle Lock Set No. 3098 Proc. consists of lock 9098 (type of Nos. 9098½, 9118, 9119, 9132 and 9152½M) with two handles No. 420 Proc. (type of these handles are shown below and on Page 7).

For full description of this lock, packed regular, also the other locks noted above in parentheses, see Page 32.



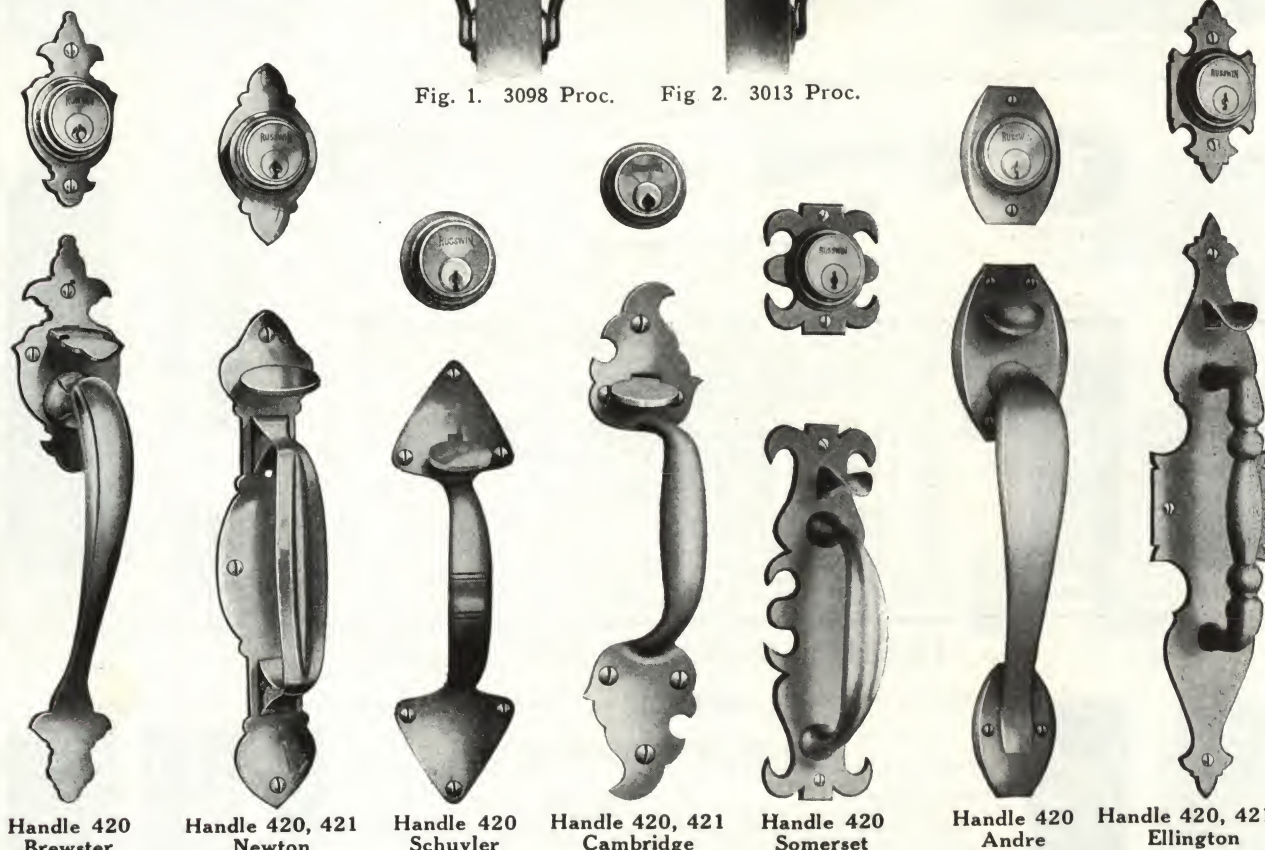
Fig. 1. 3098 Proc.

Fig. 2. 3013 Proc.

Residence Door Sets

Fig. 2—Entrance Handle Lock Set No. 3013 Proc. consists of lock No. 1213 (type of 1223 as shown on Page 45) with one handle No. 420 Proc. (type of others shown herein) for cut-side of door, and knob 2383xRose 3012xturn 066½ for inside.

Any cast or wrought brass or bronze (either ornamental or plain) escutcheon as T940, T901, T902 or T903 and any knob (either metal or glass) or knobs with roses and separate turns may be substituted for inside.

Handle 420
BrewsterHandle 420, 421
NewtonHandle 420
SchuylerHandle 420, 421
CambridgeHandle 420
SomersetHandle 420
AndreHandle 420, 421
Ellington

CAST BRASS OR BRONZE ENTRANCE DOOR HANDLES—SECTIONAL DESIGN

Two handles, complete with cylinder collars, one for each side of door								One handle, cylinder collar, ½ pr. knobs 2383, rose 3012, turn 066½			
Set No.	Design	Size over all, in.	Cylinder collar, in.	Plates, in.	Lock No.	Handle No.	Grip No.	Set No.	Lock No.	Handle No.	Grip No.
3098	Andre	16¼x2½	2¾x2¼	3¾x2½x2¾x1¾	9098	420	0782	3013 Andre	1213	420	0782
3098	Brewster	16½x2½	4½x2½	5 x2½	9098	420	Brew.	3013 Brew.	1213	420	Brew.
3098	Cambridge	13 x2¾			9098	420		3013 Camb.	1213	420	
3198	Cambridge	9 x2			9098	421		3113 Camb.	1213	421	
3098	Ellington	16½x2½	3¾x2	12¼x2½	9098	420	0745	3013 Ell.	1213	420	0745
3198	Ellington	13½x2	3¾x2	8¾x1¾	9098	421	0746	3113 Ell.	1213	421	0746
3098	Newton	15¼x2½	3¾x2½	10¼x2¾	9098	420	071	3013 Ntn.	1213	420	071
3198	Newton	14 x2½	3¾x2½	9¼x1¾	9098	421	072	3113 Ntn.	1213	421	072
3098	Schuyler	9¾x2½			9098	420		3013 Sch.	1213	420	
3098	Somerset	12¼x2½	2¾x2½	7¾x2½	9098	420	027	3013 Som.	1213	420	027

For Description of Finishes, see Page 3

RUSWIN

ENTRANCE DOOR HANDLES

Sectional Designs
FOR FRONT AND VESTIBULE DOORS

R&E
SINCE 1839



Handle 420
Camden



Handle 420
Westbrook



Handle 420
LaLonde



Handle 420
Modre



Handle 422
Saybrook



Handle 420, 421
Prockter



Handle 422, 423
Copley



Handle 420
Modart



Handle 422
Randolph



Handle 423
Lenox



Handle 420
Laredo



Handle 420
Niantic



Handle 420
Pyramid

CAST BRASS OR BRONZE ENTRANCE DOOR HANDLES—SECTIONAL DESIGN

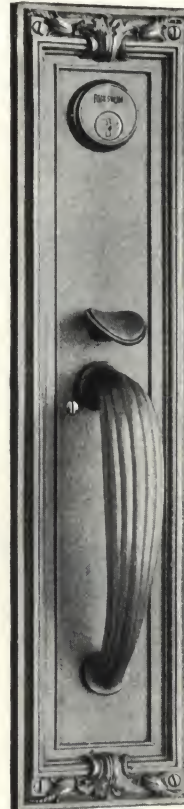
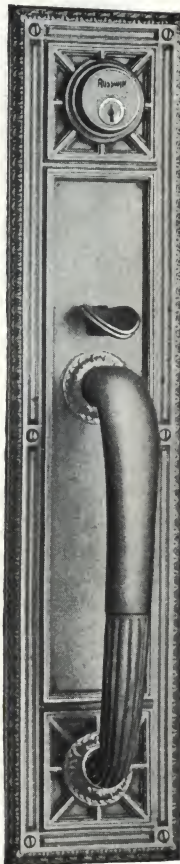
Two handles, complete with cylinder collars, one for each side of door

One handle, cylinder collar, 1/2 dr. knobs, 2383, rose 3012, turn 066 1/2

Set No.	Design	Size overall, in.	Cylinder collar, in.	Plates, in.	Lock No.	Handle No.	Grip No.	Set No.	Lock No.	Handle No.	Grip No.
3098	Camden	13 1/8 x 2 3/4	2 3/4	2 3/8 x 1 3/4	9098	420	773	3013 Cam..	1213	420	773
3298	Copley	12 1/2 x 2 1/4	2 3/8 x 2 3/8	3 7/8 x 2 3/8 x 2 x 2	9098	422	0777 1/4	3213 Cop.	1213	422	0777 1/4
3198	Copley	13 3/4 x 2 1/4	2 3/8 x 2 3/8	3 7/8 x 2 3/8 x 2 x 2	9098	423	0790	3313 Cop.	1213	423	0790
3098	LaLonde	14 1/4 x 2 1/2	2 1/2	2 1/2 x 1 7/8	9098	420	774	3013 LaL.	1213	420	774
3098	Laredo	12 7/8 x 2 1/2	2 1/2 x 2 3/8	2 3/4 x 2 1/2 x 2 x 1 5/8	9098	420	0793	3013 Lar.	1213	420	0793
3398	Lenox	13 3/4 x 2 1/4	2 1/4 x 2 1/4	2 3/4 x 2 1/4 x 2 x 2	9098	423	0790	3313 Lnx.	1213	423	0790
3098	Modre	16 x 2 1/4	3 x 2 1/4	4 x 2 1/2 x 3 x 2	9098	420	0785	3003 Modre	1213	420	0785
3098	Modart	16 x 2 1/4	2 3/4 x 2 1/4	3 7/8 x 2 1/4 x 2 7/8 x 1 3/4	9098	420	0795	3013 Modart	1212	420	0795
3098	Niantic	14 1/4 x 2 1/2	2 1/2 x 2 1/2	3 7/8 x 2 1/2 x 1 7/8 x 1 7/8	9098	420	774	3013 Ntic.	1213	420	774
3098	Prockter	14 x 2 1/4	2 1/4	2 3/8 x 1 3/4	9098	420	0778	3013 Proc.	1213	420	0778
3198	Prockter	12 1/2 x 2 1/4	2 1/4	2 3/8 x 1 3/4	9098	421	0777	3113 Proc.	1213	421	0777
3098	Pyramid	16 1/8 x 2 1/4	3 1/4 x 2 1/4	4 x 2 1/4 x 2 7/8 x 1 3/4	9098	420	0795	3013 Pyr.	1213	420	0795
3298	Randolph	14 1/4 x 3	3 x 3	3 1/8 x 2 1/2 x 2 1/4 x 2 1/4	9098	422	0790	3213 Ran.	1213	422	0790
3298	Saybrook	14 1/8 x 3	2 3/4	3 x 1 7/8	9098	422	0790	3213 Say.	1213	422	0790
3098	Westbrook	14 x 3	2 3/4	3 x 2	9098	420	774	3013 Wstb.	1213	420	774

For Description of Finishes, see Page 3

RUSSWIN

ENTRANCE DOOR HANDLES
WITH ESCUTCHEONSR&E
SINCE 1839Handle 410
OlympusHandle 410
CamdenHandle 410
PyramidHandle 410
CopleyHandle 410
ArdsleyHandle 410
CeresHandle 410
MalosHandle 410
NianticHandle 410
HadrianHandle 410
MadisonHandle 410
Thetis

ENTRANCE DOOR HANDLES

CAST BRASS OR BRONZE

No.	Design	Grip	Size, in.	Set No.
410	Ardsley	773	15 x 3 1/2	1098 Ards.
410	Camden	773	17 3/4 x 3	1098 Cam.
410	Ceres	774	17 x 4	1098 Cer.
410	Copley	773	16 x 3 1/4	1098 Cop.
410	Hadrian	0796	18 x 4	1098 Had.
410	Madison	773	18 x 4	1098 Mad.
410	Malos	773	18 3/4 x 3	1098 Mal.
410	Niantic	773	16 1/4 x 3 1/2	1098 Ntic.
410	Olympus	773	16 x 3	1098 Olmp.
410	Pyramid	0795 1/2	15 x 3 1/2	1098 Pyr.
410	Thetis	780	15 x 3 1/2	1098 The.

Lock No. 9098 furnished regularly with the above sets.

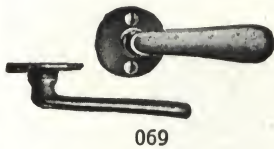
Nos. 9098 1/2, 9118, 9119, 9132 and 9152 1/2 M may be substituted.

For Description of Finishes, see Page 3

RUSSWIN

LEVER HANDLES
Cast Brass or Bronze

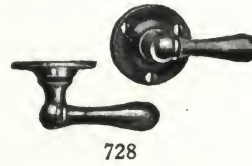
R&E
SINCE 1839



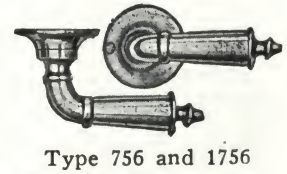
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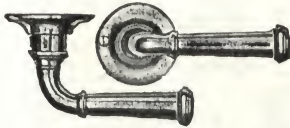
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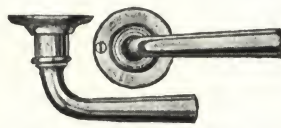
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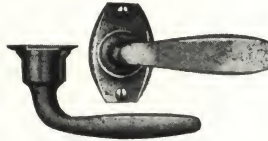
Type 756 and 1756



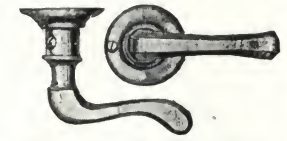
Type 081, 082 and 083



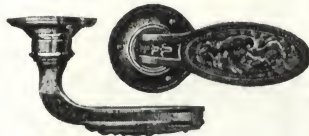
Type 060, 061, 062 and 063



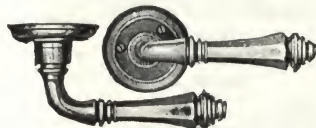
3753 Andre



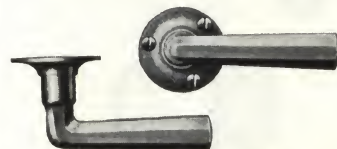
Type 075, 076 and 076 1/2



3753 Sapho



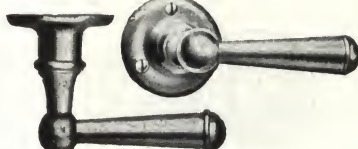
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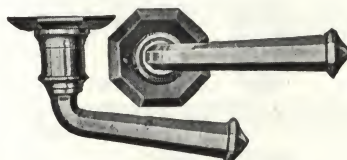
Type 093, 2093 and 3093



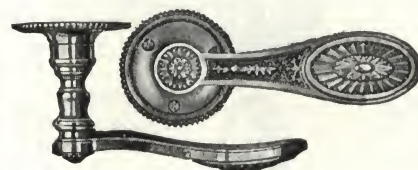
2771



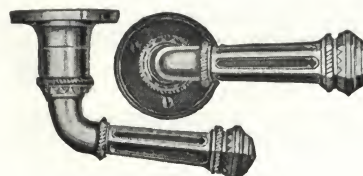
Type 085 and 086



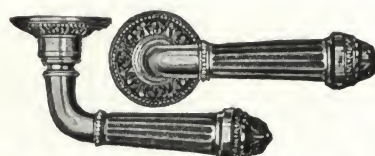
Type 3750 and 3751



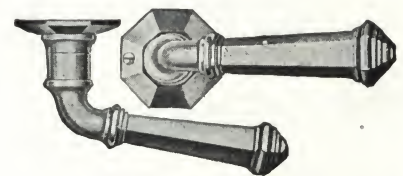
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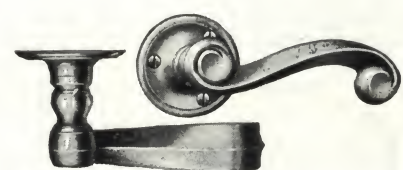
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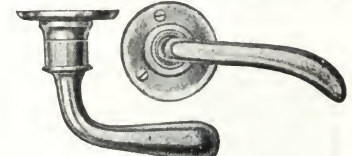
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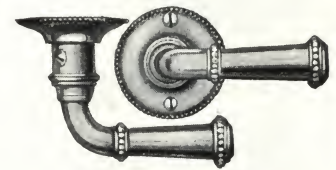
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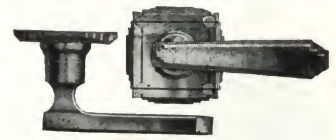
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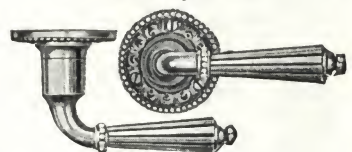
3088



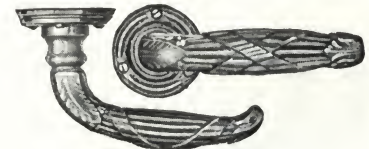
Type 079, 080



3753 Pyramid



3749



3779

Arranged According to Projections

Proj., in.	†L'ngth. in.	Rose No.	Shank		Spin. No.	Cat. No.
			Type	Diam., in.		
1 1/4	2 1/2	069	Plain	Spec.	10	†† 069
1 1/4	1 3/4	041 3/8	Plain	Spec.	10	†† 717
1 1/4	1 3/4	011 3/8	Plain	9/16	10	†† 728
2	3	093	Plain	3/4	10	093
2	3	2093	Simplex	Spec.	20	2093
2	3	3093	Screwless	30	3093	
2 1/4	3 3/4	3982 1/2	Screwless	30	3753 Andre	
2 1/4	3 3/4	3 62 1/4	Screwless	30	3753 Pyramid	
2 1/4	3 1/2	F755	Plain	Spec.	20	1755
2 1/4	4	3122 1/4	Simplex	Spec.	20	12773
2 3/4	2 1/4	111 3/4	Plain	3/4	10	* 060
2 3/4	2 1/2	111 3/4	Plain	3/4	10	* 061
2 3/4	3	111 3/4	Plain	3/4	10	* 062
2 3/4	3	111 3/4	Plain	3/4	10	756
2 3/4	3	3111 3/4	Plain	3/4	20	1756
2 1/2	2 1/4	111 3/4	Plain	3/4	10	075
2 1/2	2 1/2	151 3/4	Plain	3/4	10	* 079
2 1/2	2 1/2	111 3/4	Plain	3/4	10	* 081
2 1/2	3	111 3/4	Plain	3/4	10	* 082
2 1/2	3 1/2	3912	Screwless	30	3749	
2 1/2	3 1/2	141 3/4	Simplex	20	x2771	
2 1/2	3 1/2	3952	Screwless	30	3753 Sapho	
2 3/4	2 3/4	111 3/4	Plain	3/4	10	* 076
2 3/4	2 3/4	111 3/4	Plain	3/4	10	085
2 3/4	3 3/4	112 1/4	Plain	3/4	10	* 083
2 3/4	3	3141 3/4	Screwless	30	3750	
2 3/4	4	F3952	Screwless	30	3779	
2 3/4	4 1/4	3912	Screwless	30	3758	
2 1/2	3 3/4	112 1/4	Plain	3/4	10	086
2 1/2	3 3/4	152 3/8	Plain	3/4	10	* 080
2 1/2	3 3/4	112 1/4	Plain	3/4	10	* 063
3	4	112 1/4	Plain	3/4	10	* 076 1/2
3	4	3142 1/2	Screwless	30	3751	
3 1/4	4	3952 1/4	Screwless	30	3754	
3 1/4	4 3/4	3142 1/4	Screwless	30	3766	
3 1/4	4 1/2	3152 3/8	Screwless	30	3757	
3 3/8	3 1/2	3112 1/4	Screwless	30	13088	

†Measured from end of handle to center of spindle.

‡Specify hand.

††These levers can not be spindled in pairs.

*Furnished with simplex shanks; prefix 2 to Catalogue No.

xCenter of handle furnished in Finish 46 only.

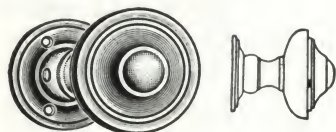
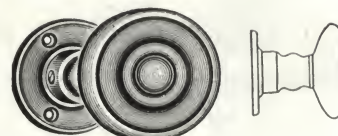
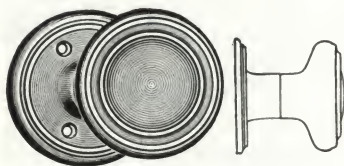
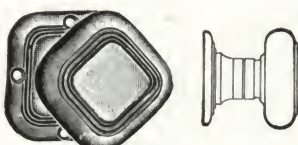
Note: Thickness of door should be given on all lever handles.

For Description of Finishes, see Page 3

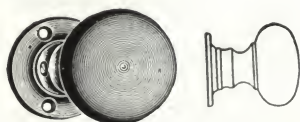
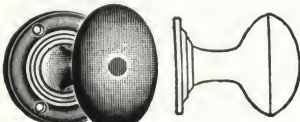
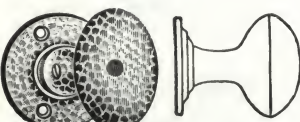
RUSWIN**COLONIAL DOOR KNOBS****R&E**
SINCE 1838

Cast Brass or Bronze

For Types of Door Mountings or Shanks, see Page 31

Winthrop
Knobs 2331, 2332
Roses 2331, 2332Chatham
Knobs 2330
Roses F372Plymouth
Knobs 2334
Roses F372Clinton
Escutcheon
930Arden
Escutcheon
925Escutcheon
030Franklin
**2951x3952 $\frac{3}{8}$
**3951, 3952 $\frac{3}{8}$ 

Knob 2352

Norfolk
Knobs 2333
Roses 2333Escutcheon
68Escutcheon
725Escutcheon
66Avon
Knobs †21186
Roses 11 $\frac{3}{4}$ Clinton
Escutcheon
925Hancock
Knobs *338
Roses 338Escutcheon
032

Knobs *339

Arden
Escutcheon
926**COLONIAL DOOR KNOBS**

Priced with Roses

Cat. No.	Roses, No.	Name	Dia. in.	Description	
				‡Shank	Spindle
*337	337	Web.	1 $\frac{3}{4}$	Plain	$\frac{5}{16}$ -in. No. 11
*338	338	Han.	1 $\frac{3}{4}$ x1 $\frac{1}{4}$	Plain	$\frac{5}{16}$ -in. No. 11
*339	339	.....	1 $\frac{3}{4}$ x1 $\frac{1}{4}$	Plain	$\frac{5}{16}$ -in. No. 11
2330	F372	Cha.	2	Simplex	$\frac{5}{16}$ -in. No. 20
2331	2331	Win.	1 $\frac{7}{8}$	Simplex	$\frac{5}{16}$ -in. No. 20
2332	2332	Win.	2 $\frac{1}{8}$	Simplex	$\frac{5}{16}$ -in. No. 20
2333	2333	Nor.	2 $\frac{1}{8}$	Simplex	$\frac{5}{16}$ -in. No. 20
2334	F372	Ply.	2	Simplex	$\frac{5}{16}$ -in. No. 20
†21155	F372	Dn.	2	Simplex	$\frac{5}{16}$ -in. No. 20
‡2352	2352	.....	2	Simplex	$\frac{5}{16}$ -in. No. 20
2981A	F952	Bed.	2 $\frac{1}{2}$ x1 $\frac{1}{2}$	Simplex	$\frac{5}{16}$ -in. No. 20
†21186	3011 $\frac{3}{4}$	Avon	1 $\frac{3}{4}$	Simplex	$\frac{5}{16}$ -in. No. 20
**2951	3952 $\frac{3}{8}$	Fra.	2 $\frac{1}{4}$	Simplex	$\frac{5}{16}$ -in. No. 20
**3951	3952 $\frac{3}{8}$	Fra.	2 $\frac{1}{4}$	Screwless	$\frac{5}{16}$ -in. No. 30

*With steel buttons in top of knob and swivel spindle for adjustment.

**Has high shank $\frac{3}{4}$ -inch.

†Wrought top and rose.

††Wrought top.

‡Furnished with two side knob screws so that knob will stand diamond on rose which is to stand square.

‡‡Plain for plain spindle; simplex for threaded (simplex) spindle; screwless for threaded spindle but without screw.

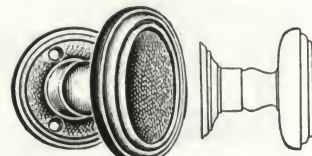
ESCUTCHEONS

(Key Plates)

Cat. No.	Design	Size, in.	Description
030	.....	2 x $\frac{7}{8}$	Cast Brass or Bronze with drop
032	.....	2 $\frac{1}{8}$ x1 $\frac{1}{8}$	Cast Brass or Bronze with drop
725	.....	1 $\frac{5}{8}$	Cast Brass or Bronze
66	.....	1 $\frac{5}{8}$ x1 $\frac{1}{8}$	Cast Brass or Bronze
66 $\frac{1}{2}$	.....	1 $\frac{5}{8}$ x1 $\frac{1}{8}$	Wrought Brass or Bronze
68	.....	1 $\frac{7}{8}$ x $\frac{7}{8}$	Cast Brass or Bronze
*925	Arden	2 x 1	Cast Brass or Bronze, matted surface
*926	Arden	2 x 1	Cast Brass or Bronze, matted surface
*925	Bedford	1 $\frac{3}{4}$ x $\frac{7}{8}$	Cast Brass or Bronze, matted surface
925	Clinton	1 $\frac{7}{8}$ x $\frac{7}{8}$	Cast Brass or Bronze
930	Clinton	1 $\frac{7}{8}$ x $\frac{7}{8}$	Cast Brass or Bronze with drop
931	Faneuil	1 $\frac{7}{8}$ x $\frac{7}{8}$	Cast Brass or Bronze with drop
925	Warren	2 x 1	Cast Brass or Bronze

*Arden and Bedford are of the Colonial School and complete sets are shown on Page 10.

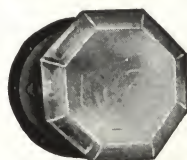
For Description of Finishes, see Page 3

Webster
Knobs *337
Roses 337Faneuil
Escutcheon
931Bedford
Knobs 2981A
Roses F952Bedford
Escutcheon
925Darren
Knobs †21155
Roses F372Warren
Escutcheon 925

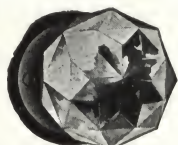
RUSWIN

GLASS DOOR KNOBS

R&E
SINCE 1839



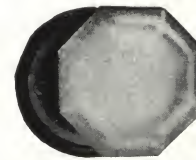
C2136½, 2136½
Knob
3022¼ Rose



C2174 Knob
3022¼ Rose



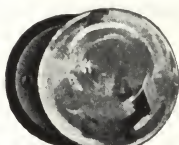
C2141 Knob
3122¼ Rose



C2142½ Knob
3022¼ Rose



C2115½ Knob
3022¼ Rose



C2175½ Knob
3022¼ Rose

GLASS DOOR KNOBS, BRASS SHANKS

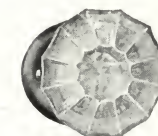
Knob No.	Rose No.	Diameter, in.	Description
Pressed Glass, Priced with Wrought Brass Roses			
C2136½	3622¼	2¼	Simplex shank ½-in. spindle No. 20
*C2115½	3022¼	2¼	Simplex shank ½-in. spindle No. 20
*C2142½	3022¼	2¼	Simplex shank ½-in. spindle No. 20
2112½	3022¼	2¼	Simplex shank ½-in. spindle No. 20
C2175½	3022¼	2¼	Simplex shank ½-in. spindle No. 20
C2152½	3012	2½	Simplex shank ½-in. spindle No. 20

Cut Glass, Priced with Wrought Brass Roses			
C2174	3122¼	2¼	Simplex shank ½-in. spindle No. 20
C2141	3122¼	2¼	Simplex shank ½-in. spindle No. 20

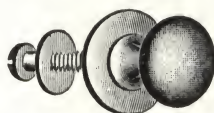
*Milk white glass.



2112½ Knob
3022¼ Rose



C2152½ Knob
3012 Rose



082, 083



573 Pyramid



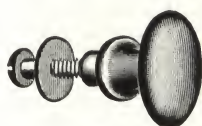
573 Antoinette



541



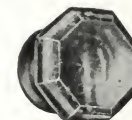
080, 081



085

With Machine Screws for Fastening from Back	
Catalogue No.	Knob, in.
Pressed Glass, Brass Shank	
036¼	1¼ octagon
036¾	1¼ octagon
*042¼	1¼ octagon
*042¾	1¼ octagon
Cast Brass or Bronze	
080	¾ round
081	¾ round
082	1 round
083	1¼ round
085	1¼x¾ oval
541	1¼ round
573 Pyramid	1½x1 hexagon
573 Antoinette	1½x1 oval

*Milk white.

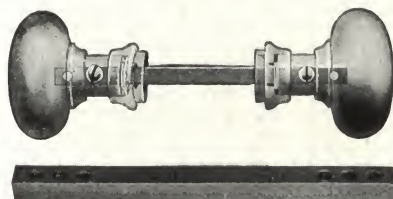


036¾
Type of 036¼

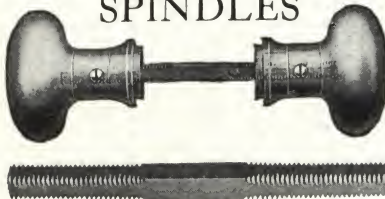


042¾
Type of 042¼

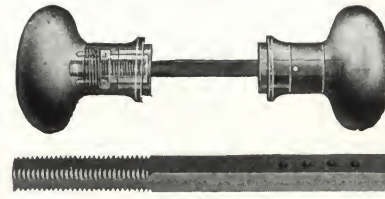
TYPES OF SHANKS FOR ATTACHMENT OF KNOBS TO SPINDLES



Plain Shank



Simplex Shank 2000 Series



Screwless Shank 3000 Series
(Patented)

Plain Shank Knobs—Fastened to a plain spindle by side knob screws in the side of the shank, by which with the aid of knob washers the proper adjustment is obtained.

The shank fits into the cup or thimble of the rose or escutcheon, which permits a little loose play.

Simplex Shank Knobs—Designed to overcome the looseness described above, which is common of all plain shank knobs, and to give a closer adjustment without the use of washers. These knobs are fastened to a threaded spindle by the means of side knob screws at each end. When the knobs are screwed up to the proper position, the screws are set in the groove of the spindle. This type of mounting permits a close fit with entire freedom of action, the shank resting

on a turned thimble rather than fitting loosely in it as on the plain shank type.

Screwless Shank Knobs—Have all the advantages of the simplex type, with the following additional features which make them the ideal knobs to use.

The outside knob is fastened to the spindle by the means of a pin which is held in place and concealed by the thimble when in use; the inside knob has an adjustable shank which is set up on the spindle by the means of wrench, thus affording the most accurate and closest possible adjustment.

These knobs also rest on a turned thimble, and are so made that there is no lost play or possibility of the knobs working loose or coming apart from the spindle.

For Description of Finishes, see Page 3

RUSSWIN

LOCK SECTION



GENERAL INDEX FOR CYLINDER MORTISE LOCKS

For Cylinder Mortise Locks Grouped According to Backset, see Page 35

FOR USE ON HINGED DOORS

These locks have japanned iron cases, cast bronze fronts and bolts, cast and wrought bronze strikes, brass hubs, and include cylinders with Number 852 key-way, which permits the same to be either master keyed in sets or keyed alike with locks in this chart, as well as any other RUSSWIN Cylinder Lock with the same kind of cylinder. Numbers with either "M" or "EM" suffixed indicate master or emergency master keyed feature.

Locks with beveled fronts have the standard bevel of $\frac{1}{8}$ in. on 2 in. and are not reversible. Locks with flat fronts are reversible, except where indicated by an "*" and when thus indicated the hand must be speci-

fied. This is also necessary in ordering rabbeted and beveled front locks. For hands of doors see page 38.

Flat front locks can be furnished with beveled fronts $\frac{1}{8}$ in. on 2 in. Any other bevel is special on all locks.

Special backsets as indicated below can be furnished. Most locks are 1 in. wider than the backset. There are exceptions, however, and this should be carefully checked with the text covering each particular lock.

Locks requiring turn knobs are packed with No. 066 $\frac{1}{2}$ when sold separately.

Lock No.	Illustrated on Page	Name or type of lock and purpose for which best suited	Front		Size case, in.			Backsets		Spacings	Strikes		Cylinders	Latch hub		Latch type
			Size, in.	Type	Hgt., in.	Width, in.	Thick., in.	Reg.	Special		Kind	Lip to center, in.		Size, in.	Kind	
200	71	Hinged garage door lock		Flat	4 $\frac{1}{2}$	4 $\frac{5}{8}$		3			Cast		1			
300	71	Sliding garage door lock			5 $\frac{5}{8}$	4		3			Cast		1			
0371M	55	Cupboard or cabinet lock			2 $\frac{1}{4}$	1 $\frac{3}{4}$			See Page 55				1			
0685M	55	Drawer lock			2 $\frac{1}{4}$	1 $\frac{3}{4}$							1			
1203	56	Mortise dead lock	4 $\frac{1}{2}$ x1 $\frac{1}{2}$	Flat	2 $\frac{1}{4}$	3 $\frac{3}{4}$	$\frac{5}{8}$	2 $\frac{3}{4}$	1 $\frac{1}{2}$ -2		Wrt.	No lip	1			
1203 $\frac{1}{2}$	56	Mortise dead lock	4 $\frac{1}{2}$ x1 $\frac{1}{2}$	Flat	2 $\frac{1}{4}$	3 $\frac{3}{4}$	$\frac{5}{8}$	2 $\frac{3}{4}$	1 $\frac{1}{2}$ -2		Wrt.	No lip	2			
1205	56	Mortise dead lock	5 $\frac{1}{2}$ x1 $\frac{1}{2}$	Flat	3 $\frac{1}{4}$	3 $\frac{3}{4}$	$\frac{5}{8}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 2, 2 $\frac{3}{4}$, 3		Wrt.	No lip	1			
1205 $\frac{1}{2}$	56	Mortise dead lock	5 $\frac{1}{2}$ x1 $\frac{1}{2}$	Flat	3 $\frac{1}{4}$	3 $\frac{3}{4}$	$\frac{5}{8}$	2 $\frac{3}{4}$			Wrt.	No lip	2			
1207	56	Mortise dead lock	6 $\frac{3}{8}$ x1 $\frac{1}{2}$	Flat	4 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{7}{8}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$ -2-2 $\frac{1}{4}$ -3-3 $\frac{1}{4}$		Cast	No lip	1			
1207 $\frac{1}{2}$	56	Mortise dead lock	6 $\frac{3}{8}$ x1 $\frac{1}{2}$	Flat	4 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{7}{8}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$ -2-2 $\frac{1}{4}$ -3-3 $\frac{1}{4}$		Cast	No lip	2			
1213	53	Lock for entrance door	7 $\frac{3}{8}$ x1 $\frac{1}{2}$	Flat	5	4	$\frac{3}{4}$	2 $\frac{3}{4}$	2	3 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Solid	C.S.L.
1223	45	Lock for entrance door	7 $\frac{3}{8}$ x1 $\frac{1}{2}$	Flat	5	4	$\frac{3}{4}$	2 $\frac{3}{4}$	2	3 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Solid	C.S.L.
1225	44	Lock for entrance door	8 x1 $\frac{1}{4}$	Flat	5 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	2-2 $\frac{1}{2}$	3 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Solid	E.C.
1225 $\frac{1}{2}$	44	Lock for entrance door	8 x1 $\frac{1}{4}$	Flat	5 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	2-2 $\frac{1}{2}$	3 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	2	$\frac{5}{16}$	Solid	E.C.
1228	44	Heavy entrance door lock	8 $\frac{1}{4}$ x1 $\frac{1}{2}$	Bevel	6	4	1	3		3 $\frac{5}{8}$	Cast	1 $\frac{1}{2}$	1	$\frac{5}{16}$	Solid	D.C.
1228 $\frac{1}{2}$	44	Heavy entrance door lock	8 $\frac{1}{4}$ x1 $\frac{1}{2}$	Bevel	6	4	1	3		3 $\frac{5}{8}$	Cast	1 $\frac{1}{2}$	2	$\frac{5}{16}$	Solid	D.C.
1232EM	49	Hotel corridor lock	7 $\frac{3}{8}$ x1 $\frac{1}{2}$	Bevel	5 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{7}{8}$	2 $\frac{3}{4}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Solid	D.C.
1233REM	49	Hotel corridor lock	8 x1 $\frac{1}{4}$	Bevel	5 $\frac{3}{4}$	3 $\frac{3}{8}$	$\frac{7}{8}$	2 $\frac{3}{4}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	D.C.
1233AEM	49	Hotel corridor lock	8 x1 $\frac{1}{4}$	Flat	5 $\frac{3}{4}$	3 $\frac{3}{8}$	$\frac{7}{8}$	2 $\frac{3}{4}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	D.C.
1234 $\frac{1}{2}$ EM	49	Hotel corridor lock	8 x1 $\frac{1}{4}$	Bevel	5 $\frac{3}{4}$	3 $\frac{3}{4}$	$\frac{7}{8}$	2 $\frac{3}{4}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	2	$\frac{5}{16}$	Solid	D.C.
*F1238	55	Lock for French door	8 x1 $\frac{1}{4}$	Flat	5 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	2-2 $\frac{1}{2}$ -3	3 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	F.
1238	53	Front, vest. or office corr. dr.	8 x1 $\frac{1}{4}$	Flat	5 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{4}$ -3	3 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	E.C.
1239 $\frac{1}{2}$	45	Front, vest. or office corr. dr.	8 x1 $\frac{1}{4}$	Bevel	5 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	2-2 $\frac{1}{2}$	3 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	E.C.
1239 $\frac{1}{2}$	45	Front, vest. or office corr. dr.	8 x1 $\frac{1}{4}$	Bevel	5 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$		3 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	E.C.
1241 $\frac{1}{2}$ EM	49	Hotel corridor lock	8 $\frac{1}{2}$ x1 $\frac{1}{4}$	Bevel	6 $\frac{1}{4}$	3 $\frac{1}{2}$	$\frac{7}{8}$	2 $\frac{3}{4}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	D.C.
1250SM	49	Hotel Corridor Lock	8 x1 $\frac{1}{4}$	Bevel	5 $\frac{3}{4}$	3 $\frac{3}{8}$	$\frac{7}{8}$	2 $\frac{3}{4}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	D.C.
1246 $\frac{1}{2}$ EM	49	Hotel corridor lock	7 $\frac{3}{8}$ x1 $\frac{1}{4}$	Bevel	5	3 $\frac{1}{2}$	$\frac{3}{4}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	3 $\frac{1}{4}$	Wrt.	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Rigid	D.C.
*F1247	54	Lock for French door	8 x1 $\frac{1}{4}$	Flat	5 $\frac{3}{4}$	2	$\frac{3}{4}$	1	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	F.
*F1247 $\frac{1}{2}$	54	Lock for French door	8 x1 $\frac{1}{4}$	Flat	5 $\frac{3}{4}$		$\frac{3}{4}$	1	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	F.
1248	53	Front, vest. or office	7 $\frac{3}{8}$ x1 $\frac{1}{2}$	Flat	5 $\frac{1}{2}$	3 $\frac{3}{8}$	$\frac{11}{16}$	2 $\frac{3}{8}$		3 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	C.L.
1248 $\frac{1}{2}$	45	Vestibule or office dr.	7 $\frac{3}{8}$ x1 $\frac{1}{2}$	Flat	5 $\frac{1}{2}$	3 $\frac{3}{8}$	$\frac{11}{16}$	2 $\frac{3}{8}$		3 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	C.L.
F1277	54	Lock for French door	8x1 $\frac{1}{4}$ x $\frac{1}{2}$	Rabtd.	5 $\frac{3}{4}$		$\frac{3}{4}$	1	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	F.
F1277 $\frac{1}{2}$	54	Lock for French door	8x1 $\frac{1}{4}$ x $\frac{1}{2}$	Rabtd.	5 $\frac{3}{4}$		$\frac{3}{4}$	1	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	F.
1294	56	Mortise night latch	5 $\frac{1}{2}$ x1 $\frac{1}{2}$	Flat	3 $\frac{1}{4}$	3 $\frac{1}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{4}$ -3		Wrt.	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Solid	E.C.
1294 $\frac{1}{2}$	56	Mortise night latch	5 $\frac{1}{2}$ x1 $\frac{1}{2}$	Flat	3 $\frac{1}{4}$	3 $\frac{1}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{4}$ -3		Wrt.	1 $\frac{1}{4}$	2	$\frac{5}{16}$	Solid	E.C.
1446 $\frac{1}{2}$ EM	48	Hotel corridor door	8 x1 $\frac{1}{4}$	Bevel	5 $\frac{1}{2}$	3 $\frac{3}{8}$	$\frac{7}{8}$	2 $\frac{1}{2}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	2	$\frac{5}{16}$	Swivel	D.C.
1447EM	48	Hotel corridor door	8 x1 $\frac{1}{4}$	Bevel	5 $\frac{1}{2}$	3 $\frac{3}{8}$	$\frac{7}{8}$	2 $\frac{1}{2}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	D.C.
1448EM	48	Hotel corridor door	8 x1 $\frac{1}{4}$	Bevel	5 $\frac{1}{2}$	3 $\frac{3}{8}$	$\frac{7}{8}$	2 $\frac{1}{2}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	2	$\frac{5}{16}$	Swivel	D.C.
1449EM	48	Hotel corridor door	8 x1 $\frac{1}{4}$	Bevel	5 $\frac{1}{2}$	3 $\frac{3}{8}$	$\frac{7}{8}$	2 $\frac{1}{2}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	D.C.
1457	45	Front, vest. office corr. dr.	8 $\frac{3}{8}$ x1 $\frac{1}{4}$	Bevel	6	4 $\frac{1}{4}$	$\frac{15}{16}$	2 $\frac{3}{4}$	3 $\frac{1}{4}$	3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	C.L.
1457 $\frac{1}{2}$ EM	52	Lock for ent. dr., apt., schools	8 $\frac{3}{8}$ x1 $\frac{1}{4}$	Bevel	6	4 $\frac{1}{4}$	$\frac{15}{16}$	2 $\frac{3}{4}$	3 $\frac{1}{4}$	3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	2	$\frac{5}{16}$	Swivel	C.L.
9098	46	Lock for store door ent. hdl.	7 x1 $\frac{1}{2}$	Flat	5	3 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{2}$	4 $\frac{1}{4}$	Wrt.	1 $\frac{1}{2}$	2			S.C.
9098 $\frac{1}{2}$	46	Lock for store door ent. hdl.	7x1 $\frac{1}{2}$ x $\frac{1}{2}$	Rabtd.	5	3 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{2}$	4 $\frac{1}{4}$	Wrt.	1 $\frac{1}{2}$	2			S.C.
9118	46	Lock for store door ent. hdl.	7 $\frac{1}{2}$ x1 $\frac{1}{4}$	Flat	5	3 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{2}$	4 $\frac{1}{4}$	Wrt.	1 $\frac{1}{2}$	2			S.C.
9119	46	Lock for store door ent. hdl.	7 $\frac{1}{2}$ x1 $\frac{1}{4}$	Flat	5	3 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{2}$	4 $\frac{1}{4}$	Wrt.	1 $\frac{1}{2}$	1			S.C.
9132	46	Lock for store door ent. hdl.	7 $\frac{1}{2}$ x1 $\frac{1}{2}$	Bevel	5	3 $\frac{3}{4}$	1	2 $\frac{3}{4}$		4 $\frac{1}{4}$	Cast	1 $\frac{1}{2}$	2			S.C.
9152 $\frac{1}{2}$ EM	52	Lock for store door ent. hdl.	7 $\frac{1}{2}$ x1 $\frac{1}{2}$	Bevel	5	3 $\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$		4 $\frac{1}{4}$	Cast	1 $\frac{1}{2}$	2			C.L.
9452	77	Fire exit door lock	8 x1 $\frac{1}{4}$	Bevel	5 $\frac{1}{4}$	3 $\frac{3}{4}$	$\frac{7}{8}$	2 $\frac{3}{4}$		3 $\frac{1}{2}$ -4 $\frac{1}{2}$	Cast	1 $\frac{1}{4}$	1	$\frac{3}{8}$	Solid	D.C.
9458	77	Fire exit door lock	8 x1 $\frac{1}{4}$	Bevel	5 $\frac{1}{4}$	3 $\frac{3}{4}$	$\frac{7}{8}$	2 $\frac{3}{4}$		3 $\frac{1}{2}$ -4 $\frac{1}{2}$	Cast	1 $\frac{1}{4}$	1	$\frac{3}{8}$	Solid	D.C.
11258 $\frac{1}{2}$ EM	52	Lock for ent. dr., apt., schools	7 $\frac{3}{4}$ x1 $\frac{1}{2}$	Bevel	5 $\frac{1}{2}$	3 $\frac{3}{8}$	$\frac{3}{4}$	2 $\frac{1}{2}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	2	$\frac{5}{16}$	Swivel	F.C.
11456	45	Front, vest. office corr. dr.	7 $\frac{3}{4}$ x1 $\frac{1}{2}$	Bevel	5 $\frac{1}{2}$	3 $\frac{3}{8}$	$\frac{3}{4}$	2 $\frac{1}{2}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	1	$\frac{5}{16}$	Swivel	E.C.
11458 $\frac{1}{2}$ EM	52	Lock for ent. dr., apt., schools	7 $\frac{3}{4}$ x1 $\frac{1}{2}$	Bevel	5 $\frac{1}{2}$	3 $\frac{3}{8}$	$\frac{3}{4}$	2 $\frac{1}{2}$		3 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	2	$\frac{5}{16}$	Swivel	E.C.

Note: For Unit Locks see Pages 40 to 43.

For Description of Finishes, see Page 3

RUSSWIN

STANDARDIZED TEMPLATE CYLINDER LOCKS FOR HOLLOW METAL DOORS



We are now prepared to furnish Cylinder Locks in accordance with Commercial Standard No. 9 issued by the U. S. Department of Commerce. Certain maximum face dimensions have been set up on Cylinder Locks that will come under this standardized program.

Locks within this classification have a standard front 8x1¼ in., a maximum thickness of front of ¾ in., and take machine screws ½ in.—No 12/24. The strike has a standard dimension of 5¾x1¼ in. and the lip of the strike has a standard height of 3½ in. The strike is flat without any box; the box being provided by the door manufacturers who have adopted this program. The spacing between the cylinder hole and knob hole will vary in the different types of Cylinder Locks and no standard has been adopted for this difference in dimension.

These are not the only Cylinder Locks that we will furnish for template work, as special occasions will arise when it will be necessary to furnish other locks to template. The adoption of these standards is for the purpose of assisting the Metal Door Manufacturers in carrying a greater quantity of stock doors and, also, in eliminating the necessary detail that goes with the application of hardware.

When this type of standardized hardware is required, the following clause should be included in the hardware specifications:

"All mortised hardware for use with hollow metal doors and trim shall be made complete in accordance with the Commercial Standard No. 9 issued by the U. S. Department of Commerce, except where hardware thus constructed is not yet commercially available. Where minor changes in design of specifications will permit the use of such hardware, the manufacturer shall take the matter up with the architect before proceeding with the work."

The Hollow Metal Door Association have provided each member with certified template drawings of these locks. We will keep the association informed of any changes that we make, that they in turn may notify their members and issue new drawings if necessary. Under these conditions it will

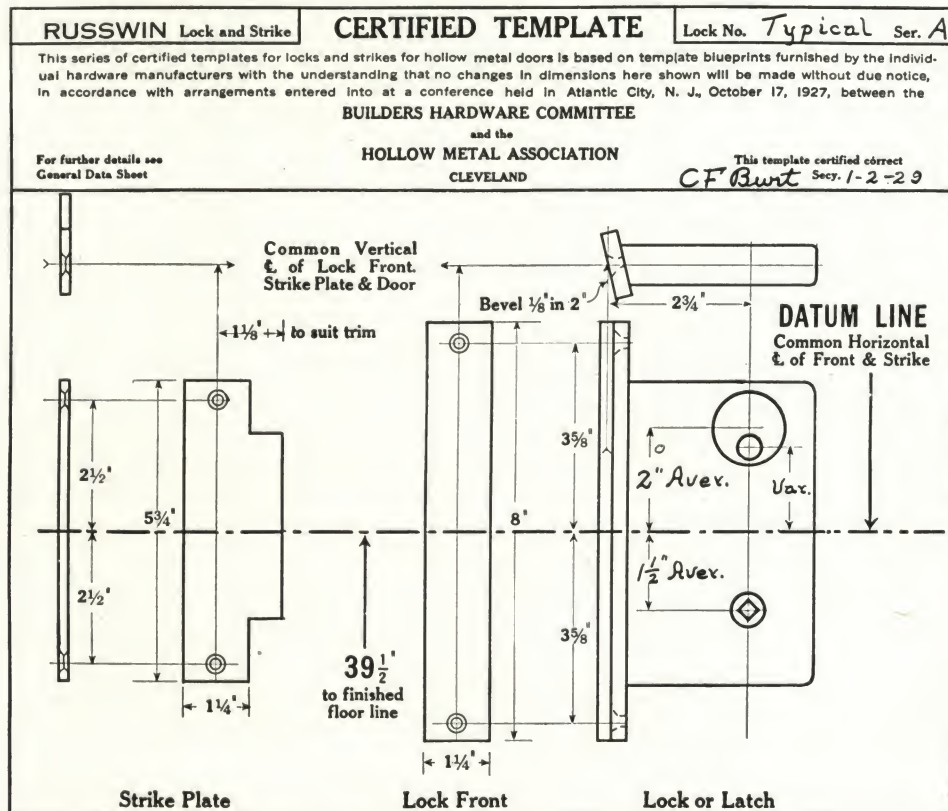
be unnecessary to provide these manufacturers of hollow metal doors with template drawings for each and every job. This will save unlimited time in the transmitting of information.

We have out at the present time a number of templates under the old program. To secure Cylinder Locks under the new program, it will be necessary to specify "Government Standard Template."

RUSSWIN STANDARDIZED TEMPLATE CYLINDER LOCKS

Lock	No. of cyl- inders	Turn knob	Knob	Indi- cator	Stops in face	Name of type of lock and purpose for which best suited
1238	1	1	Yes		Yes	Office or Entrance Lock
1238½	1	1	Yes		Yes	Office or Vestibule Lock
1238¾	1	1	Yes		Yes	Office or Vestibule Lock
1239	1	1	Yes		Yes	Office or Entrance Lock
1239½	1		Yes		Yes	Office or Vestibule Lock
1239¾	1	1	Yes		Yes	Office or Vestibule Lock
1456	1		Yes		Yes	Office or Entrance Lock
1456¾	1	1	Yes		Yes	Office or Entrance Lock
1457	1		Yes		Yes	Underwriters Lock
1457½M	2		Yes	No		Underwriters Lock
1258¾MP	2		Yes	No		Exterior or Toilet Lock
1258½M	1		Yes	No		Exterior or Toilet Lock
1458M	2		Yes	No		Exterior or Class Room Lock
1458¾MP	1		Yes	No		Exterior or Class Room Lock
1225	1	1	Yes	No		Entrance Door Lock
1225¼	1		Yes	No		Entrance Door Lock
1225½	2		Yes	No		Entrance Door Lock
1233EM	1	1	Yes	Yes	No	Hotel Lock
1233½REM	2		Yes	Yes	No	Hotel Lock
1233AEM	1	1	Yes	Yes	No	Hotel Lock
1233REM	1	1	Yes	Yes	No	Hotel Lock
1234½	2		Yes	Yes	No	Hotel Lock
1250SM	1	1	Yes	Yes	No	Hotel Lock
1456¾EM	1	1	Yes	Yes	Yes	Hotel Lock
1207	1	1	No	No	No	Dead Lock
1207½	2		No	No	No	Dead Lock
025	No		No	No	No	Knob Latch
028	No		Yes	No	No	Underwriters Knob Latch
239	No	1	Yes	No	No	Communicating Lock
239½	No	2	Yes	No	No	Communicating Lock
9098	2		No	No	No	Entrance Door Lock
9452*	1		Yes			Fire Exit Door
9458*	1					Fire Exit Door

*Latches only.



For Description of Finishes, see Page 3

RUSWIN

GENERAL INDEX FOR MORTISE BITTED KEY LOCKS

R&E
SINCE 1839

For Mortise Bitted Key Locks Grouped According to Backset, see Page 35

LOCKS, LATCHES AND DEAD LOCKS ARRANGED NUMERICALLY

These locks have japanned iron cases, cast bronze fronts and bolts, cast and wrought bronze strikes, but can be furnished with brass fronts and cast and wrought brass strikes. They are furnished with solid steel nickelplated keys, and locks operated by keys of the same class can be master keyed together. Locks with either "M" or "EM" suffixed indicate master or emergency key feature.

Locks with beveled front have the standard bevel of $\frac{1}{8}$ in. on 2 in., and are not reversible. Locks with flat fronts are reversible, except where indicated by an "*" and when thus indicated, the hand must be

specified. This is also necessary when ordering rabbeted and beveled front locks.

For hand of doors, see Page 38.

Flat front locks, grade of No. 380 $\frac{3}{4}$ and better can be furnished with beveled fronts $\frac{1}{8}$ in. on 2 in. Any other bevel is special on all locks.

Special backsets as indicated in this chart can be furnished. Most locks are 1 in. wider than the backset. There are exceptions, however, and this should be carefully checked with the text covering each particular lock.

Lock No.	Illustrated on Page	Name or type of lock and purpose for which best suited	Front		Case			Backset, in.		Spacing, in.	Strikes		Turn-bblers	Changes	Latch hub		Key	Bolt hub, in.	Latch construction
			Size, in.	Type	H'ght, in.	Width, in.	Thick-ness, in.	Reg.	Spec.		Kind	Lip to center, in.			Size, in.	Kind			
*0015 $\frac{1}{2}$ EM	50	Hotel corridor	6 $\frac{1}{2}$ x1 $\frac{1}{16}$	Flat	4 $\frac{5}{8}$	3 $\frac{3}{8}$	$\frac{5}{8}$	2 $\frac{5}{8}$	.....	2 $\frac{5}{8}$ x3 $\frac{3}{8}$	Cast	1 $\frac{1}{4}$	3	300	$\frac{5}{16}$	Solid	877	$\frac{3}{16}$	D.C.
021	56	Knoblatch	3 $\frac{1}{2}$ x $\frac{3}{4}$	Flat	1 $\frac{3}{4}$	3 $\frac{3}{8}$	$\frac{5}{8}$	2 $\frac{1}{2}$	.....	1 $\frac{1}{2}$ x3 $\frac{3}{8}$	Wrt.	1	3	300	$\frac{5}{16}$	Solid	877	$\frac{3}{16}$	S.C.
0022 $\frac{3}{4}$	50	Lock for bath or bedroom	6 $\frac{3}{4}$ x1 $\frac{1}{16}$	Flat	4 $\frac{5}{8}$	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	.....	Cast	1 $\frac{1}{4}$	3	300	$\frac{5}{16}$	Solid	.....	$\frac{3}{16}$	D.C.
025	56	Knoblatch	4 x1 $\frac{1}{8}$	Flat	2 $\frac{1}{4}$	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	.....	Wrt.	1	3	300	$\frac{5}{16}$	Solid	.....	$\frac{3}{16}$	D.C.
028	56	Knoblatch	4 x1 $\frac{1}{4}$	Flat	2 $\frac{1}{2}$	3 $\frac{3}{8}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	.....	Cast	1 $\frac{1}{4}$	3	300	$\frac{5}{16}$	Solid	.....	$\frac{3}{16}$	D.C.
029	56	Knoblatch	3 $\frac{3}{4}$ x1 $\frac{1}{8}$	Flat	1 $\frac{3}{4}$	3 $\frac{1}{4}$	$\frac{5}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	.....	Wrt.	1	3	300	$\frac{5}{16}$	Solid	.....	$\frac{3}{16}$	D.C.
042	56	Knoblatch	3 $\frac{1}{4}$ x $\frac{7}{8}$	Flat	1 $\frac{1}{2}$	3 $\frac{1}{4}$	$\frac{5}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	.....	Wrt.	1	3	300	$\frac{5}{16}$	Solid	.....	$\frac{3}{16}$	S.C.
043	56	Knoblatch	3 x $\frac{7}{8}$	Flat	1 $\frac{1}{4}$	3	$\frac{5}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	.....	Wrt.	1	3	300	$\frac{5}{16}$	Solid	.....	$\frac{3}{16}$	S.C.
076 $\frac{3}{4}$	56	Dead lock	3 $\frac{3}{4}$ x1	Flat	2 $\frac{1}{2}$	3 $\frac{1}{4}$	$\frac{5}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	.....	Wrt.	No lip	3	36	.....	.....	563	.....	.....
078 $\frac{3}{4}$	56	Dead lock	4 x1	Flat	2 $\frac{3}{4}$	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{4}$	1 $\frac{5}{8}$ -2 $\frac{1}{4}$	.....	Wrt.	No lip	3	36	.....	.....	871	.....	.....
00125	46	School house lock	6 $\frac{1}{2}$ x1	Recessed	4 $\frac{1}{2}$	3 $\frac{7}{8}$	$\frac{5}{8}$	2 $\frac{7}{8}$	.....	2 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	.....	.....	$\frac{5}{16}$	Swiv.	871	.....	C.L.
223	54	Comm. and bathroom door lock	5 $\frac{1}{4}$ x $\frac{7}{8}$	Flat	3 $\frac{1}{2}$	3 $\frac{1}{8}$	$\frac{7}{8}$	2 $\frac{3}{8}$	.....	2 $\frac{5}{8}$	Cast	1	.....	.....	$\frac{5}{16}$	Swiv.	.....	$\frac{3}{16}$	S.E.
223 $\frac{1}{2}$	54	Comm. and bathroom door lock	5 $\frac{1}{4}$ x $\frac{7}{8}$	Flat	3 $\frac{1}{2}$	3 $\frac{1}{8}$	$\frac{7}{8}$	2 $\frac{3}{8}$	.....	2 $\frac{5}{8}$	Cast	1	.....	.....	$\frac{5}{16}$	Swiv.	.....	$\frac{3}{16}$	S.E.
G231	55	French door lock	6 x1	Flat	4	2 $\frac{5}{8}$	$\frac{7}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	.....	.....	$\frac{5}{16}$	Solid	.....	$\frac{3}{16}$	G.
233	54	Comm. and bathroom door lock	5 $\frac{1}{2}$ x $\frac{7}{8}$	Flat	3 $\frac{1}{2}$	3 $\frac{1}{4}$	$\frac{5}{8}$	2 $\frac{1}{2}$	.....	2 $\frac{5}{8}$	Wrt.	1	.....	.....	$\frac{5}{16}$	Solid	.....	$\frac{3}{16}$	E.
233 $\frac{1}{2}$	54	Comm. and bathroom door lock	5 $\frac{1}{2}$ x $\frac{7}{8}$	Flat	3 $\frac{1}{2}$	3 $\frac{1}{4}$	$\frac{5}{8}$	2 $\frac{1}{2}$	.....	2 $\frac{5}{8}$	Wrt.	1	.....	.....	$\frac{5}{16}$	Swiv.	.....	$\frac{3}{16}$	E.
236	54	Comm. and bathroom door lock	5 $\frac{1}{2}$ x1	Flat	4	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{1}{2}$	2-2 $\frac{1}{2}$	2 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	.....	.....	$\frac{5}{16}$	Comp.	.....	$\frac{3}{16}$	D.C.
236 $\frac{1}{2}$	54	Comm. and bathroom door lock	5 $\frac{1}{2}$ x1	Flat	4	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{1}{2}$	2-2 $\frac{1}{2}$	2 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	.....	.....	$\frac{5}{16}$	Swiv.	.....	$\frac{3}{16}$	D.C.
238	54	Comm. and bathroom door lock	6 $\frac{3}{4}$ x1 $\frac{1}{8}$	Flat	5	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	3 $\frac{3}{4}$	Cast	1 $\frac{1}{4}$	.....	.....	$\frac{5}{16}$	Comp.	.....	$\frac{3}{16}$	D.C.
238 $\frac{1}{2}$	54	Comm. and bathroom door lock	6 $\frac{3}{4}$ x1 $\frac{1}{8}$	Flat	5	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	3 $\frac{3}{4}$	Wrt.	1 $\frac{1}{4}$	.....	.....	$\frac{5}{16}$	Swiv.	.....	$\frac{3}{16}$	D.C.
G291	55	French door lock	6x1 $\frac{1}{2}$ x $\frac{1}{2}$	Rabtd.	4	2 $\frac{5}{8}$	$\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{5}{8}$	Cast	1	.....	.....	$\frac{5}{16}$	Solid	.....	$\frac{3}{16}$	G.
355	55	French door lock	5 $\frac{1}{4}$ x $\frac{7}{8}$	Flat	3 $\frac{5}{8}$	2 $\frac{3}{4}$	$\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$ -1 $\frac{3}{8}$	2 $\frac{5}{8}$	Wrt.	1	1	12	$\frac{5}{16}$	Swiv.	558 $\frac{3}{4}$	.....	F.
358	55	French door lock	5 $\frac{1}{4}$ x1 $\frac{1}{2}$	Rabtd.	3 $\frac{5}{8}$	2 $\frac{3}{4}$	$\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$ -1 $\frac{3}{8}$	2 $\frac{5}{8}$	Wrt.	1	1	12	$\frac{5}{16}$	Swiv.	558 $\frac{3}{4}$	.....	F.
0370	53	Mortise knob lock	5 $\frac{1}{2}$ x $\frac{7}{8}$	Flat	3 $\frac{1}{2}$	3 $\frac{1}{4}$	$\frac{5}{8}$	2 $\frac{1}{2}$	.....	2 $\frac{5}{8}$	Wrt.	1	1	12	$\frac{5}{16}$	Solid	558 $\frac{3}{4}$	.....	E.
0370 $\frac{1}{2}$	53	Mortise knob lock	5 $\frac{1}{2}$ x $\frac{7}{8}$	Flat	3 $\frac{1}{2}$	3 $\frac{1}{4}$	$\frac{5}{8}$	2 $\frac{1}{2}$	.....	2 $\frac{5}{8}$	Wrt.	1	3	36	$\frac{5}{16}$	Solid	559	.....	E.
380 $\frac{3}{4}$	53	Mortise knob lock	5 $\frac{1}{2}$ x1	Flat	3 $\frac{1}{2}$	3 $\frac{3}{8}$	$\frac{5}{8}$	2 $\frac{5}{8}$	.....	2 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	3	48	$\frac{5}{16}$	Comp.	871	.....	D.C.
*G381 $\frac{3}{4}$	55	French door lock	6 x1	Flat	4	2 $\frac{1}{4}$	$\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$ -1 $\frac{3}{4}$ -2	2 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	3	48	$\frac{5}{16}$	Comp.	871	.....	G.
382 $\frac{3}{4}$	53	Mortise knob lock	6 $\frac{1}{4}$ x1 $\frac{1}{16}$	Flat	4 $\frac{1}{4}$	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	2 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	3	48	$\frac{5}{16}$	Comp.	871	.....	D.C.
384 $\frac{3}{4}$	53	Mortise knob lock	6 x1	Flat	4	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	2 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	3	48	$\frac{5}{16}$	Comp.	871	.....	D.C.
387 $\frac{3}{4}$	51	Mortise knob lock	6 x1 $\frac{1}{16}$	Flat	4	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	2 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	4	1000	$\frac{5}{16}$	Comp.	557	.....	D.C.
G391 $\frac{3}{4}$	55	French door lock	6x1 $\frac{1}{2}$ x1 $\frac{1}{2}$	Rabtd.	4	2 $\frac{1}{4}$	$\frac{5}{8}$	1 $\frac{1}{2}$	1-1 $\frac{1}{4}$ -1 $\frac{3}{4}$ -2	2 $\frac{5}{8}$	Wrt.	1 $\frac{1}{4}$	3	48	$\frac{5}{16}$	Comp.	871	.....	G.
0440	77	Fire exit door latch	4 $\frac{1}{2}$ x1 $\frac{1}{4}$	Recessed	2 $\frac{5}{8}$	3 $\frac{3}{8}$	$\frac{15}{16}$	2 $\frac{1}{2}$	.....	.....	Cast	1 $\frac{1}{4}$	.....	.....	$\frac{5}{16}$	Solid	.....	$\frac{3}{16}$	D.C.
0444 $\frac{3}{4}$	77	Fire exit door lock	7 $\frac{3}{8}$ x1 $\frac{1}{16}$	Flat	5 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	.....	Cast	1 $\frac{1}{4}$	.....	.....	$\frac{5}{16}$	Solid	.....	$\frac{3}{16}$	D.C.
*444 $\frac{3}{4}$	46	School house classroom	7 $\frac{3}{8}$ x1 $\frac{1}{16}$	Flat	5 $\frac{1}{2}$	3 $\frac{3}{4}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	.....	Cast	1 $\frac{1}{4}$	3	48	$\frac{5}{16}$	Swiv.	871	.....	D.C.
608 $\frac{1}{2}$ EM	50	Lock for hotel corridor	8 $\frac{1}{2}$ x1 $\frac{1}{8}$	Bevel	6 $\frac{1}{4}$	3 $\frac{1}{4}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	2 $\frac{5}{8}$ x4	Cast	1 $\frac{1}{4}$	4	4000	$\frac{5}{16}$	Comp.	557	.....	D.C.
609 $\frac{1}{2}$ EM	50	Lock for hotel corridor	7 $\frac{3}{8}$ x1 $\frac{1}{16}$	Bevel	5 $\frac{1}{4}$	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{8}$	.....	2x3 $\frac{1}{2}$	Cast	1 $\frac{1}{4}$	3	2160	$\frac{5}{16}$	Comp.	547	.....	D.C.
610 $\frac{1}{2}$ EM	50	Lock for hotel corridor	7 $\frac{3}{8}$ x1 $\frac{1}{16}$	Bevel	5 $\frac{1}{4}$	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{8}$	.....	2x3 $\frac{1}{2}$	Cast	1 $\frac{1}{4}$	3	2160	$\frac{5}{16}$	Comp.	547	.....	D.C.
0786	56	Dead lock	5 $\frac{1}{2}$ x1 $\frac{1}{8}$	Flat	3	3 $\frac{1}{4}$	$\frac{3}{4}$	2 $\frac{5}{8}$	1 $\frac{1}{2}$	.....	Cast	No lip	4	1000	.....	.....	557	.....	.....
1121 $\frac{3}{4}$ M	51	Hotel comm. door lock	7 $\frac{1}{2}$ x1 $\frac{1}{8}$	Flat	5 $\frac{1}{8}$	3 $\frac{1}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	.....	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	Cast	1 $\frac{1}{4}$	4	1000	$\frac{5}{16}$	Comp.	557	$\frac{3}{16}$	D.C.
1122 $\frac{3}{4}$ M	51	Hotel comm. door lock	7 $\frac{1}{2}$ x1 $\frac{1}{8}$	Flat	5 $\frac{1}{8}$	3 $\frac{1}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	.....	2 $\frac{1}{2}$ x3 $\frac{3}{8}$	Cast	1 $\frac{1}{4}$	4	1000	$\frac{5}{16}$	Comp.	557	$\frac{3}{16}$	D.C.
1133 $\frac{3}{4}$ M	51	Hotel comm. door lock	7 $\frac{1}{2}$ x1 $\frac{1}{8}$	Flat	5 $\frac{1}{8}$	3 $\frac{1}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{2}$ x4 $\frac{1}{8}$	Cast	1 $\frac{1}{4}$	3	300	$\frac{5}{16}$	Comp.	877	$\frac{3}{16}$	D.C.
1134 $\frac{3}{4}$ M	51	Hotel comm. door lock	7 $\frac{1}{2}$ x1	Flat	5 $\frac{1}{8}$	3 $\frac{1}{4}$	$\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{2}$ x4 $\frac{1}{8}$	Cast	1 $\frac{1}{4}$	3	300	$\frac{5}{16}$	Comp.	877	$\frac{3}{16}$	D.C.
1384 $\frac{3}{4}$	51	Mortise knob lock	6 $\frac{1}{2}$ x1	Flat	4 $\frac{3}{4}$	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	2 $\frac{5}{8}$	Cast	1 $\frac{1}{4}$	3	48	$\frac{5}{16}$	Comp.	871	$\frac{3}{16}$	D.C.
1387 $\frac{3}{4}$	51	Mortise knob lock	6 $\frac{1}{2}$ x1 $\frac{1}{16}$	Flat	4 $\frac{3}{4}$	3 $\frac{1}{2}$	$\frac{5}{8}$	2 $\frac{3}{4}$	.....	2 $\frac{5}{8}$	.....	1 $\frac{1}{4}$	4	1000	$\frac{5}{16}$	Comp.	557	.....	D.C.

For Description of Finishes, see Page 3

RUSWIN

CYLINDER AND BITTED KEY LOCKS GROUPED ACCORDING TO BACKSET



CYLINDER LOCKS GROUPED ACCORDING TO BACKSET

For General Index of Cylinder Locks, see Page 32

Numbers Marked "*" Have Beveled Fronts and Are Not Reversible and Hand Must Be Specified. "+" Indicates Rabbeted Front—Short Side Measurement. Bold Face Numbers Indicate Regular Backset for the Lock

Backsets, in.										Name and type of lock and purpose for which it is best adapted.
1	1½	1¾	2	2½	2¾	2⅞	3	3¼		
			*1225 *1225½	*1225 *1225½	*1225 *1225½		*1228 *1228½		Cylinder locks with latch and bolt for heavy entrance doors.	
				*11458½M *11258½M *11456	*11457½M			*11457½M	Cylinder locks with latch and automatic means for deadlocking latch when door is closed. Used for entrance to apartment houses, schools, and public buildings. Locks are under control of master key.	
					*1457			*1457	Cylinder locks with latch and automatic means for deadlocking latch when door is closed, and with stops in face of lock. Used for front, vestibule and office doors.	
			*1239½	*1239½	*1239½ *1239¾	1248 1248½			Front, vestibule and office doors. Cylinder locks with latch and with latch and bolt. Suffix "½" indicates latch only. Locks have stops in face.	
*F1247	*F12.7		*F1238	*F1238	*F1238		*F1238		Cylinder locks with French spring for lever handles. For front, vestibule and office doors. Stops in face.	
				9098 9118 9119	9098 9118 9119				Cylinder locks used with entrance door handles. Locks have latch and bolt. Locks 1213, 1213½, 1223, 9118, 9119 have stops in face of lock.	
			1213 1223	*1213½	*9132 *9152½	1213 1223			Cylinder locks for hotel corridor locks. Locks 1233REM, 1232EM, 1250SM, 1448EM and 1449EM have latch and bolt. Other locks have latch only.	
				*1241¾EM *1246¾EM *1446EM 1447EM 1448EM 1449EM	*1232EM *1233REM *1233AEM 1234½EM 1250SM				Cylinder locks used with fire exit bolts.	
				1294 1294½	1294 1294½		1294 1294½		Cylinder mortise night latches.	
	1203 1203½ 1205 1205½ 1207 1207½		1203 1203½ 1205 1205½ 1207 1207½	1203 1203½ 1205 1205½ 1207 1207½	1203 1203½ 1205 1205½ 1207 1207½		1205 1205½ 1207 1207½	1207 1207½	Cylinder mortise dead locks. Suffix "½" indicates two cylinders.	
							200 300		Cylinder locks for garage doors.	

BITTED KEY LOCKS GROUPED ACCORDING TO BACKSET

For General Index of Bitted Key Locks, see Page 34

Lock Numbers Marked "*" Have Beveled Fronts and Are Not Reversible. Bold Face Numbers Indicate Regular Backset

Backset, in.												Name and type of lock and purpose for which it is best adapted
1¼	1½	1¾	1¾	2	2¼	2¾	2¾	2¾	2¾	3	3¼	
					025		029 042 043		025 028 029 042	025		Mortise knob latches.
				236 236½		223 223½	233 233½	236 236½	236 236½ 238 238½			Mortise knob locks for communicating and bath room doors. These locks have latch and deadbolts, the deadbolts being thrown by turn knobs. The suffix "½" indicates a lock with two turn knobs.
G381¾ G391¾ 355 358	G231 G291 G381¾ G391¾ 355 358	G231 G291 G381¾ G391¾ 355 358	G381¾ G 91¾									Mortise knob locks for French or narrow doors. Prefix "G" denotes a gun metal spring. These locks are not reversible.
							0370 0370¾ 384¾	380¾	382¾ 384¾ 387¾ 1384¾ 1387¾			Mortise knob locks.
							*6091¼EM *6101¼EM 0015¾EM	*6081¼EM				Hotel corridor locks. These locks have latch and two dead bolts. Throwing bolt from inside deadlocks against all keys except emergency key.
									1121¾ 1122¾ 1133¾ 1134¾ 0022¾			Bath room and communicating room locks. These locks have latch bolt and two dead bolts. These locks can be master keyed
										00125		School house locks—knob is always operative from inside.
	0786	078¾			078¾		076¾ 0786		444¾ 078¾ 0440¾			Mortise dead locks. Lock used with fire exit bolts.

For Description of Finishes, see Page 3

RUSSWIN

THE DETERMINING FACTORS IN QUALITY OF RUSSWIN LOCKS

R&E
SINCE 1829

The lock constructions herewith shown cover practically the entire RUSSWIN line, and are for purpose of comparison only.

The three essential qualities of a lock are:

1st. That its bolt should be guarded against operation by keys other than those to which it has been fitted.

Security is obtained by—

(a) The number of tumblers.

(b) Different sections of keyway.

(c) Wheel wards which are small lugs on the inside of the lock, in the path of the key, obstructing any key except the one to which it has been fitted.

Note: Security is impaired directly as any one of the above is eliminated.

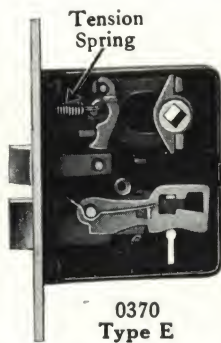
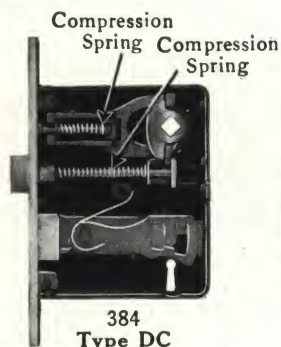
2nd. That the latch should be controlled by an independent spring, of a resilience and ease of action, that the door may be closed easily against its resistance, when it comes in contact with the strike.

3rd. That the knob or lever handle mechanism should be controlled by springs of sufficient power to insure the return of same to their normal position.

Springs:

The types of springs used in a lock are arranged in a sequence of quality as follows:

French springs	} For use with lever handles only.
Gun springs	
Compression springs	} Used with knobs.
Tension springs	
Coil springs	
Lever springs	



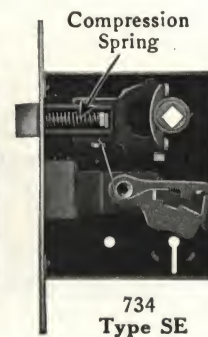
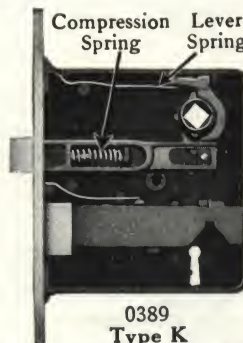
BITTED KEY LOCKS

Lock 384 has double compression springs.

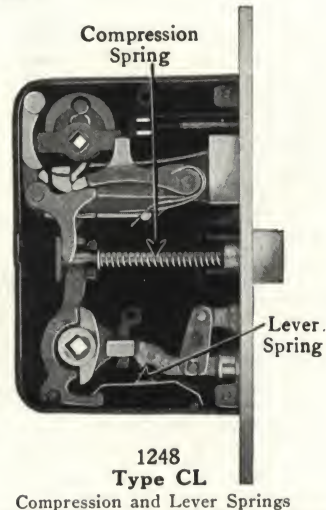
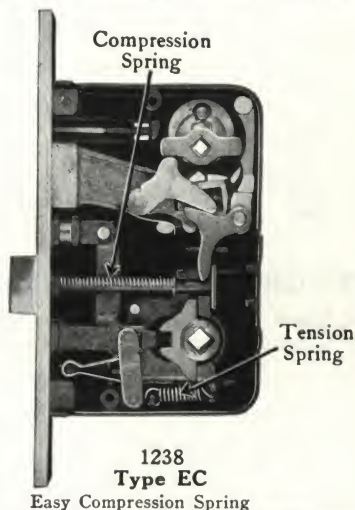
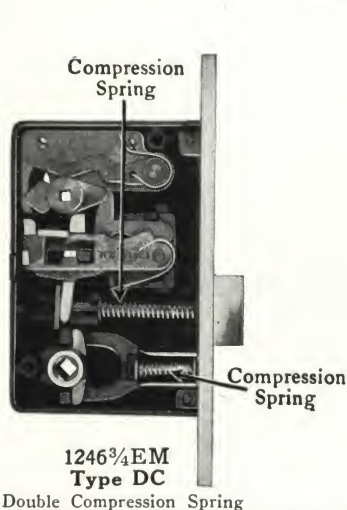
Lock 0370 has the extension easy spring.

Lock 0389 has compression and lever springs.

Lock 734 has semi-easy spring.

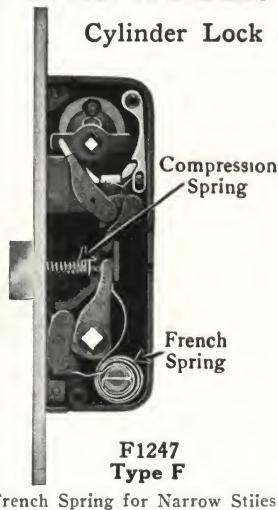
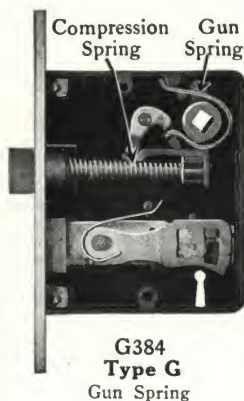


CYLINDER LOCKS USED WITH KNOBS

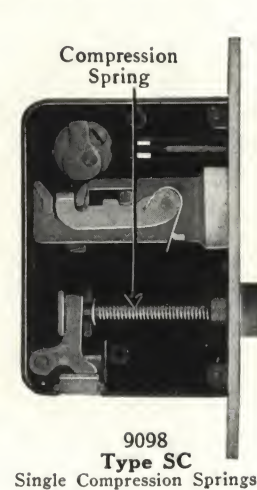
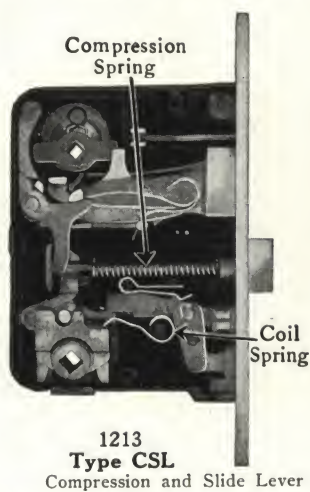


LOCKS USED WITH LEVER HANDLES

Bitted Key Lock



CYLINDER LOCKS STORE DOOR HANDLES



For Description of Finishes, see Page 3

RUSSWIN

DEFINITIONS AND TERMS APPLIED TO RUSSWIN LOCKS

R&E
SINCE 1839

Anti-friction Latch—A small additional latch connected with the regular latch bolt in high grade cylinder locks, which engages the strike and retracts the regular latch.

It prevents friction between latch and strike, strain on the lock, and permits the door to close more easily.

Recommended for doors on which door closers are used.

Auxiliary or (Guard) Latch—A supplemental latch used for dead-locking locks which do not have dead bolts.

An auxiliary latch does not engage in, but rides on the surface of the strike. This holds the auxiliary latch

TYPES OF LATCHES

Anti-friction Latch →

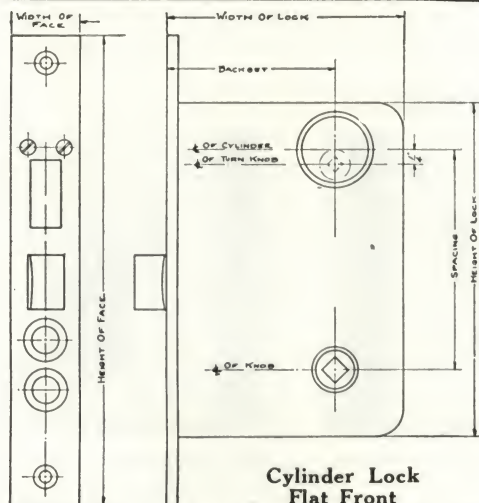
Auxiliary or Guard Latch →



depressed, and when the outside knob has been set, the regular latch bolt cannot be retracted by any means other than the key from outside and knob inside. It also prevents any manipulation of stops in face of lock when door is closed.

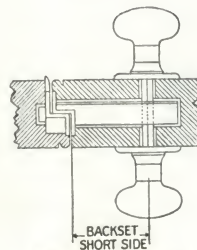
RUSSWIN Auxiliary Latches are of the improved swinging type, permitting the easy closing of door.

Swinging or Hinged Latch—In this type of construction the latch is hinged at the inner face of the lock front and swings into the lock case on contact with the strike. Affords the easiest action with the least friction.

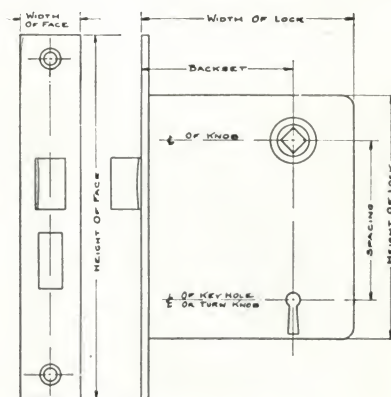


**Cylinder Lock
Flat Front**

BACKSET SPACING AND FRONTS OF LOCKS



**Rabbeted Front
Locks**



**Bitted Key Lock
Flat Front**

Spacing—This is the vertical distance between the center of the knob hub and the center of the cylinder, keypost or turnpiece hub.

Backset—This is the horizontal distance from the face of a lock to the center line of its keyhole or hub.

Method of measuring backset of locks is as follows—

Flat Front Locks—Outside face of the front to the center of the keyhole or hub.

Beveled Front Locks—Center of the outside face of the front to the center of the keyhole or hub.

Rabbeted Front Locks—In this catalogue the short side measurement is given (see cut). When ordering special backsets, the number of the lock and the backset wanted should be specified. When backset is mentioned it will be interpreted as meaning the distance on the short side and that the regular depth of rabbet furnished with the lock specified is required. Locks having depth of rabbet other than regularly listed will be furnished to order. When ordering special depths of rabbet send full-size

detail of door stiles at the point where the lock and strike meet.

Rabbeted front locks are not reversible and hand of door should be specified.

Beveled Front Locks—The regular bevel is $\frac{1}{8}$ inch on 2 inches. All other bevels are special. Locks 380%, and all higher grade, will be furnished with fronts beveled $\frac{1}{8}$ in. on 2 in. Beveled front locks are not reversible and orders should specify the hand of lock wanted. See Page 38 for bevel and hand of doors. Reversible locks are beveled only to order.

Recessed Front Lock—One having an especially constructed front and strike which, when interlocked, guards or protects the latch bolt against attack through the crevice of the door. Especially adapted for use upon doors of insane asylums, and other doors opening outward (see cut).

Rounded Front Locks—Cylinder mortise dead locks can be furnished with rounded fronts of standard radius to conform to the edge of double-acting doors. Standard radius, $2\frac{1}{4}$ inches.



**Recessed
Front**

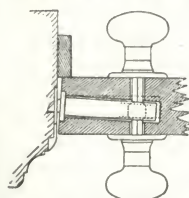
HUBS AND LATCH BOLT

Hubs—Brass Compensating—Our compensating hub is of the brass ball construction, which will allow compensation in any direction. The use of this type of compensating hub is a simple and effective means of relieving any cramping or binding of the knobs when the lock case is not applied in a line exactly parallel with the face of the door stile. It also permits the use of a flat front lock to a door having its edge slightly beveled (see cut).

French Spring—(see Page 36 for illustration)—This is a heavy type of spring which is usually applied to the hub of a lock, intended to offset the overbalancing effect of the lever handle, thereby relieving the strain which would otherwise be thrown on the sensitive spring of the latch bolt. Locks equipped with this type of spring are indicated by prefix "F."

TYPES OF SPRINGS

Gun Spring—(see Page 36 for illustration). A heavy flat spring of special construction specially adapted for use with lever handles. It is designed to give the full resiliency of the spring and will not break from crystallization. Locks equipped with this type of spring are indicated by prefix "G."

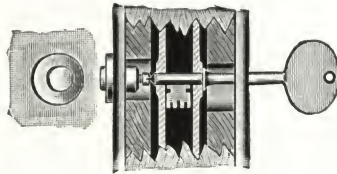


Latch Bolt—Easy Spring—Used in all good locks. The term *easy spring* when applied to a lock designates that the latch is operated by a separate spring from the knob. Formerly the knob and latch were actuated by one spring. This necessitated a heavy spring and made the closing of the door hard as the latch was stiff. With the introduction of two springs a lighter spring could be used on the latch and the latch operated easily, thus the term *easy spring*.

For Description of Finishes, see Page 3

RUSWIN**DEFINITIONS AND TERMS CONTINUED****R&E**
SINCE 1839**INDICATOR**

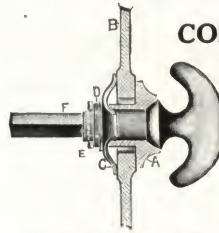
To indicate if room is occupied.

**Type B**

is occupied. For use with locks operated by key as Nos. 608 $\frac{1}{4}$ EM, 609 $\frac{1}{4}$ EM, 610 $\frac{1}{4}$ EM, 1230EM, 1232EM, 1234 $\frac{1}{2}$ EM, 1241 $\frac{1}{4}$ EM and 1246 $\frac{1}{4}$ EM.

Type B (Patented)—When locks are supplied with this indicating device, the outside escutcheon has a "push button" attachment.

When the door is locked from the inside by the key, the "push button" cannot be depressed, thus indicating that the room

**067 (Patented)****COMPENSATING TURN PIECE**

This turn piece is furnished with cylinder locks only when ordered with a combined rose and escutcheon requiring a turn piece.

The advantages are that it allows perfect alignment in application, thus insuring free action and reducing friction to a minimum.

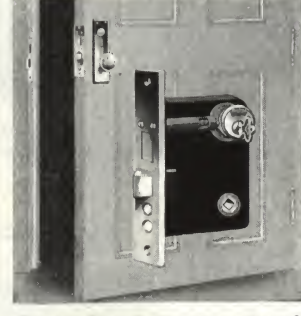
A: Collar on escutcheon having a vertical adjustment of $\frac{1}{8}$ in.

B: Escutcheon.

C: Tension spring.

D: Washer.

E: Pin which fastens spindle F to the turn and allows both vertical and horizontal play of the spindle eliminating any tendency to bind.

THE HAND AND BEVEL OF DOORS**Left Hand****Right Hand****Left Hand Reverse Bevel****Right Hand Reverse Bevel****HAND OF DOOR**

The hand of a door is determined from the outside, except French doors on which the hand is taken from inside, when cremone bolts or casement fasteners are used.

The outside of an entrance door is the street side.

The outside of a room door is the hall side.

The outside of a closet is the room side.

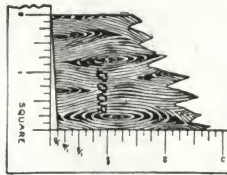
The outside of a communicating door is the side from which when the door is closed, the butts can not be seen.

The outside of twin doors is the side between the two doors.

The inside of a French door is the side on which the cremone bolt is applied.

Standing outside the door if the butts are on the right it is a right hand door; if on the left it is a left hand door.

If, when standing outside, the door opens



from you, or inward, it takes a lock with regular bevel latch bolt; if it opens toward you, or outward, it takes a lock with reverse bevel latch bolt (see illustration above).

Locks described as "reversible" can be used on doors of either hand, except when the door is beveled. In this case the hand and bevel of door must be given.

BEVEL OF DOOR

A door is beveled when its edge is not at right angle with the surface.

Mortise locks for such doors require fronts beveled to correspond to the door.

Bevel is determined by placing square on the door.

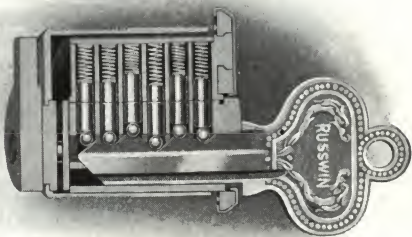
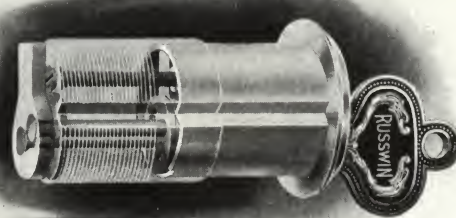
State thickness of door and the distance that one edge is back of the other.

The standard bevel is $\frac{1}{8}$ in. on 2 in.

RUSWIN ADJUSTABLE CYLINDERS**Patented**

The RUSWIN adjustable cylinder No. 8 allows the use of a single cylinder which can be adapted to doors from 1 $\frac{3}{4}$ to 4 in. thick. The adjustment is made by an adjusting screw

at the back of the cylinder. This adjustable cylinder does away with the necessity of ordering special cylinders to fit each thickness of door on the job.

**Cylinder Not Extended****Cylinder Extended**

For Description of Finishes, see Page 3

RUSSWIN

DESCRIPTIONS OF MASTER KEYS AND THEIR OPERATIONS

R&E
SINCE 1839

Applying to both RUSSWIN cylinder and bitted key locks, but only to such locks as are described as adapted to the various key systems

Guest or Change Key—Operates only the lock to which it is fitted.

Closet door locks in rooms can be constructed, when desired, so that they are controlled by the guests, or change key only. In this case they are subject to a closet door master key when cylinder locks are used and the grand master or emergency key when bitted key locks are used.

Maids' Master Key—Operates one group of locks.

Grand Master Key—Operates a number of groups of locks, each group being under control of a maids' master key.

Master Guard Key—Used only with bitted key locks. Operates any locks subject to the maids' master, grand master or display keys. It is so constructed that when used on locks ordered subject to a guard key, it makes inoperative the maids' master, grand master and display keys, but does not act against an emergency key.

Emergency Key—Operates any lock in the system which has been locked by the guests', maids' master, grand master, master guard or display keys. It controls the functions of the lock the same as the master guard key and in addition

will operate when bolt is thrown from the inside even though the guests' key remains in the lock. This key can also be used to make inoperative all keys except the master guard key. It can also be used as a master guard or shut out key.

The Display or Individual Guard Key—This is a guests' key so constructed that it makes inoperative the maids' master and grand master keys. Only the emergency key will then operate. It is designed for rooms requiring special protection and assures the holder absolute security against any key except the emergency key.

Note: Attention is called to the fact that the guests' key or the turn piece will always operate to unlock the door from the inside even when it has been locked from the outside by any one of the various types of master keys.

When ordering master keyed locks the name of the building on which they are to be used should be given so that a proper record of the key system furnished may be kept on file.

Orders should specify the quantity of master keys, of the various types, required.

Duplicate master keys are furnished to sample, and then only upon receipt of proper requisition from the owner or authorized agent.

Russwin Cylinder locks are master keyed and grand master keyed without the use of a supplemental cylinder. Both regular and master keyed cylinders are interchangeable in the same lock.

MAISON SYSTEM

The Maison and Maison Master systems are applicable only to Russwin Cylinder locks.

Under the Maison system one or more locks are subject to all the keys of other locks in the building. As used in apartment house work the locks to the various apartments are all different but each one acts as a master key upon the entrance door locks.

No extra charge is made for locks except for those subject to the master key.

The Maison Master system is identical with the Maison system except that all locks in the building are subject to a master key.

Locks ordered for entrance doors under the Maison system should be ordered grand master keyed.

CYLINDER MASTER KEYS

This Type of Key Regularly Furnished

This Type Furnished Only When Specified



MASTER KEYABLE BITTED KEY LOCKS

Locks Having Same Master Key can be Master Keyed Together in Sets. Master Keys 647 and 677 will interchange.

Lock										Lock									
Change key		Master keyed change key				Master key				Change key		Master keyed change key				Master key			
No.	Page No.	Class No.	Class No.	Turn-bblers	Changes	Class No.	Sets	Differ-	Class No.	No.	Page No.	Class No.	Class No.	Turn-bblers	Changes	Class No.	Sets	Differ-	Class No.
00153 1/2 EM	50	877	877	3	300	677	6 of 50	300	677G	4443 1/2	46	877	877	3	300	677	3 of 100	300	677G
00223 1/2	50	877	877	3	300	677	6 of 50	300	677G	6081 1/2 EM	50	557	557	4	4000	688	1 to 20	4000	688G
0763 1/2	56	563	563	3	300	677	3 of 100	300	677G	6091 1/2 EM	50	547	547	3	2160	647	24 of 90	2160	647G
0783 1/2	56	877	877	3	300	677	6 of 50	300	677G	6101 1/2 EM	50	547	547	3	2160	647	24 of 90	2160	647G
00125	46	877	877	3	300	677	3 of 100	300	677G	0786	56	557	557	4	1000	688	20 of 50	1000	688G
03703 1/2	53	559	563	3	300	663	3 of 100	300	663G	11213 1/2 EM	51	557	557	4	1000	688	20 of 50	1000	688G
3803 1/2	53	877	877	3	300	677	6 of 50	300	677G	11223 1/2 EM	51	557	557	4	1000	688	20 of 50	1000	688G
G3813 1/2	55	877	877	3	300	677	3 of 100	300	677G	11333 1/2 EM	51	877	877	3	300	677	6 of 50	300	677G
3823 1/2	53	877	877	3	300	677	6 of 50	300	677G	11343 1/2 EM	51	877	877	3	300	677	6 of 50	300	677G
3843 1/2	53	877	877	3	300	677	6 of 50	300	677G	13843 1/2	51	877	877	3	300	677	6 of 50	300	677G
3873 1/2	51	557	557	4	1000	688	20 of 50	1000	688G	13873 1/2	51	557	557	4	1000	688	20 of 50	1000	688G
G3913 1/2	55	877	877	3	300	677	3 of 100	300	677G										

For Description of Finishes, see Page 3

RUSWIN**THE RUSSWIN UNIT LOCK SETS**

(Patented)



The Unit Lock offers everything to be desired in a lock. It represents the height of the art of lock making. It is easily applied, requiring no mortising. A rectangular hole only 1 3/4 in. deep is cut into the stile of the door with a saw and one hole is bored to receive the knob.

The inside and outside escutcheons are mechanically doweled together assuring perfect alignment, eliminating the binding of the knob which so frequently occurs with the ordinary lock set.

The long swinging latch is actuated by a phosphor bronze spring and the knobs by a separate phosphor bronze spring. This allows the use of a light spring for the latch, insuring easy action, and a heavy spring in the knobs, bringing them firmly back to a normal position and preventing rattling.

The knobs are seamless solid bronze castings. The shanks are self-lubricating and absolutely screwless, each

being fitted to long bracket bearing thimbles of the supporting type. The self-lubricating shanks reduce friction to a minimum.

The lock is controlled by a cylinder located in the concave of the knob, thereby giving security and the assurance of finding the key hole easily.

All parts of the Unit Lock—knobs, escutcheons and lock frame, are solid bronze metal castings, with the exception of the locking mechanism, which is of heavy hard rolled brass formed in dies, insuring uniformity and imparting the greatest possible strength.

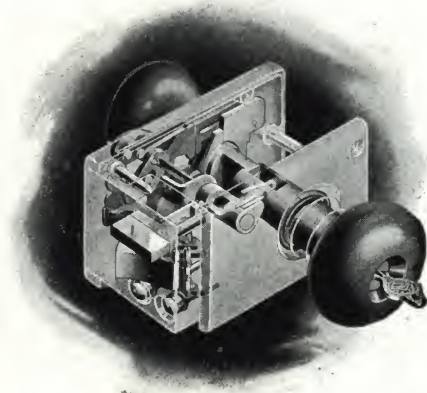
Attention is called to the two types of safety devices. The auxiliary latch safeguards against outside manipulation and the deadlocking plunger safeguards the latch and prevents operation of the stops when the door is closed.

Master Keying—The cylinders used in Unit Locks are identical with the Russwin Ball Bearing Cylinders, and are also subject to the same master keying systems.

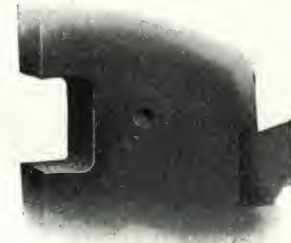
Important Note Regarding Designs

Unit Lock Trim can be obtained in the following designs: Camden, Copley, Fidelity, Granby, Madison, Niantic Pyramid; see Page 43.

The illustrations show general type only.



Phantom View of Construction and Parts of the Russwin Unit Lock Set; Horizontal Type



To install the lock, the small amount of cutting required (only 1 3/4 ins.) of the stile, does not impair its strength.



A Vertical Type or 2800 Line Unit Lock Installed

Note difference between this lock and the horizontal type as illustrated in phantom view

UNIT LOCKS FOR RESIDENCE FRONT DOORS**2850 Upright and 2150 Horizontal Type**

Latch bolt can be operated by knobs from either side except when outside knob is set by stops in face of lock. When knob is set, latch can be operated by key only from outside, and by knob from inside.

In addition it has a dead bolt operated by key from outside and by turn knob from the inside. A continuous turn of key on outside will operate both dead and latch bolts.

Master Keying—Can be master keyed in sets as desired with other RUSSWIN Cylinder Locks.

No.	Type	Cylinder
2850	Upright	One
2150	Horizontal	One

UNIT LOCK FOR VESTIBULE OR OFFICE DOORS**2856 Upright and 2156 Horizontal**

Latch bolt can be operated by knobs from either side except when outside knob is set by stops in face of lock. When outside knob is set, latch can be operated by key only from outside and by knob from inside.

2866 Upright and 2166 Horizontal—In addition to the above they have deadlocking plunger, automatically deadlocking and safeguarding the latch bolt, preventing it from being retracted by any instrument inserted between face of lock and strike. It also prevents manipulation of stops when door is closed, thus making lock absolutely secure against entrance except by key.

Master Keying—Can be master keyed in sets as desired with other RUSSWIN Cylinder Locks.

No.	Type	Cylinder	Deadlocking plunger
2856	Upright	One	Without
2866	Upright	One	With
2156	Horizontal	One	Without
2166	Horizontal	One	With



**2850 Upright
2150 Horizontal**



**2856 Upright
2156 Horizontal**

GENERAL CONSTRUCTION

Works: Brass. **Case and Escutcheon:** Cast bronze.

Cylinder: Ball bearing. **Changes:** Unlimited.

Keys: 3 liberty silver. **Knobs:** Seamless cast bronze.

Shanks: Self-lubricating. **Strike:** Protected.

Latch Bolt: 1/2-in. throw, heavy cast bronze, swinging type.

Front: Beveled 1/8 on 2-in.

Backset: 3-in. **Door Thickness:** For doors 1 1/2 to 3-in., as specified.

Reversible: Yes, except when design of escutcheons prevents it being inverted.

For Description of Finishes, see Page 3

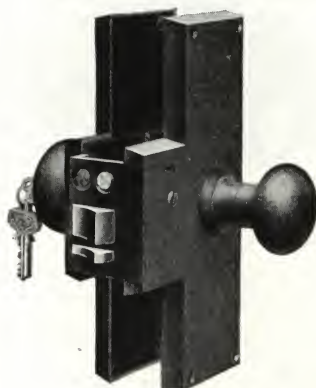
RUSWIN**UNIT LOCKS FOR FRONT VESTIBULE AND OFFICE DOORS****2800 Series Upright Type; 2100 Series Horizontal Type**

Latch bolt can be operated by knob from either side, except when outside knob is set by stops in face of lock. When outside knob is set, latch can be operated by key only from outside and by knob from inside.

Auxiliary latch automatically deadlocks and safeguards

latch bolt, preventing it from being retracted by any instrument inserted between face of lock and strike.

It also prevents manipulation of stops, thus making the lock absolutely secure against entrance except by key.

R&E
SINCE 1839

2857

No.	Type	Cylinder	No.	Type	Cylinder
2857	Upright	One	2157	Horizontal	One

UNIT LOCKS FOR OFFICE DOORS**2866³/₄ Upright and 2166³/₄ Horizontal Types**

Latch bolt can be operated from either side except when outside knob is set by stops in face of lock. When knob is set, latch can be operated by key only from outside, and by knob inside. When door is closed, turn piece on inside will deadlock against keys, and set both knob and latch bolt.

Deadlocking plunger automatically deadlocks and safeguards latch bolt, preventing it from being retracted by any instrument inserted between lock face and strike. It also prevents manipulation of stops when door is closed.

2866³/₄

No.	Type	Cylinder	No.	Type	Cylinder
2866 ³ / ₄	Upright	One	2166 ³ / ₄	Horizontal	One

FOR ENTRANCE DOORS TO APARTMENT HOUSES, SCHOOLS AND PUBLIC BUILDINGS**2859¹/₂ Upright and 2159¹/₂ Horizontal Types**

Latch bolt can be operated by knobs from either side except when outside knob is set by master (or janitor's) key through the inside cylinder. When knob is set, latch can be operated by change or master key only from outside, and by knob from inside. The auxiliary latch automatically deadlocks and safeguards latch bolt, preventing retrac-

tion by any instrument inserted between lock face and strike.

The janitor or custodian has absolute control over the outside knob, as the change or master key in retracting the latch bolt does not disturb the deadlocking mechanism of the outside knob.

Especially adapted for use on double doors.

2859¹/₂

No.	Type	Cylinder	No.	Type	Cylinder
2859 ¹ / ₂	Upright	Two	2159 ¹ / ₂	Horizontal	Two

Can be furnished reverse bevel for doors opening out.

FOR PUBLIC BUILDINGS**2816 Upright and 2116 Horizontal Types**

Latch bolt can be operated by key only from outside, by knob from inside. The outside knob is always rigid.

This lock can be equipped with a dead locking plunger which will deadlock and safeguard latch bolt, preventing retraction by any instrument inserted between lock face and strike. When plunger is desired, prefix "P" to number.

When equipped with plunger, this lock can be furnished reverse bevel for single doors opening out. For use on double doors opening out, it can be furnished with auxiliary latch which serves the same purpose as plunger. When auxiliary latch is desired, prefix "A" to number.



2816

No.	Type	Cylinder	No.	Type	Cylinder
2816	Upright	One	2116	Horizontal	one

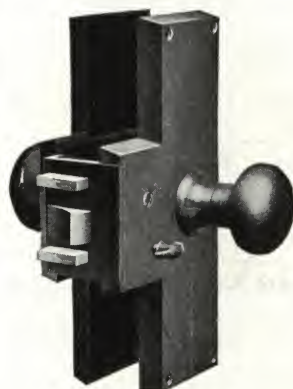
FOR COMMUNICATING AND BATH ROOM DOORS

2834 Upright and 2134 Horizontal—Latch bolt can be operated by knobs from either side at all times.

In addition there is a dead bolt operated by turn knob from inside only.

2835 Upright and 2135 Horizontal—Latch bolt can be operated by knobs from either side at all times.

In addition there are two dead bolts operated by turn knobs from opposite sides.



2835

No.	Type	Turnpieces	No.	Type	Turnpieces
2834	Upright	One	2835	Upright	Two
2134	Horizontal	One	2135	Horizontal	Two

KNOB LATCHES FOR CLOSET DOORS

2845 Upright and 2145 Horizontal—Latch bolt can be operated by knobs from either side at all times.



2845

No.	Type	No.	Type
2845	Upright	2145	Horizontal

GENERAL CONSTRUCTION

Works: Brass. Case and Escutcheons: Cast bronze.

Cylinder: Ball bearing. Changes: Unlimited.

Keys: 3 liberty silver. Knobs: Seamless cast bronze.

Shanks: Self-lubricating. Strike: Protected box strike.

Latch Bolt: 1/2-in. throw, heavy cast bronze, swinging type.

Front: Beveled 1/4 on 2-in.; reverse bevel furnished when so ordered for doors opening out.

Backset: 3-in. Door Thickness: For doors 1 1/2 to 3-in. as specified.

Reversible: Yes, except when design of escutcheons prevents it being inverted.

For Description of Finishes, see Page 3

RUSWIN**UNIT LOCKS FOR DOORS TO PIPE AND WIRE SHAFTS****R&E**
SINCE 1839**2816 1/4 Upright and 2116 1/4 Horizontal Types**

2816 1/4 Upright
2116 1/4 Horizontal

Works: Brass. *Case and Escutcheons:* Cast bronze.
Cylinder: Ball bearing. *Changes:* Unlimited.
Keys: 3 liberty silver. *Knobs:* Seamless cast bronze.
Shanks: Self-lubricating. *Strike:* Protected.
Latch Bolt: 1/2-in. throw, heavy cast bronze, swinging type.

Latch bolt can be operated by key *only from outside*.
This lock can be equipped with a deadlocking plunger which automatically deadlocks and safeguards latch bolt, preventing it from being retracted by any instrument inserted between lock face and strike. When plunger is desired, prefix "F" to number.

When equipped with plunger this lock can be furnished reverse bevel for single doors opening out. For use on double doors opening out, it can be furnished with auxiliary latch which serves the same purpose as the plunger. When auxiliary latch is desired, prefix "A."

SAFETY UNIT FIRE DOOR LOCKS

These locks have been approved by the New York Fire Underwriters, and their use secures the lowest rate of insurance.

2886 Upright and 2186 Horizontal

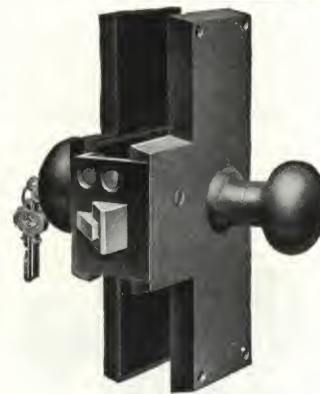
Latch bolt can be operated by knobs from either side except when outside knob is set by stops in face of lock. When knob is set, latch bolt can be operated by key only from outside, and by knob from inside.

The latch bolt is of the anti-friction type, thus insuring easy action.

Design—Furnished only in Enfield design, both vertical and horizontal types.

GENERAL CONSTRUCTION

Front: Beveled 1/8 on 2-in.
Backset: 3-in.
Door Thickness: For doors 1 1/2 to 3-in. as specified.
Reversible: Yes, except when design of escutcheons prevents it being inverted.



2886 Upright
2186 Horizontal

UNIT LOCKS FOR DOUBLE DOORS

For Rabbeted Doors—Fig. 1 shows the RUSWIN Unit Lock applied to rabbeted doors with Double Trim. It may be applied in the same manner without the double trim. These locks are for doors with 1/2-in. rabbet. All numbers and designs of Unit Locks will be furnished when so ordered, equipped with strike for use with rabbeted door.

Specify Lock Set Number, Name of Design and suffix "Rabbeted."

For Dummy Trim—Fig. 2 shows Unit Lock with Dummy Trim applied. All Unit Locks can be furnished, when so ordered, fitted with Dummy Trim. Locks so ordered will be fitted with full pair of dummy knobs and escutcheons; knobs rigid, for both sides of Inactive Door.

Specify Lock Set Number, Name of Design and suffix "Dummy Trim."

Half Double Trim—Same as for Dummy Trim except with only one dummy knob and escutcheon for use upon one side of Inactive Door. Knob made rigid.

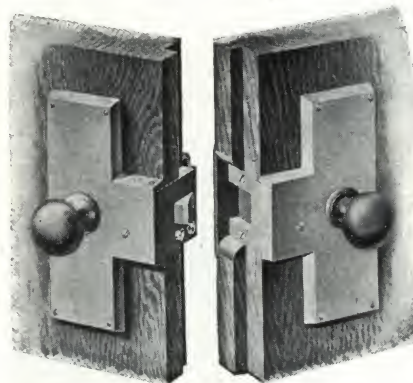


Fig. 1. View from Inside of Door
Showing rabbeted front locks

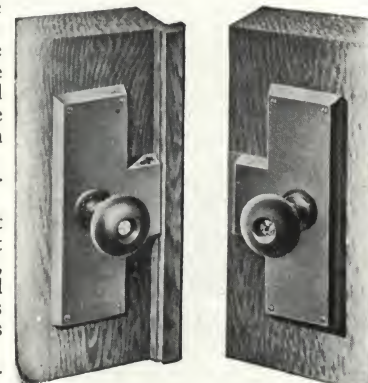


Fig. 2. View from Outside of Door
Showing flat front locks

UNIT LOCKS FOR COUPON BOOTH DOORS

2196 Horizontal—Latch bolt can be operated by key only from outside, by knob from inside.

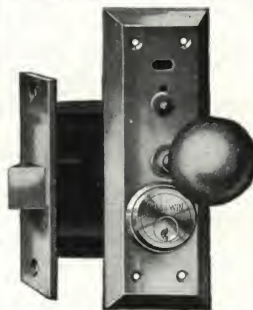
The door is held open when the booth is not occupied, by a special stop or stay attached to the door. Stop is placed in position by the attendant to hold the door open, releasing automatically when patron opens the door. A closer closes the door which is always locked when in the closed position. The keyhole is concealed by a revolving disc which has been thrown in position by the attendant.

The occupant on leaving opens the door by turning the inside knob. This operation releases the circular disc, which revolves automatically and exposes the keyhole, indicating to the attendant in charge that the booth is vacant.

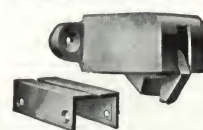
As the door is closed by means of the closer, after the departure of the patron, the booth is secure against other patrons of the institution until it has been inspected by the attendant who can examine the booth for any valuables left by the last occupant. He then places the door stop in position and throws the disc over the keyhole; the booth now being ready for the next patron.



Left-hand Reverse Bevel

COUPON BOOTH DOOR LOCK AND HOLDER

Set 01297 Lenox



Automatic Door Holder No. 68



No. 68 Applied Door Held Ajar

01297—Latch bolt can be operated by key only from outside, by knob from inside. The outside knob is always rigid and acts as a pull.

The door of the booth is held open when unoccupied by the Automatic Door Holder. The client entering the booth releases the door holder and the door, controlled by a closer, closes quietly and locks. The occupant merely turns the knob to leave. The turning of the knob operates a red indicator on the outside escutcheon, indicating to the attendant that the booth is now vacant. As the door has been closed, after the departure of the client by means of the closer, the booth is secure against other patrons until it has been inspected by the attendant. After inspecting, he then throws the indicator back and sets the door holder, leaving the door ajar for the next occupant.

No.	Type	Knob	Escutcheons, in.	Cylinder
2196	Horizontal	One	Inside, 3 1/8 x 4 7/8 Outside, 4 3/4 x 4	One special (under disc)

Keys: 3 special for each gang of locks.

For Description of Finishes, see Page 3

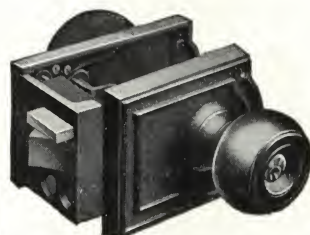
RUSSWIN

SPECIAL DESIGNS IN UNIT LOCKS

In Ordering Specify Set Number (Cat. No.) and Name of Design by Symbol and Finish

R&E
SINCE 1839

CAMDEN DESIGN

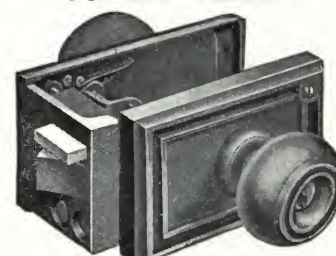
2150
Horizontal

INDEX TO UNIT LOCK DESIGNS

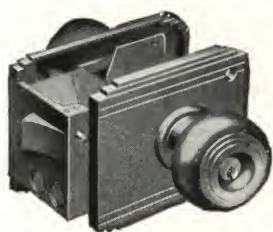
All Knobs $2\frac{1}{4} \times 2\frac{1}{4}$ in.

For doors	Cat. No.	Cat. No.
CAMDEN DESIGN		COPLEY DESIGN
Horizontal Type—For Door Stiles Not Less Than 5 In. Wide		
Escutcheons, $3\frac{1}{8} \times 4\frac{7}{8}$ in.		Escutcheons, $3\frac{3}{8} \times 4\frac{3}{4}$ in.
Front.....	2150	2150
Vestibule.....	2156M	2156M
Office.....	2166M	2166M
Office.....	2157M	2157M
Office.....	2166 $\frac{3}{4}$ M	2166 $\frac{3}{4}$ M
Entrance.....	2159 $\frac{1}{2}$ M	2159 $\frac{1}{2}$ M
Entrance.....	2116M	2116M
Communicating.....	2134	2134
Communicating.....	2135	2135
Latch.....	2145	2145

COPLEY DESIGN

2150
Horizontal

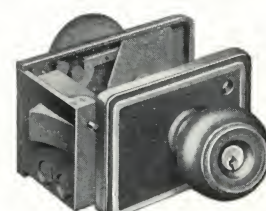
PYRAMID DESIGN

2156
Horizontal

PYRAMID DESIGN

Horizontal Type—For Door Stiles Not Less Than 5 In. Wide		FIDELITY DESIGN
Escutcheons, $3\frac{1}{8} \times 4\frac{7}{8}$ in.		Escutcheons, $3\frac{3}{8} \times 4\frac{3}{4}$ in.
Front.....	2150	2150
Vestibule.....	2156M	2156M
Office.....	2166M	2166M
Office.....	2157M	2157M
Office.....	2166 $\frac{3}{4}$ M	2166 $\frac{3}{4}$ M
Entrance.....	2159 $\frac{1}{2}$ M	2159 $\frac{1}{2}$ M
Entrance.....	2116M	2116M
Communicating.....	2134	2134
Communicating.....	2135	2135
Latch.....	2145	2145

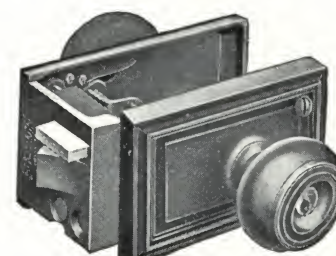
FIDELITY DESIGN

2156
Horizontal

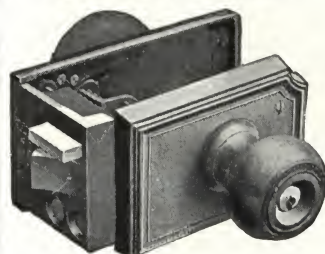
MADISON DESIGN

Horizontal Type—For Door Stiles Not Less Than 5 In. Wide		NIANTIC DESIGN
Escutcheons, $3\frac{1}{8} \times 5\frac{1}{4}$ in.		Escutcheons, $3\frac{3}{8} \times 4\frac{7}{8}$ in.
Front.....	2150	2150
Vestibule.....	2156M	2156M
Office.....	2166M	2166M
Office.....	2157M	2157M
Office.....	2166 $\frac{3}{4}$ M	2166 $\frac{3}{4}$ M
Entrance.....	2159 $\frac{1}{2}$ M	2159 $\frac{1}{2}$ M
Entrance.....	2116M	2116M
Communicating.....	2134	2134
Communicating.....	2135	2135
Latch.....	2145	2145

NIANTIC DESIGN

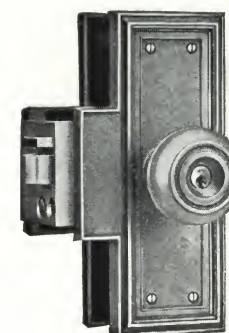
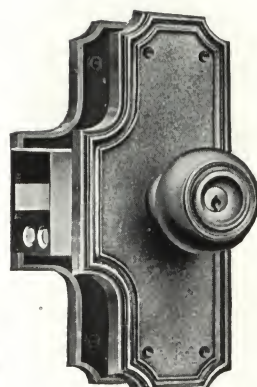
2150
Horizontal

MADISON DESIGN

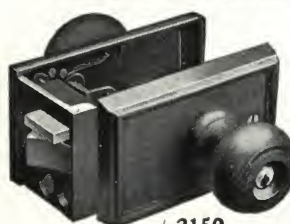
2150
Horizontal

GRANBY DESIGN

Horizontal Type—For Door Stiles Not Less Than 5 $\frac{3}{4}$ In. Wide		Upright Type—For Door Stiles Not Less Than 4 $\frac{3}{4}$ In. Wide
Escutcheons, $3\frac{1}{8} \times 4\frac{7}{8}$ in.		Escutcheons, 9x3 in.
For doors	Cat. No.	Cat. No.
Front.....	2150	2850
Vestibule.....	2156M	2856M
Office.....	2166M	2866M
Office.....	2157M	2857M
Office.....	2166 $\frac{3}{4}$ M	2866 $\frac{3}{4}$ M
Entrance.....	2159 $\frac{1}{2}$ M	2859 $\frac{1}{2}$ M
Entrance.....	2116M	2816M
Communicating.....	2134	2834
Communicating.....	2135	2835
Latch.....	2145	2845

2850
Upright2856
Upright

GRANBY DESIGN

2150
Horizontal

For full description of the operation and functions of these locks, see Page 40.

Can also be furnished in the upright type, as other designs shown herewith.

Note: If the exact thickness of the doors is given the locks will be machined and especially fitted for the thickness of door specified. Unit locks will be furnished, if so ordered, adjustable for doors of the following thicknesses: $1\frac{1}{2}$ to 2, 2 to $2\frac{1}{2}$, $2\frac{1}{2}$ to 3 in. Minimum and maximum thicknesses should be specified as 1 set locks No. 2850 Lenox, $1\frac{1}{2}$ to 2 in.

For Description of Finishes, see Page 3

RUSWIN**LOCKS FOR PUBLIC BUILDINGS****R&E**
SINCE 1839BANKS
FRATERNALLIBRARIES
CHURCHESGOVERNMENTAL
MUSEUMSCLUBS
HOSPITALSSTORES
FACTORIESINSTITUTIONS
WAREHOUSES*See special classification for Office Buildings, Hotels, Apartment Houses, Schools and Residences*

Public buildings of the above types, on account of the services to which they are put, demand hardware that must have as first consideration extreme durability and reliability. The design and finish of this hardware must be attractive and durable, as it is subject to the use and scrutiny of great numbers of people and in most cases receives hard usage.

Special Hardware Requirements

Almost every building of a public character such as those noted above has special requirements, especially in regard to the locking arrangements, which need special attention. Each type of building has its own requirements. Even in buildings of a similar type the locking arrangements may be very different. For this reason separate lists of hard-

ware are not given in this catalogue for some of these buildings.

Before Writing Specifications

Supplying public buildings with hardware for years has furnished the Company with a wealth of experience. This experience is all at the service of the architect, and will assist him greatly in the problems confronted by him.

We therefore suggest, whether our hardware is finally selected or not, that before starting to write the hardware specification, we should be consulted. A hardware expert from one of our offices or agencies, will be glad to advise as to the hardware which will best meet the requirements of the building under consideration. This will be done without obligating the architect in any way.

LOCKS FOR OFFICE BUILDINGS

All of the locks in Group One, listed below, are of the Unit Type and embody the best features obtainable in the art of lock-making today. See Pages 40 to 43.

The locks on the corridor doors should be subject to the keys of individual and private offices.

Locks on the lavatories of each floor should be subject

to the keys of all the individual office door locks of their respective floors only.

All office door locks may be master keyed by floors or in sets as desired for janitor service, with a grand master key for the entire building.

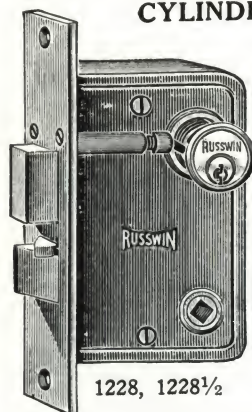
Keying systems for cylinder locks can be changed at any time to fit special conditions or requirement of tenants.

OFFICE BUILDING LOCKS

Locks arranged in groups according to choice and quality

Use	Unit locks		Standard locks										Use	Unit locks		Standard locks									
	Group 1		Group 2		Group 3		Group 4		Group 5		Group 1			Group 2		Group 3		Group 4		Group 5					
	Lock No.	Page	Lock No.	Page	Lock No.	Page	Lock No.	Page	Lock No.	Page	Lock No.	Page		Lock No.	Page	Lock No.	Page	Lock No.	Page	Lock No.	Page				
Entrance	2159½	41	9152½M	52	9152½M	52	9152½M	52	9152½M	52	Closets	2145	41	1248	53	1248	53	1248	53	1248	53				
	2859½	41	9132	46	9132	46	9132	46	9132	46		2845	41	028	56	025	56	042	56	042	56				
Vestibule and corridor	2166	40	*1457	45	11456	45	1239½	45	1248½	45	Lavatories	2116	41	* 1457½M	52	11458½M	52	11458½M	52	11258½M	52				
	2866	40									2816	41													
	2156	40									Stair wells	2159½	41	* 1457½M	52	11458½M	52	11458½M	52	11258½M	52				
	2856	40									2359½	41	028	53	025	56	11258½M	52	042	56					
Individual offices	2166¾	41	11456	45	11456	45	1239½	45	1248½	45	Janitor's closet	2116	41	1248	53	1248	53	1248	53	1248	53				
	2866¾	41								2816		41													
Private offices	2166¾	41	11456	46	11456	45	1239½	45	1248½	45	Slop sinks	2145	41	*028	56	025	56	025	56	025	56				
	2866¾	41										2345	41	025	53										
	2134	41	236	54	236	54	236	54	233	54	2145	41													
	2834	41									2345	41													
Communicating	2135	41	236½	54	236½	54	236½	54	233½	54	Pipechases, wire shafts, etc.	2116¼	42	1203	56	1203	53	1203	56	1203	56				
	2835	41								2816¼		42													

*Latch bolts have 3/4-in. throw to meet Underwriters' requirements.

CYLINDER KNOB LOCKS FOR ENTRANCE DOORS TO PUBLIC BUILDINGS**1228, 1228 1/2, 1225, 1225 1/2 Cylinder Locks for Heavy Entrance Doors****1228, 1228 1/2****066 1/2**

These locks are for similar services. The 1228 and 1228 1/2 are the heavier. The latch bolt which is of the anti-friction type, insuring easy action, can be operated from either side at all times.

The locks in addition have a dead bolt. The bolt in 1228 and 1225 is operated by a key from the outside and by turn knob from the inside. In 1228 1/2 and 1225 1/2 it is operated by key from either side. A continuous turn of the key withdraws both dead and latch bolts.

GENERAL CONSTRUCTION

Case: Japanned iron.

Front, Bolts, Strikes: Cast bronze.

Bevel: 1228, 1228 1/2, 1/8-in. on 2-in.

Flat: 1225, 1225 1/2.

Cylinder: Bronze.

Keys: Liberty silver.

Hub: Brass. Spindles: 1/8-in.

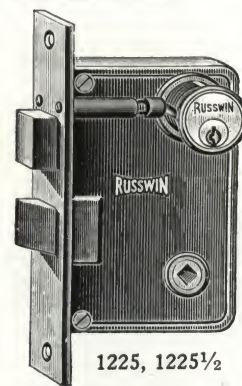
Latch Construction: 1228, 1228 1/2,

D. C.; 1225, 1225 1/2, E. C.

Reversible: 1228, 1228 1/2, no, specify

hand; 1225, 1225 1/2, yes.

Lock Width: 1 in. more than backset.

**066 1/2****1225, 1225 1/2**

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
1228	Flat	8 1/4 x 1 1/2	6 x 4 x 1	3	.....	1 1/2	3 3/4	One	3	Unlimited	No. 066 1/2	Easy spring
1228 1/2	Flat	8 1/4 x 1 1/2	6 x 4 x 1	3	.....	1 1/2	3 3/4	Two	3	Unlimited	.....	Easy spring
1225	Flat	8 x 1 1/4	5 1/2 x 3 3/4 x 3/4	2 3/4	2, 2 1/2	1 1/4	3 3/4	One	3	Unlimited	No. 066 1/2	Easy spring
1225 1/2	Flat	8 x 1 1/4	5 1/2 x 3 3/4 x 3/4	2 3/4	2, 2 1/2	1 1/4	3 3/4	Two	3	Unlimited	.....	Easy spring

For Description of Finishes, see Page 3

RUSWIN**CYLINDER LOCKS FOR ENTRANCE AND CORRIDOR OFFICE DOORS****Especially Adapted for Doors Opening Out**

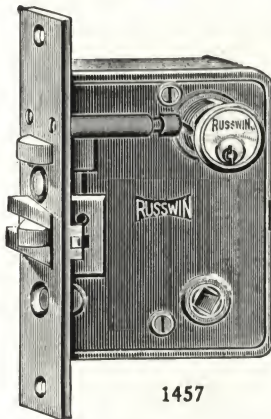
No. 1457 (Latch bolt has $\frac{3}{4}$ in. throw) for Kalamein and other Fire Doors; No. 11456 has Standard Latch Throw

These are heavy locks for services noted above in high class buildings. Anti-friction Type Latch Bolt can be operated by knobs from either side except when outside knob is set by stop in face of lock. When knob is set, latch bolt can be operated only by key from outside and by knob from inside.

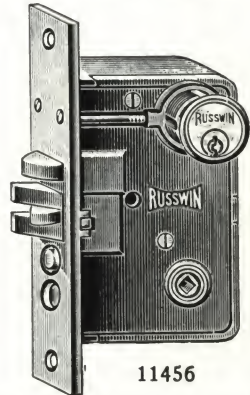
An Auxiliary Latch automatically dead locks and safeguards the latch bolt, preventing retraction by instruments inserted between the face of lock and strike. It also prevents manipulation of stops when door is closed, making the lock secure against entrance except by key.

GENERAL CONSTRUCTION

Case: Japanned iron. Fronts, Hub: Brass. For $\frac{1}{8} \times \frac{3}{8}$ in. swivel
Bolts, Strikes: Cast bronze. spindle.
Bevel: $\frac{1}{8}$ in. on 2-in. Latch Construction: 1457, CL;
Cylinder: Bronze. Keys: Liberty 11456, EC.
silver. Reversible: No. Specify hand.
Lock Width: 1457, $1\frac{1}{2}$ in. more than backset; 11456, 1 in. more than backset.



1457



11456

Lock No.	Front		Size case, in.	Backset, in.		Strike lip, to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
1457	Flat	$8\frac{1}{2} \times 1\frac{1}{4}$	6	$2\frac{3}{4}$	$3\frac{1}{4}$	$1\frac{1}{4}$	$3\frac{3}{8}$	One	3	Unlimited	None	Anti-friction
11456	Flat	$7\frac{3}{4} \times 1\frac{1}{8}$	$5\frac{1}{2} \times 3\frac{3}{4} \times \frac{1}{8}$	$2\frac{1}{2}$	.....	$1\frac{1}{4}$	$3\frac{3}{8}$	One	3	Unlimited	None	Anti-friction

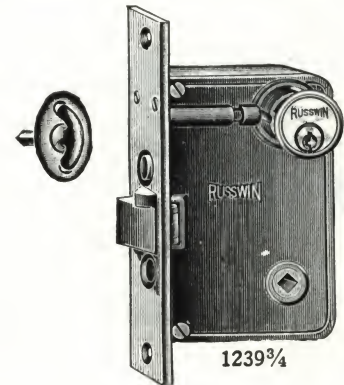
LOCK FOR OFFICE DOORS GIVING ABSOLUTE PRIVACY

Cannot Be Opened from the Outside When Dead Locked

No. 1239 $\frac{1}{4}$ heavy lock for entrance and corridor doors. Anti-friction type latch bolt can be operated by knobs from either side except when outside knob is set by stop in face of lock. When knob is set, latch bolt can be operated only by key from outside and knob from inside. Latch bolt can be deadlocked by turnknob inside, making keys inoperative from outside. The lock then offers absolute security against intrusion.

GENERAL CONSTRUCTION

Case: Japanned iron. Front, Bolts, Hub: Brass. For $\frac{1}{8} \times \frac{3}{8}$ in. swivel
Strikes: Cast bronze. spindle.
Bevel: $\frac{1}{8}$ in. on 2-in. Latch Construction: EC.
Cylinder: Bronze. Keys: Liberty Reversible: No. Specify hand.
silver. Lock Width: 1 in. more than backset.

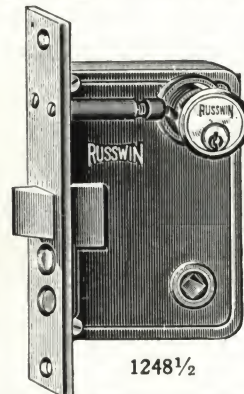
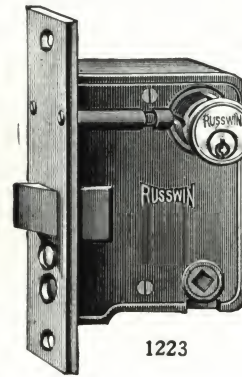
1239 $\frac{1}{4}$

Lock No.	Front		Size case, in.	Backset, in.		Strike lip, to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
1239 $\frac{1}{4}$	Flat	$8 \times 1\frac{1}{4}$	$5\frac{1}{2} \times 3\frac{3}{4} \times \frac{3}{4}$	$2\frac{3}{4}$	.....	$1\frac{1}{4}$	$3\frac{5}{8}$	One	3	Unlimited	No. 066 $\frac{1}{2}$	Anti-friction

INEXPENSIVE OFFICE DOOR AND VESTIBULE ENTRANCE LOCKS WITH DEAD LOCKED LATCH BOLT FOR USE WITH KNOBS AND HANDLE

These locks can be used when an inexpensive lock is desired for the doors of offices or the vestibule entrance of apartment houses. They afford only the protection from the outside of a dead locked latch.

For locks offering greater protection for vestibule entrance to apartment houses see 1458 $\frac{1}{2}$, 1258 $\frac{1}{2}$ and 9152 $\frac{1}{2}$.

1239 $\frac{1}{2}$ 1248 $\frac{1}{2}$ 

1223

1239 $\frac{1}{2}$ and 1248 $\frac{1}{2}$ For Knobs Both Sides—Which operate the latch bolt except when outside knob is dead locked by stops in face of lock, then by key only from outside. Latch bolt can always be operated by knob from inside.

1223 For Handle With Thumb Piece Outside and Knob Inside—The control is the same as for 1239 $\frac{1}{2}$ and 1248 $\frac{1}{2}$.

GENERAL CONSTRUCTION

Case: Japanned iron. Fronts, Bolts, Strikes: Cast bronze.
Bevel: $\frac{1}{8}$ in. on 2-in.
Cylinder: Bronze. Keys: Liberty silver.
Hub: Brass. For $\frac{1}{8} \times \frac{3}{8}$ in. swivel spindle.

Latch Construction: 1239 $\frac{1}{2}$, EC; 1248 $\frac{1}{2}$, CL; 1223, CSL.
Reversible: 1239 $\frac{1}{2}$, No; 1248 $\frac{1}{2}$, Yes; 1223, Yes.
Lock Width: 1239 $\frac{1}{2}$ and 1248 $\frac{1}{2}$, 1 in. more than backset; 1223, $1\frac{1}{8}$ in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Strike lip, to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
1239 $\frac{1}{2}$	Flat	$8 \times 1\frac{1}{4}$	$5\frac{1}{2} \times 3\frac{3}{4} \times \frac{3}{4}$	$2\frac{3}{4}$	$2\frac{1}{2}$ -3	$1\frac{1}{4}$	$3\frac{5}{8}$	One	3	Unlimited	None	Anti-friction
1248 $\frac{1}{2}$	Flat	$7\frac{3}{4} \times 1\frac{1}{4}$	$5\frac{1}{2} \times 3\frac{3}{4} \times \frac{1}{8}$	$2\frac{3}{4}$	.....	$1\frac{1}{4}$	$3\frac{5}{8}$	One	3	Unlimited	None	Easy spring
1223	Flat	$7\frac{3}{8} \times 1\frac{1}{8}$	$5 \times 4 \times \frac{3}{4}$	$2\frac{3}{4}$	2	$1\frac{1}{4}$	$3\frac{5}{8}$	One	3	Unlimited	None	Easy spring

For Description of Finishes, see Page 3

RUSSWIN**LOCKS ESPECIALLY USEFUL
FOR SCHOOL HOUSES****R&E**
SINCE 1839

The locks illustrated or listed below are especially adaptable for school house work. All these locks whether for exterior or interior doors can be operated at all times from the inside.

Exterior door locks are used in connection with Fire Exit Bolts, thus insuring absolute safety to the occupants of the building. Doors so equipped can always be operated

from the inside, but prevent entrance from the outside by unauthorized persons.

All locks in a building or in a system of schools may be master keyed in one set with a grand master key over all. Where bitted key and cylinder locks are used together, a separate master key system must be employed for each type of lock.

INDEX TO LOCKS FOR SCHOOLS

Index and suggested layout of locks arranged in groups, horizontally according to choice and vertically according to quality and use. Group 1 is the highest grade.

Use	Group 1		Group 2		Group 3		Group 4		Use	Group 1		Group 2		Group 3		Group 4	
	Lock No.	Page	Lock No.	Page	Lock No.	Page	Lock No.	Page		Lock No.	Page	Lock No.	Page	Lock No.	Page	Lock No.	Page
Main entrance.	See fire exit bolts.								Teachers' rooms..	11458 1/2 M	52	1248	53	1248	53	1248	53
Side entrances.	See fire exit bolts.								Teachers' lava-	11258 1/2 M	52	1248 1/2	45	1248 1/2	45	1248 1/2	45
Exits.....	See fire exit bolts.								tories.....	11458 1/2 M	52	1248 1/2	45	1248 1/2	45	1248 1/2	45
Class rooms....	11458 1/2 M	52	444 3/4	46	00125	46				11258 1/2 M	52	1248	53	380 3/4	53	380 3/4	53
	11258 1/2 M	52							Closets.....	1248	53	025	56	042	56	042	56
Principal.....	11258 1/2 M	52							Auditorium.....	025	56	042	56	042	56	042	56
	11258 1/2 M	52															

CYLINDER LOCKS FOR ENTRANCE OR CORRIDOR DOORS

When high grade cylinder locks are desired for entrance or corridor doors see table above for lock and page number.

As the locks noted are used for other services they are not repeated here.

BITTED KEY LOCKS FOR CORRIDOR DOORS

These locks are especially designed for corridor or classroom doors as they allow free operation at all times from the classroom side without having to unlock the lock but afford required protection from entrance from the corridor side.

444 3/4—Has easy spring latch bolt operated by knobs from either side. Inside knob is free to operate at all times. Outside knob can be locked by key from either side. Also has auxiliary latch which is automatically released when outside knob is locked and safe guards the latch bolt, preventing it from being retracted by any instrument inserted between face of lock and strike. When outside knob is unlocked the auxiliary latch is held retracted. Lock is regularly furnished master keyed; if this feature is not desired it must be so specified.

00125—Operates the same as 444 3/4. Latch bolt is protected, from being retracted by any instrument inserted between face of lock and strike, by recessed front instead of auxiliary latch.

GENERAL CONSTRUCTION

Case: Japanned iron. Front, Bolts, Strikes: Cast bronze.
Tumblers: Lever. Keys: Nickelplated steel.
Hub: Brass. For 1/8 x 3/8 in. swivel spindle.

Latch Construction: CL.
Reversible: 444 3/4 and 00125, no; specify hand.
Master Keying: 3 sets 100 each or 300 all different.

Lock No.	Front		Size case in.	Backset, in.		Strike lip, to center, in.	Spacing, in.	Tumblers	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
444 3/4	Flat	7 3/8 x 1 1/8	5 1/2 x 3 3/4 x 3/8	2 3/4	2 1/2	1 1/4	2 5/8	Lever	One	48	None	Easy spring
00125	Recessed	6 1/2 x 1	4 1/2 x 3 3/4 x 3/8	2 3/4	2 1/2	1 1/4	2 5/8	Lever	One	48	None	Easy spring

BITTED KEY LOCK FOR CLOSET DOORS

Suitable locks for closet doors are noted in the index and as full information in regard to them is given on the

pages to which they are referred—they have not been repeated under this heading.

LOCKS FOR STORE DOORS USING HANDLES

These locks are designed for use on the entrance doors to stores where a double swinging door is not used. They are used when a handle and thumb piece is desired on both sides of the door.

9118, 9119, 9132, 9098 and 9098 1/2

9118 and 9119 are similar in construction. The latch bolt for both locks is operated by thumb piece from either side, except when outside thumb piece is set by stops in face of lock, when it can be operated by key from outside and thumb piece from inside. In addition a dead bolt is operated in 9118 by key from both sides and in 9119 by turn knob from inside, and key from outside. A continuous turn of key from outside will withdraw both dead and latch bolt.

9132 and 9098 are similar in construction. Latch bolt is operated by thumb piece from either side at all times. In addition they have a dead bolt operated by key from either side. 9132 is heavier than 9098.

9098 1/2 same as 9098 but has rabbeted face.

GENERAL CONSTRUCTION

Case: Japanned iron. Front, Bolts, Strikes: Cast bronze.
Cylinder: Bronze. Keys: Liberty silver.
Latch Construction: SC.

Reversible: 9118, 9119 and 9098, yes; 9132 and 9098 1/2, no; specify hand.
Lock Width: 1 in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Strike lip, to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
9118	Flat	7 1/2 x 1 1/4	5 x 3 3/4 x 3/4	2 3/4	2 1/2	1 1/4	4 1/4	Two	3	Unlimited	None	Easy spring
9119	Flat	7 1/2 x 1 1/4	5 x 3 3/4 x 3/4	2 3/4	2 1/2	1 1/4	4 1/4	One	3	Unlimited	No. 066 1/2	Easy spring
9132	Revel	7 3/4 x 1 3/8	5 x 3 3/4 x 1	2 3/4	2 1/2	1 1/4	4 1/4	Two	3	Unlimited	None	Easy spring
9098	Flat	7 x 1 1/8	5 x 3 3/4 x 3/4	2 3/4	2 1/2	1 1/4	4 1/4	Two	3	Unlimited	None	Easy spring
9098 1/2	Rabbeted	7 x 1 1/8 x 1/2	5 x 3 3/4 x 3/4	2 3/4	2 1/2	1 1/4	4 1/4	Two	3	Unlimited	None	Easy spring

For Description of Finishes, see Page 3

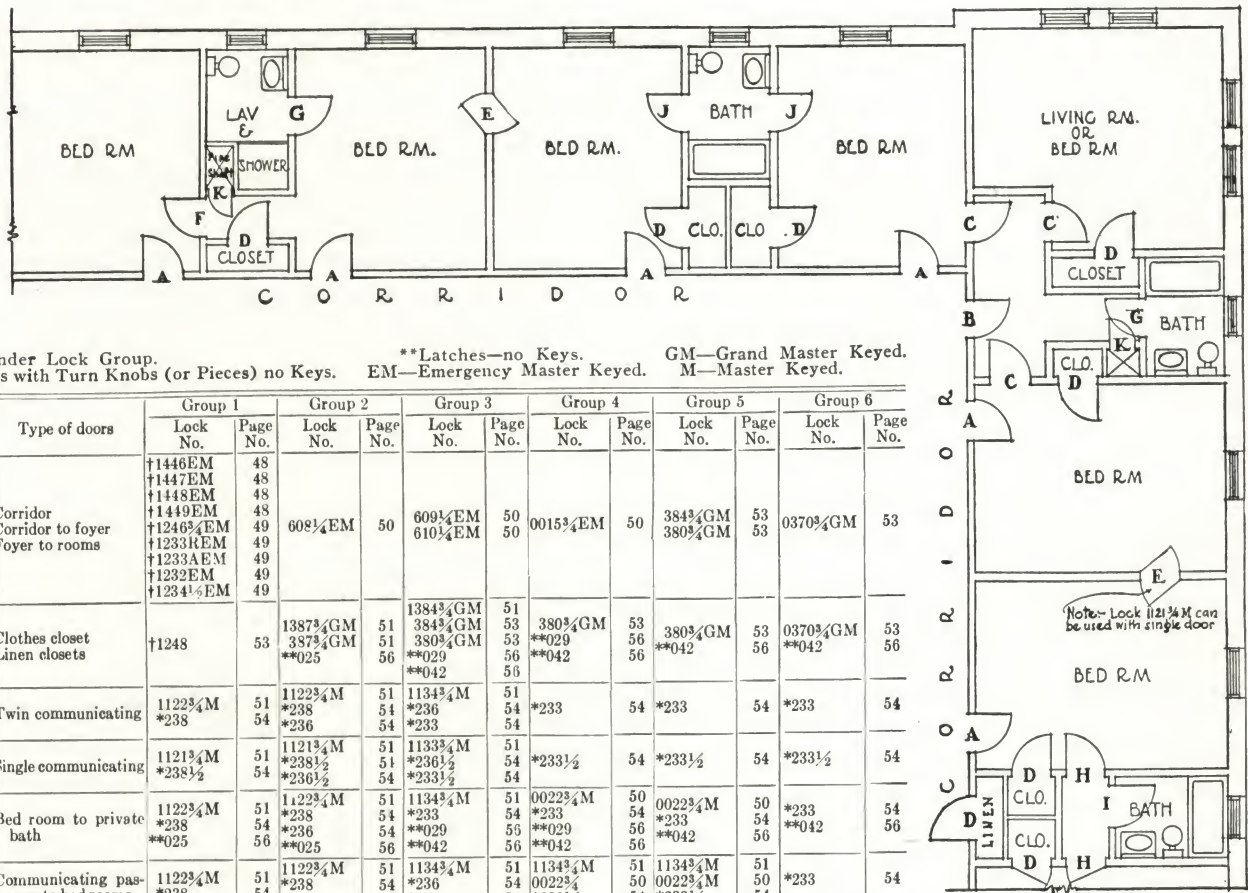
RUSSWIN

HOTEL LOCKS

R&E
SINCE 1839

INDEX AND SUGGESTED LAYOUT OF HOTEL LOCKS

Locks arranged in groups according to quality and systems in which they may be Master Keyed together.



†Cylinder Lock Group.

*Locks with Turn Knobs (or Pieces) no Keys.

**Latches—no Keys.

EM—Emergency Master Keyed.

GM—Grand Master Keyed.

M—Master Keyed.

Symbol	Type of doors	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
		Lock No.	Page No.	Lock No.	Page No.	Lock No.	Page No.
A	Corridor	†1446EM	48				
		†1447EM	48				
		†1448EM	48				
		†1449EM	48				
		†1246½EM	49	608½EM	50	609½EM	50
		†1233REM	49			0015½EM	50
B	Corridor to foyer	†1233AEM	49				
		†1232EM	49				
		†1234½EM	49				
C	Foyer to rooms						
D	Clothes closet	†1248	53	1387½GM	51	1384½GM	51
				387½GM	51	384½GM	51
				**025	56	**029	56
				**042	56	**042	56
E	Linen closets						
F	Twin communicating	1122½M	51	1122½M	51	1134½M	51
		*238	54	*238	54	*238	54
		*236	54	*236	54	*236	54
G	Single communicating	1121½M	51	1121½M	51	1133½M	51
		*238½	54	*238½	54	*238½	54
		*236½	54	*236½	54	*236½	54
H	Bed room to private bath	1122½M	51	1122½M	51	1134½M	51
		*238	54	*238	54	*238	54
		*236	54	*236	54	*236	54
		**025	56	**025	56	**029	56
I	Communicating passage to bed rooms						
J	Communicating passage to bath	1122½M	51	1122½M	51	1134½M	51
		*238	54	*238	54	*238	54
		*236	54	*236	54	*236	54
K	Communicating bath	1121½M	51	1121½M	51	1133½M	51
		*238½	54	*238½	54	*238½	54
		*236½	54	*236½	54	*236½	54
L	Wire shafts, closets, pipe chases, etc.	†1203	56	0786M	56	0783½M	56

Hotel Locks

We recommend locks in Groups 1-2-3 and 4 in the order shown as being the most satisfactory equipment yet devised in the way of hotel room locks.

In selecting equipment for locking hotel room doors, three important things should be considered.

1. Absolute privacy for the guest when room is occupied, and the exclusion of unauthorized persons when unoccupied.

2. Some means of indicating room is occupied, without disturbing the guest.

3. Means of entering room by maid when room is unoccupied, and the ability of the Management to enter room at all times in case of emergency.

RUSSWIN Hotel Locks as listed in Groups 1-2-3 and 4 combine all these features.

Note: Corridor Locks automatically locked when door is closed. 1446EM, 1447EM, 1448EM, 1449EM, 1233REM, 1233AEM, 1246½EM.

Corridor Locks which must be locked by key after closing door. 1232EM, 609½EM, 608½EM, 610½EM, 611½EM, 0015½EM.

Lock Group 1

Cylinder Locks (indicated by daggers) in Group 1 cannot be master keyed with the bitted key locks under this head-

ing. The corridor and closet doors are usually arranged under one system and the communicating and bathroom locks under another control, the master key in such cases being retained by the room clerk. Under this arrangement rooms may be rented ensuite or separately, with or without bathrooms.

We recommend Cylinder Locks for corridor and closet doors. Communicating and bathroom locks are bolted by means of turn knobs, made operative or inoperative by a bitted master key under the control of the management. No cylinders are required.

Lock Group 2-3-4-5 and 6

All locks listed in Groups 2-3-4-5 and 6, with the exception of those which do not have or require keys, may be master keyed in the same manner, i.e., in two systems or can be master keyed in one system.

When two systems are used locks shown for corridor and closet doors in one group may be used in connection with locks for the other types of doors in another group. This should be avoided if possible, and is not necessary, as in some instances a choice of four locks is given.

Corridor locks shown in Groups 5 and 6 are not strictly Hotel Locks, and do not have all the functions which a corridor lock should have. They are suitable for use however, in small Inns and Hotels with a limited number of rooms.

For Description of Finishes, see Page 3

RUSSWIN**THE IMPORTANCE OF THE HARDWARE IN THE SATISFACTORY OPERATION OF A HOTEL****R&E**
SINCE 1839

It is a well known fact that the character of the hotel depends to a very large extent on the locking system and the amount of control the hotel management has over the locking system.

This is especially true of the locking system on communicating doors between rooms. Unless the management has absolute control of this type of room, the

hotel cannot be kept up to standards of the highest character.

A good lock for the guest room doors to corridor and closets is a good investment. It will save the management many dollars for the adjustment of claims from theft. It will give the guest a feeling of privacy and security from intrusion which is highly desirable.

The Advice of Hotel Hardware Specialists

It is hoped that the diagram and index to locks will be of assistance in the selection of the proper locks, for various services. We also urge that the expert services of the hotel specialists of the company be called upon. A highly specialized department has been created at the general offices,

for the purpose of giving architects the benefit of years of experience in solving problems that arise in connection with the hardware equipment of hotels.

Russwin Hardware for hotel use conforms to all the codes formulated for the protection of patrons.

TABLE OF COMPARATIVE FEATURES AND FUNCTIONS OF HOTEL CORRIDOR LOCKS

Lock, No.	Backset, in.	Cylinder both sides	Cylinder outside, turn knob inside	Outside knob always rigid, inside knob rigid when locked from inside	Outside knob always rigid, inside knob free at all times	Outside knob controlled by stops in face of lock, inside knob free at all times	Knobs free from either side at all times	Has dead bolt	Has direct throw on bolts as bitted key locks	Spring latch bolt locks door	Emergency operated	Emergency guarded	Auxiliary latch safeguards latch when door is closed or open	Maid's key inoperative when door is locked from inside	Has indicator
1448EM	2 1/2	x	.....	x	.....	.....	.....	x	.....	x	x	x	x	x	x
1449EM	2 1/2	.....	x	x	.....	.....	.....	x	.....	x	x	x	x	x	x
1446EM	2 1/2	x	.....	x	.....	.....	.....	.....	.....	x	x	x	x	x	x
1447EM	2 1/2	.....	x	x	.....	.....	.....	.....	.....	x	x	x	x	x	x
1233REM	2 3/4	.....	x	.....	x	.....	.....	x	.....	x	x	x	.....	x	x
1234 1/2 EM	2 3/4	x	.....	.....	.....	.....	x	x	x	.....	x	x	.....	.....	x
1232EM	2 3/4	.....	x	.....	.....	.....	x	x	.....	.....	x	x	.....	.....	x
1241 1/2 EM	2 1/2	.....	x	.....	.....	x	.....	x	.....	x	x	x	.....	.....	x
1246 3/4	2 1/2	.....	x	.....	x	.....	.....	.....	.....	x	x	x	.....	.....	x
1233AEM	2 3/4	.....	x	.....	x	.....	.....	x	.....	x	x	x	.....	x	x

Corridor Door Lock with Double Safety Feature

1448EM Lock—This lock is designed to guarantee absolute privacy to guest—when in room. The closing of the door automatically locks it from outside; it can then only be opened by key. Outside knob is rigid at all times and has no connection with operation of lock. When guest is in room and desires absolute privacy, the door is deadlocked by key-locking the inside cylinder. The inside key-locking disengages the outside cylinder from the locking mechanism. The emergency key is then the only key that will engage or operate lock from outside of room—all other keys revolve freely without engaging. An auxiliary latch safeguards the latch bolt from being retracted and the forcing of door by insertion of sharp instrument between face of lock and strike.



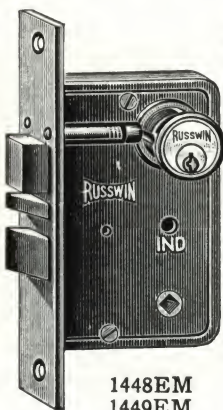
066 1/2

As an additional safeguard there is a dead bolt operated by cylinder on inside and emergency key, only, on outside. Furnished with Indicator B, if desired. (Page 38.)

The door when locked, but not deadlocked, is subject to following keys: guest's, maid's master, grand master, display and emergency; when deadlocked, to emergency key only.

The revolving feature of cylinder, when deadlocked, stops attempted forcing of lock, thus saving wear and tear on locks and twisting and breaking of keys.

1449EM—Same as 1448EM except that it has turn knob in place of inside cylinder.

**1448EM
1449EM****Corridor Door Lock with Single Safety Feature**

1446EM—When door is closed the latch bolt is automatically deadlocked, and lock can be operated by key only from outside and by knob from inside. Outside knob is rigid at all times. Auxiliary latch automatically deadlocks and safeguards the latch bolt, preventing it from being retracted by any instrument inserted between the face of the lock and strike. It can also be locked by key from inside, then all keys are made inoperative from the outside except the emergency.

When thus locked, the outside cylinder is disengaged from the locking mechanism and any key, except the emergency on the outside, revolves freely without engaging any part of the locking mechanism, indicating that the room is occupied.

This feature eliminates strain of any kind on the lock and prevents the twisting and breaking of keys by maids.

Can also be furnished with Indicator B if desired (see Page 38).

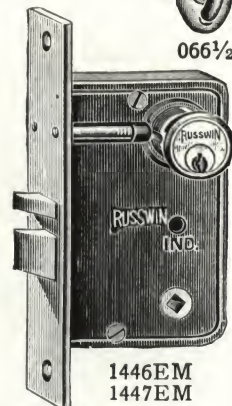
The latch cannot be deadlocked when door is open, thus preventing any damage to the lock when latch bolt comes in contact with strike.

When not locked by key on inside, the lock is subject to guest's, maid's master, grand master, display and emergency keys.

1447EM—Same as 1446EM except that it has turn knob in place of inside cylinder.



066 1/2

**1446EM
1447EM****GENERAL CONSTRUCTION**

Case: Japanned iron.
Fronts, Bolts, Strikes: Cast bronze.
Bevel: 1/8 in. on 2-in.

Keys: Liberty silver.
Cylinder: Bronze.
Hub: Brass, compensating. For 1/8 in. spindle.

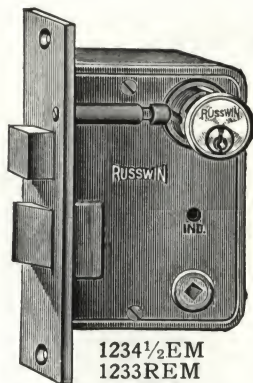
Latch Construction: Type D.C.
Reversible: No, specify hand.
Lock Width: 7/8 in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
1448EM	Bevel	8x1 1/4	5 1/2 x 3 3/8 x 7/8	2 1/2	.....	1 1/4	3 3/8	Two	3	Unlimited	.....	Easy spring
1449EM	Bevel	8x1 1/4	5 1/2 x 3 3/8 x 7/8	2 1/2	.....	1 1/4	3 3/8	One	3	Unlimited	066 1/2	Easy spring
1446EM	Bevel	8x1 1/4	5 1/2 x 3 3/8 x 7/8	2 1/2	.....	1 1/4	3 3/8	Two	3	Unlimited	.....	Easy spring
1447EM	Bevel	8x1 1/4	5 1/2 x 3 3/8 x 7/8	2 1/2	.....	1 1/4	3 3/8	One	3	Unlimited	066 1/2	Easy spring

For Description of Finishes, see Page 3

RUSWIN**CYLINDER LOCKS FOR HOTEL CORRIDOR DOORS****R&E**
SINCE 1839

1234½EM—This lock has no turn knob. Latch bolt can be operated from either side at all times. In addition it has dead bolt operated by key from both sides. The dead bolt has a direct throw; the key turns in the direction in which it is desired to throw the bolt.



1234½EM
1233REM
1232EM



066½

Can be furnished with guest's, maid's master, grand master, display and emergency keys.

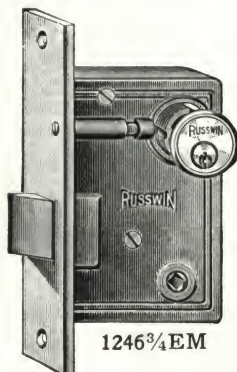
1233REM—When door is closed it is automatically locked, and lock can be operated by key only from outside and by knob from inside. Outside knob is rigid at all times. In addition it has a dead bolt operated by turn knob on the inside and by emergency key only from outside. When deadlocked the outside cylinder is disengaged from the locking mechanism and any key, except the emergency, on the outside, revolves freely without engaging any part of the locking mechanism indicating that the room is occupied.

This feature eliminates strain of any kind on the lock and prevents the twisting and breaking of keys.

When not deadlocked, the lock is subject to guest's, maid's master, grand master, display and emergency keys.

1233AEM—This lock is similar to 1233REM except that the front is flat and the lock is reversible. The operation is exactly the same as 1233REM and is for the same uses.

1250SM—Type of 1233AEM but without deadbolt. Not reversible; specify hand. Latch bolt operated by knobs from either side except when outside knob is set by stops and then by key only from outside and knob inside. When turn knob is thrown, knobs are rigid and latch bolt is deadlocked.



1246¾EM

1232EM—Latch bolt can be operated by knobs from either side at all times. In addition it has a dead bolt operated by turn knob from inside, and key from outside. When deadlocked by turn knob from inside all keys except the emergency are made inoperative. When dead bolt has been thrown by turn knob on inside, indicator shows room is occupied.

Can be furnished with guest's, maid's master, grand master, display and emergency keys.

1246¾EM—When door is closed it is automatically locked, and lock can be operated by key only from outside and by knob from inside. Outside knob is rigid at all times. In addition the latch bolt can be deadlocked by turn knob inside, making all keys inoperative except the emergency. If indicator is desired, specify Indicator B (see Page 38). When latch bolt is deadlocked, indicator shows that room is occupied.



066½

Can be furnished with guest's, maid's master, grand master, display and emergency keys.

Indicator—If indicator is desired on above locks, specify Indicator B (see Page 38).

GENERAL CONSTRUCTION

Case: Japanned iron.

Fronts, Bolts, Strikes: Cast bronze.

Bevel: ½-in. on 2-in., except 1233AEM which is flat.

Cylinder: Bronze.

Keys: Liberty silver.

Hub: Brass. For 1232EM, 1233REM, 1233AEM, 1246¾EM, ¾-in. swivel spindle; 1234½EM, 1250SM, 1246¾EM, ¾-in. swivel spindle.

Reversible: No, specify hand, except 1233AEM, yes.

Latch Construction: Type D. C.

Lock Width: 1 in. more than backset.

Master Keyed: Can be with other RUSWIN Cylinder Locks.

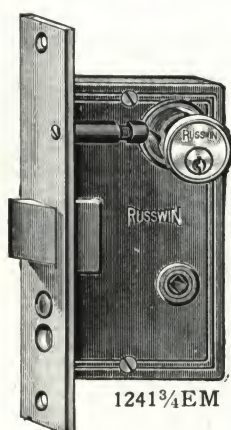
Indicator: Type B.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
1233 REM	Bevel	8 x 1¼	5¾ x 3¾ x ¾	2¾	.....	1¼	3½	One	3	Unlimited	066½	Easy spring
1232 EM	Bevel	7¾ x 1¼	5½ x 3¾ x ¾	2¾	.....	1¼	3½	One	3	Unlimited	066½	Easy spring
1233 AEM	Flat	8 x 1¼	5¾ x 3¾ x ¾	2¾	.....	1¼	3½	One	3	Unlimited	066½	Easy spring
1250 SM	Bevel	8 x 1¼	5¾ x 3¾ x ¾	2¾	.....	1¼	3½	One	3	Unlimited	066½	Easy spring
1234½ EM	Bevel	8 x 1¼	5½ x 3¾ x ¾	2¾	.....	1¼	3½	Two	3	Unlimited	.....	Easy spring
1246¾ EM	Bevel	7¾ x 1¼	5 x 3½ x ¾	2½	.....	1¼	3¼	One	3	Unlimited	066½	Easy spring

CYLINDER LOCKS FOR APARTMENT ENTRANCE DOORS

1241¾EM—Latch bolt can be operated by knob, from either side except when outside knob is set by stops in face of lock, then by key only from outside and by knob from inside.

In addition the latch bolt can be deadlocked by turn knob on inside, making all keys inoperative except the emergency. If indicator is desired, specify Indicator B (see Page 38). When latch bolt is deadlocked, indicator shows room is occupied.



1241¾EM



066½

GENERAL CONSTRUCTION

Case: Japanned iron.

Fronts, Bolts, Strikes: Cast bronze.

Bevel: ½-in. on 2 in.

Cylinder: Bronze.

Keys: Liberty silver.

Hub: Brass, for ¾-in. spindle.

Reversible: 1241¾, no, specify hand

Latch Construction: Type D. C.

Lock Width: 1 in. more than backset.

Master Keyed: Can be with other RUSWIN Cylinder Locks.

Indicator: Type B.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
1241¾ EM	Bevel	8½ x 1¼	6¼ x 3½ x ¾	2½	.....	1¼	3¼	One	3	Unlimited	066½	Easy spring

For Description of Finishes, see Page 3

RUSWIN**MORTISE BITTED KEY LOCKS FOR HOTEL CORRIDOR DOORS****R&E**
SINCE 1839

The locks illustrated are designed especially for use on the door from corridor to guest room. They offer the greatest security to the guest and are the highest development in the bitted key type of lock. The locks have two dead bolts operated from opposite sides.

When the inside bolt is thrown by the guest by means of a key the only key which can operate the lock is the emergency key. This gives the guest absolute privacy from operation of the lock by maid's or other regular master keys.

Bitted Key Corridor Door Locks Offering the Greatest Security to the Guest Can Be Opened Only by Emergency Key When Locked on Inside

608 $\frac{1}{4}$ EM—High Grade Corridor Door Lock—Latch bolt can be operated by knobs from either side at all times.

In addition it has two dead bolts, operated thru separate keyholes. The lower bolt is operated by key from inside at all times, and when thrown all keys except the emergency are made inoperative from outside. The upper bolt is operated by keys from outside. Can be furnished with guests', maid's master, grand master, master guard, display and emergency keys.

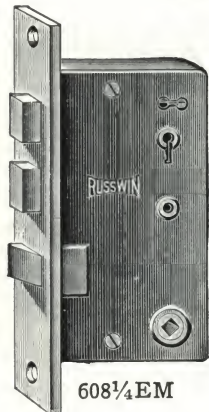
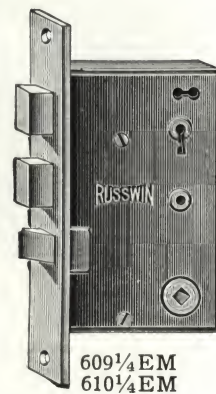
If indicator is desired, specify Indicator "B" (see Page 38). When lower bolt is thrown indicator shows that room is occupied.

Master Keying—Can be furnished in one set of 4000 locks, all different, or subdivided into 20 sets or less, with master key for each set and grand master key for all.

609 $\frac{1}{4}$ EM—This lock is similar to 608 $\frac{1}{4}$ except that it is lighter and has less master keying facilities.

Master Keying—Can be furnished in one set of 2160 all different, or subdivided into 24 sets or less, with master key for each set and grand master key for all.

610 $\frac{1}{4}$ EM—This lock is similar to 609 $\frac{1}{4}$ EM including master keying except that it does not require an indicator. When the lower bolt is thrown from the inside, the outside knob is made inoperative, indicating that the room is occupied.

**608 $\frac{1}{4}$ EM****609 $\frac{1}{4}$ EM
610 $\frac{1}{4}$ EM**

Case: Japanned iron. Front, Bolts, Strikes: Cast Bronze.
Bevel: $\frac{1}{8}$ -in. on 2-in. Keys: Nickelplated steel.
Tumblers: Steel.
Hub: Brass, compensating. For $\frac{1}{8}$ -in. spindle.

GENERAL CONSTRUCTION

Latch Construction: Type D.C.

Reversible: No. specify hand.

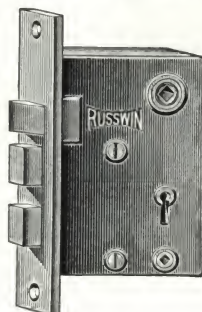
Lock Width: 608 $\frac{1}{4}$ EM, $\frac{3}{4}$ -in. more than backset; 609 $\frac{1}{4}$ EM and 610 $\frac{1}{4}$ EM, $\frac{7}{8}$ -in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
608 $\frac{1}{4}$ EM	Flat	8 $\frac{1}{2}$ x1 $\frac{1}{8}$	6 $\frac{1}{4}$ x3 $\frac{1}{2}$ x $\frac{3}{4}$	2 $\frac{3}{8}$	.....	1 $\frac{1}{4}$	2 $\frac{3}{8}$ -4	4 levers	1	4000	.....	Easy spring
609 $\frac{1}{4}$ EM	Flat	7 $\frac{7}{8}$ x1 $\frac{1}{8}$	5 $\frac{3}{4}$ x3 $\frac{1}{2}$ x $\frac{3}{8}$	2 $\frac{3}{8}$	.....	1 $\frac{1}{4}$	2 -3 $\frac{1}{2}$	3 levers	1	2160	.....	Easy spring
610 $\frac{1}{4}$ EM	Flat	7 $\frac{7}{8}$ x1 $\frac{1}{8}$	5 $\frac{3}{4}$ x3 $\frac{1}{2}$ x $\frac{3}{8}$	2 $\frac{3}{8}$	.....	1 $\frac{1}{4}$	2 -3 $\frac{1}{2}$	3 levers	1	2160	066 $\frac{1}{2}$	Easy spring

Inexpensive Bitted Key Lock for Corridor Doors

0015 $\frac{1}{4}$ EM—This is a lighter lock for corridor doors than those illustrated above. Latch bolt can be operated from either side by knobs at all times.

In addition it has two dead bolts. The upper bolt can be operated by key only from outside. The lower bolt by turn knob from inside. Turn knob will also withdraw upper bolt when thrown from outside by key. When locked from inside by turn knob all keys except the emergency are made inoperative. The emergency key will operate at all times to retract the upper and lower bolts, but will not protect the lower bolt, therefore cannot function as a guard key.

**0015 $\frac{1}{4}$ EM****066 $\frac{1}{2}$**

Can be furnished with guests', maids' master, grand master and emergency keys.

Master Keying—Can be master keyed in one set of 300 or less, all different, or subdivided into 6 sets or less, with master key for each set, and grand master key for all.

Case: Japanned iron.

Front, Bolts, Strikes: Cast bronze.

Tumblers: Steel.

Keys: Nickelplated steel.

Hub: Brass, compensating. For $\frac{1}{8}$ -in. spindle.

Latch Construction: Type D.C.

Reversible: No. specify hand.

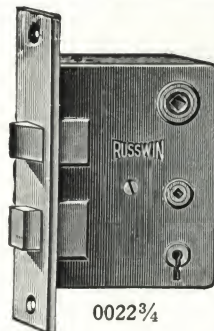
Lock Width: $\frac{3}{4}$ -in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
0015 $\frac{1}{4}$ EM	Flat	6 $\frac{1}{2}$ x1 $\frac{1}{16}$	4 $\frac{5}{8}$ x3 $\frac{1}{2}$ x $\frac{3}{8}$	2 $\frac{3}{8}$	.....	1 $\frac{1}{4}$	2 $\frac{3}{8}$ x3 $\frac{3}{8}$	3 lever	1	300	066 $\frac{1}{2}$	Easy spring

MORTISE KNOB LOCKS FOR HOTEL BATH ROOM DOORS

0022 $\frac{3}{4}$ —Latch bolt can be operated by knobs from either side at all times.

In addition it has a dead bolt operated from the inside by turn knob and by key from outside, in case of emergency. Key will also dead lock bolt when required, permitting room to be rented separately or en suite.

**0022 $\frac{3}{4}$** **066 $\frac{1}{2}$** **GENERAL CONSTRUCTION**

Case: Japanned iron.

Front, Bolt, Strikes: Cast bronze.

Keys: Nickelplated steel.

Turn Knob: Cast bronze.

Tumblers: Lever, cast iron.

Hub: Brass, compensating. For $\frac{1}{8}$ -in. spindle.

Latch Construction: 0022 $\frac{3}{4}$, D.C.; 233, E.

Reversible: Yes.

Lock Width: $\frac{3}{4}$ -in. more than backset.

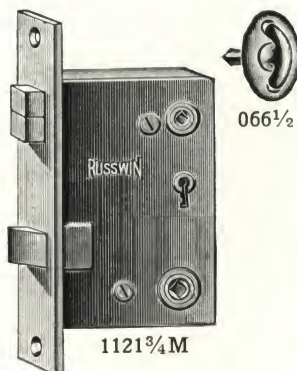
Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
0022 $\frac{3}{4}$	Flat	6 $\frac{3}{4}$ x1 $\frac{1}{8}$	4 $\frac{5}{8}$ x3 $\frac{1}{2}$ x $\frac{3}{8}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$	1 $\frac{1}{4}$	1 $\frac{1}{8}$ -3 $\frac{1}{8}$	3 lever	1	48	066 $\frac{1}{2}$	Easy spring

For Description of Finishes, see Page 3

RUSWIN**MORTISE BITTED KEY LOCKS FOR HOTEL COMMUNICATING DOORS****R&E**
SINCE 1833

Two different sets of locks are shown for different services. 1121 $\frac{3}{4}$ M and 1133 $\frac{3}{4}$ M are for single doors between communicating bed rooms or rooms in suites which can be rented separately, see diagram and table Page 47. The split dead bolt, which can be made inoperative in either the locked or unlocked position by the management by means of a master key, is the special feature of these locks.

1122 $\frac{3}{4}$ M and 1134 $\frac{3}{4}$ M are for single doors as between bed rooms and living or for bath room door or for use on double or twin communicating doors between bed rooms which can be rented separately. They have a single bolt operated from one side only. This bolt can also be made inoperative in either a locked or unlocked position by master key of the management.

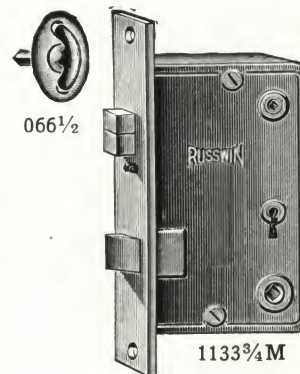
1121 $\frac{3}{4}$ M066 $\frac{1}{2}$ **Locks with Split Dead Bolt**

1121 $\frac{3}{4}$ M High Grade—Latch bolt can be operated by knobs from either side at all times. In addition it has split dead bolts operated by turn knobs from opposite sides. When either half bolt is thrown from one side it can not be retracted from the opposite side. Master or grand master key will deadlock turn knob when dead bolts are either thrown or withdrawn.

Change keys are not required and not furnished unless specified.

Master Keying—One set of 1000 or less, all different, or subdivided into 20 sets or less with master key for each set, and grand master for all.

1133 $\frac{3}{4}$ M Medium Grade—This lock has the same functions as 1121 $\frac{3}{4}$ M. Can only be master keyed in one set of 300 or less or 6 sets of 50 with master key for each and grand master for all.

1133 $\frac{3}{4}$ M066 $\frac{1}{2}$ **Locks with Single Dead Bolt**

1122 $\frac{3}{4}$ M High Grade—Latch bolt can be operated by knobs from either side at all times. In addition it has a single dead bolt operated by turn knob from one side only. Master and grand master key will deadlock turn knob when dead bolt is either thrown or withdrawn.

Change keys are not required, and not furnished unless specified.

Master Keying—One set of 1000 or less, all different, or subdivided into 20 sets or less, with master key for each set, and grand master key for all.

1134 $\frac{3}{4}$ M Medium Grade—This lock has the same func-

tions as 1122 $\frac{3}{4}$ M. It can only be master keyed in one set of 300 or less or 6 sets of 50 with master key for each and grand master for all.

GENERAL CONSTRUCTION

Case: Japanned iron. Front, Bolts, Strikes: Cast bronze.

Tumblers: Lever, steel. Key: Nickelplated steel.

Hub: Brass, compensating, for $\frac{1}{8}$ -in. spindle.

Turn Knob: Cast bronze.

Latch Construction: Type D.C.

Reversible: Yes.

Lock Width: $\frac{3}{4}$ -in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
1121 $\frac{3}{4}$ M	Flat	7 $\frac{1}{2}$ x1 $\frac{1}{8}$	5 $\frac{1}{2}$ x3 $\frac{1}{2}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	2 $\frac{1}{2}$	4 lever	1	1000	2-066 $\frac{1}{2}$	Easy spring
1122 $\frac{3}{4}$ M	Flat	7 $\frac{1}{2}$ x1 $\frac{1}{8}$	5 $\frac{1}{2}$ x3 $\frac{1}{2}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	2 $\frac{1}{2}$	4 lever	1	1000	1-066 $\frac{1}{2}$	Easy spring
1133 $\frac{3}{4}$ M	Flat	7 $\frac{1}{2}$ x1	5 $\frac{1}{4}$ x3 $\frac{1}{2}$ x $\frac{3}{8}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	1 $\frac{3}{4}$	3 lever	1	300	2-066 $\frac{1}{2}$	Easy spring
1134 $\frac{3}{4}$ M	Flat	7 $\frac{1}{8}$ x1	5 $\frac{3}{4}$ x3 $\frac{1}{2}$ x $\frac{3}{8}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	1 $\frac{3}{4}$	3 lever	1	300	1-066 $\frac{1}{2}$	Easy spring

Also see 238, 238 $\frac{1}{2}$, 236, 236 $\frac{1}{2}$, 233, 233 $\frac{1}{2}$, Page 54

MORTISE BITTED KEY LOCKS FOR HOTEL CLOSET DOORS

These locks can be and are usually made to be controlled by the guests individual corridor (or rooms) door key.

When so controlled they are not subject to any of the

various master keys except the emergency, thus affording the guest protection from petty theft.

This control can also be used for 384 $\frac{3}{4}$ GM, 380 $\frac{3}{4}$ GM, 0370 $\frac{3}{4}$ when used with Hotel Corridor Bitted Key Locks.

1387 $\frac{3}{4}$, 387 $\frac{3}{4}$, 1384 $\frac{3}{4}$
—These locks are similar in function, differing in quality and weight of lock.

Latch Bolt can be operated by knobs from either side at all times. In addition have dead bolt operated by key from either side. 1387 $\frac{3}{4}$ and 1384 $\frac{3}{4}$ have the key for dead bolt above knobs.

1387 $\frac{3}{4}$ 387 $\frac{3}{4}$ 1384 $\frac{3}{4}$ **GENERAL CONSTRUCTION**

Case: Japanned iron. Fronts, Bolts, Strikes: Cast bronze.

Tumbler: Lever, steel. Keys: Nickelplated steel.

Hub: Brass, compensating, for $\frac{1}{8}$ -in. spindle.

Latch Construction: Type D.C.

Reversible: Yes.

Lock Width: $\frac{3}{4}$ -in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Changes	Latch bolt
	Type	Size, in.		Std.	Spec.						
1387 $\frac{3}{4}$	Flat	6 $\frac{1}{2}$ x1 $\frac{1}{16}$	4 $\frac{3}{4}$ x3 $\frac{1}{2}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	2 $\frac{5}{8}$	4 levers	1	1000	Easy spring
387 $\frac{3}{4}$	Flat	6 $\frac{1}{2}$ x1 $\frac{1}{16}$	4 $\frac{3}{4}$ x3 $\frac{1}{2}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	2 $\frac{5}{8}$	4 levers	1	1000	Easy spring
1384 $\frac{3}{4}$	Flat	6 $\frac{1}{2}$ x1	4 $\frac{3}{4}$ x3 $\frac{1}{2}$ x $\frac{3}{8}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	2 $\frac{5}{8}$	3 levers	1	300	Easy spring

Note—Also see 384 $\frac{3}{4}$, 380 $\frac{3}{4}$, 0370 $\frac{3}{4}$ Residential Locks, Page 53

For Description of Finishes, see Page 3

RUSWIN**LOCKS FOR APARTMENT HOUSES
AND DORMITORIES****R&E**
SINCE 1839

Apartment house hardware has many of the characteristics of both hotel and residential hardware. It draws much from both types, and yet has distinctive features of its own.

Apartment houses equipped with RUSWIN hardware and master keyed in that system, afford to the occupants the privacy of the residential house, and the conveniences of the hotel. The same specialized service that is furnished on other types of buildings is supplied to the architect planning the new apartment house.

Apartment houses are of three general types:

1. The apartment hotel.
2. Two or more residences under one roof or otherwise grouped.
3. A combination of two first named.

For buildings referred to as Type One, see Hotel Locks, Pages 47 to 51.

For buildings as Type Two see Residential Locks, Pages

INDEX TO APARTMENT HOUSE LOCKS

The index and suggested layout of locks suitable for Apartment House Work are arranged according to choice and quality

Where used	Lock No.	Page	Where used	Lock No.	Page	Where used	Lock No.	Page
Main entrance.....	9152 1/2M	52	Interior doors.....	384 3/4	53	Baths.....	236	54
	11458 1/2M	52		380 3/4	53		233	54
	11456M	45		0370 3/4	53	French doors.....	F1247 1/2	54
	11456M	45		0370	53		G381 3/4	55
Entrance to apts....	1238M	53	Closets.....	384 3/4	53		355	55
	1239 1/2	45		380 3/4	53	Storage doors.....	1248M	53
	1248M	53		0370 3/4	53			
	1248M	53		0370	53			
Rear entrance.....	1248M	53		042	56			
				043	56			
Garage.....	200M	71						
	300M	71						

**JANITOR CONTROLLED LOCKS FOR ENTRANCE DOORS TO APARTMENT HOUSES,
SCHOOLS AND PUBLIC BUILDINGS**

These locks offer greater protection for vestibule doors than those with stops on the face of the lock controlling the setting of the outside knob. Stops can be operated by anyone, while the door is open, making the outside knob operative or inoperative.

With the locks illustrated below the outside knob can be made operative or inoperative, only by means of a master or janitor's key. This makes it impossible for unauthorized persons to manipulate the dead locking of the latch when the door is open.

1457 1/2M for Kalamein and Fire Doors (latch bolt has 3/4-in. throw for Underwriter Doors), 11458 1/2M (with standard latch throw) Have Knobs Both Sides—1457 1/2M and 11458 1/2M are similar except for throw of the latch bolt. Latch bolt can be operated by knobs from either side, except when outside knob is set by master (or janitor's) key through

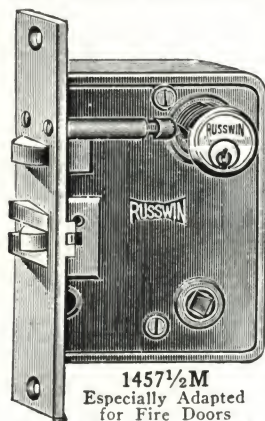
the inside cylinder. When outside knob is set, latch bolt can be operated by key only from the outside and by knob from inside.

They also have the protection of an auxiliary latch, which automatically dead locks and safeguards latch bolt, preventing it being retracted by any instrument inserted between the face of the lock and strike. The regular change, master (or janitor's) keys will operate outside cylinder, but only the master (or janitor's) key will operate the inside cylinder, unless otherwise specified.

Latch bolts are of the anti-friction type insuring easy action.

11258 1/2M, Knobs Both Sides—Similar to 11458 1/2M except does not have the auxiliary latch.

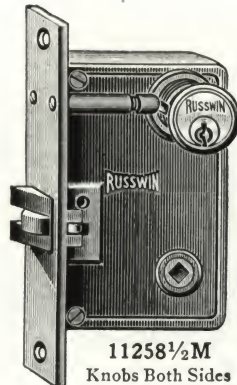
9152 1/2M, Handle With Thumb Piece Both Sides—Similar to 11458 1/2M except that it is used with handles and thumb pieces both sides.



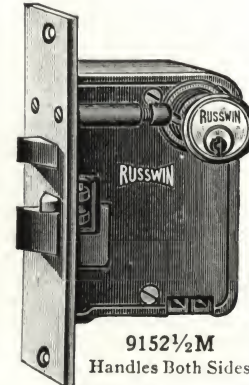
1457 1/2M
Especially Adapted
for Fire Doors
Knobs Both Sides



11458 1/2M
Knobs Both Sides



11258 1/2M
Knobs Both Sides



9152 1/2M
Handles Both Sides

GENERAL CONSTRUCTION

Case: Japanned iron. Fronts, Bolts, Strikes: Cast bronze.

Bevel: 1/8-in. on 2-in.

Cylinder: Bronze. Keys: Liberty silver.

Hub: Brass, for 5/8 x 3/8-in. swivel spindle.

Latch Construction: 1457 1/2M, CL; 11458 1/2M, EC; 11258 1/2M, EC; 9152 1/2M, CL.

Reversible: No, specify hand.

Lock Width: 1457 1/2M, 1 1/2-in. more than backset; 11458 1/2M, 11258 1/2M and 9152 1/2M, 1-in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
1457 1/2M	Flat	8 3/8 x 1 1/4	6 x 4 3/4 x 1 13/16	2 3/4	3 1/4	1 1/4	3 5/8	Two	3	Unlimited	None	Anti-friction
11458 1/2M	Flat	7 3/4 x 1 1/8	5 1/2 x 3 3/8 x 3/4	2 1/2	.....	1 1/4	3 3/8	Two	3	Unlimited	None	Anti-friction
11258 1/2M	Flat	7 3/4 x 1 1/8	5 1/2 x 3 3/8 x 3/4	2 1/2	.....	1 1/4	3 3/8	Two	3	Unlimited	None	Anti-friction
9152 1/2M	Flat	7 7/8 x 1 1/4	5 x 3 3/4 x 3/4	2 3/4	.....	1 1/2	.....	Two	3	Unlimited	None	Anti-friction

For Description of Finishes, see Page 3

RUSSWIN**LOCKS FOR RESIDENCES****R&E**
SINCE 1839

Exterior cylinder locks for the front, rear and side entrances, and garage, may be keyed alike or all different, yet subject to the key of the front entrance door. This permits the use of various doors by different individuals as maid or chauffeur,

without the necessity of intruding on the privacy of the owner.

Bitted key locks cost less than cylinder locks and afford the requisite security on interior doors. If desired they may all be keyed alike or all different, subject to a master key.

LOCKS ARRANGED IN GROUPS ACCORDING TO CHOICE AND QUALITY

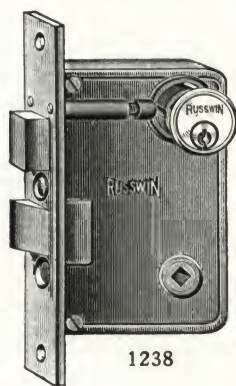
Use	Group 1		Group 2		Group 3		Group 4		Use	Group 1		Group 2		Group 3		Group 4	
	Lock No.	Page	Lock No.	Page	Lock No.	Page	Lock No.	Page		Lock No.	Page	Lock No.	Page	Lock No.	Page	Lock No.	Page
Front entrance.....	1213	53	1213	53	1213	53	1213	53	In. French doors.....	G381 $\frac{3}{4}$	55	355	55	355	55	355	55
Side entrance.....	1248	53	1248	53	1248	53	1248	53	Closets.....	384 $\frac{3}{4}$	53	380 $\frac{3}{4}$	53	0370 $\frac{3}{4}$	53	0370	53
Rear entrance.....	1213	53	1213	53	1213	53	1213	53		042	56	042	56	043	56	043	56
Interior doors.....	1248	53	1248	53	1248	53	1248	53	Bath.....	236	54	236	54	233	54	233	54
Ex. French doors.....	384 $\frac{3}{4}$	53	380 $\frac{3}{4}$	53	0370 $\frac{3}{4}$	53	0370	53	Communicating.....	236 $\frac{1}{2}$	54	236 $\frac{1}{2}$	54	233 $\frac{1}{2}$	54	233 $\frac{1}{2}$	54
	F1247	54	F1247	54	G381 $\frac{3}{4}$	55	G231	55	Garage.....	384 $\frac{3}{4}$	53	380 $\frac{3}{4}$	53	0370 $\frac{3}{4}$	53	0370	53
										200	71	200	71	200	71	200	71
										300	71	300	71	300	71	300	71

CYLINDER LOCKS FOR ENTRANCE DOORS TO RESIDENCES, APARTMENTS, ETC.

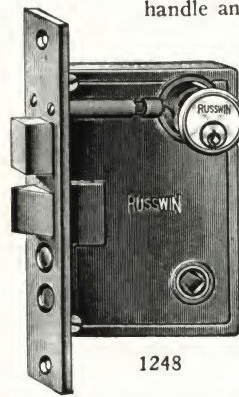
1238 and 1248—Knobs Both Sides—These locks are similar in operation although different in size and weight. Latch bolt can be operated by knobs from either side except when outside knob is set by stops in face of lock, then by key only from outside and by knob from inside.

In addition they have dead bolts operated by key from outside and by turn knob from inside. Both dead and latch bolt can be operated from outside by a continuous turn of key.

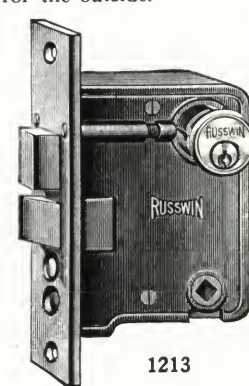
1213—Handle and Thumb Piece Outside, Knob Inside—This lock is similar to 1248 except for the use of handle and thumb piece for the outside.



1238

066 $\frac{1}{2}$ 

1248

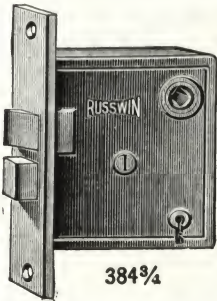
066 $\frac{1}{2}$ 

1213

066 $\frac{1}{2}$ **GENERAL CONSTRUCTION**

Case: Japanned iron. Front, Bolts, Strikes: Cast bronze.
 Bevel: $\frac{1}{8}$ -in. on 2-in.
 Cylinder: Bronze. Keys: Liberty silver.
 Hub: Brass. 1238 and 1248 for $\frac{1}{8}$ x $\frac{3}{8}$ -in. swivel spindle; 1213, for 1213.
 Spindle No. 40, $\frac{1}{8}$ -in.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
1238	Flat	8 x $1\frac{1}{4}$	5 $\frac{1}{2}$ x3 $\frac{3}{4}$ x3 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{2}$ -3	1 $\frac{1}{4}$	3 $\frac{3}{8}$	1	3	Unlimited	No. 066 $\frac{1}{2}$	Easy spring
1248	Flat	7 $\frac{3}{4}$ x1 $\frac{1}{2}$	5 $\frac{1}{2}$ x3 $\frac{3}{8}$ x1 $\frac{1}{2}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	3 $\frac{3}{8}$	1	3	Unlimited	No. 066 $\frac{1}{2}$	Easy spring
1213	Flat	7 $\frac{3}{8}$ x1 $\frac{1}{8}$	5 x4 x3 $\frac{3}{4}$	2 $\frac{3}{8}$	2	1 $\frac{1}{4}$	3 $\frac{3}{8}$	1	3	Unlimited	No. 066 $\frac{1}{2}$	Easy spring

384 $\frac{3}{4}$ **BITTED KEY LOCKS FOR INTERIOR DOORS OF RESIDENCES, ALSO OF APARTMENTS, SCHOOLS, HOTELS, ETC.**

The locks illustrated are for ordinary interior doors such as bed room doors in residences, etc. All have the same operation, the difference between them being in the weight and quality of the lock and the limitations as to master keying.

382 $\frac{3}{4}$, 384 $\frac{3}{4}$, 380 $\frac{3}{4}$, 0370 $\frac{3}{4}$, 0370—Latch bolt can be operated by knobs from either side at all times. In addition they have a dead bolt operated by key from either side.

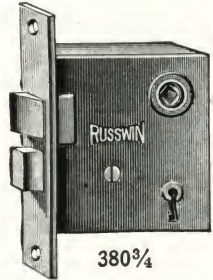
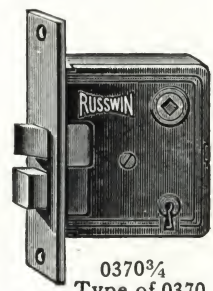
Master Keying—382 $\frac{3}{4}$, 384 $\frac{3}{4}$, 380 $\frac{3}{4}$ can be master keyed in one set of 300 or less, all different, or subdivided into 6 sets, or less, with master key for each set, and grand master key for all.

0370 $\frac{3}{4}$ can be master keyed in one set of 180, or less, all different, or subdivided into 3 sets, or less, with master key for each set, and grand master key for all.

GENERAL CONSTRUCTION

Case: Japanned iron.
 Front, Bolts, Strikes: Cast bronze.
 Bitted Keys: Steel, nickelplated.
 Tumblers: Steel.
 Latch Construction: 382 $\frac{3}{4}$, 384 $\frac{3}{4}$ and 380 $\frac{3}{4}$; DC; 0370 $\frac{3}{4}$, E.
 Hub: 382 $\frac{3}{4}$ and 384 $\frac{3}{4}$, brass compensating; 380 $\frac{3}{4}$, brass; 0370 $\frac{3}{4}$, iron for $\frac{1}{8}$ -in. spindle.
 Reversible: Yes.
 Lock Width: $\frac{3}{4}$ -in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Changes	Latch bolt
	Type	Size, in.		Std.	Spec.						
382 $\frac{3}{4}$	Flat	6 $\frac{1}{4}$ x1 $\frac{1}{8}$	4 $\frac{1}{4}$ x3 $\frac{1}{2}$ x3 $\frac{1}{8}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	2 $\frac{3}{8}$	3 lever	1	48	Easy spring
384 $\frac{3}{4}$	Flat	6 x1	4 x3 $\frac{1}{2}$ x3 $\frac{1}{8}$	2 $\frac{3}{4}$	2 $\frac{1}{2}$	1 $\frac{1}{4}$	2 $\frac{3}{8}$	3 lever	1	48	Easy spring
380 $\frac{3}{4}$	Flat	5 $\frac{1}{2}$ x1	3 $\frac{1}{2}$ x3 $\frac{1}{2}$ x3 $\frac{1}{8}$	2 $\frac{3}{8}$	.....	1 $\frac{1}{4}$	2 $\frac{3}{8}$	3 rack lever	1	48	Easy spring
0370 $\frac{3}{4}$	Flat	5 $\frac{1}{2}$ x1 $\frac{1}{2}$	3 $\frac{1}{2}$ x3 $\frac{1}{2}$ x3 $\frac{1}{8}$	2 $\frac{1}{2}$	.....	1	2 $\frac{3}{8}$	3 rack lever	1	36	Easy spring
0370	Flat	5 $\frac{1}{2}$ x1 $\frac{1}{8}$	3 $\frac{1}{2}$ x3 $\frac{1}{2}$ x3 $\frac{1}{8}$	2 $\frac{1}{2}$	.....	1	2 $\frac{3}{8}$	1 rack lever	1	12	Easy spring

382 $\frac{3}{4}$ 380 $\frac{3}{4}$ 0370 $\frac{3}{4}$
Type of 0370

For Description of Finishes, see Page 3

RUSWIN

MORTISE KNOB LOCKS FOR BATH AND COMMUNICATING ROOM DOORS FOR RESIDENCES ALSO APARTMENT HOUSES AND HOTEL BATH ROOMS

R&E
SINCE 1838

These locks have latch and dead bolts, the dead bolt being operated from the bathroom side by a turn knob. For communicating doors use locks with suffix $\frac{1}{2}$ as this indicates a lock with two turn knobs operating a split dead bolt, half of which can be operated from each side.

238, 236, 233, 223 Locks With Single Dead Bolt for Bathrooms—Latch bolt can be operated by knobs from

either side at all times. In addition they have a single dead bolt operated by turn knob from one side only. In case of necessity dead bolt can be operated from opposite side of door by square stem key.

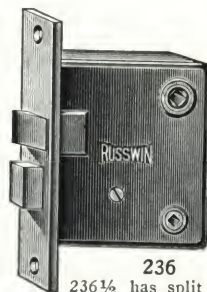
238 $\frac{1}{2}$, 236 $\frac{1}{2}$, 233 $\frac{1}{2}$, Locks with Split Dead Bolt for Communicating Doors—Latch bolt operated by knobs from either side at all times. In addition they have split dead bolts operated by turn knobs from opposite sides. When bolt is thrown from one side it can not be retracted from the other.



238 $\frac{1}{2}$
238 has one bolt



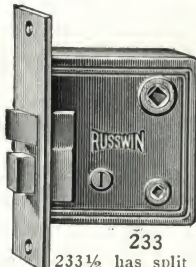
066 $\frac{1}{2}$



236
236 $\frac{1}{2}$ has split bolt



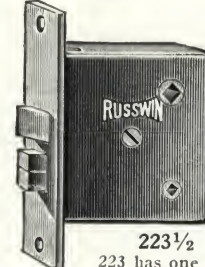
066 $\frac{1}{2}$



233
233 $\frac{1}{2}$ has split bolt



066 $\frac{1}{2}$



223 $\frac{1}{2}$
223 has one bolt



066 $\frac{1}{2}$

GENERAL CONSTRUCTION

Case: Japanned iron. Front, Bolt, Strikes: Cast bronze.

Turn Knob: Cast bronze. Hub: Brass. For $\frac{1}{8}$ -in. spindle.

Latch Construction: 238, 238 $\frac{1}{2}$, 236, 236 $\frac{1}{2}$ -DC, 233, 233 $\frac{1}{2}$ -E, 223, 223 $\frac{1}{2}$, SE.

Reversible: Yes.

Lock Width: $\frac{3}{4}$ -in. more than backset for 238, 238 $\frac{1}{2}$, 236, 236 $\frac{1}{2}$; $\frac{7}{8}$ -in. more than backset for 233, 233 $\frac{1}{2}$, 223, 223 $\frac{1}{2}$.

Lock No.	Flat		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.				
238	Flat	6 $\frac{3}{4}$ x1 $\frac{1}{8}$	5 x3 $\frac{1}{2}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	3 $\frac{3}{4}$	066 $\frac{1}{2}$	Easy spring
238 $\frac{1}{2}$	Flat	6 $\frac{3}{4}$ x1 $\frac{1}{8}$	5 x3 $\frac{1}{2}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	3 $\frac{3}{4}$	Two 066 $\frac{1}{2}$	Easy spring
236	Flat	5 $\frac{7}{8}$ x1	4 x3 $\frac{1}{2}$ x $\frac{3}{8}$	2 $\frac{3}{4}$	.....	1 $\frac{1}{4}$	.....	066 $\frac{1}{2}$	Easy spring
236 $\frac{1}{2}$	Flat	5 $\frac{7}{8}$ x1	4 x3 $\frac{1}{2}$ x $\frac{3}{8}$	2 $\frac{3}{4}$	2, 2 $\frac{1}{2}$	1 $\frac{1}{4}$	.....	Two 066 $\frac{1}{2}$	Easy spring
233	Flat	5 $\frac{1}{2}$ x $\frac{7}{8}$	3 $\frac{1}{2}$ x3 $\frac{1}{4}$ x $\frac{3}{8}$	2 $\frac{1}{2}$	.....	1	.....	066 $\frac{1}{2}$	Easy spring
233 $\frac{1}{2}$	Flat	5 $\frac{1}{2}$ x $\frac{7}{8}$	3 $\frac{1}{2}$ x3 $\frac{1}{4}$ x $\frac{3}{8}$	2 $\frac{1}{2}$	.....	1	.....	Two 066 $\frac{1}{2}$	Easy spring
223	Flat	5 $\frac{1}{2}$ x $\frac{7}{8}$	3 $\frac{1}{2}$ x3 $\frac{1}{4}$ x $\frac{3}{8}$	2 $\frac{1}{2}$	.....	1	.....	066 $\frac{1}{2}$	Easy spring
223 $\frac{1}{2}$	Flat	5 $\frac{1}{2}$ x $\frac{7}{8}$	3 $\frac{1}{2}$ x3 $\frac{1}{4}$ x $\frac{3}{8}$	2 $\frac{1}{2}$	.....	1	2 $\frac{1}{16}$	Two 066 $\frac{1}{2}$	Easy spring

GENERAL INFORMATION REGARDING PROPER LOCKS TO USE ON FRENCH DOORS

When French doors are used they generally have narrow stiles. This necessitates a different kind of lock and trim treatment from that on door having standard width stiles. If the stile is less than 4-in., lever handles should be used, as knobs would leave too little room to operate the latch without knocking the fingers on the door jamb.

Lever handles should never be used on a lock designed for use with knobs as the constant weight of the lever handle would spoil the regular spring. The locks as listed for French doors are designed especially for use with lever handles. They are made with two types of springs, French Spring and Gun

Spring. These springs are designed to offset the weight of the lever handle.

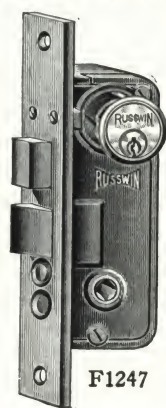
Backsets of varying dimensions are listed to take care of almost any width of stile. The backset plus 1 in. will give the full width or depth of lock case.

On the illustration of various handles, on Page 29, the projection of the handles are given. This should be taken into consideration especially if two doors come together as on exterior and screen doors. If there is not sufficient room between the doors for the handles to clear, the screen door hardware should be raised to stagger the hardware.

NARROW MORTISE CYLINDER LOCKS FOR EXTERIOR FRENCH DOORS

Designed especially for use on exterior French doors and can be master keyed on the same system as the regular cylinder locks in other parts of the building.

F1247 Flat and F1277 Rabbeted Face with Cylinder Lock and Dead Bolt—F1247 $\frac{1}{2}$ Flat and F1277 $\frac{1}{2}$ Rabbeted Face with Cylinder but without Dead Bolt—F1247 and F1277 are alike except for face of lock. Latch bolt can be operated by lever handle from either side, except when outside handle is set by stops in face of lock, then the latch bolt can only be operated by key from outside and lever handle inside. In addition these locks have a dead bolt operated by key from outside



F1247



066 $\frac{1}{2}$

and by turn knob from inside. A continuous turn of key will withdraw both dead and latch bolt.

F1247 $\frac{1}{2}$ and F1277 $\frac{1}{2}$ are similar to F1247 and F1277 except they do not have the dead bolt feature.

Note: All these locks have the French Spring Type of easy construction, which gives a strong action on the hub and an easy action on the latch, making it especially adapted for use with lever handles.

GENERAL CONSTRUCTION

Case: Japanned iron. Front, Bolt, Strikes: Cast bronze.

Keys: Liberty silver.

Cylinder: Bronze.

Hub: Brass. For $\frac{1}{8}$ x $\frac{3}{8}$ -in. swivel spindle.

Latch Construction: French Spring Type F.

Reversible: No, specify hand.

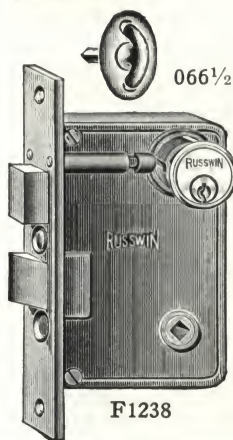
Lock Width: 1-in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
F1247	Flat	8 x1 $\frac{1}{4}$	5 $\frac{3}{4}$ x $\frac{3}{4}$	1	1 $\frac{1}{4}$, 1 $\frac{1}{2}$	1 $\frac{1}{4}$	3 $\frac{3}{8}$	1	3	Unlimited	066 $\frac{1}{2}$	Easy spring
F1247 $\frac{1}{2}$	Flat	8 x1 $\frac{1}{4}$	5 $\frac{3}{4}$ x $\frac{3}{4}$	1	1 $\frac{1}{4}$, 1 $\frac{1}{2}$	1 $\frac{1}{4}$	3 $\frac{3}{8}$	1	3	Unlimited	.....	Easy spring
F1277	Rabbet	8x1 $\frac{1}{4}$ x $\frac{1}{2}$	5 $\frac{3}{4}$ x $\frac{3}{4}$	1	1 $\frac{1}{4}$, 1 $\frac{1}{2}$	1 $\frac{1}{4}$	3 $\frac{3}{8}$	1	3	Unlimited	066 $\frac{1}{2}$	Easy spring
F1277 $\frac{1}{2}$	Rabbet	8x1 $\frac{1}{4}$ x $\frac{1}{2}$	5 $\frac{3}{4}$ x $\frac{3}{4}$	1	1 $\frac{1}{4}$, 1 $\frac{1}{2}$	1 $\frac{1}{4}$	3 $\frac{3}{8}$	1	3	Unlimited	.....	Easy spring

For Description of Finishes, see Page 3

RUSSWIN

MORTISE CYLINDER LOCK FOR EXTERIOR FRENCH DOORS



F1238 Flat Face With Cylinder Lock and Dead Lock—This lock is somewhat similar to Lock F1247 except that the case is wider and cannot be used on doors with narrow stiles. Latch bolt can be operated with knobs or lever handles both sides, except when outside knob or handle is set by stop in face of lock, then the latch bolt can be operated only by key from outside and knob or lever handle inside. In addition it has a dead bolt operated by key from outside and turn knob inside. A continuous turn of key will withdraw both latch and dead bolt.

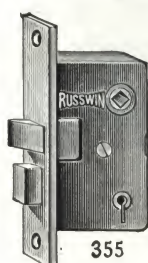
This is a high grade cylinder lock for use on exterior French doors which do not have a stile less than 4-in. It can be used with knobs or lever handles.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front, Bolts, Strikes: Cast bronze.
Cylinder: Bronze.
Keys: Liberty silver.
Hub: Brass for $\frac{1}{8}$ x $\frac{3}{8}$ -in. swivel spindle.
Latch Construction: French Spring Type F.
Reversible: No, specify hand.
Lock Width: 1-in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Cylinder	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Spec.							
F1238	Flat	8x1 $\frac{1}{4}$	5 $\frac{1}{2}$ x 3 $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	2, 2 $\frac{1}{2}$, 3	1 $\frac{1}{4}$	3 $\frac{3}{8}$	1	3	Unlimited	066 $\frac{1}{2}$	Easy spring

NARROW MORTISE BITTED KEY LOCKS FOR INTERIOR FRENCH DOORS



355 Flat and 358 Rabbeted Face Bitted Key Locks French Spring—These locks are similar except for difference in face. Latch bolt can be operated by knobs from either side at all times. In addition it has a dead bolt operated by keys from either side.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front and Strikes: Wrought brass.
Bolts: Cast brass.
Tumblers: Steel. Keys: Nickelplated steel.
Hub: Iron for $\frac{1}{8}$ -in. spindle.
Reversible: 355, yes; 358, no; specify hand.
Latch Construction: French Spring Type F.
Lock Width: 355, $\frac{7}{8}$ -in. more than backset; 358, $\frac{11}{8}$ -in. more than short side backset.

Note: The 358 lock has reversible rabbeted front.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Changes	Latch bolt
	Type	Size, in.		Std.	Spec.						
355	Flat wrt. brass	5 $\frac{1}{4}$ x $\frac{7}{8}$	3 $\frac{5}{8}$ x 2 $\frac{1}{4}$ x $\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$	1	2 $\frac{1}{8}$	1	1	12	French spring
358	Rab. wrt. brass	5 $\frac{1}{4}$ x 1 x $\frac{1}{2}$	3 $\frac{5}{8}$ x 2 $\frac{1}{4}$ x $\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1	2 $\frac{1}{8}$	1	1	12	French spring

G381 $\frac{3}{4}$ Flat Face and G391 $\frac{3}{4}$ Rabbeted Face Bitted Key Locks With Latch and Dead Bolt, Gun Spring for Knobs or Lever Handle—For use with knobs or lever handles to operate latch bolt at all times. Lever handles should be used on outside.

In addition there is a dead bolt operated by key from either side at all times. The gun spring type of latch construction is especially adapted for use with lever handles.

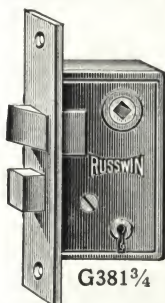
Master Keying—Can be furnished in one set of 300, all different, or subdivided into 3 sets or less, with master key for each set and grand master for all.

G231 Flat Face and G291 Rabbeted Face Bitted Key Locks With Latch and Dead Bolt, Gun Spring, Lever Handle or Knob Inside—These locks have narrower backset than G381 $\frac{3}{4}$ and G391 $\frac{3}{4}$, requiring lever handle on outside and a lever handle or knob on inside to operate the latch at all times.

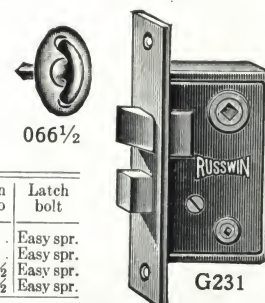
In addition there is a dead bolt operated by turn knob from one side only. The gun spring latch bolt construction makes it especially suited for use with lever handles.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front and Bolts: Cast brass.
Strikes: Wrought brass.
Tumblers: G381 $\frac{3}{4}$ and G391 $\frac{3}{4}$, steel.
Keys: Nickelplated steel.
Hub: Brass. For $\frac{1}{8}$ -in. spindle.
Reversible: No, specify hand.
Latch Construction: Type G.
Lock Width: G381 $\frac{3}{4}$, G391 $\frac{3}{4}$ and G291, $\frac{3}{4}$ -in.; G231, $\frac{7}{8}$ -in. more than backset.



Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Changes	Turn knob	Latch bolt
	Type	Size, in.		Std.	Specia l							
G381 $\frac{3}{4}$	Flat	6x1	4x $\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$, 1 $\frac{3}{4}$, 2	1 $\frac{1}{4}$	2 $\frac{3}{8}$	3	1	48	.....	Easy spr.
G391 $\frac{3}{4}$	Rabbet	6x1 $\frac{1}{2}$ x $\frac{1}{2}$	4x $\frac{5}{8}$	1 $\frac{1}{2}$	1, 1 $\frac{1}{4}$, 1 $\frac{3}{4}$, 2	1 $\frac{1}{4}$	2 $\frac{3}{8}$	3	1	48	.....	Easy spr.
G231	Flat	6x1	4x $\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{1}{4}$	2 $\frac{3}{8}$	.....	.....	.....	066 $\frac{1}{2}$	Easy spr.
G291	Rabbet	6x1 $\frac{1}{2}$ x $\frac{1}{2}$	4x $\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1	2 $\frac{3}{8}$	.....	.....	.....	066 $\frac{1}{2}$	Easy spr.



CYLINDER LOCKS FOR CUPBOARDS AND DRAWERS

0371 for Cupboard Doors—0685 for Drawers—These cylinder locks are for use on cupboards and drawers in pantries, kitchens and cabinet work requiring a cylinder lock

which can be keyed in the RUSSWIN cylinder lock system. They can also be used on Pipe Chases, Wire Shafts and light closet doors.

GENERAL CONSTRUCTION

All Brass: Bolt heavy cast brass.
Cylinder: RUSSWIN Ball Bearing.
Keys: Two liberty silver. Changes: Unlimited.
Cylinder: 1 $\frac{1}{8}$ -in. diam. for $\frac{7}{8}$ -in. wood.
Furnished for $\frac{3}{4}$ -in. wood at same price.
Reversible: No, specify hand.



Lock No.	Case, in.	Backset, in.	Lock No.	Case, in.	Backset, in.
0371MA	2 $\frac{1}{4}$ x 1 $\frac{3}{4}$	$\frac{3}{4}$	0685 $\frac{1}{4}$ M	2 $\frac{1}{4}$ x 1 $\frac{3}{4}$	$\frac{3}{4}$
0371MB	2 $\frac{1}{4}$ x 1 $\frac{1}{2}$	$\frac{1}{2}$	0685 M	2 $\frac{1}{4}$ x 1 $\frac{1}{2}$	$\frac{1}{2}$
0371MC	2 $\frac{1}{4}$ x 2	1	0686 M	2 $\frac{1}{4}$ x 2	1
0371MD	2 $\frac{1}{4}$ x 2 $\frac{1}{4}$	1 $\frac{1}{4}$	0688 M	2 $\frac{1}{4}$ x 2 $\frac{1}{4}$	1 $\frac{1}{4}$
0371ME	2 $\frac{1}{4}$ x 2 $\frac{1}{2}$	1 $\frac{1}{2}$	0689 M	2 $\frac{1}{4}$ x 2 $\frac{1}{2}$	1 $\frac{1}{2}$
0371MF	2 $\frac{1}{4}$ x 2 $\frac{3}{8}$	1 $\frac{3}{4}$	0690 M	2 $\frac{1}{4}$ x 2 $\frac{3}{8}$	1 $\frac{3}{4}$
0371MG	2 $\frac{1}{4}$ x 3	2	0691 M	2 $\frac{1}{4}$ x 3	2
0371MH	2 $\frac{1}{4}$ x 3 $\frac{1}{4}$	2 $\frac{1}{4}$			
0371MI	2 $\frac{1}{4}$ x 3 $\frac{1}{2}$	2 $\frac{1}{2}$			

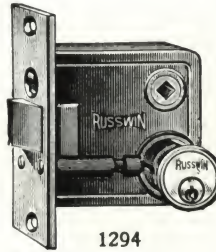


For Description of Finishes, see Page 3

RUSWIN**MORTISE CYLINDER NIGHT LATCHES**

These night latches are used generally as a supplemental latch or lock, in order to give extra protection to doors having inadequate locking devices.

1294 Latch Bolt Operated by Key from Outside and Turn Knob from Inside—Stops in face of lock can be set to hold latch bolt retracted. 1294½ same as 1294 except bolt is operated by key



1294

from both sides. Can be master keyed in any RUSWIN cylinder lock system.

GENERAL CONSTRUCTION

Case: Japanned iron.
Front, Bolts, Strikes: Cast bronze.
Cylinder: Bronze. Keys: Liberty silver.
Hub: Brass. For ½-in. spindle.
Latch Construction: Type EC.
Reversible: Yes.
Lock Width: ¾-in. more than backset.

Lock No.	Cylinder	Keys	Changes	Turn knob	Latch bolt
1294	One	3	Unlimited	1294	Easy spring
1294½	Two	3	Unlimited	.....	Easy spring

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.
	Type	Size, in.		Std.	Special	
1294	Flat	5½x1½	3¼x3½x¾	2¾	2½, 3	1¼
1294½	Flat	5½x1½	3¼x3½x¾	2¾	2½, 3	1¼

MORTISE CYLINDER DEAD LOCKS

These locks are especially adapted for use on doors equipped with push plates or pulls, or both, as on banks, department stores, railroad stations, etc., and those under janitor control; also doors leading to safe deposit vaults.

1207-1207½—Extra heavy cylinder dead locks.

1205-1205½—Medium weight cylinder dead locks.

1203-1203½—Light weight cylinder dead locks.

1207, 1205, 1203—Dead bolt can be operated only by key from outside and turn knob inside.

1207½, 1205½, 1203½—Dead bolt operated by key only from either side. Can be master keyed in any RUSWIN Cylinder Lock System.

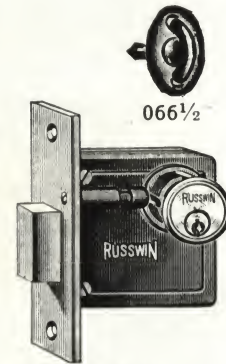
GENERAL CONSTRUCTION

Case: Japanned iron. Front, Bolts, Strikes: Cast bronze.
Front: Can be rounded or beveled on special order.
Cylinder: Bronze. Keys: Liberty silver.
Reversible: Yes. Lock Width: 1-in. more than backset.

Lock No.	Front		Size case, in.	Backset, in.		Cylinder	Keys	Changes	Turn knob
	Type	Size, in.		Std.	Special				
1207	Flat	6½x1½	4½x3¾x¾	2¾	1½, 2½, 3, 3½	One	3	Unlimited	066½
1207½	Flat	6½x1½	4½x3¾x¾	2¾	1½, 2½, 3, 3½	Two	3	Unlimited	.....
1205	Flat	5½x1½	3¼x3¾x¾	2¾	1½, 1¾, 2, 2½, 3	One	3	Unlimited	066½
1205½	Flat	5½x1½	3¼x3¾x¾	2¾	1½, 1¾, 2, 2½, 3	Two	3	Unlimited	.....
1203	Flat	4½x1½	2½x3¾x¾	2¾	1½, 2, 2½, 3	One	3	Unlimited	066½
1203½	Flat	4½x1½	2½x3¾x¾	2¾	1½, 2	Two	3	Unlimited	.....



1207



1205

MORTISE BITTED KEY DEAD LOCKS

0786 Flat Face Heavy Bitted Key Dead Locks—Dead bolt can be operated by key only from either side.

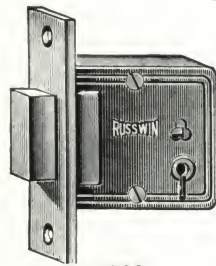
Master Keying—In one set of 1000 or less all different, or subdivided into 20 sets, or less, with master key for each set, and a grand master key for all.

078¾ and 076¾ Flat Face Medium Weight Bitted Key Dead Locks—Dead bolt can be operated by keys from either side.

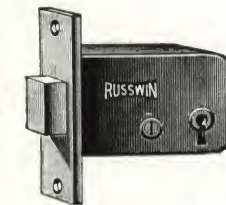
Master Keying—In one set of 300, or less, all different or 3 sets or less, with master key for each set and grand master key for all.

GENERAL CONSTRUCTION

Case: Japanned iron. Keys: Bitted, nickelplated steel.
Fronts, Bolts, Strikes: Cast bronze.
Lock Width: 1-in. more than backset.



0786



078¾

Lock No.	Front		Size case, in.	Backset, in.		Tumblers	Keys	Changes
	Type	Size, in.		Std.	Spec.			
0786	Flat	5½x1½	3 x 3½x¾	2¾	1½	4 lever	1	1000
078¾	Flat	4 x 1	2¼x3½x¾	2¾	1½, 2¼	3 lever	1	36
076¾	Flat	3¾x1	2½x3¼x¾	2¾	.....	3 lever	1	36

MORTISE LATCHES

These latches are used mostly on closets. They vary in size and weight. **028 Latch for Fire Underwriters Door to Closets and to Stairs of Office and Loft Buildings, Latch has ¾-in. Throw—**This latch is especially adapted for kalamein and other fire doors on account of the ¾-in. throw of latch. Can be operated by knobs from either side at all times. Latch is of the anti-friction type.

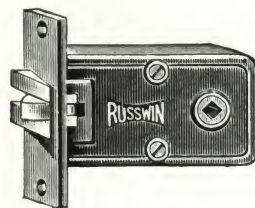
021, 025, 029, 042, 043, Mortise Knob Latches—These locks vary in size and weight. Operation is the same for all.

Latch bolt can be operated from either side at all times.

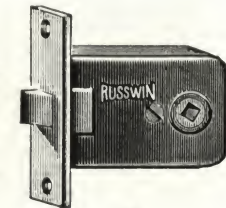
GENERAL CONSTRUCTION

Case: Japanned iron. Front, Bolts, Strikes: Cast bronze.
Hub: Iron. Spindle: ½-in.
Latch Construction: 028, 029 and 025, DC; 021 and 042, SC.
Reversible: Yes.
Case Width: ¾-in., 028, 1½-in. more than backset.

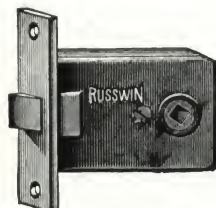
Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Latch bolt
	Type	Size, in.		Std.	Special		
028	Flat	4 x 1½	2½x3½x¾	2¾	.....	1¼	Anti-friction
025	Flat	4 x 1½	2½x3½x¾	2¾	2½, 3	1	Easy spring
029	Flat	3¾x1½	1¾x3½x¾	2½	2, 2½	1	Easy spring
021	Flat	3½x¾	1¾x3½x¾	2½	.....	1	Easy spring
042	Flat	3½x¾	1¾x3½x¾	2½	2¾	1	Easy spring
043	Flat	3 x ¾	1¼x3 x ½	2½	.....	1	Easy spring



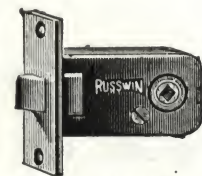
028



029



025



042

Type of 043

For Description of Finishes, see Page 3

RUSSWIN

DISTINCTIVE RIM LOCKS

R&E
SINCE 1839

Cast Brass or Bronze



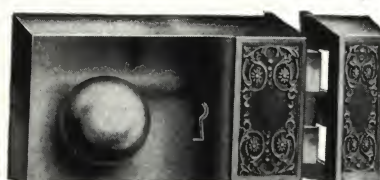
4500



4502



4501



4503

Numbers Indicate Lock Only; Specify Trim Desired

These RUSSWIN Rim Locks introduce in hardware a new interpretation of Old World design. Massive in appearance with a rugged durability, they are made—like all RUSSWIN Hardware—of the finest metals, brass or bronze, combined with RUSSWIN craftsmanship to insure a lifetime of trouble-free service.

The four designs shown herewith are the latest development of RUSSWIN, which for almost a century has been the pioneer of the “new” in hardware for the home.

In our concealed screw method of attaching to

the door you will not find any unsightly screws to mar the surface of these locks.

Operation—The latch bolt can be operated by knobs from either side at all times. In addition there is a dead bolt operated by key from either side.

GENERAL CONSTRUCTION

Case: Cast brass or bronze.

Bolts: Cast brass.

Strike: Box, cast brass or bronze.

Key: Brass.

Hub: Brass for $\frac{5}{8}$ -in. spindle.

Latch Construction: Type EC.

Reversible: No, specify hand.

No.	Size of case, in.	Backset, in.		Tumblers	Keys	Changes
		To key hole	To knob hub			
4500	$5\frac{13}{16} \times 3\frac{1}{8} \times 1$	$2\frac{1}{8}$	$4\frac{1}{4}$	3	1	25
4501	$5\frac{13}{16} \times 3\frac{1}{8} \times 1$	$2\frac{1}{8}$	$4\frac{1}{4}$	3	1	25
4502	$5\frac{13}{16} \times 3\frac{1}{8} \times 1$	$2\frac{1}{8}$	$4\frac{1}{4}$	3	1	25
4503	$5\frac{13}{16} \times 3\frac{1}{8} \times 1$	$2\frac{1}{8}$	$4\frac{1}{4}$	3	1	25

For Description of Finishes, see Page 3

RUSWIN**MISCELLANEOUS HARDWARE****R&E**
SINCE 1839**CAST BRASS OR BRONZE DOOR PULLS****SECTIONAL TYPE****SECTIONAL TYPE DOOR PULLS**

Cat. No.	Design	Grip No.	Length over all, in.	Size plates, in.
637	Antoinette	Antoinette	8½	
783	Rome	783	10	
636	Rome	076½	8	
637	Rome	076¾	11	
637	Niantic	776¾	11½	
636	Saybrook	076½	8½	
637	Saybrook	076¾	11½	
636	Westbrook	776½	8½	
637	Westbrook	776¾	11	
635	Enfield	076	6¾	1½x1½
635	Lenox	076	7	1¾x1¾

Specify Cat. No., name of design and finish.

CAST IN ONE PIECE (With Wood Screws)

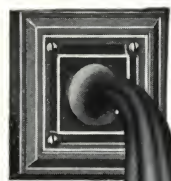
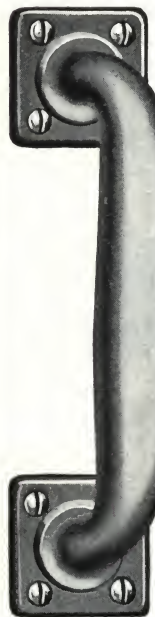
Cat. No.	Length over all, in.
474	7½x2
475	7½x2
478	10 x2½
0120	5 x ½
0124	5¾x1½

CAST IN ONE PIECE (With Machine Screws)

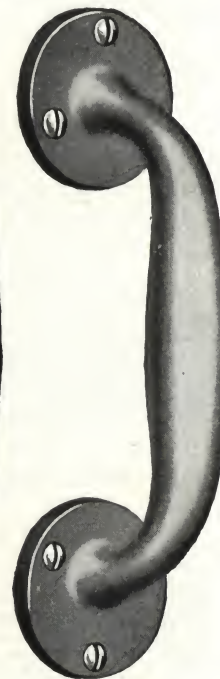
When so ordered will be packed with washer for attaching to push plates

Cat. No.	Length over all, in.
474½	7½x2
478½	10 x2½

Specify Cat. No. and finish.

637
Niantic637
Antoinette783
Rome636, 637
Rome**SECTIONAL TYPE CAST BRASS OR BRONZE**635
Enfield635
Lenox636, 637
Westbrook636, 637
Saybrook

475

474, 478
Type of 474½,
478½

For Description of Finishes, see Page 3

RUSWIN

PUSH PLATES

R&E
SINCE 1839



667
Enfield



666 to 668
Lenox



615
Enfield



615
Lenox



1016

CAST BRASS OR BRONZE PUSH PLATES

Enfield Design (Symbol En.)		Lenox Design (Symbol Lnx.)	
Cat. No.	Size, in.	Cat. No.	Size, in.
*615En.	12x3	*615Lnx.	12x3
*615En.	15x3½	*615Lnx.	15x3½
*615En.	16x4	*615Lnx.	16x4
667En.	15x3	666Lnx.	12x3
		667Lnx.	15x3
		668Lnx.	15x3½

*Specify No. and size.

WROUGHT BRASS OR BRONZE PLATES

Cat. No.	Size, in.
†1016	12x3
†1016	15x3½
†1016	16x4
†1016	18x4

†Specify No., size and finish.

DOOR PULL PLATES AND GRIPS



627½
Right Hand
Enfield



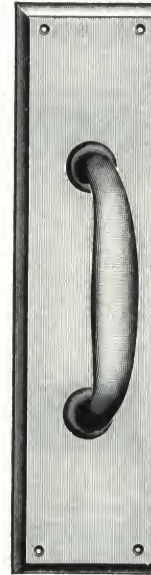
626 to 629
Enfield



647
Enfield



646 to 648
Lenox



626 to 629
Lenox



627½
Right Hand
Lenox

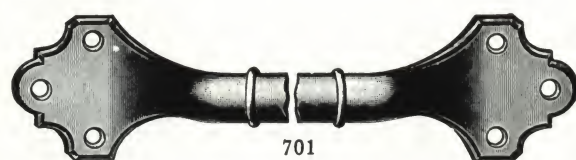
CAST BRASS OR BRONZE DOOR PULL PLATES AND GRIPS

Enfield Design (Symbol En.)				Lenox Design (Symbol Lnx.)			
Cat. No.	Size, in.	Cat. No.	Size, in.	Cat. No.	Size, in.	Cat. No.	Size, in.
626En.	12x3	647En.	15x3	626Lnx.	12x3	647Lnx.	15x3
627En.	15x3½	*627½En.	15x3½	627Lnx.	15x3½	648Lnx.	15x3½
629En.	16x4			629Lnx.	16x4	*627½Lnx.	15x3½
				646Lnx.	12x3		

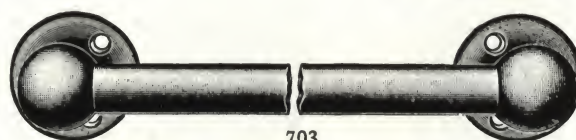
*Specify hand.

Important: Always specify No. and finish and wherever the same Cat. No. is shown in different sizes, also specify size.

For Description of Finishes, see Page 3

RUSWIN**PUSH BARS****R&E**
SINCE 1899

701



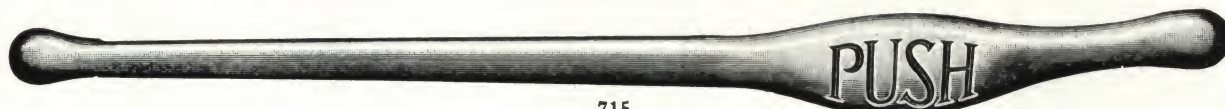
703



706



707



715

Specify Hand—Illustration is Left Hand

CAST BRASS BRACKETS

Cat. No.	Brackets, cast brass	Projection, in.	Clearance, in.	Bar, in.	Size, in.
701	3x3 in.	2 3/4	1 5/8	Wrt. brass, 1	24
702	3x3 in. x 2 5/8 in. diam.	3	1 5/8	Wrt. brass, 1	24
703	2 5/8 in. diam.	3	1 5/8	Wrt. brass, 1	24
706	4 5/8 x 1 in. diam.	2	7/8	Wrt. brass, 1	24
707	4 1/2 x 1 1/8 in. diam.	2 1/4	1 1/8	Wrt. brass, 1	24

CAST BRASS OR BRONZE

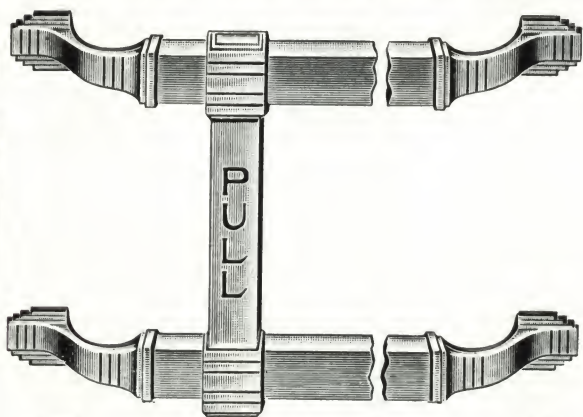
Cat. No.	Length, center to center, in.
*715	14 1/2-24
*715	24 1/2-30
*715	30 1/2-36
*715	36 3/8-42

*Specify hand.
Base, 1 1/4 in. wide. Width over all, 2 1/4 in.; projection, 1 1/4 in.; clearance, 5/8 in.

Important: Specify Cat. No., finish and measurement from center to center of brackets.

COMBINED PULL AND PUSH BARS AND ATTACHMENTS

Cast Brass or Bronze Brackets

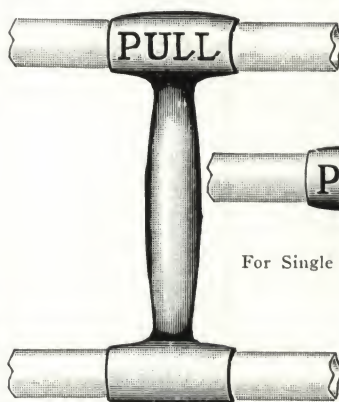
COMBINED PULL AND PUSH BARS**PULL AND PUSH BAR ATTACHMENT**

812

Pyramid

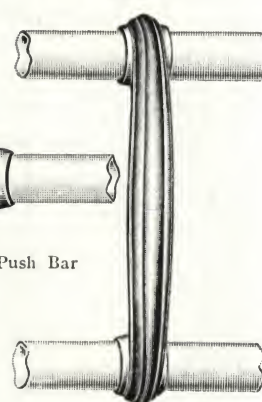
Specify Hand—Illustration is Left Hand

Finishes—The regular finish for 812, 901 and 902 is buffed (polished) brass, Finish 10. Furnished in any finish specified.



902

For Double Pull or Push Bars



903

For 706 or 707 Pull or Push Bars, Double

901
For Single Pull or Push Bar

The attachments illustrated are held in position by inconspicuous set screws. They are furnished entirely separately from the bars. Can be used with any round bar having 1-in. outside diameter.

902—Distance between bars, 6 7/8 in., center to center.

903—Distance between bars, 6 1/2 in., center to center.

Specify "Push" or "Pull."

Attachments not reversible; specify hand and finish.

DIMENSIONS

Cat. No.	Projection, in.	Clearance, in.	Bar, in.	Size, in.
812	2 1/4	1 1/4	Wrt. Brass, 1	24

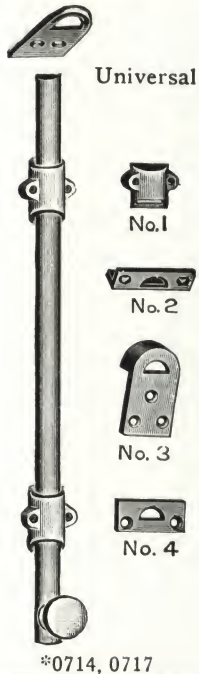
Note: Specify Cat. No., finish, and measurement from center to center.

For Description of Finishes, see Page 3

RUSWIN

SURFACE BOLTS

R&E
SINCE 1839



*0714, 0717

Brass or Bronze

Cat. No.	Rods, half oval, in.	Plates, width, in.	Knob, guide and strike
*0714	3/8	1 1/8	Wrought
0715	3/8	1 5/8	Cast
0716	3/8	1 5/8	Cast
*0717	1/2	1 1/8	Wrought

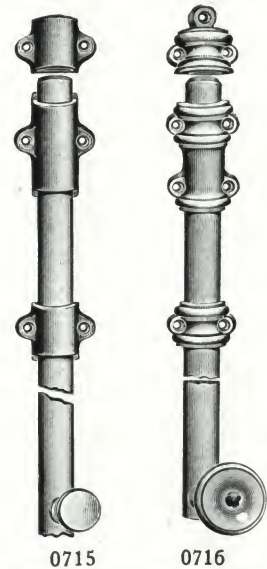
*Nos. 0714, 0717 packed with two strikes, Universal and No. 2. Strikes Nos. 1 or 4 can be furnished to order for Bolts 0717 only.

Other strikes for use with Nos. 0715, 0716, see Page 62.

Specify Cat. No., size and finish.

No. 0714 can be furnished in 4, 6, 8 or 12 in.

Other Nos. in 6, 8, 12, 18, 24 or 30 in.



0715

0716

FLUSH BOLTS

EXTENSION TYPE

Cast Brass or Bronze

Cat. No.	Size plate, in.	Brass bolt head, in.	Cat. No.	Size plate, in.	Brass bolt head, in.
025	5 3/4 x 1 1/2	1 1/2	194 1/2	6 3/4 x 1 3/8 (rabbeted)	1 1/2
027	2 1/2 x 1 3/8	3/8	195	6 3/8 x 1 1/2	1 1/2
28	5 3/4 x 1 1/2	1 1/2	196	6 3/4 x 1 1/2	1 1/2
191	5 x 5/8	3/8	294	6 3/4 x 1 1/4 (round head)	1 1/2
194	6 3/4 x 1 1/4	1 1/2	394	6 3/4 x 1 1/4	1 1/2 sq. x 1 1/2 rd.
0194	6 3/4 x 1 1/4 (convex)	1 1/2	188	8 1/4 x 1 1/4	1 1/2

Can be furnished with dustproof strikes when so ordered. See Fire Exit Device Section, Pages 73 to 76.

Always specify number, length of rod and finish.

No. 0194, as 194, with convex plate for use upon door stiles with rounded edge; standard radius 2 1/4 in.

No. 194 1/2, as 194, with rabbeted plate for use upon door stiles with 1/2-in. rabbeted edge. Reversible.

No. 294, as 194, with round bolt heads for use upon metal doors.

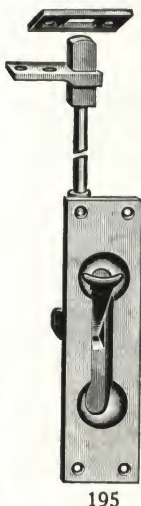
Furnished with rods (including bolt head) 9, 12, 18 or 24 in. in length.



191



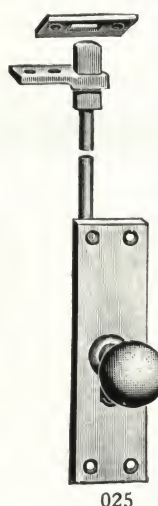
194



195



196



025



28



027



394



188

Latching

For Description of Finishes, see Page 3

RUSSWIN

CREMONE BOLTS

Cast Brass or Bronze

FOR DOORS OR WINDOWS
OPENING IN OR OUT

The illustrations show the bolts in a locked position as applied to doors or windows opening in or out, when the conditions permit of the use of the strikes shown. The bolts securely fasten the doors or windows at both top and bottom. A half turn of the knob or lever releases and withdraws both the top and bottom bolts.

Cremone bolts are priced on the basis of 8½-ft. doors and are regularly furnished with two end guides and two center guides.

SIZES OF CREMONE BOLTS

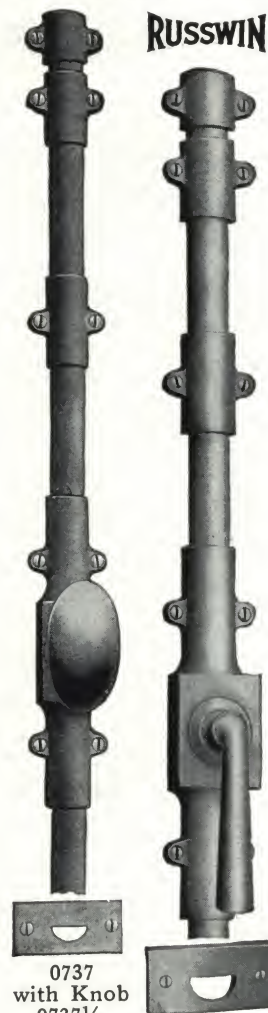
Handle, case, guides and strikes are cast brass or bronze.

Rods are solid brass or bronze.

Cat. No.	Type of handle	Rods, half oval, in.	Plates, width, in.
0737	Knob	½	1⅝
0737¼	Lever	½	1⅝
0739	Knob	⅝	1⅝
0739¼	Lever	⅝	1⅝
0740	Knob	⅝	1⅝
0740¼	Lever	⅝	1⅝
748	Knob	⅝	2

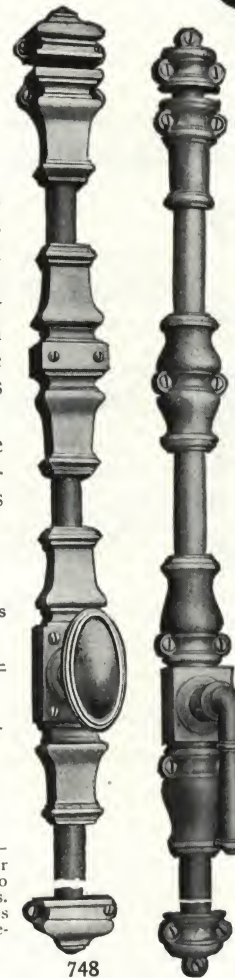
When ordering, specify exact height of door or window and distance from bottom thereof to the center of the handle. State hand of Nos. 0737¼, 0740¼, 0739¼, and 0749¼. If the strikes illustrated do not suit the requirements, see special strikes below.

Specify finish.

R&E
SINCE 1839

0737
with Knob
0737¼
with Lever
Handle as
on 0739¼

0739¼
Right Hand,
with Lever
Handle.
Identical Bolt
with Knob
Like No. 0737
is No. 0739



0740¼
Right Hand
with Lever
Handle.
Identical
Bolt with
Knob Like
No. 748 Is
No. 0740

APPLICATION AND STRIKES

Strikes Shown Are for ⅝-Inch Rods to Meet Special Conditions

These strikes will be furnished, to order, in place of the regular strikes shown with bolts above. Can also be furnished, to order, for ½ inch rods.

When Ordering Specify—

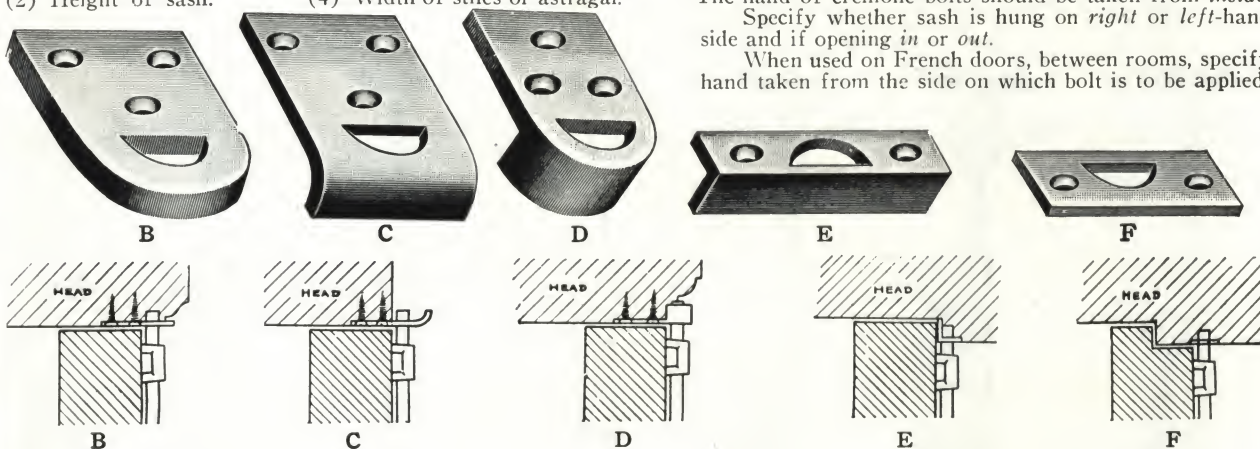
- (1) Hand of sash.
- (2) Height of sash.
- (3) If sash opens in or out.
- (4) Width of stiles or astragal.

- (5) Distance from bottom of sash to proposed center of knob or lever.

Unless otherwise ordered, strikes as shown with the bolts above will be furnished. If special strikes are required, send full-size section of head, sill and meeting stiles.

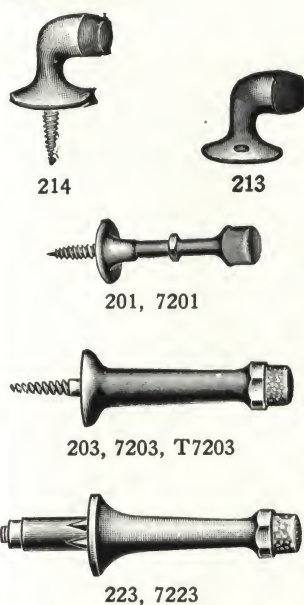
The hand of cremone bolts should be taken from inside. Specify whether sash is hung on right or left-hand side and if opening in or out.

When used on French doors, between rooms, specify hand taken from the side on which bolt is to be applied.



Type	Description	Material	For sash	At	Type	Description	Material	For sash	At
B	Flat mortise	Cast brass or bronze	Opening in	Top	E	Angle mortise	Cast brass or bronze	Opening out	Top or bottom
C	Half mortise	Wrt. brass or bronze	Opening in	Top	F	Flat mortise	Wrought bronze	Opening in	Top or bottom
D	Half mortise	Cast brass or bronze	Opening in	Top or bottom					

For Description of Finishes, see Page 3

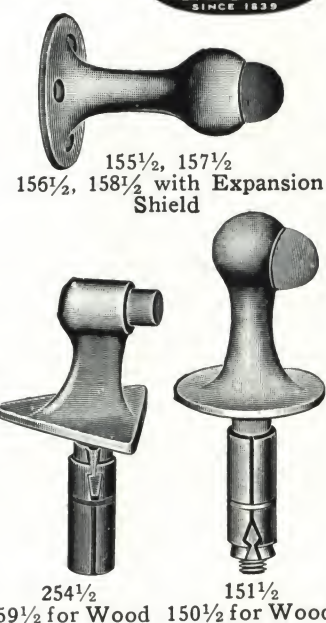
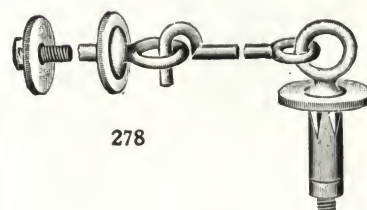
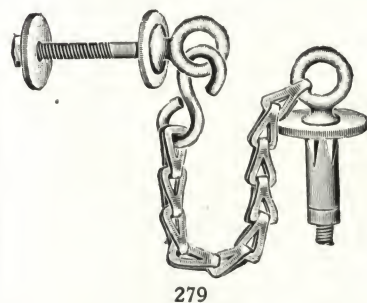
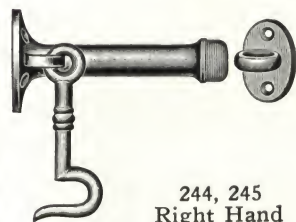
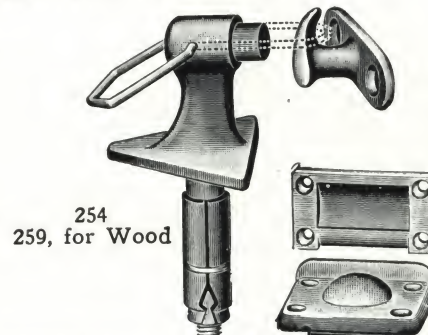
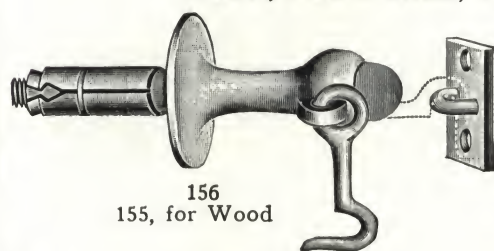
RUSWIN**DOOR STOPS AND HOLDERS****R&E**
SINCE 1839**DOOR STOPS WITH RUBBER TIPS****CAST BRASS OR BRONZE DOOR STOPS**

Cat. No.	Base, in.	Height or projection, in.	Type of fastening
150 1/2	2 1/2	3	For wood
151 1/2	2 1/2	3	For tile or cement
155 1/2	2 1/2	3 1/2	For wood
156 1/2	2 1/2	3 1/2	For tile or cement
157 1/2	2 1/2	4 1/2	For wood
158 1/2	2 1/2	4 1/2	For tile or cement
254 1/2	2 1/4 x 2 1/8	2 1/4	For tile or cement
259 1/2	2 1/4 x 2 1/8	2 1/4	For wood
213	1 1/8	1 1/2	For wood
214	1 1/8	1 1/2	For wood
201	1	2 1/2	For wood
**203	1 1/8	3	For wood
223	1 1/8	3 1/4	For tile or cement
*7201	1	2 1/2	For wood
*7203	1 1/8	3	For wood
*7223	1 1/8	3 1/4	For tile or cement

*Cast iron (polished).

**Special projections of 2, 4 1/4, 4 7/8, 5 5/8, 6, 6 5/8 and 8 in. on No. 203 can be furnished when ordered in quantities.

Important Note: Figs. 151 1/2 and 254 1/2 are illustrated with expansion bolt and shield as used on tile or cement. The identical stops may be had without expansion shield with wood screws for screwing to wood (as in Fig. 155 1/2, 157 1/2). Also Fig. 155 1/2, 157 1/2 illustrated as used for wood may be had with expansion shield and bolt for tile or cement.

**HOOK, FOOT BOLT, FRICTION TYPE AND CHAIN TYPE HOLDERS****CAST BRASS OR BRONZE HOOK DOOR HOLDERS AND STOPS**

Cat. No.	Base, in.	Height or projection, in.	Type of fastening
*150	2 1/2	3 1/2	For wood
*151	2 1/2	3 1/2	For tile or cement
*155	2 1/2	3 1/2	For wood
*156	2 1/2	3 1/2	For tile or cement
*244	1 1/2	2 1/2	For wood
*245	1 1/2	3 1/2	For wood
254	2 1/4 x 2 1/8	2 1/4	For tile or cement
259	2 1/4 x 2 1/8	2 1/4	For wood

*Specify hand.

Important Note: Figs. 156 and 254 are illustrated with expansion bolt and shield as used on tile or cement. The identical stops may be had without expansion shield with wood screws for screwing to wood.

Figs. 150 and 244, 245 are illustrated as used for screwing to wood. The identical stops may be had with expansion bolt and shield for tile or cement.

CAST BRASS OR BRONZE BALL AND SOCKET, FRICTION TYPE HOLDER

Cat. No.	Diam of case, in.	Depth of case, in.	Size, in.
215	1 1/2	1 13/16	2 1/4 x 2 1/4

FOOT BOLT TYPE HOLDER

The rubber tip prevents marring of floor and slipping

Cat. No.	Type	Size, in.
270	Cast brass or bronze	6 3/4 x 2 5/8
280	Wrought brass or bronze	7 1/4 x 2 1/2

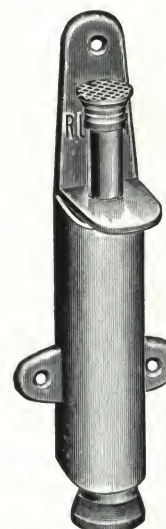
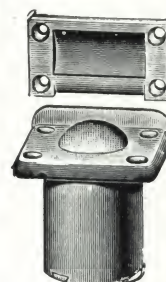
CAST BRASS OR BRONZE HOOK AND CHAIN TYPE HOLDERS

With expansion bolt for wall or floor and bolt and nut for door

Hook Type Holder		Chain Type Holder	
Cat. No.	Length of hook, in.	Cat. No.	Length of chain, in.
*278	6	*279	16
*278	8	*279	24
*278	10	*279	30

*Specify size as well as Cat. No.

For Description of Finishes, see Page 3

280
Type of 270

RUSWIN**HEAVY WROUGHT BRASS AND BRONZE
POLISHED DOOR BUTTS****R&E**
SINCE 1859**LOOSE PIN BUTTS FOR WOOD DOORS****Plain and Ball Bearing Types**

The No. 80 Butts are used for exterior or interior wood doors. They have five knuckles, ball tips and non-rising pins and are steel bushed the entire length of each knuckle.

**NO. 80 BUTT—STEEL BUSHED ENTIRE LENGTH OF
EACH KNUCKLE**

Size, in.	Weight, ounces	Size, in.	Weight, ounces
2½ x 2	9	4 x 4	30
2½ x 2½	10	4½ x 4½	39
3 x 2½	15	5 x 3	34
3 x 3	16	5 x 4	41
3½ x 3½	23	5 x 5	50
4 x 3	23	6 x 6	79

Irregular sizes: 3x2, 4x5 and 5x6 in. on special order.

**BALL BEARING, BUTTON HEAD AND STANDARD TEMPLATE
BUTTS SAME AS NO. 80**

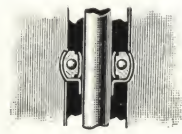
Cat. No.	Description	Cat. No.	Description
*No. BB80	With ball bearings.	*No. 85	Made to standard template
**No. 80¼	With button head tips	*No. BB85	No. 85 with ball bearings

*Sizes under 3x3 in. are not furnished with ball bearings.

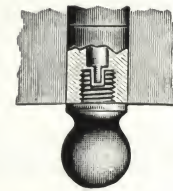
**Furnished on special order only.

Special Notes: Any of the butts described in the tables above can be furnished (on special order only) with pins that cannot be removed when door is closed—suffix A to Catalogue No., as No. 80A.

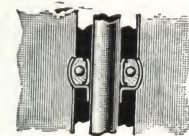
Always specify No., size and finish.



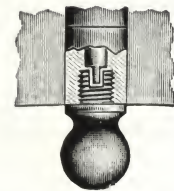
Ball Bearings
(Used with
No. BB80 and
No. BB85)



Pin Retainer



Ball Bearings



Pin Retainer

**LOOSE PIN TEMPLATE BUTTS FOR
METAL DOORS AND JAMBS****Ball Bearing Type Only**

The No. BB81 are made to standard templates and are furnished regularly with machine screws, for use on metal doors and trim. Have five knuckles, ball tips, self-retaining, non-detachable ball bearings and non-rising steel pins.

Always specify No., size and finish.

Sizes and Weights—No. BB81 is made in three sizes and weights: 4½x4½ in., 48 ounces; 5x5 in., 60 ounces; 6x6 in., 96 ounces.

*6x6 in. size has four races for ball bearings, one at each joint.

TIGHT PIN BUTTS FOR HOSPITALS, ETC.**Plain and Ball Bearing Types**

Designed especially for use in asylums, hospitals and similar institutions these butts are made without projecting tips. Made with self-lubricating steel bushed pins (No. 83) or with ball bearings (No. BB83). Sizes other than those shown below can be furnished to order.

Always specify No., size and finish.

**NO. 83 AND BB83—SELF-LUBRICATING,
STEEL BUSHED BUTTS**

Size, in.	Weight, ounces	Size, in.	Weight, ounces
4 x 4	28	5 x 5	48
4½ x 4¼	30	6 x 6	75

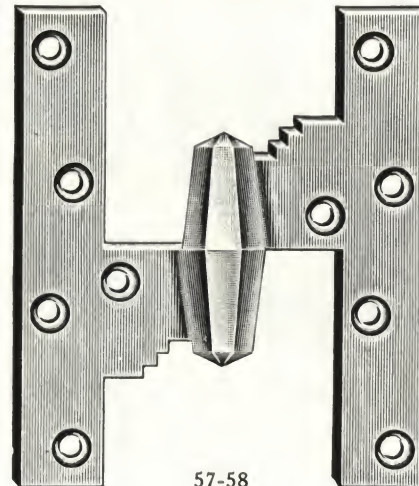
For ball bearing type, prefix BB to number.

OLIVE BUTTS

Nos. 57 and 58 Olive Butts are made of cast gun metal with steel pins and washers. Not reversible; specify hand.

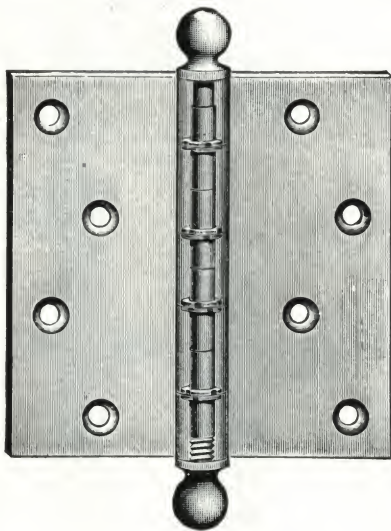
OLIVE BUTTS—CAST GUN METAL

No.	Length of leaf, in.	Width of leaf, in.	Width open, in.	Width between leaves, in.	Weight, pair with screws, oz.
57	5	7/8	4¼	2 7/8	38
58	3½	¾	3	1½	16

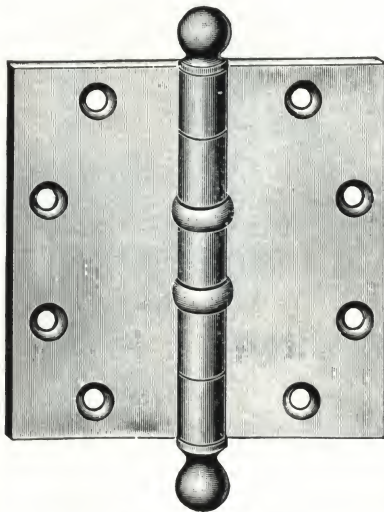


57-58

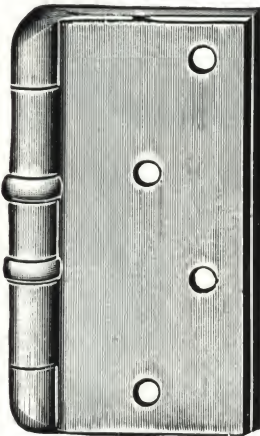
For Description of Finishes, see Page 3



80, 4x4 in.
Phantom View of Knuckles Show-
ing the Steel Bushings



*BB81, 4x4 in.



*BB83, Closed
Type of 83

RUSWIN

LAVATORY HINGES

CAST BRASS, NICKEL PLATED

Adjustable and Non-adjustable Type Flanges

HINGES WITH ADJUSTABLE SPRING; BLANKS WITHOUT SPRING

ADJUSTABLE CLAMP FLANGES FOR THICKNESSES:
 $\frac{7}{8}$ to $1\frac{1}{4}$ in.; $1\frac{1}{8}$ to $1\frac{1}{2}$ in.; $1\frac{3}{8}$ to $1\frac{3}{4}$ in.;
 $1\frac{3}{4}$ to $2\frac{1}{4}$ in.

Cat. No.	Description	Length of flanges, in.
346	With spring.....	$3\frac{1}{2}$
346B	Blank.....	$1\frac{3}{4}$
346x346B	One spring and one blank (set).....	$3\frac{1}{2}$ - $1\frac{3}{4}$

Specify size adjustment desired (thickness of marble or slate).

With Solid Clamp Flanges—Not Adjustable

347	With spring.....	$3\frac{1}{2}$
347B	Blank.....	$1\frac{3}{4}$
347x347B	One spring and one blank (set).....	$3\frac{1}{2}$ - $1\frac{3}{4}$

Specify thickness of marble or slate partition.

LAVATORY HINGES WITH SPRINGS—NON-ADJUSTABLE

Clamp Hinges with Solid Clamp Flange for Partitions 1 to 2 in. Thick

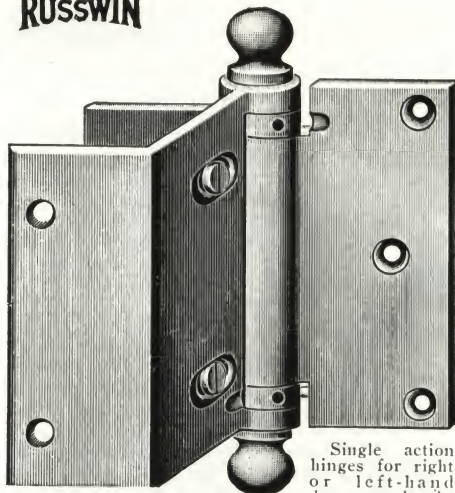
Cat. No.	Length of flanges, in.
356	$3\frac{1}{2}$

Can be furnished reverse action, to hold door open. Specify thickness of marble or slate.

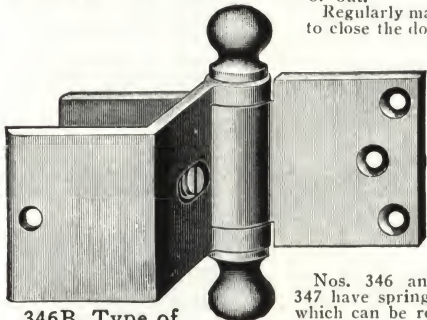
Surface Hinges

*351	$3\frac{1}{2}$
**352	$3\frac{1}{2}$

*With wood screws for both leaves
 **Wood screws for one leaf, bolts for the other.



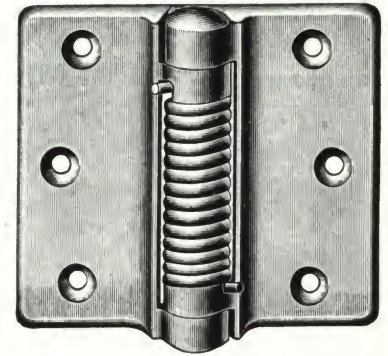
346, Type of 347



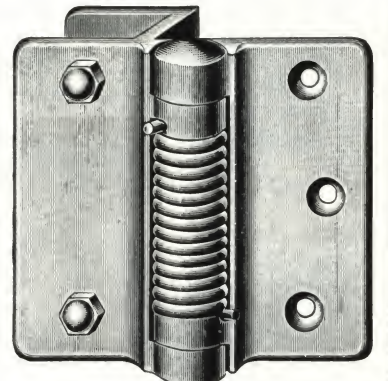
346B, Type of 347B

Single action hinges for right or left-hand doors opening in or out. Regularly made to close the door.

Nos. 346 and 347 have springs which can be reversed to hold door open.



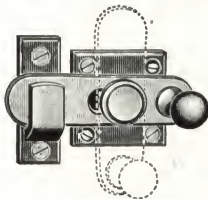
351, 352



356

LAVATORY BOLTS AND STRIKES OR BUMPERS

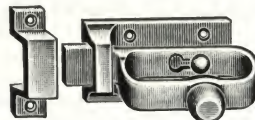
CAST BRASS LAVATORY BOLTS, NICKEL PLATED



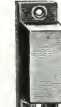
0174
Left Hand, Opening In



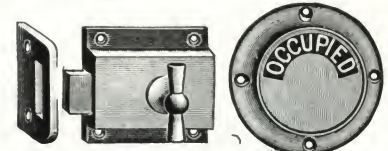
0172
Heavy Weight



0159 with Rubber Bumper
 0159½ without Rubber Bumper



Rim Strike



0156 with Indicator
 0256 without Indicator
 Type of 0156½, 0256½

LATCHING BOLTS

Reversible for right or left hand doors opening in or out

Cat. No.	Base, in.	Strikes, in.	Bar length, in.
0171	2x2	2 x2	5
0172	2x2	2 x1½	5
0174	2x2	2½x 7/8	4

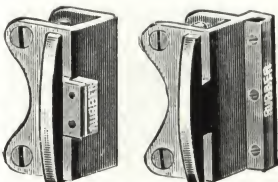
Nos. 0171, 0172 furnished to order with angle (necked) latch bar for use where the partition is thicker than the door. Send full size detail of door and jamb.

SLIDE BOLTS

Cat. No.	Case, in.	Backset, in.	Strike		Indicator
			Type	Size, in.	
0156	2½x2½	1½	Mortise	2½	With
0156½	2½x2½	1½	Rim	2½	With
0159	3 x1½	.....	Rim	2½	Without
0159½	3 x1½	.....	Rim	2½	Without
0256	2½x2½	1½	Mortise	2½	Without
0256½	2½x2½	1½	Rim	2½	Without

CAST BRASS STRIKES OR BUMPERS, NICKEL PLATED

When ordering, give number of bolt with which strike is to be used; also thickness of door and thickness of jamb. If thickness of door and jamb differ, state on which side they are flush. It is advisable to send a sketch showing a cross section of the door and jamb at the point where the bolt meets the strike.

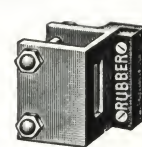


12



12½

Cat. No.	For doors opening	Description
12	Out	For bolts Nos. 0171, 0172, 0174
12½	In	For bolts Nos. 0171, 0172, 0174
3	Out	For bolts Nos. 0156, 0256
4	In or out	For bolts Nos. 0165, 0265
5	In or out	For any bolt



4



3

For Description of Finishes, see Page 3

RUSSWIN

DOOR CLOSERS



Features of Russwin Liquid Door Closer

Ease of Application—Can be applied to either a right-hand or left-hand door without reversing either the arm or spring, thus avoiding possibility of mistake in re-assembling.

Method of Attachment—Can be applied so that it will operate satisfactorily under almost every possible condition of construction.

The Spring—A flat wire-coil spring replaces old type round spring, thereby nearly doubling spring area.

The Valve—This gives a checking action which takes effect when the door is open at an angle of 90°.

The speed of the door is constant from 90° to closing point.

The Liquid—This is a non-freezing liquid in which the main working parts are immersed. Leakage is impossible.

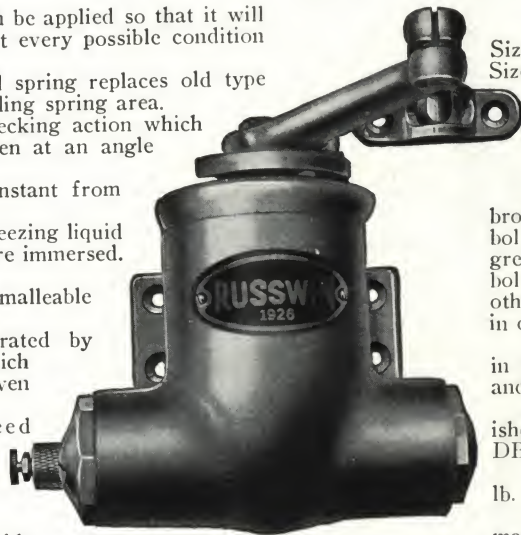
Working Parts—All are malleable iron and drop forge steel.

The Piston—Piston is operated by crank and link construction which gives a perfectly smooth and even action.

Guarantee—It is guaranteed against faults in workmanship and imperfections in material.

Sizes, Finishes

Size A. For screen and light inside doors.



Russwin Door Closer

Size B. For inside doors not exceeding 3 feet in width.
Size C. For outside and vestibule doors, etc., not exceeding 2½ feet in width.

Size D. For outside doors not exceeding 3 feet in width.

Size E. For heavy outside doors exceeding 3 feet in width and large doors operated against strong draughts.

Size F. For extra heavy outside doors.

Size RC. Especially constructed for use on railroad car doors.

Note: The above specifications apply to doors under normal conditions. If the door is unusually heavy or is subject to very strong draught use one size larger than is specified.

Finishes—Regular finish: maroon bronze, symbol MB; silver bronze, symbol SB; dead black, symbol DB; olive green, symbol OG, and mahogany, symbol M. Maroon bronze furnished if not otherwise specified. Closers not furnished in oil paint finishes.

Sizes—Made in cast iron, unpolished in the following Nos.: A, B, C, D, E, F and RC.

Made in cast bronze or brass, unpolished in the following Nos.: AB, BB, CB, DB, EB, FB.

Weights—A, 42 lb.; B, 65 lb.; C, 84 lb.; D, 77 lb.

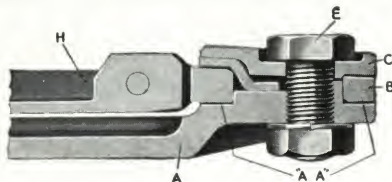
Closers can be made to templet, with machine screws. Also furnished with valve operated by key.

SPECIAL ARMS FOR RUSSWIN LIQUID DOOR CLOSERS

Russwin Automatic Friction Hold Open Arm—1

Can be applied to the regular Russwin Closer, eliminating the use of floor stops, hooks, or other devices generally used to hold the door open.

The holding device is located in the end of the arms and can be adjusted to hold the door at any desired angle. For either a right or left-hand door, same as the regular arm.



Section of Hold Open Arm—1

The main arm "A" has a friction surface "A-A" which comes in contact with the cam "B" attached to the loop or forearm "H." A brass disk inserted between these two friction surfaces prevents corrosion. The two surfaces are brought together when the door is opened and the cam "B" wedges between the arm "A" and the cam plate "C."

For closers with automatic friction hold open arms, suffix number dash one; i.e., 1, as A-1, B-1, etc.

For Fire Doors—RUSSWIN Closers for fire doors are furnished in sizes A1 to E1 with fusible equipped arms tested to operate at a low melting point.

For closers with fusible equipped arms, suffix "F" to number (thus A-1F).

Automatic Friction Hold Open Arm with Soffit Post Bracket

This hold open arm is for use on the *inactive* leaf of a pair of doors. It is made in three sizes only: for B, C and D closers.



Special Length Arms for Door Closers

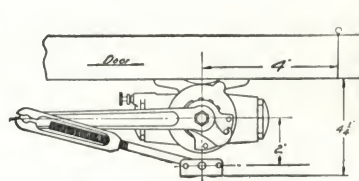
Closer No.	Regular length of arm, in.	Special length arms, in.	Closer No.	Regular length of arms, in.	Special length arms, in.
A	8	10, 12	D	11	12, 14, 20
B	9	10, 12	E	12	14, 16, 20
C	10	12, 16, 20	F	13	14, 16, 20

Parallel Arms for Use with Storm or Screen Doors

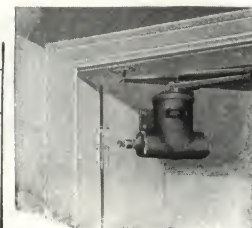
Closer with parallel arms No. 34 is required when the closer is to be used in a narrow space, as for instance, between two doors. When closers are used in this manner hand of door must be given as they are not reversible.

The minimum space occupied by a closer when used in this manner is as follows:

Closer, size	A	B	C	D	E	F
Space, in.	4¼	4½	5	5½	6%	6%



Closer with Parallel Arms No. 34



For Description of Finishes, see Page 3

RUSSWIN**DOOR CLOSER BRACKETS****R&E**
SINCE 1839

Always Have the Closer Indoors Where Possible

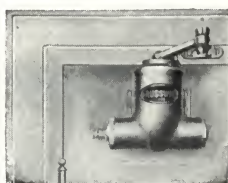


Fig. 1

Fig. 1 shows the closer, as regularly furnished, applied on the inner or hinge side of door. This method of applying is recommended wherever the conditions permit.

Blocking Bracket No. 33—Should be used where the door is recessed $\frac{7}{8}$ in. or more beyond the surface of the casing. This bracket is furnished regular for doors recessed from $1\frac{1}{4}$ to $1\frac{3}{8}$ in. If recess is greater, same must be so specified. Where required and used the closer occupies its normal position and insures its satisfactory operation. (Same application as Fig. 1.)

Size	A	B	C	D	E	F
Bracket No.....	33A	33B	33C	33D	33E	33F

Soffit Bracket No. 27—Used where the door opens outward or where conditions are such that the closer can not be applied to the hinge side of door. Minimum space required for attaching is as follows:

Size	A	B	C	D	E	F
Space, in.....	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{3}{4}$
Bracket No.....	27A	27B	27C	27D	27E	27F

Corner Bracket No. 28—Used under same conditions as described for No. 27. Does not require as much space as No. 27. is fastened at both the top and side, each angle securely braced gives a greater solidity to the closer. Minimum space required for attaching is as follows:

Size	A	B	C	D	E	F
Space, in.....	$\frac{7}{8}$	$\frac{7}{8}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$1\frac{1}{8}$
Bracket No.....	28A	28B	28C	28D	28E	28F

Flush Bracket No. 29—Used where soffit is not wide enough to furnish suitable footing for brackets No. 27 or 28.

Size	A	B	C	D	E	F
Bracket No.....	29A	29B	29C	29D	29E	29F

Straight Jamb Bracket No. 30—Used on segment, circle or gothic head doors where intermediate rails will permit, or if panel is thick enough to withstand strain. Similar to No. 27 closer, must be applied below point of radius. If insufficient headroom use Bracket No. 31 or No. 32.

Size	A	B	C	D	E	F
Bracket No.....	30A	30B	30C	30D	30E	30F

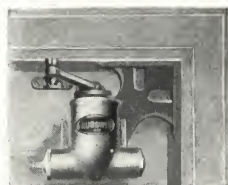
Half Circle Bracket No. 31—Suitable for use only on half circle or segment head doors when door is flush with or not recessed more than $1\frac{1}{4}$ in. beyond casing, and when top of door does not have an irregular radius. Not reversible, specify hand. Detail required where recess is greater than noted.

Size	A	B	C	D	E	F
Bracket No.....	31A	31B	31C	31D	31E	31F

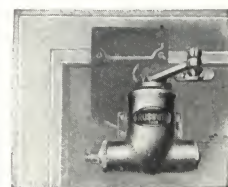
Curved Jamb Bracket No. 32—For circle and gothic head doors, opening outward or where the conditions will not permit the closer to be applied to hinge side of door. Not reversible, specify hand. Detail required showing exact radius and location of closer indicated.

Size	A	B	C	D	E	F
Bracket No.....	32A	32B	32C	32D	32E	32F

Maroon Bronze furnished unless otherwise specified.



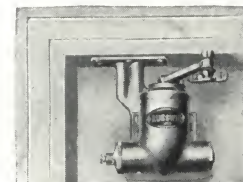
On Bracket 28



On Bracket 29



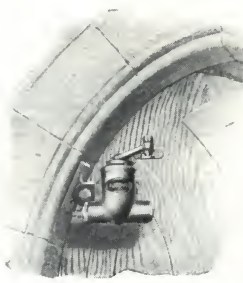
On Bracket 31



On Bracket 27



On Bracket 30

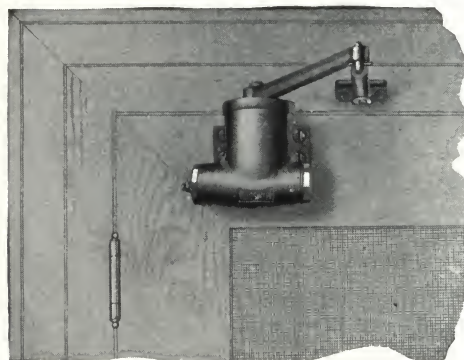


On Bracket 32

RUSSWIN SCREEN DOOR CLOSER No. 7

The RUSSWIN Screen Door Closer No. 7 resembles in appearance our regular line of door closers. It requires only $3\frac{1}{4}$ in. between the house door and the screen door. The width of rail required for inside application being $3\frac{1}{2}$ in. and for outside application $2\frac{1}{2}$ in.

The RUSSWIN Closer is reversible for either a right- or left-hand door, and can be applied inside, between the house door and screen door or on the



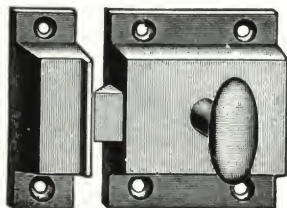
Closer No. 7 Applied on Outside of Door

outside, by simply removing the arm and placing it on the closer for the desired application as explained in the direction sheets and templates packed with each closer.

The speed of the door can be readily and accurately governed by means of the adjusting screw or valve, a turn to the left increasing, and a turn to the right decreasing its speed.

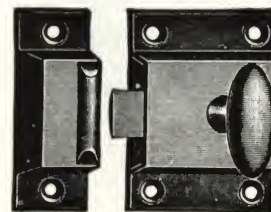
Maroon Bronze furnished unless otherwise specified.

For Description of Finishes, see Page 3

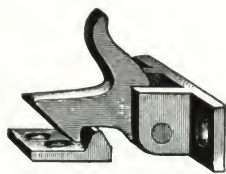
RUSSWIN**CUPBOARD HARDWARE****R&E**
SINCE 1899**CUPBOARD CATCHES****With Turn Action****Brass or Bronze**

1123, 1125

Cat. No.	Size, in., without strikes	Description
1123	1 $\frac{3}{4}$ x1 $\frac{1}{4}$	Cast
1125	2 $\frac{1}{8}$ x1 $\frac{5}{8}$	Cast
440	1 $\frac{3}{4}$ x1 $\frac{1}{2}$	Wrought
445	2 $\frac{1}{8}$ x1 $\frac{5}{8}$	Wrought



440, 445

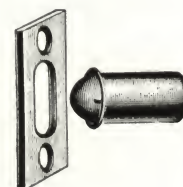
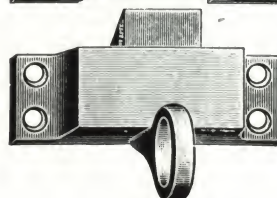
ELBOW AND FRICTION CATCHES**ELBOW CATCHES**

0602 to 2602

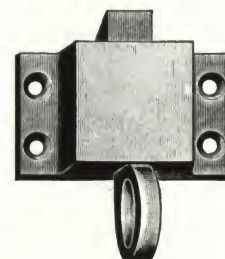
Cat. No.	Plate, in.	Projection, in.	Strike, in.	Description
0602	$\frac{5}{8}$ x1 $\frac{3}{8}$	1 $\frac{1}{2}$	$\frac{5}{8}$ x $\frac{3}{4}$	Cast bronze, polished
602 $\frac{1}{2}$	$\frac{5}{8}$ x1 $\frac{3}{8}$	1 $\frac{1}{2}$	$\frac{5}{8}$ x $\frac{3}{4}$	Cast brass, unpolished
2602	$\frac{5}{8}$ x1 $\frac{3}{8}$	1 $\frac{1}{2}$	$\frac{5}{8}$ x $\frac{3}{4}$	Cast iron, japanned

FRICTION CATCHES (Patented)

Cat. No.	Length, in.	Diameter, in.
10	$\frac{3}{4}$	$\frac{5}{16}$
11	$\frac{3}{4}$	$\frac{7}{16}$
12	1	$\frac{5}{8}$
13	1 $\frac{1}{4}$	$\frac{3}{4}$
14	1 $\frac{1}{2}$	$\frac{7}{8}$

10, 11, 12
Style of 13, 14**TRANSOM CATCHES**0762 $\frac{1}{2}$

Cat. No.	Sizes, in., without strikes	Description
0762 $\frac{1}{2}$	1x2 $\frac{3}{4}$	Cast brass or bronze, polished
0746 $\frac{1}{2}$	1 $\frac{3}{8}$ x2 $\frac{3}{4}$	Cast brass or bronze, polished

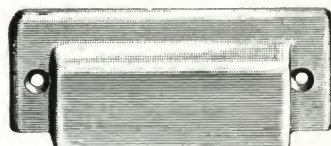
0746 $\frac{1}{2}$ **DRAWER PULLS**

034

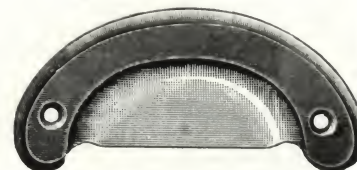
BAR TYPE

Cat. No.	Size, in.	Description
034	$\frac{7}{8}$ x4	Cast brass or bronze, polished

This type is fastened from back with machine screws.



041

**CUP TYPE**

Cat. No.	Size, in.	Description
041	3 $\frac{1}{2}$	Cast brass or bronze, polished
170	3 $\frac{5}{8}$	Wrought brass or bronze, polished.

For Description of Finishes, see Page 3

RUSSWIN**AUTOMATIC GRIP TRANSOM LIFTERS**

Length—To determine the proper length of a transom lifter, deduct 5 ft. from the distance between the floor and the center of transom.

Reach—Nos. 30 to 55½: The distance from center of transom rod in position to center of transom rail.

Recess—The distance from face of door casing to face of transom.

Clearance—The distance from back of rod in position to face of door casing.

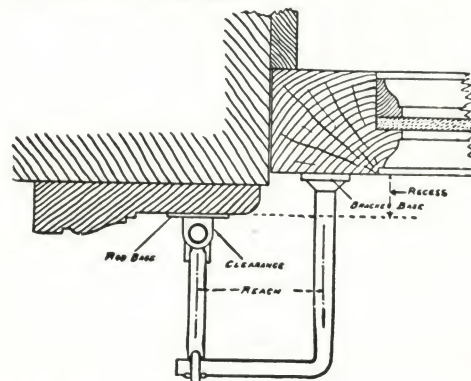
Width of bracket base is the measurement required on face of transom rail for attaching bracket.

Width of rod base is the measurement required on face of door casing for attaching rod guides and grip boxes.

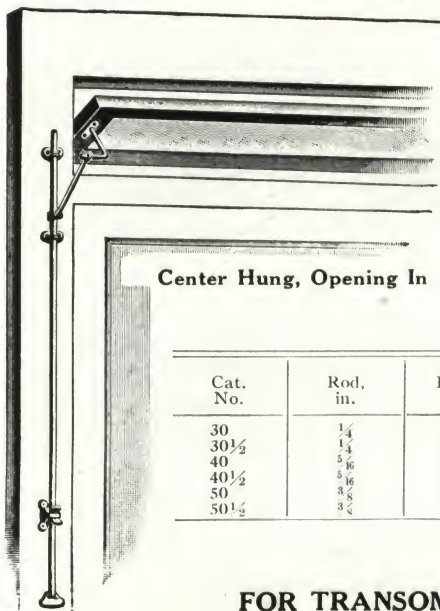
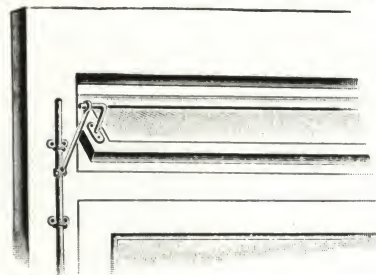
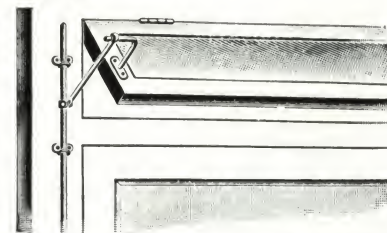
Orders for transom lifters requiring "reach," "recess,"

"clearance," width of bracket base and width of rod base, other than the regular distance, should give these measurements.

If any mouldings or projections stand in the path of the transom lifter, a sketch showing position and projection of such obstructions will be necessary for making special guides, or risers and grip boxes.

**MEASUREMENTS OF REGULAR TRANSOM LIFTERS**

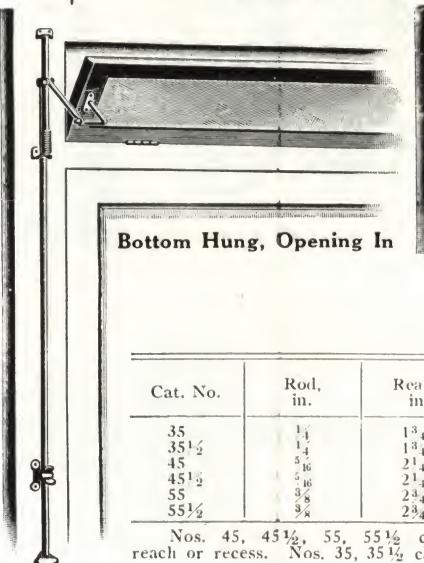
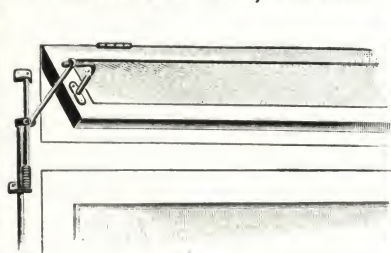
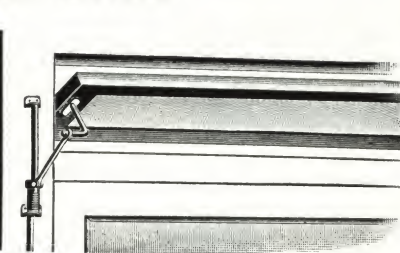
Cat. No.	Reach, in.	Recess, in.	Bracket base, in.	Rod base, in.	Clearance, in.
30	1 3/4	1 1/2	1 3/16	1	1/4
40	2 1/4	1 1/2	1 5/16	1 1/4	1/4
50	2 3/4	1 1/2	1 1/16	1 1/4	1/16
35	1 3/4	1 1/2	1 3/16	1 1/8	1/4
45	2 1/4	1 1/2	1 5/16	1 1/2	1/4
55	2 3/4	1 1/2	1 1/16	1 5/16	1/4
270	2	1	3/4	1	1/4
280	2	1	7/8	1	1/16

FOR TRANSOMS HUNG AT TOP OR CENTER**Center Hung, Opening In****Center Hung, Opening Out****Top Hung, Opening In**

Cat. No.	Rod, in.	Reach, in.	Recess, in. or less	Description
30	1/4	1 3/4	1/2	Iron, coppered
30 1/2	1/4	1 3/4	1/2	Plated
40	5/16	2 1/4	1 1/2	Iron, coppered
40 1/2	5/16	2 1/4	1 1/2	Plated
50	3/8	2 3/4	1 1/2	Iron, coppered
50 1/2	3/8	2 3/4	1 1/2	Iron, plated

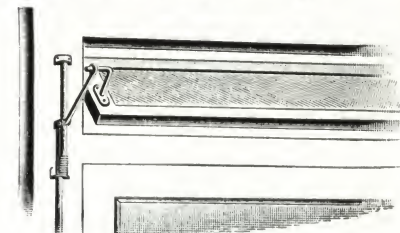
Nos. 40, 40 1/2, 50, 50 1/2 can be furnished with brackets for special reach or recess.

Nos. 30, 30 1/2 can only be furnished regular

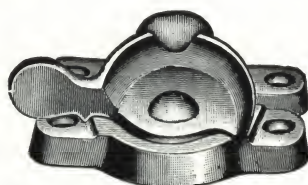
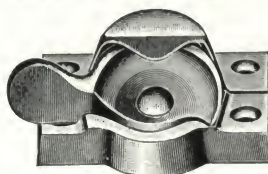
FOR TRANSOMS HUNG AT TOP, CENTER OR BOTTOM**Bottom Hung, Opening In****Top Hung, Opening In****Center Hung, Opening In**

Cat. No.	Rod, in.	Reach, in.	Recess, in. or less	Description
35	1/4	1 3/4	1/2	Iron, coppered
35 1/2	1/4	1 3/4	1/2	Iron, plated
45	5/16	2 1/4	1 1/2	Iron, coppered
45 1/2	5/16	2 1/4	1 1/2	Iron, plated
55	3/8	2 3/4	1 1/2	Iron, coppered
55 1/2	3/8	2 3/4	1 1/2	Iron, plated

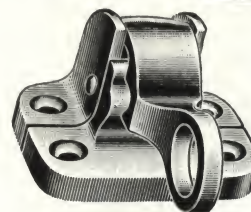
Nos. 45, 45 1/2, 55, 55 1/2 can be furnished with brackets for special reach or recess. Nos. 35, 35 1/2 can only be furnished regular.

**Center Hung, Opening Out**

For Description of Finishes, see Page 3

RUSWIN**SASH HARDWARE
SASH FASTENERS****R&E**
SINCE 1839110, 120, 130, T110, 7110,
T120, 7120, 7130

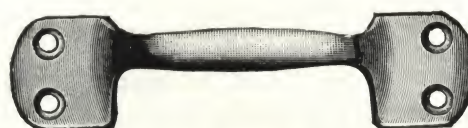
210

149 Signal
Cast Bronze or Brass
When eyelet is down, sash
is locked**SASH FASTENERS**

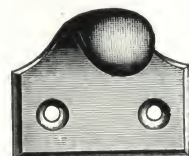
Light weight		Medium weight		Heavy weight	
Cat. No.	Description	Cat. No.	Description	Cat. No.	Description
110	Cast brass or bronze, polished.	120	Cast brass or bronze, polished.	130	Cast brass or bronze, polished.
T110	Cast brass or bronze.	T120	Cast brass or bronze.	7130	Cast iron.
7110	Cast iron.	7120	Cast iron.		
210	Cast brass or bronze, polished.	220	Cast brass or bronze, polished.		

033, T7033
Type of 037, T7037, 047, T7047**BAR SASH LIFTS**

Brass or bronze	Cast iron	Size, in.
Cat. No.	Cat. No.	
033	T7033	1 1/2 x 4
035	T7035	1 1/2 x 5
037	T7037	1 1/2 x 5
047	T7047	1 1/2 x 4 3/4



035, T7035

HOOK SASH LIFTS AND FLUSH SASH LIFTS**HOOK TYPE SASH LIFTS**

055, T7055

Cat. No.	Size, in.	Description
055	1 1/2 x 1 3/4	Cast brass or bronze, polished.
178 3/4	1 3/8 x 1 5/8	Wrought brass or bronze, polished.
T7055	1 1/2 x 1 3/4	Cast iron.
T7178 3/4	1 3/8 x 1 5/8	Wrought steel.



1118



154

FLUSH TYPE SASH LIFTS

Brass or bronze, polished



178 3/4, T7178 3/4

Cat. No.	Depth of cup, in.	Size, in.	Description
154	5/16	1 1/2 x 3	Wrought.
156	1/2	1 3/4 x 3 1/4	Wrought.
1118	7/16	1 1/4 x 3	Cast.
1121	1/2	1 3/8 x 3 1/8	Wrought.



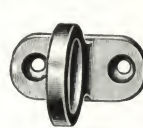
1121



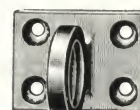
156

SASH PULL SOCKETS AND POLES**EYES, HOOKS, SOCKETS AND HANGERS**

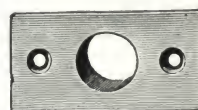
Cat. No.	Size, in.	Description
TRANSOM EYES		
Diameter of eye, 5/8 in.		
102	5/8 x 1 1/2	Cast brass or bronze, polished.
104	1 x 1 3/8	Cast brass or bronze, polished.
PULL DOWN HOOKS		
27	3 3/4 x 1 1/4	Cast brass or bronze, polished.
SASH PULL SOCKETS		
22	1 x 2	Cast brass or bronze, polished.
31	1	Wrought brass or bronze, polished.
POLE HANGERS		
15	2 3/8 x 1 1/8	Cast brass or bronze, polished.



102



104



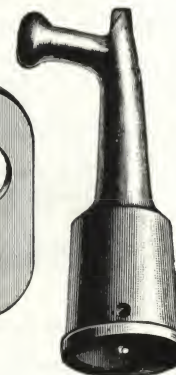
22



31



15

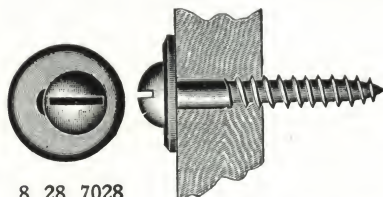


27

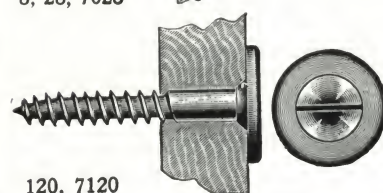
STOP BEAD SCREWS

For window and door stops

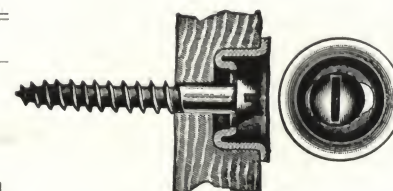
Cat. No.	Size of screw	Description
284	1 in. x No. 8	Bronze screw, bronze washer.
28	1 1/4 in. x No. 8	Bronze screw, bronze washer.
120	1 1/4 in. x No. 8	Bronze screw, bronze washer.
283	1 in. x No. 8	Steel screw, bronze washer.
7284	1 in. x No. 8	Steel screw, steel washer.
7028	1 1/4 in. x No. 8	Steel screw, steel washer.
7120	1 1/4 in. x No. 8	Steel screw, steel washer.
8	1 1/4 in. x No. 8	Steel screw, steel washer, blued.



8, 28, 7028



120, 7120



283, 284, 7284

For Description of Finishes, see Page 3

RUSSWIN**GARAGE HARDWARE****R&E**
SINCE 1839

RUSSWIN Garage Hardware includes Adjustable Cylinder Locks for hinged and sliding doors, Self-latching Door Bolts, Self-adjusting Holders or Hold

Open Arms with or without shock absorbers, Extra Heavy Wrought Steel Strap Hinges and Door Pulls. The items are sold separately or in complete sets.

HARDWARE EQUIPMENT FOR GARAGE DOORS

For lasting satisfaction in the way of Garage Door equipment we recommend and suggest the following specifications:

Hinged Garage Doors—

Furnish and apply to each pair of Hinged Garage Doors:
1 RUSSWIN Adaptable Cylinder Lock No. 200.

2 pr. ball bearing extra heavy wrought steel strap hinges, 24 in.

1 pr. ball bearing extra heavy wrought steel strap hinges, 18 in.

1 only RUSSWIN Self-Latching and Adaptable Garage Door Bolt No. 1.

1 pair RUSSWIN Garage Door Holders or Hold-Open Arms with Shock Absorbers No. 3.

OR

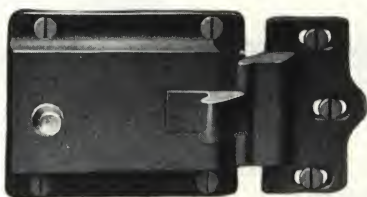
RUSSWIN Garage Door Holders or Hold-Open Arms No. 2.

2 only RUSSWIN Door Pulls No. 2900.

Sliding Garage Doors—

Furnish and apply to each Single or Pair of Sliding Garage Doors:

1 only RUSSWIN Adaptable Cylinder Sliding Door Lock No. 300.

CYLINDER LOCKS FOR HINGED AND SLIDING DOORS**Hinged Garage Door Lock No. 200**

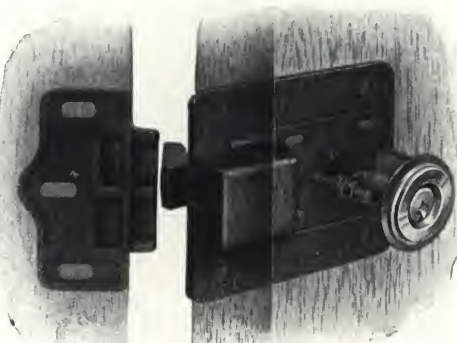
Strike No. 1
For Lock No. 200 when used on Single Doors.



Unit Type Cylinder
Used with both Nos. 200 and 300



Sliding Garage Door Lock No. 300
Outside View

**Phantom View No. 200 Lock and Strike**

Shown on doors with the RUSSWIN Adjustable Unit Cylinder attached to the Lock Case

No. 200 Adaptable Cylinder Locks for Hinged Doors

Either right or left hand reverse bevel, 1½ to 3 in.

Size, in.	Backset, in.	Bolt, case and strike
4½ x 4 5/8	3	Cast iron, dead black

No. 300 Adaptable Cylinder Locks for Sliding Doors

Adjustable for doors 1¾ to 3 in. Reversible.

Size, in.	Backset, in.	Case and strike (protected)
5 5/8 x 4	3	Cast iron, dead black

**Inside View of No. 300****Adaptable Cylinder Garage Door Lock No. 200**

Self-latching hinged latch bolts with RUSSWIN adjustable unit cylinders for use on either right or left hand reverse bevel doors.

The feature of this lock is its adaptability to any position the door may assume, as a result of the natural tendency of wide heavy doors to sag.

The broad latching face on the strike affords a safe "grip" irrespective of the amount of sag that may take place on either door.

The case is of cast iron, size 4½ in. x 4 5/8 in. and has a stop to hold the latch retracted when desired. The backset is 3 in. The cylinder and cylinder collar are of bronze metal, and when applied to the door are flush with the stile, preventing any operation of the same, except by the regular change or master key to which it is subject.

The application is very simple—requiring only the boring of a 1½ in. hole through the door.

The cylinders of these locks may be master keyed or

grand master keyed with any other RUSSWIN cylinder locks, thus making it possible to have a number of garages under the control of one key, or the lock on the garage door may be made subject to the key of the residence lock.

Adaptable Cylinder Sliding Door Lock No. 300

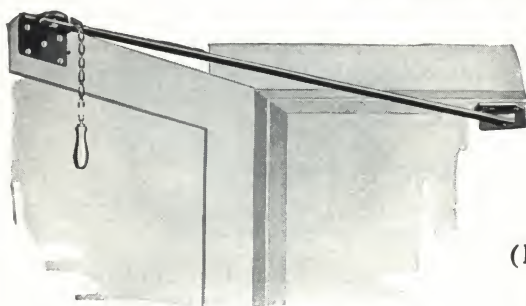
Self-latching, broad-faced, hinged malleable iron latch bolts, which engage with the strike irrespective of any sag of the door.

The case is of cast iron size 5 5/8 in. x 4 in., and has a stop to hold the latch retracted when desired. A feature of this lock, which is exclusively RUSSWIN, is that the latch bolt when withdrawn by the key from the outside remains in a retracted position as long as the key remains in the lock, thus allowing the use of both hands for the operation of the door. The application and master keyable features are the same as the No. 200 lock.

For Description of Finishes, see Page 3

RUSWIN**SELF-ADJUSTING DOOR HOLDERS**

For Right or Left Hand Reverse Bevel Doors

R&E
SINCE 1830

Self-Adjusting Door Holder No. 2



Locked



Unlocked

(Hold-Open Arms)**No. 2 and No. 3**

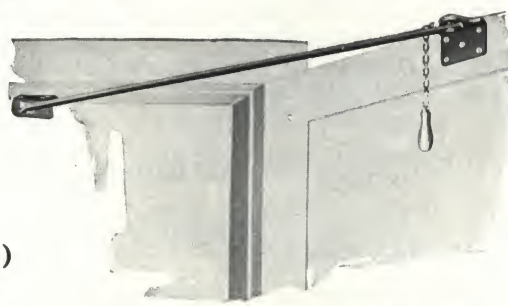
Have the advantage of other door holders of this type, in that the self-adjusting feature provides for any sag of the door.

All working parts have been planned to allow perfect freedom and positive locking action, even on doors which have sagged.

The operation of either of these devices is as follows: A slight pull on the chain tilts the arm, disengages the locking lug and allows the arm to slide through the strike. When pressure is removed from the chain, the arm and locking lug drop into a locked position by gravity (see cut).

The No. 3 Holder is like the No. 2 with the addition of a shock absorbing spring, which takes the strain from the hinges as well as the holders, when doors are forcibly thrown open by either manual or wind pressure.

Finish—Wrought steel dead black.



Self-Adjusting Door Holder No. 3



Locked



Unlocked

SELF-LATCHING DOOR BOLT No. 1 (Patented)

For Right or Left Hand Reverse Bevel Doors



①



②

All and more than the name implies. The application is very simple, requiring but very little time to apply, and no mortising except for the bottom strike.

The contact of the latch at the top of the door with the strike throws the latch in a position whereby the bolt falls by gravity into the strike at the bottom of the door, and at the same time locks the lifting handle (see cuts 1 and 2) and also locks the lifting handle (see cut 4).

Each bolt has an adjustable telescopic rod which can be lengthened or shortened to the exact height of the door permitting an adjustment of 6½ in. and are regularly furnished suitable for doors measuring from 7 ft. 11½ in. to 8 ft. 6 in. in height (see cut 3).

Bolts can be fitted to doors less than 7 ft. 11½ in. in height by cutting off bottom of rod.

When the door is closed and locked in position, the act of lifting the handle automatically disengages the latch from the top strike, and the bolt from the bottom strike, and lifting the handle also holds the bottom bolt and the top latch in a retracted position until the latch again comes in contact with the strike.

The feature of this bolt is that one manual operation is all that is required on the RUSWIN self-latching bolt against four, when chain and foot bolts are used.



Self-Latching Bolt on Door

Self-Latching
Door Bolt No. 1

Cat. No.	Solid steel rod, in.	End case, in.	Center case, in.	Weight, lb.
1	½	3¼ x 2½	2½ x 2½	7½

For Description of Finishes, see Page 3

RUSSWIN**FIRE EXIT DEVICES****R&E**
SINCE 1838

RUSSWIN Fire Exit Devices comprise Automatic Fire Exit Bolts with strikes of various types, Auto-

matic Door Holders and Mortise Locks arranged for operation by the fire exit bolts.

RUSSWIN FIRE EXIT BOLTS**General**

RUSSWIN Fire Bolts are designed for use on exterior and interior doors in auditoriums, dormitories, halls, schools, theaters and any building where a *safe and sure exit* is desired at any time.

They are automatic in action, the slightest pressure, a light touch, on the bar or lever on the inside of the door, automatically and instantly releases the lock and the bolts, at all times.

Outstanding Features and Advantages

RUSSWIN Fire Exit Bolts have the rotary action, a strictly RUSWIN feature, permitting the positive operation of the locking devices under either a *very slight pressure* or a *great or unusual pressure*.

This feature, together with the fact that the bar operates the locking mechanism, *either from a pull or a push*, assures immediate opening of the door under the worst panic conditions.

Being automatic and sure in action they furnish the same protection afforded by the employment of two or more watchmen or doormen, with the added assurance that their services are constant and uninterrupted.

They are on duty twenty-four hours a day, never tire, and are always ready when the occasion demands.

The use of these bolts which are automatic in action, makes it unnecessary for exit doors to be left open or unlocked at such times as is required by many city ordinances.

On school buildings the janitor can lock the latching bolts or locking devices in a retracted position, thus preventing children from playing with same during recess period.

Bolts used for exit only, that are in daily use, as for example on theater exit doors, have self-latching bolts, which, after closing a door, automatically locks it. No particular care and inspection is required to be certain that the doors are properly locked after being used, as the bolts function automatically.

The fact that RUSWIN Fire Exit Bolts are automatic

and are held in a retracted position, until the doors are closed, makes it possible to use standard strikes on all types. This eliminates the necessity of detailing sills and head jambs and the furnishing of special strikes.

Types and Finishes

RUSWIN Fire Exit Bolts may be obtained for single or double doors used both for entrances as well as exits, and for exits only with the following equipment:

Those which are described for use on entrance doors are equipped with either handles or knobs, controlled by keys on the outside to match in design and keyed alike or master keyed with other RUSWIN locksets.

For exit doors only, furnished without trim on the outside. See Pages 74, 75 and 76.

Any of these bolts may be supplemented with the following:

Bar locking devices for holding the bar in a depressed position; recommended for school buildings. See Page 76.

Dustproof, self-closing bottom strikes. See Page 76.

Automatic door holders. See Page 76.

All RUSWIN Fire Exit Bolts may be obtained in both brass and bronze, polished and unpolished, in a variety of finishes.

General Notes on Construction

All RUSWIN Fire Exit Bolts have compensating bottom latches on the bottom rods, working independently of the rod. This feature prevents intrusion from the outside even when the bottom latch has been worked out of the bottom strike or keeper, or in the event of the keeper being plugged or filled and preventing the latch from engaging in it.

Bolts with which locks Nos. 9452, 9458, 0444 $\frac{3}{4}$ or 0440 are used should have stiles at least 4 $\frac{1}{2}$ in. wide.

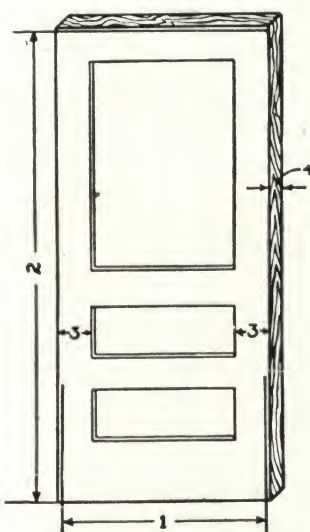
We recommend split astragals, as per sketch below, on all pairs of doors equipped with RUSWIN Fire Exit Bolts, except on the numbers covering bolts equipped with a connecting crossbar.

On bolts with connecting crossbars a T astragal should be used.

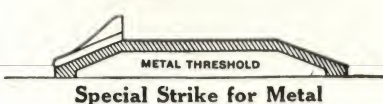
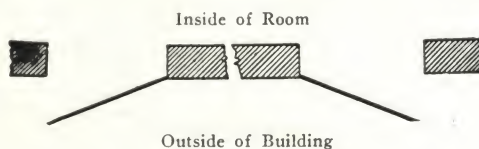
Information for Specifying

Specify number of bolt and finish, also:

- (1) Width of door between stops.
- (2) Height of door between threshold and stop.
- (3) Width of stile.
- (4) Thickness of door.
- (5) Give detail of astragal.
- (6) Specify if for right or left hand reverse bevel door taken from *outside*.
- (7) When sill is not flat show section through it with relation to door.
- (8) Distance from floor to center of crossbar should be 38 in.
- (9) If pairs of doors are used specify hand of door on which lock is applied.

**How to Measure Doors**

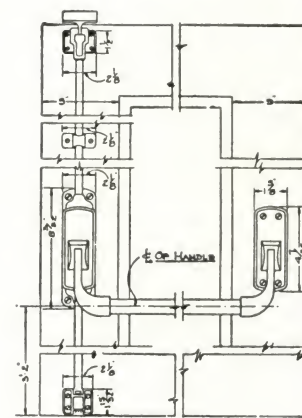
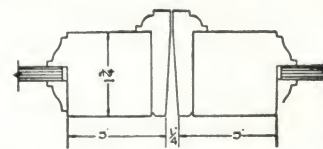
Take Measurement from Inside of Door

**Special Strike for Metal****Handing of Doors**

Right hand, reverse bevel. Left hand, reverse bevel

Always Take Handings from Outside

For Description of Finishes, see Page 3

**No. 60 PANIC BOLT APPLIED****DETAIL OF ASTRAGAL FOR DOUBLE DOORS**

RUSWIN**FIRE EXIT BOLTS FOR EXIT
AND ENTRANCE DOORS ONLY****R&E**
SINCE 1839**DOUBLE ACTING BARS FOR SINGLE DOORS****Side Latching Bolts Nos. 66, 67, 68 and 69**

No. 66 is operated from outside by use of a *handle* and Nos. 67 and 68 by a *knob* except when handle or knob is deadlocked by key on the outside.

No. 69 requires no lock, is operated from inside only. Has no outside trim.

Top and Bottom Latching Bolts Nos. 60 and 65

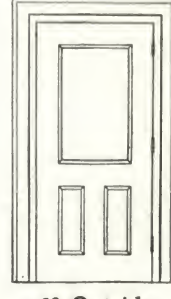
No. 60 has top and bottom latching feature only, requires no lock, and is operated from the inside only. Has no outside trim. No. 65 can be operated from the outside by the use of a knob, except when knob is deadlocked by key on the outside.



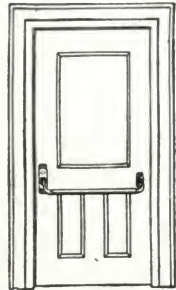
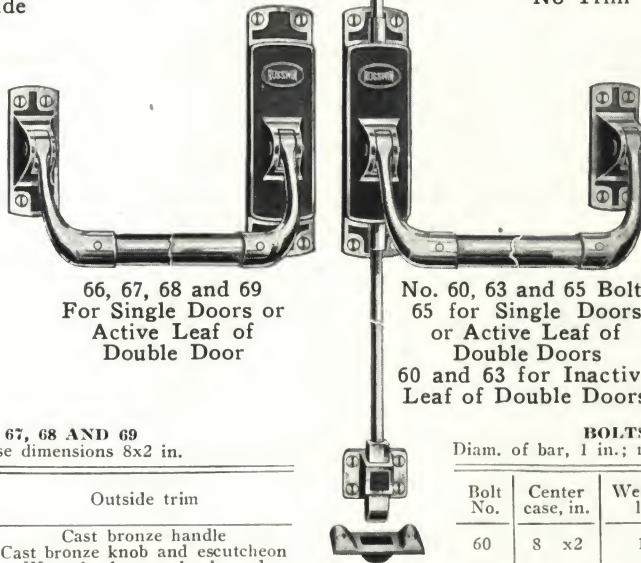
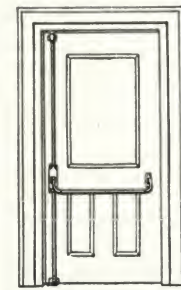
66 Outside

67 and 68
Outside

69 Outside

60 Outside
No Trim

65 Outside

66, 67, 68 and 69
Inside66, 67, 68 and 69
For Single Doors or
Active Leaf of
Double DoorNo. 60, 63 and 65 Bolts
65 for Single Doors
or Active Leaf of
Double Doors
60 and 63 for Inactive
Leaf of Double Doors

60 and 65 Inside

BOLTS NOS. 66, 67, 68 AND 69
Diam. of bar, 1 in.; case dimensions 8x2 in.

Bolt No.	Weight, lb.	Lock No.	Outside trim
66	15	9452	Cast bronze handle
67	15½	9458	Cast bronze knob and escutcheon
68	13½	0444¾	Wrought bronze knob and escutcheon
69	12	0440	None

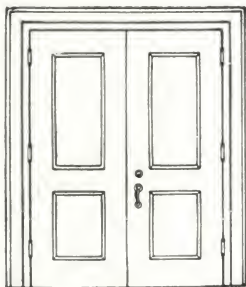
BOLTS NOS. 60 AND 65
Diam. of bar, 1 in.; rods ½ in.; end cases 1½x2¼ in.

Bolt No.	Center case, in.	Weight, lb.	Lock Type	Outside trim
60	8 x 2	16	None	None
65	8½ x 2	17	Cylinder	Cast bronze knob and escutcheon

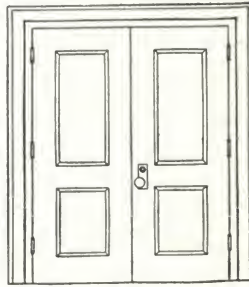
DOUBLE ACTING BARS FOR DOUBLE DOORS

Active Door, Side Latching; Standing Door, Top and Bottom Latching

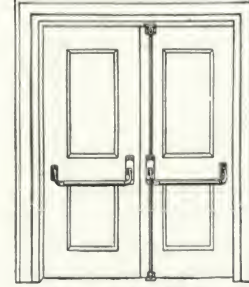
Description of Bolts Nos. 60, 66 and 67 given above



60x66 Outside



60x67 Outside



60x66 and 60x67 Inside

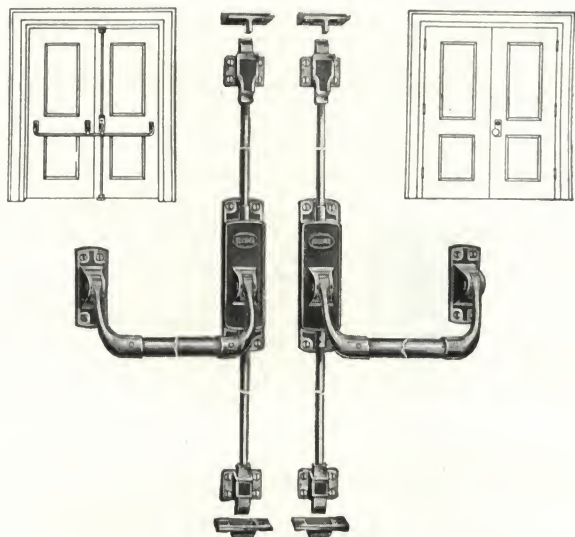
Bolt No.	Weight, lb.	Case, in.	Lock No.	Outside trim	Bolt No.	Weight, lb.	Case, in.	Lock No.	Outside trim
60x66	31	8x2	9452	Cast bronze handle and thumb piece	60x67	31½	8x2	9458	Cast bronze knob and escutcheon

For Description of Finishes, see Page 3

RUSWIN**DOUBLE ACTING BARS FOR DOUBLE DOORS****R&E**
SINCE 1839**Top and Bottom Latching Bolts for One Standing and One Active Leaf with Trim Outside**

Operation—From inside; a touch or pull on the bar instantly releases both bolts at all times. No. 65 is operated from outside by knob except when knob is deadlocked by key, through cylinder on outside. Can be unlocked from outside by means of the key. Can be master keyed, grand master keyed in sets, or keyed alike with other RUSWIN cylinder locks.

No special lip strikes are required as the bolts, when withdrawn, are automatically held retracted. Bolts are thrown when trip on top of case contacts with the strike.



No. 63x65

Bolt No.	Dimensions, in.				Wt., lb.	Lock type	Outside trim
	Bar	Rods	End cases	Center case			
63x65	1	1/2	1 1/2 x 2 1/8	8 1/2 x 2	32	Cylinder	Cast bronze knob and escutcheon

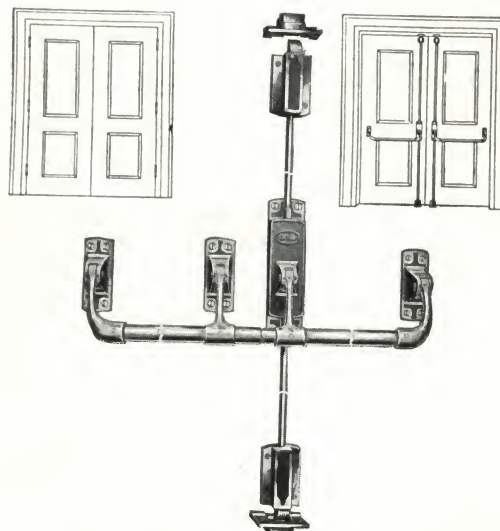
Top and Bottom Latching Bolts for Exit Only with no Trim Outside—Operate from Inside Only

A touch or a pull on the bar instantly releases both bolts, at all times.

These bolts have top and bottom latching feature only, require no lock, are operated from inside only and do not have any outside trim. The bolts are operated by the crossbar on both doors.

For these types of bolts, use "T" astragals.

Not suitable for doors having flat-faced meeting stiles or doors equipped with split astragals.



No. 260

Bolt No.	Dimensions, in.				Weight, lb.
	Bar	Rods	End cases	Center case	
260	1	1/2	1 1/2 x 2 1/8	8 x 2	24

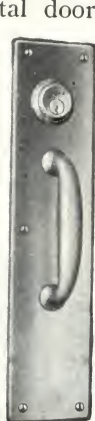
Not reversible; specify hand of door. For information to determine hand of door see Page 38.

SINGLE ACTING BAR FOR SINGLE DOOR**Side Latching Rim Bolt**

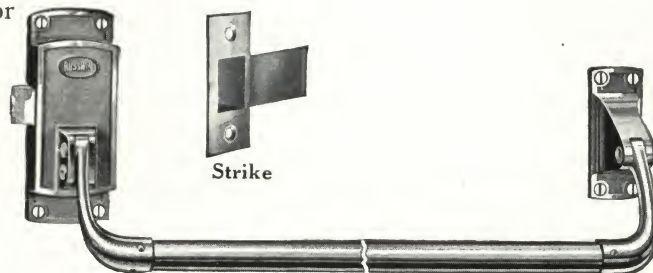
Especially suitable for hollow metal doors or wood doors too thin for mortise lock.

Operation—From inside; a touch on the bar at any point instantly releases the latch bolt at all times. Can be unlocked from outside by means of key only. Can be master keyed, grand master keyed in sets or keyed alike with other RUSWIN Cylinder Locks. Equipped with locking device in active case which holds bar in rigid, depressed position and thus holds latch bolt retracted. Latch bolt is of the easy closing, swinging construction with 3/4-in. throw.

Lip of strike furnished 1/4 in. beyond thickness of door unless otherwise specified.



Outside Trim

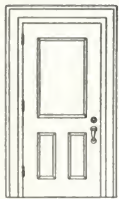


No. 556

Bolt No.	Dimensions, in.			Outside trim	Weight, lb.
	Bar	End case	Center case		
556	1	4 1/2 x 1 3/4	7 1/4 x 2 3/4	Door pull 627 Enfield, cut for 1290 night latch cylinder	7 1/2

Not reversible. Specify hand and thickness of door.

For Description of Finishes, see Page 3

RUSSWIN**FIRE EXIT BOLTS FOR SINGLE EXIT
AND ENTRANCE DOORS****R&E**
SINCE 1899**DOORS OPERATE FROM INSIDE OR OUTSIDE AS SHOWN—HAVE CENTER CATCH****Push Lever Type**No. 96
OutsideNos. 97 and 98
OutsideNo. 99
OutsideNos. 96, 97,
98 and 99
Inside

No. 99

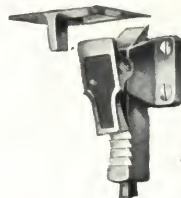
Bolts Nos. 96, 97 and 98 can be operated from the outside, by knob or handle, except when it is deadlocked by key on outside. Bolt No. 99 requires no lock, is operated from inside only and has no outside trim.

Bolt No.	Case, in.	Lock No.	Outside trim
96	8x2	9452	Cast bronze handle
97	8x2	9458	Cast bronze knob and escutcheon
98	8x2	0444½	Wrought bronze knob and escutcheon
99	8x2	0440	None

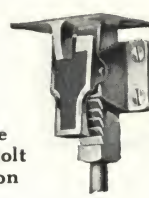
DETAILS OF TOP AND BOTTOM STRIKES AND LOCKS**TOP STRIKE**

Top strike No. 1T is so designed as to eliminate the necessity for any special detailing of head jambs, and is standard for all Russwin fire exit bolts.

When the bar of any Russwin top and bottom latching fire exit bolt is depressed and the door

Top Strike 1T
for Bolt 60

Unlocked

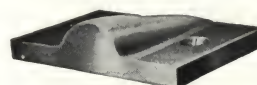
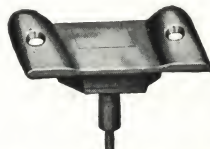


Locked

**Top Strike
and Top Bolt
in Operation**

opened, the bolt is automatically held retracted; thus no special lip strikes are required.

When the bar is released and the door closes, the trips on the top case contacts with the strike and throws the bolts into the locked position again. These operations are clearly shown in the accompanying illustrations.

BOTTOM STRIKES, STOPS AND SIDE LATCH STRIKEBottom Strike 1B
for Bolt 60Flanged Bottom Strike
for Double Doors
No. 5BStop for Bottom of an
Active Door
No. 2BDustproof Bottom Strike
for Single Doors
No. 4BDustproof Bottom Strike
for Double Doors
No. 3B

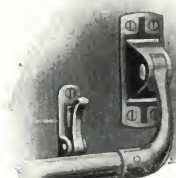
These strikes require no special arrangement for their installation on the threshold, except where a bronze threshold is used.

Strike No. 2B is furnished with bolts 66, 67, etc., and strike No. 5B with 60, etc., only when orders specify for double doors; otherwise strikes as illustrated with the bolts will be furnished.

Open Back
Lock Strike**BAR LOCKING DEVICES WITH KEY****FOR LOCKING BAR IN DEPRESSED POSITION—USED PRINCIPALLY FOR SCHOOLS**

The bar locking device No. 81 is especially designed for use in schools.

It is made of bronze in natural and lacquered brass and bronze finishes; also nickel, brass and bronze plated finishes. It consists of a locking mechanism and lever which can be dropped down to hold the bar in a depressed position until released by unlocking.



Bar Unlocked

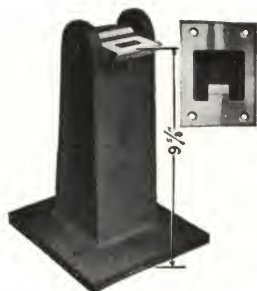
Bar Depressed and
Locked**Bar Lock No. 81**

For Description of Finishes, see Page 3

When ordering specify number of bolt for which required.

Center Case Locking Device—All Russwin fire exit bolts, with horizontal bar, can be equipped with center case locking device, without extra charge.

We recommend No. 81 device where conditions will permit its use.

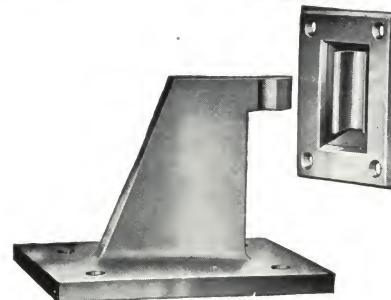
RUSSWIN**AUTOMATIC DOOR HOLDERS****R&E**
SINCE 1839**1010****IRON BASE DOOR HOLDER**

Holder, No.	Height, in.	Base, in.	Strike, in.	Finish	
				Base	Latch and strike
1010	9 1/2	7x6 1/8	4 3/8 x 3 1/8	Iron Finish 47	Cast brass, unpolished

Packed with steel lag screws and expansion shields for base, and screws for strike.

Designed for use on doors equipped with fire exit bolts and door checks, and for installation on the floor.

They are of heavy construction, nicely finished and operate in such a way as to engage and hold the door firmly.

**104 3/8 to 110 1/4****CAST BRONZE DOOR HOLDERS**

Holder No.	Height, in.	Base, in.	Strike in.
104 3/8	4 3/8	6x5	4x2 3/8
106 1/2	6 1/2		
109 3/4	9 1/4		
110 1/4	10 1/4		

Bronze lag screws and expansion shield for base, and screws for strike.

MORTISE LOCKS FOR USE WITH FIRE EXIT BOLTS

These mortise locks are especially designed for use on RUSSWIN fire exit bolts, described on the preceding pages.

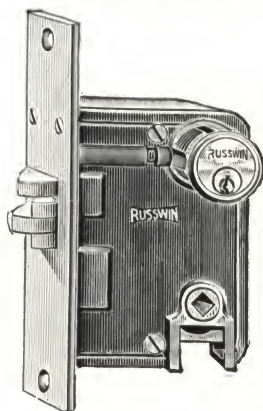
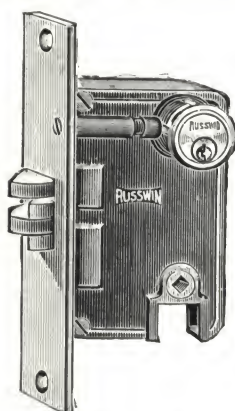
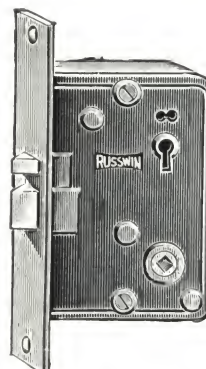
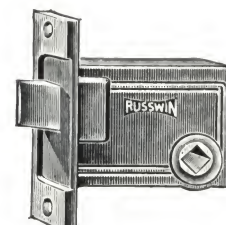
The fire exit bolts operate the latch bolts with a rotary motion, insuring instant and certain action.

Cylinder Lock No. 9452 and 9458 are for entrance doors

and can be master keyed in any RUSSWIN cylinder lock system. The latch bolts on these locks can be held retracted by means of the key.

Lock No. 0444 3/4 is for entrance doors and can be master keyed in RUSSWIN bitted key system.

Lock No. 0440 is for exit doors only.

**Lock No. 9452****Lock No. 9458****Lock No. 0444 3/4****Lock No. 0440**

Operation—Lock 9452—Latch bolt can be operated from inside at all times by the slightest pressure on bar or lever pad, and by the thumb piece from outside, except when it is deadlocked by key. The thumb piece is automatically deadlocked when latch bolt is withdrawn by key and remains so until unlocked by a reverse throw of key. To hold latch bolt in a retracted position, first withdraw latch bolt by thumb piece, and lock it by turning key toward face of lock. Auxiliary latch automatically deadlocks and safeguards latch bolt, preventing it from being retracted by any instrument inserted between face of lock and strike.

Operation—Lock 9458—Similar in every detail to lock 9452, except operated by knob on outside.

Operation—Lock 0444 3/4—Latch bolt can be operated from inside at all times by the slightest pressure on bar or lever pad, and by knob from outside, except when it is deadlocked by key. When knob is unlocked the auxiliary latch is held in a retracted position. When knob is locked the auxiliary latch is released, and it automatically deadlocks and safeguards the latch bolt, preventing it from being retracted by any instrument inserted between face of lock and strike.

Operation—Lock 0440—Latch bolt can be operated from inside at all times by the slightest pressure on bar or lever pad.

If outside trim is used, latch bolt can be operated from outside at all times by knob.

Case: Japanned iron.

Fronts, Bolts, Strikes: Cast bronze.

Cylinder: (Bronze, Locks 9452 and 9458.)

GENERAL CONSTRUCTION

Keys: Locks 9452 and 9458, liberty silver; Lock 0444 3/4, bitted, nickelplated steel.

Hub: Brass.

Reversible: No, specify hand.

Lock No.	Type latch	Case, in.	Front, in.	Backset, in.	Spacing, in.	Lock No.	Type latch	Case, in.	Front, in.	Backset, in.	Spacing, in.
9452	Anti-friction	5 1/4 x 3 3/4 x 7 1/8	8 x 1 1/4	2 3/4	3 5/8	0444 3/4	DC	5 1/2 x 3 3/4 x 5 3/8	7 3/8 x 1 1/16	2 3/4	2 5/8
9458						0440		2 5/8 x 3 3/4 x 1 5/16	4 1/2 x 1 1/4	2 13/16	

For Description of Finishes, see Page 3

RUSSWIN

SARGENT

LOCKS AND BUILDERS HARDWARE 1931



Manufactured by
SARGENT & COMPANY

General Office and Factory
NEW HAVEN, CONN., U.S.A.

NEW YORK

Contract Division & Display Room
Lefcourt-Colonial Bldg.—295 Madison Ave.
Trade Sales & Warehouse—92-98 Centre St.

CHICAGO

Contract Division—
Display Room—Office and
Warehouse

} Wacker Drive
at
Randolph



SARGENT

**LOCKS
&
BUILDERS
HARDWARE**

Manufactured by
SARGENT & COMPANY

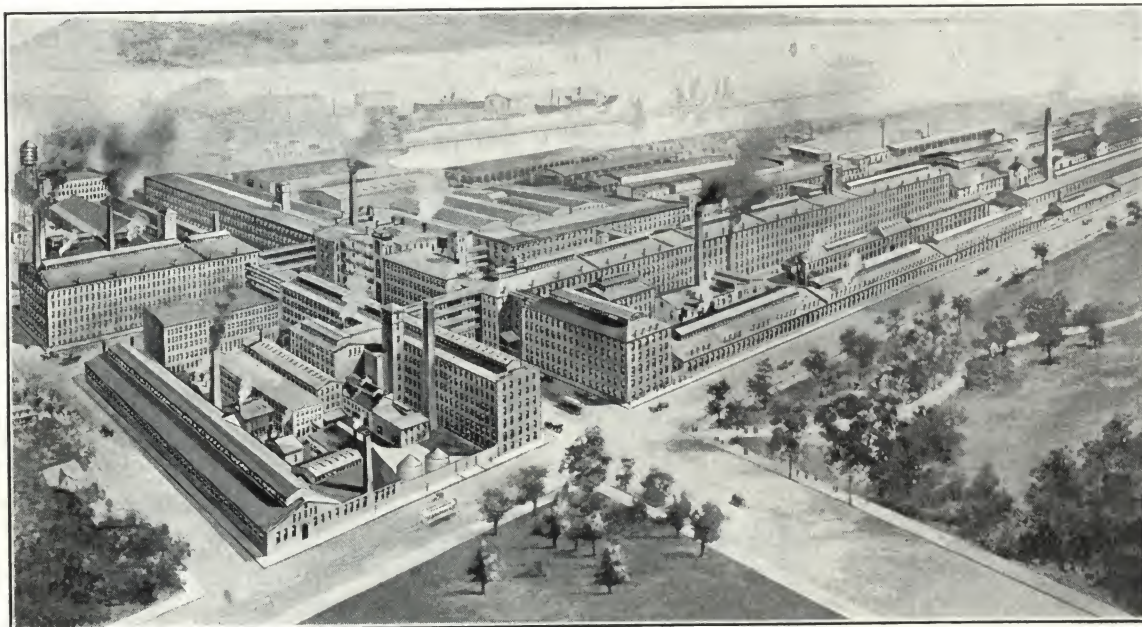
General Office & Factory
NEW HAVEN, CONN., U. S. A.

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CHICAGO

Contract Division—	}	Wacker Drive
Display Room—Office &		at
Warehouse		Randolph



Hardware Works of Sargent & Company at New Haven, Conn., U. S. A.

Selection of Hardware

Hardware is a necessary part of the equipment of every building. No single detail of architecture is of more importance; nothing in the building gets so much use. It attracts the eye strongly because in color and material it furnishes the element of contrast, making harmony very essential; its constant use and prominence emphasize the importance of care in its selection. We have endeavored to list on the pages that follow various designs and styles of Sargent Artistic Hardware which we trust will be a practical guide to the Architect, Specification Writer, Contractor and Builder in the selection of suitable hardware trimmings.

Trade Marks

All numbers, letters and fanciful or non-descriptive names, originally and arbitrarily applied by us to articles of Hardware for the purpose of identifying the goods as of our manufacture, are our Trade Marks.

These Trade Marks have been acquired by us by arbitrary adoption and use, by due advertising, by the general acquiescence of the trade, and have been confirmed to us whenever tested by suits at law.

We caution all persons against using any of our Trade Marks except when used for the purpose of indicating that the goods with which they are associated were manufactured by us.

Prices

The prices used in connection with each article are printed for a comparison of value and should not be used otherwise.

SARGENT

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SARGENT**Description of Finishes**

The Finish Letters Given Below Should Be Prefixed to the Numbers of the Goods Wanted

The U. S. Numbers, Which Are Also Printed, Should Not Be Used in Ordering

FINISHES ON IRON AND STEEL

Prefix finish letters	U. S. numbers	Description of finishes
Iron and Steel		
No prefix	US1B	Japanned
No prefix	US2	Galvanized
No prefix	.....	Copper plated
J	US1D	Dead black japanned
T	.....	Tuscan bronzed
BN	US19	Sanded dull black

"Rustproof Iron" Finish

BB	US18	Rustproof black. This is a black finish, so durable as to be commonly known to the trade as rustproof, but it is not a finish that will stand exposure to the weather in damp climates or localities, and for that reason it is recommended particularly for inside work. Under ordinary conditions in dry climates, either for inside or outside use, it is substantially rustproof.
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Bronze Finishes

P	US9	Bright bronze plated.
OP	US10	Dull bronze plated.
RP	US12	Sanded bronze plated, oxidized and relieved.
R8P	US13	Sanded bronze plated, oxidized and relieved. Raised ornamentation polished. Not suitable for plain goods. Use RP finish for plain goods to match.
A*	US20	Statuary bronze plated.
RA*	US21	Sanded statuary bronze plated.
AB	US8	Antique copper plated.
A3B*	US20A	Statuary bronze plated, dark.
A5B	US8	Antique copper plated, oxidized and relieved.

Brass Finishes

B	US3	Bright brass plated.
OB	US4	Dull brass plated.
OE	US5	Dull brass plated oxidized and relieved. Not suitable for plain goods. Use OB finish for plain goods to match.
RD	US6	Sanded brass plated, oxidized and relieved.
R7D	US7	Sanded brass plated, oxidized and relieved raised ornamentation polished. Not suitable for plain goods. Use RD finish for plain goods to match.

Nickel Finishes

N	US14	Bright nickel plated.
LN	US15	Dull nickel plated.
L5N	US15	Dull nickel plated oxidized and relieved. Not suitable for plain goods. Use LN finish for plain goods to match.
RN*	US16	Sanded nickel plated.
R7N	US17	Sanded nickel plated raised ornamentation polished. Not suitable for plain goods. Use RN finish for plain goods to match.
HF*	US spec.	Dark nickel plated, imitation half polished iron, oxidized and relieved. Iron and steel goods except steel butts can be furnished in HF finish.

Enameled Finishes

E	White enameled. Suitable only for goods so listed.
EA	.....	Statuary bronze enameled.
EN	.....	Aluminum bronze enameled.
EOB	.....	Dull brass enameled.
EOP	.....	Dull bronze enameled.
ERD	.....	Oxidized brass enameled.
ERP	.....	Oxidized bronze enameled.
EVA	.....	Verde antique enameled. Suitable only for door closers.

FINISHES ON BRONZE AND BRASS

Prefix finish letters	U. S. numbers	Description of finishes
Bronze Finishes		
P	US9	Bright bronze.
NLP*	.....	Bright bronze not lacquered.
OP	US10	Dull bronze.
O3P	US spec.	Dull bronze, oxidized and oil rubbed.
O6P	US11	Dull bronze, oxidized and relieved.
RP	US12	Sanded bronze, oxidized and relieved.
R8P	US13	Sanded bronze, oxidized and relieved. Raised ornamentation polished. Not suitable for plain goods. Use RP finish for plain goods to match.
A*	US20	Statuary bronze.
RA*	US21	Sanded statuary bronze.
OF*	US spec.	Statuary bronze, dark oxidized and oil rubbed.
AB	US8	Antique copper.
A3B*	.....	Statuary bronze, dark.
A5B	US8	Antique copper, oxidized and relieved.

Brass Finishes

B	US3	Bright brass.
NLB*	.....	Bright brass not lacquered.
OB	US4	Dull brass.
O3B*	US spec.	Dull brass oxidized and oil rubbed.
OE	US5	Dull brass oxidized and relieved. Not suitable for plain goods. Use OB finish for plain goods to match.
RD	US6	Sanded brass, oxidized and relieved.
R7D	US7	Sanded brass, oxidized and relieved. Raised ornamentation polished. Not suitable for plain goods. Use RD finish for plain goods to match.

Nickel Finishes

N	US14	Bright nickel plated.
LN	US15	Dull nickel plated.
L5N	US15	Dull nickel plated oxidized and relieved. Not suitable for plain goods. Use LN finish for plain goods to match.
RN	US16	Sanded nickel plated.
R7N	US17	Sanded nickel plated raised ornamentation polished. Not suitable for plain goods. Use RN finish for plain goods to match.
HF	US spec.	Dark nickel plated, imitation half polished iron oxidized and relieved. Particularly suitable for door handles. Particularly suitable for push buttons.

Miscellaneous

BN*	US19	Sanded dull black.
NF	.....	Nubian, forge finish.
VF	.....	Verde finish, dark green.
VA*	US22	Verde antique.
LS*	US23	Dull silver plated, oxidized and relieved.
G*	US24	Dull gold plated.
EM*	US25	White bronze.
DEM*	.....	Dull white bronze.
CM*	.....	Chromium plated (furnished on brass or bronze only).
DCM*	.....	Dull chromium plated (furnished on brass or bronze only).

Finishes marked with an asterisk () are seldom used and we do not carry them in finished stock. There will be a delay in furnishing and orders are taken with the understanding that the goods must be made after receipt of order.

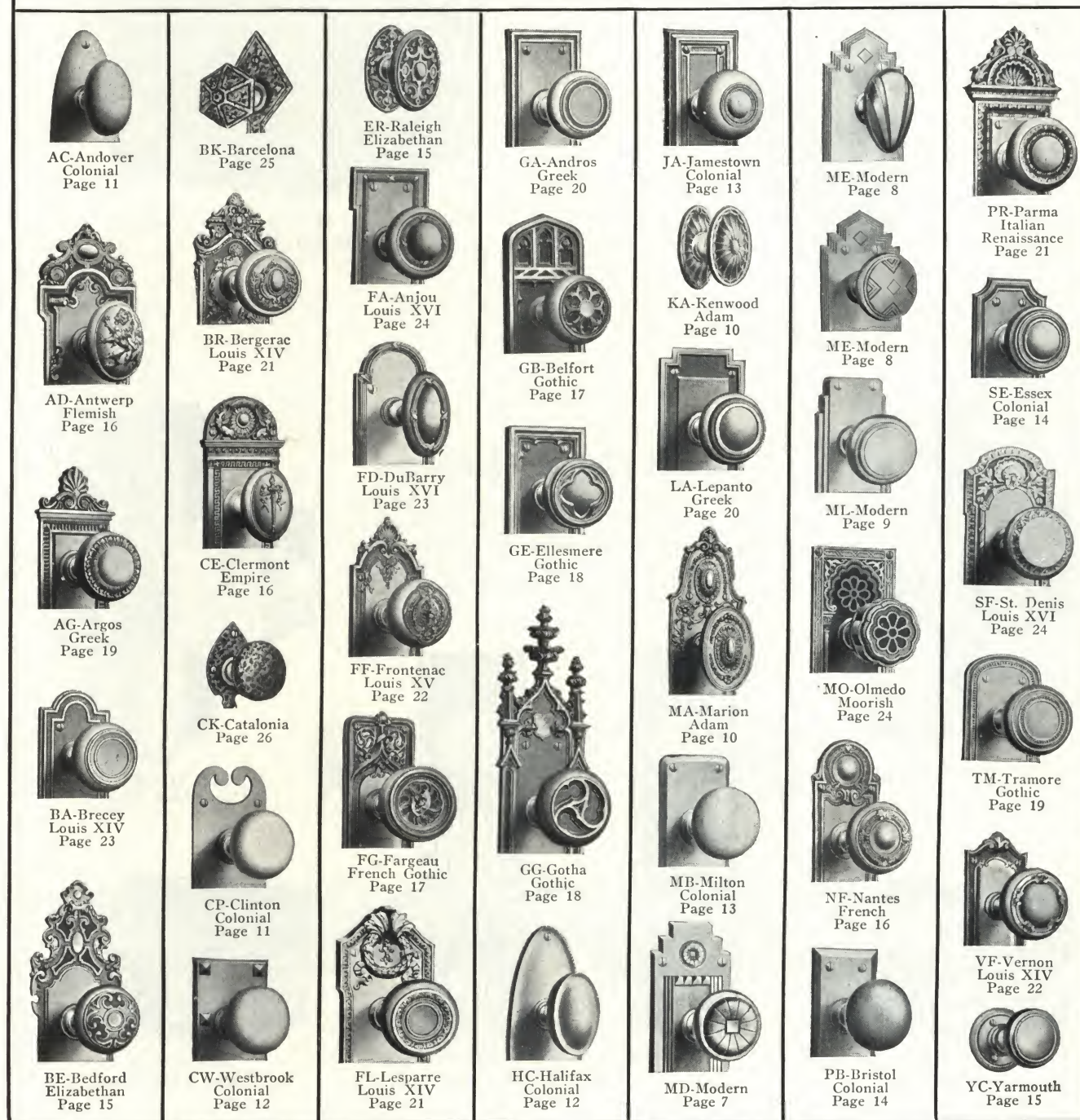
Finishes marked with an asterisk () are seldom used and we do not carry them in finished stock. There will be a delay in furnishing and orders are taken with the understanding that the goods must be made after receipt of order.

SARGENT**Index to Designs**

As a guide we give below a list of all our designs, classified in the different schools of architecture to which they belong, and below we have grouped together illustrations showing each design.

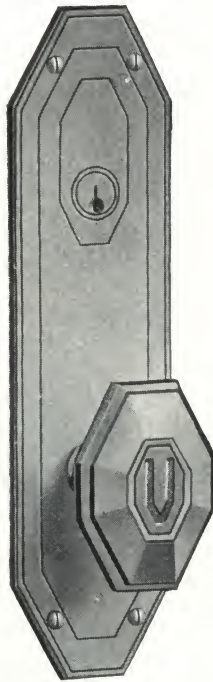
SCHOOL	DESIGN	PAGE	SCHOOL	DESIGN	PAGE	SCHOOL	DESIGN	PAGE
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English, Early American, Spanish, } BK—Barcelona Page 25
 Italian or Mediterranean Styles } CK—Catalonia Page 26



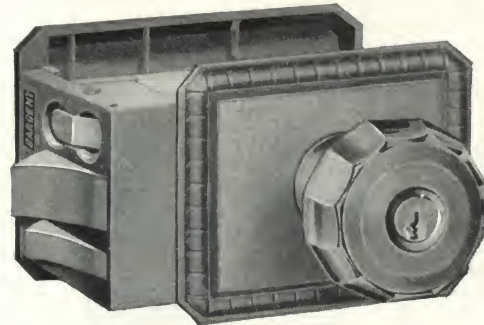
SARGENT

Proprietary Design Hardware

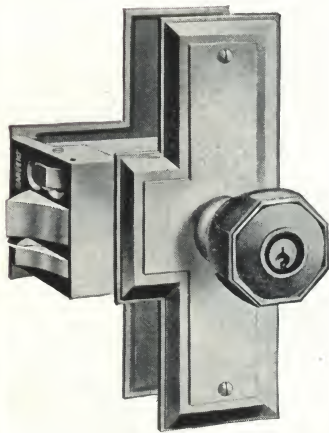


Door Knob and Escutcheon
Made for Union Trust
Building, Detroit,
Mich.

The two designs illustrated are proprietary designs conceived by architects for individual buildings. They are examples of special work we are prepared to undertake.



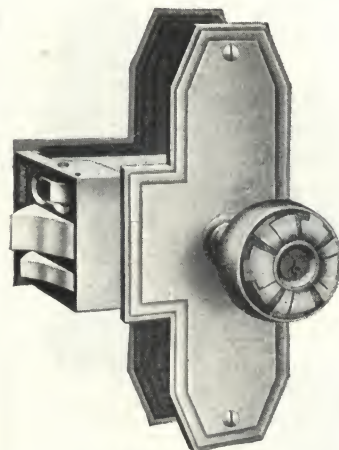
Union Lock Set Made for Fisher Building,
Detroit, Mich.



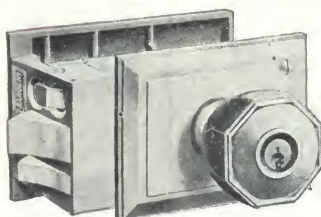
MP Design
Union Lock Sets

Special Design Hardware

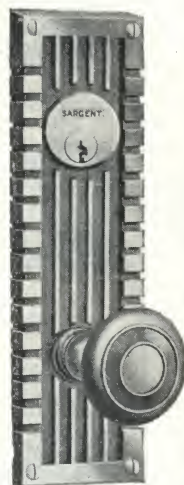
For large and important work, we are prepared to co-operate with architects in the production of hardware in special designs to harmonize with the architectural style of the building and carrying out the ideas of the architect.



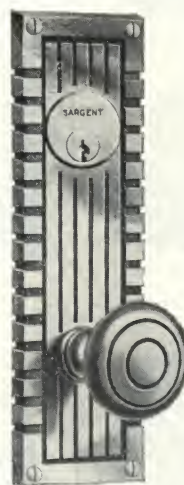
MH Design
Union Lock Sets



MP Design
Union Lock Sets

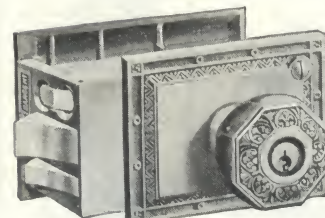


MV Design

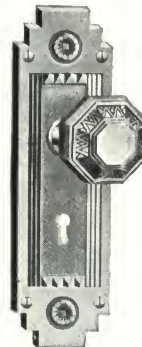
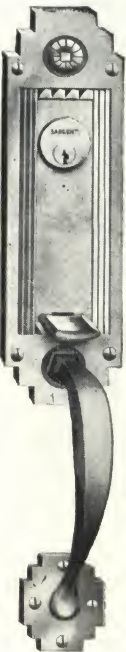


MW Design

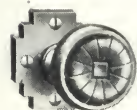
Door Knob and Escutcheon



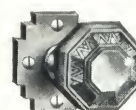
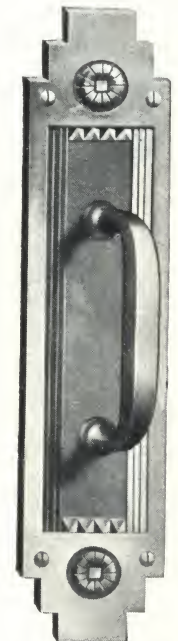
MT Design
Union Lock Sets

SARGENT*Illustrations
One-fifth Size***MD—Modern Design***Cast Bronze, Cast Brass and BB "Rustproof Iron"*No. 7876MD
with
No. 1823MDNo. 845MD with
No. 1822MDNo. 845MD with
No. 1882MDNo. 7876MD with
No. 1883MD

No. 3761MD

No. 1822MD with
No. 275MD

No. 1MD

No. 1882MD with
No. 275MDNo. 1895MD
No. 892MD, same
as above with-
out Grip

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822MD	\$ 3.70 pr.	Door knob, *round, without rose	2 1/4
1823MD	3.90 pr.	Door knob, †round, without rose	2 1/4
1882MD	4.50 pr.	Door knob, *octagon, without rose	2 1/4
1883MD	4.70 pr.	Door knob, †octagon, without rose	2 1/4
Roses			
275MD	2.00 pr.	Square roses for above knobs	2 1/2 x 2 1/2
Escutcheons			
<i>For Inside Doors:</i>			
845MD	2.40 ea.	For 3 1/2-in. locks	8 1/2 x 2 3/8
847MD	2.40 ea.	For 4 1/4-in. locks	8 1/2 x 2 3/8
<i>For Bathroom and Communicating Doors:</i>			
841MD	2.40 ea.	Without turn knob	8 1/2 x 2 3/8
842MD	2.75 ea.	With turn knob	8 1/2 x 2 3/8
843MD	2.75 ea.	With turn knob	8 1/2 x 2 3/8
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855MD	2.40 ea.	For inside with turn knob	8 1/2 x 2 3/8
7855 1/2 MD	2.40 ea.	For inside without turn knob	8 1/2 x 2 3/8
7875MD	3.50 ea.	For inside with turn knob	10 1/4 x 3
7875 1/2 MD	3.50 ea.	For inside without turn knob	10 1/4 x 3
7876MD	3.50 ea.	For outside	10 1/4 x 3
Miscellaneous			
1MD	1.00 ea.	Cylinder rosettes	2 1/2 x 2 1/2
892MD	6.00 ea.	Push plates	16 x 3 1/2
1895MD	8.50 ea.	Door pulls (grips 632)	16 x 3 1/2
3751MD	26.70 set	Entrance door handles	16 3/4 x 3
3761MD	16.70 set	Entrance door handles	16 3/4 x 3
†288MD	10.90 ea.	Letter box plates with chutes	3 x 11

* 5/8-in. straight adjustable spindle.

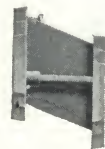
† 5/8-in. or 3/8-in. swivel spindle.

‡ Regularly made for 1 3/4-in. doors; other thicknesses to order.

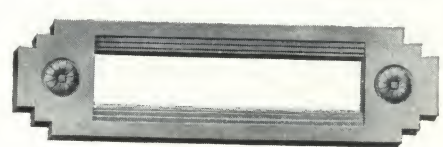
For Union Locks MD Design, see Page 33



Outside Plate with Drop



Sloping Chute



Inside Plate without Drop

Letter Box Plate No. 288MD. For 1 3/4 in. doors
Furnished without Chute, deduct \$0.90 ea.
Made in accordance with Order No. 9905. Postmaster General
Opening, 1 1/2 x 7 in.

Illustrations
One-fifth Size**SARGENT****ME—Modern Design**

Cast Bronze, Cast Brass and BB "Rustproof Iron"

No. 7876ME
with
No. 1823MENo. 845ME with
No. 1822MENo. 1822ME
with No. 275MENo. 1912ME
with No. 275ME

No. 1ME



No. 125ME



No. 9184ME

No. 845ME with
No. 1912MENo. 7876ME
with
No. 1912ME

No. 2661ME

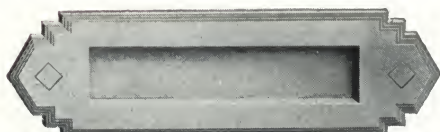
No.	Price	Description	Size, in.
Door Knobs—Model F			
1822ME	\$ 3.30 pr.	Door knobs, round*, without rose.....	2 1/4
1823ME	3.50 pr.	Door knobs, round†, without rose.....	2 1/4
1912ME	3.30 pr.	Door knobs, oval*, without rose.....	2 3/4 x 1 5/8
1913ME	3.50 pr.	Door knobs, oval†, without rose.....	2 3/4 x 1 5/8
Roses			
275ME	1.65 pr.	Roses for above knobs.....	3 1/8 x 1 3/4
Escutcheons			
<i>For Inside Doors:</i>			
845ME	2.00 ea.	For 3 1/2-in. locks.....	8 x 2 5/8
847ME	2.00 ea.	For 4 1/4-in. locks.....	8 x 2 5/8
<i>For Bathroom and Communicating Doors:</i>			
841ME	2.00 ea.	Without turn knob.....	8 x 2 5/8
842ME	2.35 ea.	With turn knob.....	8 x 2 5/8
843ME	2.35 ea.	With turn knob.....	8 x 2 5/8
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855ME	2.00 ea.	For inside with turn knob.....	8 x 2 5/8
7855 1/2 ME	2.00 ea.	For inside without turn knob.....	8 x 2 5/8
7875 1/2 ME	2.75 ea.	For inside without turn knob.....	9 x 2 5/8
7876ME	2.75 ea.	For outside.....	9 x 2 5/8
Miscellaneous			
892ME	5.50 ea.	Push plates.....	15 x 3 1/2
1ME	.90 ea.	Cylinder rosettes.....	3 1/8 x 1 3/4
125ME	1.50 ea.	Turn knobs.....	2 1/2 x 1 5/8
1871ME	5.00 ea.	Door pulls.....	10 1/4 x 1 5/8
1894ME	7.25 ea.	Door pulls.....	15 x 3 3/8
9184ME	1.50 ea.	Push buttons.....	2 1/2 x 1 5/8
2651ME	22.30 set	Entrance door handles.....	16 x 1 3/4
2661ME	16.30 set	Entrance door handles.....	16 x 1 3/4
2671ME	15.80 set	Entrance door handles.....	16 x 1 3/4
1288ME	10.90 ea.	Letter box plates with chute.....	3 x 10
349	16.40 ea.	Push bars, 25, 26, 27 in. long.....	
	19.00 ea.	Push bars, 31 in. long.....	

* 5/8-in. straight adjustable spindle.
† 1/8-in. or 3/8-in. swivel spindle.

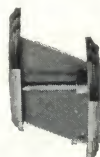
For Union Locks ME Design, see Page 33

No. 1894ME
No. 892ME,
same as above,
without Grip

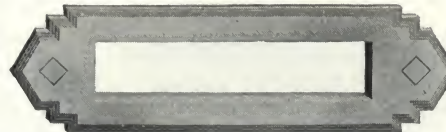
No. 349



Outside Plate with Drop

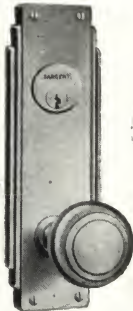
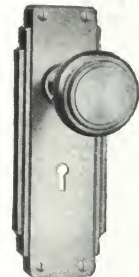


Sloping Chute



Inside Plate without Drop

†Letter Box Plate No. 288ME. For 1 3/4 in. doors. Other sizes to order
Furnished without Chute, deduct \$0.90 ea.
Made in accordance with Order No. 9905. Postmaster General
Opening, 1 1/2 x 7 in.

SARGENT*Illustrations
One-fifth Size***ML—Modern Design***Cast Bronze and Brass*No. 7876ML
with
No. 1823MLNo. 1822ML &c. with
No. 275MLNo. 845ML
with
No. 1822ML

No. 1871ML

No. 1893ML
Push Plate
No. 892ML,
same as above
without Grip

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822ML	\$ 3.30 pr.	Door knob, round*, without roses.....	2 1/4
1823ML	3.50 pr.	Door knob, round†, without roses.....	2 1/4
Roses			
275ML	1.65 pr.	Square roses for above knobs.....	2 5/8 x 2 1/4
Escutcheons			
<i>For Inside Doors:</i>			
845ML	2.00 ea.	For 3 1/2-in. locks.....	7 x 2 1/4
847ML	2.00 ea.	For 4 1/4-in. locks.....	7 x 2 1/4
<i>For Bathroom and Communicating Doors:</i>			
841ML	2.00 ea.	Without turn knob.....	7 x 2 1/4
842ML	2.35 ea.	With turn knob.....	7 x 2 1/4
843ML	2.35 ea.	With turn knob.....	7 x 2 1/4
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855ML	2.00 ea.	For inside, with turn knob.....	7 x 2 1/4
7855 1/2 ML	2.00 ea.	For inside, without turn knob.....	7 x 2 1/4
7875 1/2 ML	2.75 ea.	For inside, without turn knob.....	8 x 2 1/2
7876ML	2.75 ea.	For outside.....	8 x 2 1/2
Miscellaneous			
1ML	.90 ea.	Cylinder rosettes.....	2 5/8 x 2 1/4
9184ML	1.50 ea.	Push buttons for electric bells.....	2 1/8 x 1 3/4
892ML	4.85 ea.	Push plates.....	14 x 3
1871ML	5.80 ea.	Door pulls.....	8 1/2 x 1 3/4
1893ML	6.50 ea.	Door pulls with plate.....	14 x 3
1288ML	10.90 ea.	Letter box plates, with chute.....	3 x 10
125ML	1.50 ea.	Turn knobs (for 1 3/4-in. doors; other thicknesses can be furnished to order).....	2 1/8 x 1 3/4

* 5/16-in. straight adjustable spindle.

† 1/8-in. or 3/8-in. swivel spindle.

For Union Locks ML Design, see Page 34

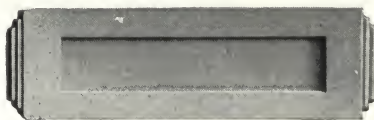
No. 1ML



No. 125ML



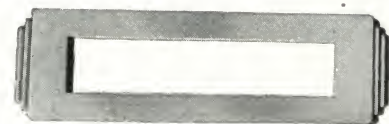
No. 9184ML



Outside Plate with Drop



Sloping Chute



Inside Plate without Drop

†Letter Box Plates No. 288ML. For 1 3/4 in. doors. Other sizes to order
Furnished without Chute, deduct \$0.90 ea.
Made in accordance with Order No. 9905. Postmaster General
Opening, 1 1/2 x 7 in.

SARGENT

Illustrations
one-fifth size

KA—Kenwood Design

Cast Bronze and Brass



No. 892KA



No. 122KA

No. 1912KA
with
No. 164KANo. 1912KA
with
No. 164KA

No. 870KA



No. 872KA

No.	Price	Description	Size, in.
Door Knobs, Model G			
1912KA	\$6.00 pr.	Door knob, oval*, without rose.....	2½x1½
1913KA	6.20 pr.	Door knob, oval†, without rose.....	2½x1½
1820KA	4.50 pr.	Door knob, round*, without rose.....	2
1826KA	6.00 pr.	Door knob, round*, without rose.....	2½
1827KA	6.20 pr.	Door knob, round†, without rose.....	2½
Lever Handles, Model G			
1155KA	13.00 ea.	Lever handle*, without rose.....	length 3½ projec. 2½
1156KA	16.00 ea.	Lever handle*, without rose.....	length 4 projec. 2¾
Roses			
164KA	2.20 pr.	Small oval rose.....	2½x1½
165KA	2.20 pr.	Large oval rose.....	2¾x1¾
172KA	1.60 pr.	Small round rose.....	2
175KA	2.20 pr.	Large round rose.....	2½
Key Plates			
860KA	.75 ea.	Without drop, for all door locks.....	2 x 7/8
870KA	.75 ea.	Without drop, for all door locks.....	2½x1¼
872KA	1.55 ea.	With drop, for all door locks.....	2¾x1¾
Miscellaneous			
9184KA	5.00 ea.	Push buttons for electric bells.....	2½x1½
1KA	1.10 ea.	Cylinder rosettes.....	2¾
892KA	12.00 ea.	Push plates.....	16¾x27¾
1871KA	24.00 ea.	Door pulls.....	9¾x2¾
122KA	2.00 ea.	Turn knobs, 1¾-in. knob†.....	2½x1¼

* 5/8-in. straight adjustable spindle.
† 7/8 or ¾-in. swivel adjustable spindle.



No. 1KA

No. 1826KA
with
No. 175KA
Style of No.
1820KA,
with
No. 172KA

No. 1871KA

No. 1156KA with
No. 164KA
Style of No. 1155KA

MA—Marion Design

Cast Bronze and Brass

No. 7876MA
with
No. 1915MANo. 1912MA
with
No. 275MA

No. 870MA

No.	Price	Description	Size, in.
Door Knobs, Model F			
1912MA	\$6.00 pr.	Door knob, round*, without rose.....	2½
1913MA	6.20 pr.	Door knob, round†, without rose.....	2½
1915MA	6.80 pr.	Door knob, oval†, without rose.....	2¾x2½
2233MA	2.70 pr.	Pressed glass*, round with roses.....	2¾
Roses			
275MA	1.60 pr.	Round roses for above knobs.....	2
Key Plates			
870MA	.75 ea.	Key plates for all door locks.....	2½x1¼
871MA	.75 ea.	Key plates for cabinet locks.....	1¼x2½
Escutcheons			
<i>For Inside Doors:</i>			
705MA	1.70 ea.	For French door locks, 3½ in.	5¾x1½
747MA	3.20 ea.	For 4¼-in. locks.....	9 x 17/8
845MA	3.20 ea.	For 3½-in. locks.....	9 x 2½
847MA	3.20 ea.	For 4¼-in. locks.....	9 x 2½
<i>For Bathroom and Communicating Doors:</i>			
841MA	3.20 ea.	Without turn knob.....	9 x 2½
842MA	3.55 ea.	With turn knob.....	9 x 2½
843MA	3.55 ea.	With turn knob.....	9 x 2½
<i>For Three Bolt Locks:</i>			
847¼MA	3.20 ea.	Without turn knob.....	9 x 2½
847½MA	3.55 ea.	With turn knob.....	9 x 2½
<i>For Cylinder 5½ and 6-in. Locks:</i>			
7855MA	3.20 ea.	For inside, with turn knob.....	9 x 2½
785½MA	3.20 ea.	For inside, without turn knob.....	9 x 2½
7876MA	5.00 ea.	For outside.....	11¾x3
<i>For Sliding Doors:</i>			
844MA	4.00 ea.	Cup, bitted key.....	9 x 2½
844½MA	4.00 ea.	Cup, no key hole.....	9 x 2½
Miscellaneous			
9184MA	4.00 ea.	Push Buttons for electric bells.....	4¼x1½
258MA	5.60 ea.	Letter box plates (outside and inside)...	2¾x8½
1887MA	1.50 ea.	Flush sash lifts.....	1½x4¼

* 7/8-in. straight adjustable spindle.
† 7/8 or ¾-in. swivel adjustable spindle.

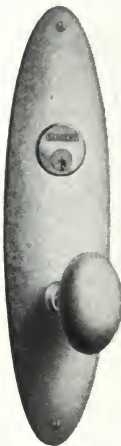


No. 1887 MA



No. 9184MA

No. 845MA
with
No. 1912MA

SARGENT*Illustrations
One-fifth Size***AC—Andover Design***Cast Bronze and Brass*No. 7876AC
with
No. 1915No. 845AC
with
No. 1912

No.	Price	Description	Size, in.
Door Knobs			
1912	\$3. 40 pr.	Door knob, oval*, without rose.....	2 $\frac{3}{4}$
1913	3. 60 pr.	Door knob, oval†, without rose.....	2 $\frac{3}{4}$
1915	4. 20 pr.	Door knob, oval†, without rose.....	2 $\frac{11}{16}$ x2 $\frac{3}{8}$
Roses			
262	.50 pr.	Round roses for above knobs.....	2
Key Plates			
870AC	.50 ea.	Key plates for door locks.....	2 $\frac{1}{4}$ x1
871AC	.50 ea.	Key plates for cabinet locks.....	1 x2 $\frac{1}{4}$
Escutcheons			
<i>For Inside Doors:</i>			
705AC	1. 65 ea.	For French door locks, 3 $\frac{1}{2}$ -in.....	5 $\frac{1}{2}$ x1 $\frac{1}{4}$
747AC	2. 00 ea.	For 4 $\frac{1}{4}$ -in. locks.....	7 $\frac{1}{8}$ x1 $\frac{3}{4}$
767AC	3. 00 ea.	For 4 $\frac{1}{4}$ -in. locks.....	9 x2
845AC	2. 00 ea.	For 3 $\frac{1}{2}$ -in. locks.....	7 $\frac{1}{8}$ x2 $\frac{3}{8}$
847AC	2. 00 ea.	For 4 $\frac{1}{4}$ -in. locks.....	7 $\frac{1}{8}$ x2 $\frac{3}{8}$
<i>For Bathroom and Communicating Doors:</i>			
741AC	2. 00 ea.	Without turn knob.....	7 $\frac{1}{8}$ x1 $\frac{3}{4}$
841AC	2. 00 ea.	Without turn knob.....	7 $\frac{1}{8}$ x2 $\frac{3}{8}$
742AC	2. 35 ea.	With turn knob.....	7 $\frac{1}{8}$ x1 $\frac{3}{4}$
842AC	2. 35 ea.	With turn knob.....	7 $\frac{1}{8}$ x2 $\frac{3}{8}$
743AC	2. 35 ea.	With turn knob.....	7 $\frac{1}{8}$ x1 $\frac{3}{4}$
843AC	2. 35 ea.	With turn knob.....	7 $\frac{1}{8}$ x2 $\frac{3}{8}$
<i>For Three Bolt Locks:</i>			
847 $\frac{1}{2}$ AC	2. 00 ea.	Without turn knob.....	7 $\frac{1}{8}$ x2 $\frac{3}{8}$
847 $\frac{1}{2}$ AC	2. 35 ea.	With turn knob.....	7 $\frac{1}{8}$ x2 $\frac{3}{8}$
<i>For Cylinder 5$\frac{1}{2}$ and 6-in. Locks:</i>			
7855AC	2. 00 ea.	For inside, with turn knob.....	7 $\frac{1}{8}$ x2 $\frac{3}{8}$
7855 $\frac{1}{2}$ AC	2. 00 ea.	For inside, without turn knob.....	7 $\frac{1}{8}$ x2 $\frac{3}{8}$
7876AC	3. 00 ea.	For outside.....	9 x2 $\frac{3}{8}$
7896AC	4. 80 ea.	For outside.....	11 $\frac{1}{2}$ x2 $\frac{7}{8}$
<i>For Sliding Doors:</i>			
844AC	2. 50 ea.	Cup, for bitted key.....	7 $\frac{1}{8}$ x2 $\frac{3}{8}$
844 $\frac{1}{2}$ CA	2. 50 ea.	Cup, no key hole.....	7 $\frac{1}{8}$ x2 $\frac{3}{8}$
Miscellaneous			
9184AC	2. 70 ea.	Push buttons for electric bells.....	3 $\frac{3}{4}$ x1 $\frac{1}{4}$
892AC	4. 80 ea.	Push plates.....	11 $\frac{1}{2}$ x2 $\frac{3}{8}$
258AC	6. 50 ea.	Push plates.....	13 $\frac{3}{4}$ x3 $\frac{1}{4}$
1887AC	4. 50 ea.	Letter box plates (outside and inside).....	2 $\frac{1}{4}$ x8 $\frac{1}{2}$
	.70 ea.	Flush sash lifts.....	1 $\frac{1}{2}$ x3 $\frac{3}{4}$



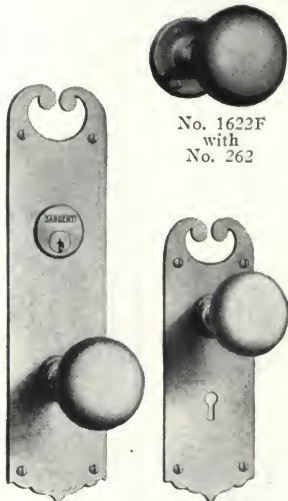
No. 870AC

No. 1912 with
No. 262

No. 9184AC



No. 892AC

CP—Clinton Design*Cast Bronze and Brass*No. 1622F
with
No. 262No. 7876CP
with
No. 1625FNo. 845CP
with
No. 1622F

No.	Price	Description	Size, in.
Door Knobs—Model F			
1622F	\$1. 50 pr.	Door knob, round*, without rose.....	2 $\frac{1}{4}$
1623F	1. 70 pr.	Door knob, round†, without rose.....	2 $\frac{1}{4}$
1625F	2. 10 pr.	Door knob, oval†, without rose.....	2 $\frac{1}{2}$ x2 $\frac{1}{4}$
Roses			
262	.50 pr.	Round roses for above knobs.....	2
Key Plates			
870CP	.60 ea.	Key plates for door locks.....	2 $\frac{1}{4}$ x1 $\frac{1}{16}$
Escutcheons			
<i>For Inside Doors:</i>			
705CP	1. 00 ea.	For French door locks, 3 $\frac{1}{2}$ -in.....	6 x1 $\frac{1}{4}$
845CP	3. 00 ea.	For 3 $\frac{1}{2}$ -in. locks.....	7 $\frac{1}{8}$ x2 $\frac{1}{2}$
847CP	3. 00 ea.	For 4 $\frac{1}{4}$ -in. locks.....	7 $\frac{1}{8}$ x2 $\frac{1}{2}$
<i>For Cylinder 5$\frac{1}{2}$ and 6-in. Locks:</i>			
7855CP	3. 00 ea.	For inside, with turn knob.....	7 $\frac{1}{8}$ x2 $\frac{1}{2}$
7855 $\frac{1}{2}$ CP	3. 00 ea.	For inside, without turn knob.....	7 $\frac{1}{8}$ x2 $\frac{1}{2}$
7876CP	3. 80 ea.	For outside.....	9 x2 $\frac{1}{2}$
7896CP	5. 00 ea.	For outside.....	11 x2 $\frac{7}{8}$
<i>For Sliding Doors:</i>			
844CP	3. 75 ea.	Cup, for bitted key.....	7 $\frac{1}{8}$ x2 $\frac{1}{2}$
844 $\frac{1}{2}$ CP	3. 75 ea.	Cup, no key hole.....	7 $\frac{1}{8}$ x2 $\frac{1}{2}$
Miscellaneous			
9184CP	2. 00 ea.	Push buttons for electric bells.....	6 x1 $\frac{1}{6}$
892CP	5. 00 ea.	Push plates.....	11 x2 $\frac{7}{8}$
1892CP	6. 00 ea.	Push plates.....	14 $\frac{1}{2}$ x2 $\frac{7}{8}$
258CP	7. 50 ea.	Door pulls.....	11 x2 $\frac{7}{8}$
1887CP	4. 50 ea.	Letter box plates (outside and inside).....	2 $\frac{5}{8}$ x9
	.95 ea.	Flush sash lifts.....	1 $\frac{5}{8}$ x4 $\frac{1}{8}$



No. 1887CP



No. 870CP



No. 9184CP

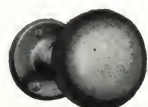
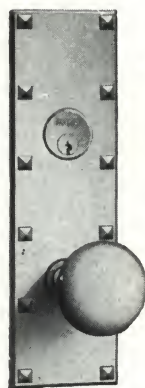
No. 1892CP
No. 892CP,
same as above
without Grip* $\frac{1}{8}$ -in. straight adjustable spindle.† $\frac{1}{8}$ -in. or $\frac{3}{8}$ -in. swivel adjustable spindle.

SARGENT

Illustrations
One-fifth Size

CW—Westbrook Design

Cast Bronze, Cast Brass and BB "Rustproof Iron"

No. 1622F with
No. 262No. 7876CW
with
No. 1625FNo. 825CW
with
No. 1622F

No.	Price	Description	Size, in.
Door Knobs—Model F			
1622F	\$1.50 pr.	Door knob, round*, without rose.....	2 1/4
1623F	1.70 pr.	Door knob, round†, without rose.....	2 1/4
1625F	2.10 pr.	Door knob, oval†, without rose.....	2 1/2 x 2 1/4
Roses			
262	.50 pr.	Round roses for above knobs.....	2
Key Plates			
870CW	.80 ea.	Key plates for door locks.....	1 3/4 x 1 1/4
871CW	.80 ea.	Key plates for cabinet locks.....	1 1/4 x 1 3/4
Escutcheons			
<i>For Inside Doors:</i>			
705CW	1.50 ea.	For French door locks, 3 1/2-in.....	4 3/4 x 1 1/4
825CW	3.20 ea.	For 3 1/2-in. locks.....	6 x 2 1/2
827CW	3.20 ea.	For 4 1/4-in. locks.....	6 x 2 1/2
845CW	3.60 ea.	For 3 1/2-in. locks.....	7 x 2 1/2
847CW	3.60 ea.	For 4 1/4-in. locks.....	7 x 2 1/2
<i>For Bathroom and Communicating Doors:</i>			
841CW	3.60 ea.	Without turn knob.....	7 x 2 1/2
842CW	3.95 ea.	With turn knob.....	7 x 2 1/2
843CW	3.95 ea.	With turn knob.....	7 x 2 1/2
<i>For Three Bolt Locks:</i>			
847 1/4 CW	3.60 ea.	Without turn knob.....	7 x 2 1/2
847 1/2 CW	3.95 ea.	With turn knob.....	7 x 2 1/2
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855CW	3.60 ea.	For inside, with turn knob.....	7 x 2 1/2
7855 1/2 CW	3.60 ea.	For inside, without turn knob.....	7 x 2 1/2
7876CW	4.10 ea.	For outside.....	8 x 3
7896CW	5.00 ea.	For outside.....	10 x 3
<i>For Sliding Doors:</i>			
844CW	4.50 ea.	Cup, bitted key.....	7 x 2 1/2
844 1/2 CW	4.50 ea.	Cup, without key hole.....	7 x 2 1/2
Miscellaneous			
9184CW	3.20 ea.	Push buttons for electric bells.....	3 3/4 x 1 1/4
892CW	5.30 ea.	Push plates.....	12 x 3 1/4
1892CW	8.40 ea.	Push plates.....	18 x 3 3/8
7933CW	8.30 ea.	Door pulls (grip 632).....	12 x 3 3/8
258CW	34.50 set	Entrance door handles, cylinder locks.....	18 x 3 3/8
1887CW	5.60 ea.	Letter box plates (outside and inside).....	2 3/4 x 7 1/8
	1.20 ea.	Flush sash lifts.....	1 1/2 x 3



No. 870CW



No. 1887CW



No. 9184CW

No. 1892CW
No. 892CW,
same as above
without Grip

HC—Halifax Design

Cast Bronze and Brass

No. 1912HC with
No. 276HCNo. 7876HC
with
No. 1915HCNo. 845HC
with
No. 1912HC

No.	Price	Description	Size, in.
Door Knobs—Model F			
1912HC	\$6.50 pr.	Door knob, oval*, without rose.....	2 5/8
1913HC	6.70 pr.	Door knob, oval†, without rose.....	2 5/8
1915HC	7.30 pr.	Door knob, oval†, without rose.....	2 7/8 x 2 3/8
Roses			
275HC	2.20 pr.	Round roses for above knobs.....	2 1/8
276HC	3.20 pr.	Round roses for above knobs.....	3
Key Plates			
870HC	.85 ea.	Key plates for door locks.....	2 x 1
870 1/2 HC	1.30 ea.	Key plates for door locks, with drop.....	2 x 1
871HC	.85 ea.	Key plates for cabinet locks.....	1 x 2
Escutcheons			
<i>For Inside Doors:</i>			
705HC	1.95 ea.	For French door locks, 3 1/2 in.....	4 1/2 x 1 1/4
845HC	4.10 ea.	For 3 1/2-in. locks.....	7 3/4 x 2 3/8
847HC	4.10 ea.	For 4 1/4-in. locks.....	7 3/4 x 2 3/8
<i>For Bathroom and Communicating Doors:</i>			
841HC	4.10 ea.	Without turn knob.....	7 3/4 x 2 3/8
842HC	4.45 ea.	With turn knob.....	7 3/4 x 2 3/8
843HC	4.45 ea.	With turn knob.....	7 3/4 x 2 3/8
<i>For Three Bolt Locks:</i>			
847 1/4 HC	4.10 ea.	Without turn knob.....	7 3/4 x 2 3/8
847 1/2 HC	4.45 ea.	With turn knob.....	7 3/4 x 2 3/8
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855HC	4.10 ea.	For inside, with turn knob.....	7 3/4 x 2 3/8
7855 1/2 HC	4.10 ea.	For inside, without turn knob.....	7 3/4 x 2 3/8
7876HC	5.30 ea.	For outside.....	10 x 3
<i>For Sliding Doors:</i>			
844HC	5.10 ea.	Cup, bitted key.....	7 3/4 x 2 3/8
844 1/2 HC	5.10 ea.	Cup, without key hole.....	7 3/4 x 2 3/8
Miscellaneous			
9184HC	2.70 ea.	Push buttons for electric bells.....	3 3/4 x 1 1/4
9185HC	2.70 ea.	Push buttons for electric bells.....	2
1HC	.80 ea.	Cylinder rosettes.....	2
2HC	1.60 ea.	Cylinder rosettes.....	3
892HC	5.30 ea.	Push plates.....	10 x 3
3551HC	23.00 set	Entrance door handles, cylinder locks.....	14 1/2 x 3
258HC	5.10 ea.	Letter box plates (outside and inside).....	2 5/8 x 7 3/8
1887HC	1.10 ea.	Flush sash lifts.....	1 1/2 x 3 3/4

* 5/8-in. straight adjustable spindle. Model F.

† 1 1/8-in. or 3/8-in. swivel adjustable spindle. Model F.



No. 1887HC



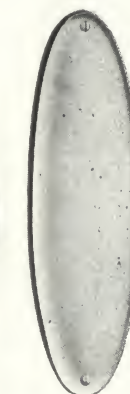
No. 870HC



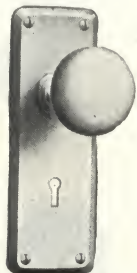
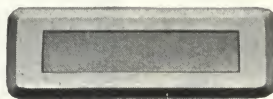
No. 2HC



No. 9185HC



No. 892HC

SARGENT**JA—Jamestown Design**Illustrations
One-fifth SizeCast Bronze, Cast Brass, and
BB—"Rustproof Iron"No. 7876JA
with
No. 1825JANo. 1822JA
with
No. 275JANo. 845JA
with
No. 1822JANo. 258JA
No. 288JA, style of above with
sloping chuteCast Bronze, Cast Brass, and
BB—"Rustproof Iron"No. 7856MB
with
No. 1625FNo. 825MB
with
No. 1622F

Nos. 258MB and 259MB

* $\frac{7}{8}$ -in. straight adjustable spin-
dle.
† $\frac{7}{8}$ -in. or $\frac{3}{4}$ -in. swivel adjust-
able spindle.

No.	Price	Description	Size, in.
1822JA	\$ 3.30 pr.	Door knob, round*, Model F, no rose.	2 1/4
1823JA	3.50 pr.	Door knob, round†, Model F, no rose.	2 1/4
1825JA	4.10 pr.	Door knob†, Model F, no rose.	2 1/2 x 2 1/4
275JA	1.20 pr.	Round roses for above knobs.	2 1/8
265JA	1.50 pr.	Square cornered roses for above knobs.	2 1/2 x 3
870JA	.50 ea.	Key plates for all door locks.	2 3/8 x 1 1/4
Escutcheons			
<i>For Inside Doors:</i>			
705JA	1.20 ea.	For French door locks, 3 1/2 in.	5 1/2 x 1 3/8
845JA	2.30 ea.	For 3 1/2-in. locks.	7 3/4 x 2 1/2
847JA	2.30 ea.	For 4 1/4-in. locks.	7 3/4 x 2 1/2
<i>For Bathroom and Communicating Doors:</i>			
841JA	2.30 ea.	Without turn knob.	7 3/4 x 2 1/2
842JA	2.65 ea.	With turn knob.	7 3/4 x 2 1/2
843JA	2.65 ea.	With turn knob.	7 3/4 x 2 1/2
<i>For Three Bolt Locks:</i>			
847 1/4 JA	2.30 ea.	Without turn knob.	7 3/4 x 2 1/2
847 1/2 JA	2.65 ea.	With turn knob.	7 3/4 x 2 1/2
<i>For Cylinder 5 1/2 and 6 in. Locks:</i>			
7855JA	2.30 ea.	For inside, with turn knob.	7 3/4 x 2 1/2
7855 1/2 JA	2.30 ea.	For inside, without turn knob.	7 3/4 x 2 1/2
7875JA	3.50 ea.	For inside, with turn knob.	9 x 3 3/8
7875 1/2 JA	3.50 ea.	For inside, without turn knob.	9 x 3 3/8
7876JA	3.50 ea.	For outside.	9 x 3 3/8
7896JA	4.50 ea.	For outside.	12 x 3 3/8
<i>For Sliding Doors:</i>			
844JA	3.20 ea.	Cup, bitted key.	6 x 2 3/4
844 1/2 JA	3.20 ea.	Cup, without key hole.	6 x 2 3/4
Miscellaneous			
9184JA	2.70 ea.	Push buttons for electric bells.	3 x 2 1/2
1JA	.80 ea.	Cylinder rosettes.	3 x 2 1/2
	4.50 ea.	Push plates.	12 x 3 3/8
892JA	6.00 ea.	Push plates.	16 x 3 3/8
	10.00 ea.	Push plates.	20 x 4
1895JA	7.25 ea.	Door pulls.	16 x 3 3/8
3751JA	26.00 set	Entrance door handles, cylinder locks.	15 5/8 x 2 1/2
3851JA	25.00 set	Entrance door handles, cylinder locks.	14 3/8 x 2 1/2
7933JA	24.00 set	Entrance door handles, cylinder locks.	16 x 3 3/8
258JA	4.50 ea.	Letter box plates (outside and inside).	2 1/2 x 7 3/4
259JA	6.00 ea.	Letter box plates (outside and inside).	2 1/2 x 7 3/4
288JA	10.90	Letter box plates with chute.	3 1/4 x 9 1/2
809JA	1.00 ea.	Bar sash lifts.	1 5/8 x 5
1887JA	1.00 ea.	Flush sash lifts.	1 5/8 x 4

For Union Locks, JA Design, see Page 36

MB—Milton Design

No.	Price	Description	Size, in.
1622F	\$1.50 pr.	Door knob, round*, Model F, no rose.	2 1/4
1623F	1.70 pr.	Door knob, round†, Model F, no rose.	2 1/4
1625F	2.10 pr.	Door knob†, Model F, no rose.	2 1/2 x 2 1/4
262	.50 pr.	Round roses for above knobs.	2
870MB	.27 ea.	Key plates for all door locks.	2 x 1 1/4
Escutcheons			
<i>For Inside Doors:</i>			
705MB	.75 ea.	For French door locks, 3 1/2-in.	5 x 1 1/4
825MB	1.30 ea.	For 3 1/2-in. locks.	6 3/4 x 2 3/8
827MB	1.30 ea.	For 4 1/4-in. locks.	6 3/4 x 2 3/8
847MB	2.00 ea.	For 4 1/4-in. locks.	8 x 2 1/2
<i>For Bathroom and Communicating Doors:</i>			
821MB	1.30 ea.	Without turn knob.	6 3/4 x 2 3/8
822MB	1.65 ea.	With turn knob.	6 3/4 x 2 3/8
823MB	1.65 ea.	With turn knob.	6 3/4 x 2 3/8
841MB	2.00 ea.	Without turn knob.	8 x 2 1/2
842MB	2.35 ea.	With turn knob.	8 x 2 1/2
843MB	2.35 ea.	With turn knob.	8 x 2 1/2
<i>For Three Bolt Locks:</i>			
847 1/4 MB	2.00 ea.	Without turn knob.	8 x 2 1/2
847 1/2 MB	2.35 ea.	With turn knob.	8 x 2 1/2
<i>For Cylinder 5 1/2 and 6 in. Locks:</i>			
7835MB	1.30 ea.	For inside, with turn knob.	6 3/4 x 2 3/8
7835 1/2 MB	1.30 ea.	For inside, without turn knob.	6 3/4 x 2 3/8
7855MB	2.00 ea.	For inside, with turn knob.	8 x 2 1/2
7855 1/2 MB	2.00 ea.	For inside, without turn knob.	8 x 2 1/2
7856MB	2.00 ea.	For outside.	8 x 2 1/2
7856 1/2 MB	2.20 ea.	For outside (with lugs).	8 x 2 1/2
7876MB	2.90 ea.	For outside.	10 x 2 7/8
<i>For Sliding Doors:</i>			
824MB	1.80 ea.	Cup, bitted key.	6 3/4 x 2 3/8
824 1/2 MB	1.80 ea.	Cup, without key hole.	6 3/4 x 2 3/8
Miscellaneous			
9184MB	1.60 ea.	Push buttons for electric bells.	3 1/2 x 1 5/8
258MB	2.55 ea.	Letter box plates (inside and outside).	2 1/2 x 6 3/4
259MB	3.55 ea.	Letter box plates (inside and outside).	2 1/2 x 6 3/4
288MB	10.00	Letter box plates with chute†.	3 1/4 x 9 1/2
1887MB	.75 ea.	Flush sash lifts.	1 5/8 x 3 1/2
	2.60 ea.	Push plates.	12 x 3 1/4
	2.90 ea.	Push plates.	14 x 3 1/2
892MB	3.20 ea.	Push plates.	16 x 3 1/2
	3.75 ea.	Push plates.	16 x 4
	4.20 ea.	Push plates.	18 x 4
	2.60 ea.	Push plates lettered "Push".	12 x 3 1/4
	2.90 ea.	Push plates lettered "Push".	14 x 3 1/2
	3.20 ea.	Push plates lettered "Push".	16 x 3 1/2
	3.35 ea.	Push plates lettered "Push".	16 x 4
	4.20 ea.	Push plates lettered "Push".	18 x 4
1891MB	4.10 ea.	Door pulls (grip 636).	14 x 3 1/2
1894MB	4.40 ea.	Door pulls (grip 636).	16 x 3 1/2
1895MB	4.55 ea.	Door pulls (grip 636).	16 x 4
1897MB	5.40 ea.	Door pulls (grip 636).	18 x 4
1991MB	4.10 ea.	Door pulls lettered "Pull" (grip 636).	14 x 3 1/2
1994MB	4.40 ea.	Door pulls lettered "Pull" (grip 636).	16 x 3 1/2
1995MB	4.55 ea.	Door pulls lettered "Pull" (grip 636).	16 x 4
1997MB	5.40 ea.	Door pulls lettered "Pull" (grip 636).	18 x 4

†For 1 3/4-in. doors. Other thicknesses to order. Conforms to
Postmaster General Ruling 9905. Without chute, deduct \$0.90.
For Union Locks, MB Design, see page 35.

No. 870JA

No. 1JA

No. 9184JA

No. 1887JA

No. 1895JA
No. 892JA
Same as above,
without gripNo. 1622F
with
No. 262

No. 870MB

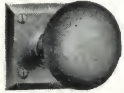
No. 1887MB

No. 9184MB

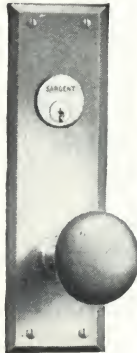
No. 1991MB
No. 1891MB
Same as above
without "Pull"
No. 992MB, same
as above, with-
out grip but with
word "Push"
No. 892MB, same
as 992MB without
wording

SARGENT

Cast Bronze, Cast
Brass, and BB—
"Rustproof Iron"



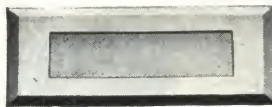
No. 1622F with
No. 275PB



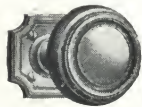
No. 7856PB
with
No. 1625F



No. 825PB
with
No. 1622F



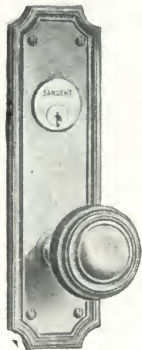
Nos. 258PB and 259PB



No. 1822SE
with
No. 275SE



No. 870SE



No. 7876SE
with
No. 1825SE



No. 811 3/4 SE



No. 1SE

PB—Bristol Design

No.	Price	Description	Size, in.
1622F	\$1.50 pr.	Door knob, model F, round*, without rose.	2 1/4
1623F	1.70 pr.	Door knob, model F, round†, without rose.	2 1/4
1625F	2.10 pr.	Door knob, model F, round†, without rose.	2 1/4 x 2 1/4
275PB	1.10 pr.	Square roses for above knobs.	2 1/4 x 2 1/4
285PB	1.60 pr.	Elongated roses for above knobs.	4 1/2 x 2
870PB	.36 ea.	Key plates for all door locks.	2 1/4 x 1 1/4
890PB	.27 ea.	Key plates for all door locks.	1 3/4 x 1 1/4
Escutcheons			
<i>For Inside Doors:</i>			
705PB	.75 ea.	For French door locks, 3 1/2 in.	5 x 1 1/4
825PB	1.60 ea.	For 3 1/2-in. locks.	7 x 2 1/4
827PB	1.60 ea.	For 4 1/4-in. locks.	7 x 2 1/4
845PB	2.00 ea.	For 3 1/2-in. locks.	8 x 2 1/2
847PB	2.00 ea.	For 4 1/4-in. locks.	8 x 2 1/2
<i>For Bathroom and Communicating Doors:</i>			
821PB	1.60 ea.	Without turn knob.	7 x 2 1/4
822PB	1.95 ea.	With turn knob.	7 x 2 1/4
823PB	1.95 ea.	With turn knob.	7 x 2 1/4
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7835PB	1.60 ea.	For inside, with turn knob.	7 x 2 1/4
7835 1/2 PB	1.60 ea.	For inside, without turn knob.	7 x 2 1/4
7855PB	2.00 ea.	For inside, with turn knob.	8 x 2 1/2
7855 1/2 PB	2.00 ea.	For inside, without turn knob.	8 x 2 1/2
7856PB	2.00 ea.	For outside.	8 x 2 1/2
7856 1/2 PB	2.00 ea.	For outside.	8 x 2 1/2
7866PB	1.80 ea.	For outside.	9 x 2
7896PB	2.90 ea.	For outside.	10 x 3
<i>For Sliding Doors:</i>			
844 1/2 PB	2.50 ea.	Cup, without key hole.	5 5/8 x 2 5/8
Miscellaneous			
9184PB	1.50 ea.	Push buttons for electric bells.	1 7/8 x 1 7/8
1PB	.55 ea.	Cylinder rosettes.	2 1/8 x 2 1/8
	2.15 ea.	Push plates.	12 x 3
	2.90 ea.	Push plates.	14 x 3 1/2
892PB	3.20 ea.	Push plates.	16 x 3 1/2
	3.35 ea.	Push plates.	16 x 4
	4.20 ea.	Push plates.	18 x 4
	2.15 ea.	Push plates lettered "Push".	12 x 3
	2.90 ea.	Push plates lettered "Push".	14 x 3 1/2
	3.20 ea.	Push plates lettered "Push".	16 x 3 1/2
992PB	3.35 ea.	Push plates lettered "Push".	16 x 4
	4.20 ea.	Push plates lettered "Push".	18 x 4
1892PB	3.90 ea.	Door pulls (grip 636).	12 x 3
1893PB	4.10 ea.	Door pulls (grip 636).	14 x 3 1/2
1894PB	4.40 ea.	Door pulls (grip 636).	16 x 3 1/2
1895PB	4.55 ea.	Door pulls (grip 636).	16 x 4
1897PB	5.40 ea.	Door pulls (grip 636).	18 x 4
1992PB	3.90 ea.	Door pulls lettered "Pull" (grip 636).	12 x 3
1993PB	4.10 ea.	Door pulls lettered "Pull" (grip 636).	14 x 3 1/2
1994PB	4.40 ea.	Door pulls lettered "Pull" (grip 636).	16 x 3 1/2
1995PB	4.55 ea.	Door pulls lettered "Pull" (grip 636).	16 x 4
1997PB	5.40 ea.	Door pulls lettered "Pull" (grip 636).	18 x 4
3651PB	20.25 set	Entrance door handles, cylinder locks.	13 3/4 x 2 1/2
4151PB	22.00 set	Entrance door handles, cylinder locks.	14 3/4 x 2 1/2
258PB	2.55 ea.	Letter box plates (outside and inside).	2 1/2 x 7
259PB	3.55 ea.	Letter box plates (outside and inside).	2 1/2 x 7
835PB	1.40 ea.	Bar sash lifts.	1 7/8 x 6 3/4

Illustrations
One-fifth Size



No. 870PB



No. 1PB



No. 9184PB



No. 1992PB
No. 892PB,
same as above
without Grip
and word
"Pull"

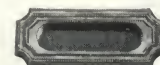


No. 835PB

SE—Essex Design

No.	Price	Description	Size, in.
1822SE	\$3.35 pr.	Door knob, model F, round*, without rose.	2 1/4
1823SE	3.55 pr.	Door knob, model F, round†, without rose.	2 1/4
1825SE	4.15 pr.	Door knob, model F, oval†, without rose.	2 1/4 x 2 1/4
275SE	1.50 pr.	Square roses for above knobs.	2 1/4 x 2 1/4
870SE	.45 ea.	Key plates for all door locks.	2 1/4 x 1 1/4
871SE	.45 ea.	Key plates for cabinet locks.	1 1/4 x 2 1/8
811 3/4 SE	1.10 ea.	Key plates for three bolt locks.	3 1/2 x 1 1/4
Escutcheons			
<i>For Inside Doors:</i>			
705SE	1.20 ea.	For French door locks, 3 1/2 in.	5 1/4 x 1 1/4
845SE	2.00 ea.	For 3 1/2-in. locks.	7 x 2 1/4
847SE	2.00 ea.	For 4 1/4-in. locks.	7 x 2 1/4
865SE	2.75 ea.	For 3 1/2-in. locks.	9 x 2 1/2
867SE	2.75 ea.	For 4 1/4-in. locks.	9 x 2 1/2
<i>For Bathroom and Communicating Doors:</i>			
841SE	2.00 ea.	Without turn knob.	7 x 2 1/4
842SE	2.35 ea.	With turn knob.	7 x 2 1/4
843SE	2.35 ea.	With turn knob.	7 x 2 1/4
<i>For Three Bolt Locks:</i>			
847 1/4 SE	2.00 ea.	Without turn knob.	7 x 2 1/4
847 1/2 SE	2.35 ea.	With turn knob.	7 x 2 1/4
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855SE	2.00 ea.	For inside, with turn knob.	7 x 2 1/4
7855 1/2 SE	2.00 ea.	For inside, without turn knob.	7 x 2 1/4
7875 1/2 SE	2.75 ea.	For inside, without turn knob.	9 x 2 1/2
7876SE	2.75 ea.	For outside.	9 x 2 1/2
7896SE	4.00 ea.	For outside.	11 x 3
<i>For Sliding Doors:</i>			
844SE	2.50 ea.	Cup, bitted key.	7 x 2 1/4
844 1/2 SE	2.50 ea.	Cup, without key hole.	7 x 2 1/4
Miscellaneous			
9184SE	2.20 ea.	Push buttons for electric bells.	3 1/2 x 1 1/4
1SE	.80 ea.	Square cylinder rosettes.	2 1/4 x 2 1/4
892SE	5.00 ea.	Push plates.	15 x 3 1/2
	6.40 ea.	Push plates.	18 x 3 1/2
	7.20 ea.	Push plates.	18 x 4
258SE	4.30 ea.	Letter box plates (outside and inside).	2 1/2 x 7
259SE	5.80 ea.	Letter box plates (outside and inside).	2 1/2 x 7
278SE	6.30 ea.	Letter box plates (outside and inside).	2 1/2 x 7
1887SE	.80 ea.	Flush sash lifts.	1 5/8 x 4

* 5/8-in. straight adjustable spindle, model F.
† 3/8-in. or 1/2-in. swivel adjustable spindle, model F.



No. 1887SE



No. 845SE
with
No. 1822SE



No. 9184SE



No. 892SE

SARGENT**YC—Yarmouth Design***Cast Bronze and Brass**Illustrations
One-fifth Size*No. 1820YC with
No. 172YC

No. 870YC

No. 811 1/4 YC

No. 1822BE
with
No. 275BENo. 7876BE
with
No. 1825BENo. 845BE
with
No. 1822BE

No.	Price	Description	Size, in.
Door Knobs			
1820YC	\$4.00 pr.	Door knob*, without rose, model G.	2
1822YC	4.00 pr.	Door knob†, without rose, model F.	2 1/4
1823YC	4.20 pr.	Door knob‡, without rose, model F.	2 1/4
Roses			
172YC	1.20 pr.	Round roses for 1820YC.	2 1/8
275YC	1.20 pr.	Round roses for 1822YC and 1823YC.	2 1/4
Key Plates			
870YC	.60 ea.	For all door locks.	2 1/4 x 1
811 1/4 YC	1.70 ea.	{ For three bolt locks, with drop. { For inside of door.	3 1/2 x 1 3/8
Miscellaneous			
1YC	.80 ea.	Cylinder rosettes.	2 1/8
122YC	.95 ea.	Turn knobs.	1 3/4
1887YC	1.00 ea.	Flush sash lifts.	1 3/8 x 3 1/2

* 5/8-in. straight adjustable spindle.

† 5/8-in. swivel adjustable spindle.

‡ 5/8-in. or 3/4-in. swivel adjustable spindle.

No. 1822YC with
No. 275YC

No. 1YC



No. 122YC



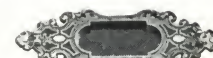
No. 1887YC

BE—Bedford Design*Cast Bronze and Brass*

No.	Price	Description	Size, in.
Door Knobs			
1822BE	\$5.40 pr.	Door knob*, without rose, model F.	2 1/4
1823BE	5.60 pr.	Door knob†, without rose, model F.	2 1/4
1825BE	6.20 pr.	Door knob‡, without rose, model F.	2 1/2 x 2 1/4
Roses			
275BE	1.30 pr.	Round roses for above knobs.	2 1/4
Key Plates			
870BE	.75 ea.	For all door locks.	2 3/4 x 1 1/8
870 1/4 BE	.75 ea.	For cabinet locks.	2 3/4 x 1 1/8
871BE	.75 ea.	For cabinet locks.	1 1/8 x 2 3/4
Escutcheons			
<i>For Inside Doors:</i>			
705BE	2.30 ea.	For French door locks, 3 1/2-in.	7 1/8 x 13 1/8
845BE	6.00 ea.	For 3 1/2-in. locks.	11 3/4 x 3 1/8
847BE	6.00 ea.	For 4 1/2-in. locks.	11 3/4 x 3 1/8
<i>For Communicating Door Locks:</i>			
843BE	6.35 ea.	With turn knob.	11 3/4 x 3 1/8
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855BE	6.00 ea.	For inside, with turn knob.	11 3/4 x 3 1/8
7855 1/2 BE	6.00 ea.	For inside, without turn knob.	11 3/4 x 3 1/8
7856BE	6.00 ea.	For outside.	11 3/4 x 3 1/8
7876BE	7.00 ea.	For outside.	14 x 3 3/8
<i>For Sliding Doors:</i>			
844BE	7.50 ea.	Cup, bitted key.	11 3/4 x 3 1/8
844 1/2 BE	7.50 ea.	Cup, without key hole.	11 3/4 x 3 1/8
Miscellaneous			
9184BE	4.00 ea.	Push buttons for electric bells.	5 3/8 x 1 3/8
892BE	7.00 ea.	Push plates.	14 x 3 3/8
809BE	1.50 ea.	Bar sash lifts.	1 1/8 x 5 1/2
1887BE	1.80 ea.	Flush sash lifts.	1 3/8 x 5 1/2



No. 870BE



No. 1887BE



No. 809BE



No. 892BE

ER—Raleigh Design*Cast Bronze and Brass*No. 1912ER
with
No. 265ERNo. 1910ER
with
No. 275ERNo. 7896ER
with
No. 1913ER

No. 870ER

No.	Price	Description	Size, in.
Door Knobs, Model F			
1910ER	\$6.00 pr.	Door knobs, oval*, with rose 265ER.	2 1/4
1912ER	6.00 pr.	Door knobs, oval*, with rose 265ER.	2 1/2
1913ER	6.20 pr.	Door knobs, oval†, with rose 265ER.	2 1/2
Roses for Knobs			
265ER	1.20 pr.	Oval roses.	2 3/4 x 1 3/8
275ER	1.20 pr.	Round roses.	2 1/8
Lever Handles			
1145ER	4.00 ea.	Lever handle*, with rose 165ER, model G.	3 3/8
1143ER	2.50 ea.	Lever handle*.	2 3/8
Roses for Lever Handles			
165ER	1.20 pr.	Oval roses.	2 3/4 x 1 3/8
175ER	1.20 pr.	Round roses.	2 1/8
Key Plates			
870ER	1.10 ea.	For all door locks.	1 3/4 x 1
871ER	1.10 ea.	For all cabinet locks.	1 x 1 3/4
Escutcheons			
<i>For Inside Doors:</i>			
705ER	2.40 ea.	For French door locks, 3 1/2 in.	4 1/2 x 1 1/8
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7896ER	6.00 ea.	For outside.	12 x 3
<i>For Sliding Doors:</i>			
844ER	5.00 ea.	Cup, bitted key.	4 3/4 x 2 3/8
844 1/2 ER	5.00 ea.	Cup, without key hole.	4 3/4 x 2 3/8
Miscellaneous			
892ER	6.00 ea.	Push plates.	12 x 3
900ER	2.00 ea.	Ring handles (ring 1 1/2-in.).	1 x 1 3/4
1887ER	1.20 ea.	Flush sash lifts.	1 1/8 x 3 3/8

* 5/8-in. straight adjustable spindle.

† 5/8-in. or 3/4-in. swivel adjustable spindle.



No. 1887ER



No. 900ER

No. 1145ER
with
No. 165ER

No. 892ER

SARGENTNo. 1912CE
with No. 262No. 7876CE with
No. 1916CENo. 845CE with
No. 1912CENo. 1916AD
with No. 262No.
870ADNo.
9184ADNo. 7876AD
with
No. 1917ADNo. 845AD with
No. 1916ADCast Bronze
and BrassNo. 7876NF
with
No. 1825NFNo. 845NF with
No. 1822NF

No. 809NF

CE—Clermont Design

Cast Bronze and Brass

Nos.	Price	Description	Size, in.
1912CE	\$ 6.00 pr.	Door knob, round*, Model F, no rose.	2 1/4
1913CE	6.20 pr.	Door knob, round†, Model F, no rose.	2 1/4
1915CE	6.80 pr.	Door knob, oval†, Model F, no rose.	2 5/8 x 2 1/2
262	.50 pr.	Round roses for above knobs.	2
Key Plates			
870CE	.80 ea.	For all door locks.	1 1/8 x 1 1/8
871CE	.80 ea.	For cabinet locks.	2 3/4 x 2 3/4
Escutcheons			
<i>For Inside Doors:</i>			
705CE	2.30 ea.	For French door locks, 3 1/2-in.	5 3/4 x 1 1/4
845CE	5.00 ea.	For 3 1/2-in. locks.	9 1/4 x 2 7/8
847CE	5.00 ea.	For 4 1/4-in. locks.	9 1/4 x 2 7/8
<i>For Cylinder 5 1/2 and 6 in. Locks:</i>			
7855CE	5.00 ea.	For inside, with turn knob.	9 1/4 x 2 7/8
7855 1/2 CE	5.00 ea.	For inside, without turn knob.	9 1/4 x 2 7/8
7876CE	7.00 ea.	For outside.	11 3/4 x 3 1/2
<i>For Sliding Doors:</i>			
844CE	6.25 ea.	Cup, bitted key.	9 1/4 x 2 7/8
844 1/2 CE	6.25 ea.	Cup, without key hole.	9 1/4 x 2 7/8
Miscellaneous			
9184CE	3.00 ea.	Push buttons for electric bells.	6 1/2 x 2 7/8
892CE	15.00 ea.	Push plates.	20 3/4 x 3 7/8
1895CE	27.00 ea.	Door pulls.	20 3/4 x 3 7/8
7933CE	38.20 set	Entrance door handles, cylinder locks.	20 3/4 x 3 7/8
1887CE	1.30 ea.	Flush sash lifts.	1 3/4 x 4 1/2

AD—Antwerp Design

Cast Bronze and Brass

1916AD	\$ 4.90 pr.	Door knob, round*, Model F, no rose.	2 5/8
1917AD	4.90 pr.	Door knob, round†, Model F, no rose.	2 5/8
262	.50 pr.	Round roses for above knobs.	2
Key Plates			
870AD	1.10 ea.	For all door locks.	2 1/4 x 1 1/8
871AD	1.10 ea.	For cabinet locks.	1 1/8 x 2 1/4
Escutcheons			
<i>For Inside Doors:</i>			
705AD	2.40 ea.	For French door locks, 3 1/2 in.	5 1/2 x 1 1/4
845AD	6.00 ea.	For 3 1/2-in. locks.	9 1/2 x 3 3/8
847AD	6.00 ea.	For 4 1/4-in. locks.	9 1/2 x 3 3/8
<i>For Cylinder 5 1/2 and 6 in. Locks:</i>			
7855AD	6.00 ea.	For inside, with turn knob.	9 1/2 x 3 3/8
7855 1/2 AD	6.00 ea.	For inside, without turn knob.	9 1/2 x 3 3/8
7876AD	6.70 ea.	For outside.	11 x 3 3/8
<i>For Sliding Doors:</i>			
844AD	7.50 ea.	Cup, bitted key.	9 1/2 x 3 3/8
844 1/2 AD	7.50 ea.	Cup, without key hole.	9 1/2 x 3 3/8
Miscellaneous			
9184AD	2.70 ea.	Push buttons for electric bells.	4 1/2 x 1 1/4
892AD	9.00 ea.	Push plates.	15 x 3 3/8
1892AD	10.90 ea.	Push plates.	17 x 3 3/8
258AD	13.00 ea.	Door pulls (grip 751).	15 x 3 3/8
1887AD	6.00 ea.	Letter box plates (outside and inside).	2 7/8 x 8 7/8
	1.50 ea.	Flush sash lifts.	1 3/4 x 4 1/4

NF—Nantes Design

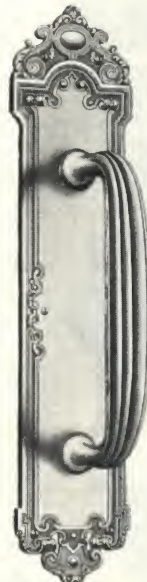
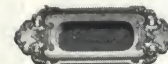
1822NF	\$ 4.10 pr.	Door knob, round*, Model F, no rose.	2 1/4
1823NF	4.30 pr.	Door knob, round†, Model F, no rose.	2 1/4
1825NF	4.90 pr.	Door knob, oval†, Model F, no rose.	2 1/2 x 2 1/4
275NF	1.20 pr.	Round roses for above knobs.	2 1/8
870NF	.80 ea.	Key plates for all door locks.	2 1/2 x 1
Escutcheons			
<i>For Inside Doors:</i>			
705NF	2.20 ea.	For French door locks, 3 1/2-in.	6 x 1 1/8
845NF	2.50 ea.	For 3 1/2-in. locks.	8 3/4 x 2 1/4
847NF	2.50 ea.	For 4 1/4-in. locks.	8 3/4 x 2 1/4
<i>For Bathroom and Communicating Doors:</i>			
841NF	2.50 ea.	Without turn knob.	8 3/4 x 2 1/4
842NF	2.85 ea.	With turn knob.	8 3/4 x 2 1/4
843NF	2.85 ea.	With turn knob.	8 3/4 x 2 1/4
<i>For Three Bolt Locks:</i>			
847 1/2 NF	2.50 ea.	Without turn knob.	8 3/4 x 2 1/4
847 1/2 NF	2.85 ea.	With turn knob.	8 3/4 x 2 1/4
<i>For Cylinder 5 1/2 and 6 in. Locks:</i>			
7855NF	2.50 ea.	For inside, with turn knob.	8 3/4 x 2 1/4
7855 1/2 NF	2.50 ea.	For inside, without turn knob.	8 3/4 x 2 1/4
7875NF	5.25 ea.	For inside, with turn knob.	11 1/2 x 3
7875 1/2 NF	5.25 ea.	For inside, without turn knob.	11 1/2 x 3
7876NF	5.25 ea.	For outside.	11 1/2 x 3
<i>For Sliding Doors:</i>			
844NF	3.15 ea.	Cup, for bitted key.	8 3/4 x 2 1/4
844 1/2 NF	3.15 ea.	Cup, without key hole.	8 3/4 x 2 1/4
Miscellaneous			
9184NF	2.70 ea.	Push buttons for electric bells.	4 7/8 x 1 1/2
892NF	5.25 ea.	Push plates.	11 1/2 x 3
1895NF	14.00 ea.	Push plates.	20 x 4
8933NF	15.90 ea.	Door pulls (grip 636).	20 x 4
809NF	32.00 set	Entrance door handles, cylinder locks.	21 1/2 x 4
1887NF	2.70 ea.	Bar sash lifts.	2 1/4 x 8 7/8
	1.10 ea.	Flush sash lifts.	1 1/2 x 4 1/2

* 1/8-in. straight adjustable spindle.
† 1/8-in. or 3/8-in. swivel adjustable spindle.Illustrations
One-fifth Size

No. 870CE



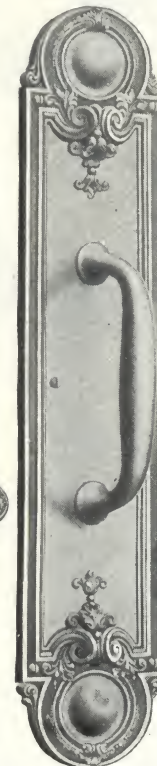
No. 9184CE

No. 1895CE
No. 892CE, same
without grip

No. 1887AD

No. 1892AD
No. 892AD, same
without gripNo. 1822NF
with
No. 275NF

No. 1887NF

Right:
No. 1895NF
No. 892NF, same
without grip

SARGENT

Illustrations
One-fifth Size

FG—Fargeau Design

Cast Bronze and Brass and BB "Rustproof" Iron

No. 1822FG with
No. 262No. 7876FG
with
No. 1825FGNo. 845FG
with
No. 1822FG

No.	Price	Description	Size, in.
Door Knobs—Model F			
1822FG	\$6.50 pr.	Door knob, round*, without rose...	2 1/4
1823FG	6.70 pr	Door knob, round†, without rose...	2 1/4
1825FG	7.30 pr	Door knob, round, without rose...	2 1/2 x 2 1/4
Roses			
262	.50 pr.	Round roses for above knobs...	2
Key Plates			
870FG	.80 ea.	For all door locks...	2 3/8 x 1 1/8
871FG	.80 ea.	For cabinet locks...	1 1/8 x 2 3/8
Escutcheons			
<i>For Inside Doors:</i>			
705FG	2.00 ea.	For French door locks, 3 1/2-in.	6 1/2 x 1 1/4
845FG	4.50 ea.	For 3 1/2-in. locks...	9 x 2 1/2
847FG	4.50 ea.	For 4 1/4-in. locks...	9 x 2 1/2
<i>For Bathroom and Communicating Doors:</i>			
841FG	4.50 ea.	Without turn knob...	9 x 2 1/2
842FG	4.85 ea.	With turn knob...	9 x 2 1/2
843FG	4.85 ea.	With turn knob...	9 x 2 1/2
<i>For Three Bolt Locks:</i>			
847 1/4 FG	4.50 ea.	Without turn knob...	9 x 2 1/2
847 1/2 FG	4.85 ea.	With turn knob...	9 x 2 1/2
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855FG	4.50 ea.	For inside, with turn knob...	9 x 2 1/2
7855 1/2 FG	4.50 ea.	For inside, without turn knob...	9 x 2 1/2
7876FG	6.00 ea.	For outside...	10 x 3
<i>For Sliding Doors:</i>			
844FG	5.65 ea.	Cup, bitted key...	9 x 2 1/2
844 1/2 FG	5.65 ea.	Cup, without key hole...	9 x 2 1/2
Miscellaneous			
9184FG	3.20 ea.	Push buttons for electric bells...	4 7/8 x 1 1/4
892FG	6.00 ea.	Push plates...	10 x 3
	6.50 ea.	Push plates...	14 x 3
	12.00 ea.	Push plates...	20 x 3 3/4
258FG	5.60 ea.	Letter box plates (inside and outside)...	2 7/8 x 8 1/2
1887FG	1.30 ea.	Flush sash lifts...	1 1/2 x 4 1/2



No. 870FG



No. 892FG



No. 9184FG

GB—Belfort Design

Cast Bronze, Cast Brass and BB "Rustproof" Iron

No. 7876GB with
No. 1825GBNo. 1822GB
with
No. 275GBNo. 845GB
with
No. 1822GB

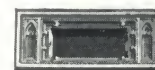
No.	Price	Description	Size, in.
Door Knobs—Model F			
1822GB	\$ 4.00 pr.	Door knob, round*, without rose...	2 1/4
1823GB	4.20 pr.	Door knob, round†, without rose...	2 1/4
1825GB	4.80 pr.	Door knob, round, without rose...	2 1/2 x 2 1/4
Roses			
275GB	1.20 pr.	Round roses for above knobs...	2 1/4
Key Plates			
870GB	.40 ea.	For all door locks...	2 1/8 x 1 1/8
Escutcheons			
<i>For Inside Doors:</i>			
725GB	1.45 ea.	For 3 1/2-in. locks (Not Model F)	5 7/8 x 1 1/8
727GB	1.45 ea.	For 4 1/4-in. locks (Not Model F)	5 7/8 x 1 1/8
845GB	2.80 ea.	For 3 1/2-in. locks...	8 1/2 x 2 3/4
847GB	2.80 ea.	For 4 1/4-in. locks...	8 1/2 x 2 3/4
<i>For Bathroom and Communicating Doors:</i>			
841GB	2.80 ea.	Without turn knob...	8 1/2 x 2 3/4
842GB	3.15 ea.	With turn knob...	8 1/2 x 2 3/4
843GB	3.15 ea.	With turn knob...	8 1/2 x 2 3/4
<i>For Three Bolt Locks:</i>			
847 1/4 GB	2.80 ea.	Without turn knob...	8 1/2 x 2 3/4
847 1/2 GB	3.15 ea.	With turn knob...	8 1/2 x 2 3/4
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855GB	2.80 ea.	For inside, with turn knob...	8 1/2 x 2 3/4
7855 1/2 GB	2.80 ea.	For inside, without turn knob...	8 1/2 x 2 3/4
7876GB	3.75 ea.	For outside...	10 1/8 x 3
7896GB	6.00 ea.	For outside...	15 x 3 1/2
<i>For Sliding Doors:</i>			
844GB	3.50 ea.	Cup, bitted key...	8 1/2 x 2 3/4
844 1/2 GB	3.50 ea.	Cup, without key hole...	8 1/2 x 2 3/4
Miscellaneous			
9184GB	2.20 ea.	Push buttons for electric bells...	4 3/8 x 1 1/8
892GB	6.00 ea.	Push plates...	15 x 3 1/2
	7.35 ea.	Push plates...	18 x 3 1/2
	10.00 ea.	Push plates...	20 x 4
1894GB	8.25 ea.	Door pulls (grip No. 636)...	18 x 3 1/2
1895GB	11.90 ea.	Door pulls (grip No. 636)...	20 x 4
9933GB	38 20 set	Entrance door handles, cylinder locks...	20 x 4
258GB	4.50 ea.	Letter box plates (outside and inside)...	2 3/4 x 8 1/4
1887GB	.80 ea.	Flush sash lifts...	1 5/8 x 3 3/4

* 1/8-in. straight adjustable spindle.
† 1/8-in. or 3/8-in. swivel adjustable spindle.

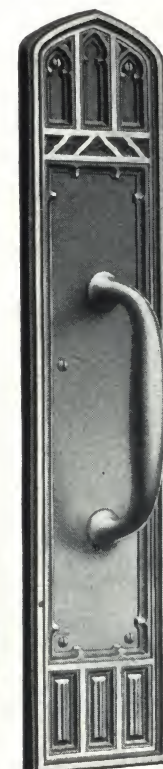
No. 870GB



No. 9184GB

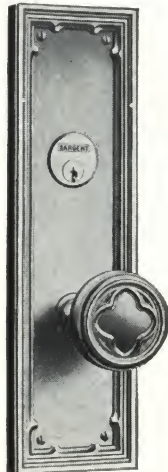


No. 1887GB

No. 1895GB
No. 892GB, same
as above, with-
out Grip

Illustrations
One-fifth Size**SARGENT****GE—Ellesmere Design**

Cast Bronze and Brass and BB—"Rustproof Iron"

No. 7876GE with
No. 1825GENo. 1822GE
with
No. 275GENo. 845GE with
No. 1822GE

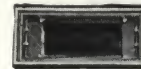
No.	Price	Description	Size, in.
Door Knobs, Model F			
1822GE	\$ 4.00 pr.	Door knob, round*, without rose	2 1/4
1823GE	4.20 pr.	Door knob, round†, without rose	2 1/4
1825GE	4.80 pr.	Door knob, round†, without rose	2 1/2 x 2 1/4
Roses			
275GE	1.20 pr.	Round roses for above knobs	2 1/4
Key Plates			
870GE	.50 ea.	For all door locks	2 1/8 x 1 1/8
Escutcheons			
<i>For Inside Doors:</i>			
845GE	2.40 ea.	For 3 1/2-in. locks	7 1/4 x 2 3/4
847GE	2.40 ea.	For 4 1/4-in. locks	7 1/4 x 2 3/4
<i>For Bathroom and Communicating Doors:</i>			
841GE	2.40 ea.	Without turn knob	7 1/4 x 2 3/4
842GE	2.75 ea.	With turn knob	7 1/4 x 2 3/4
843GE	2.75 ea.	With turn knob	7 1/4 x 2 3/4
<i>For Three Bolt Locks:</i>			
847 1/4 GE	2.40 ea.	Without turn knob	7 1/4 x 2 3/4
847 1/2 GE	2.75 ea.	With turn knob	7 1/4 x 2 3/4
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855GE	2.40 ea.	For inside, with turn knob	7 1/4 x 2 3/4
7855 1/2 GE	2.40 ea.	For inside, without turn knob	7 1/4 x 2 3/4
7876GE	3.20 ea.	For outside	9 x 3
7896GE	5.10 ea.	For outside	12 x 3 1/2
<i>For Sliding Doors:</i>			
844GE	3.00 ea.	Cup, bitted key	7 1/4 x 2 3/4
844 1/2 GE	3.00 ea.	Cup, without key hole	7 1/4 x 2 3/4
Miscellaneous			
9184GE	2.20 ea.	Push buttons for electric bells	3 x 1 5/8
892GE	5.10 ea.	Push plates	12 x 3 1/2
892GE	6.00 ea.	Push plates	15 x 3 1/2
1892GE	13.50 ea.	Door pulls (grip 757)	15 x 3 1/2
258GE	4.50 ea.	Letter box plates (inside and outside)	2 3/4 x 8 1/4
259GE	6.00 ea.	Letter box plates (inside and outside)	2 3/4 x 8 1/4
1887GE	.80 ea.	Flush sash lifts	1 5/8 x 3 1/2



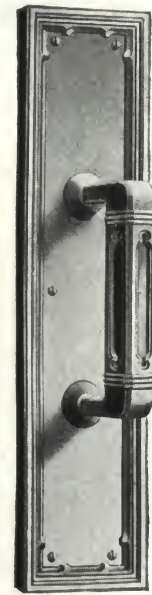
No. 870GE



No. 9184GE



No. 1887GE

No. 1892GE
No. 892GE,
same as above
without Grip**GG—Gotha Design**

Cast Bronze and Brass and BB—"Rustproof Iron"

No. 7856GG
with
No. 1825GGNo. 847GG with
No. 1826GG

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822GG	\$ 6.00 pr.	Door knob, round*, without rose	2 1/4
1823GG	6.20 pr.	Door knob, round†, without rose	2 1/4
1825GG	6.80 pr.	Door knob, round†, without rose	2 1/2 x 2 1/4
1826GG	7.20 pr.	Door knob, round*, without rose	2 1/2
1827GG	7.40 pr.	Door knob, round†, without rose	2 1/2
1829GG	8.60 pr.	Door knob, round†, without rose	3
Roses			
275GG	1.20 pr.	Round roses for above knobs	2 1/4
276GG	2.50 pr.	Round roses for above knobs	3
Escutcheons			
<i>For Inside Doors:</i>			
847GG	10.00 ea.	For 4 1/4-in. locks	14 x 3 3/8
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855GG	10.00 ea.	For inside, with turn knob	14 x 3 3/8
7855 1/2 GG	10.00 ea.	For inside, without turn knob	14 x 3 3/8
7856GG	10.00 ea.	For outside	14 x 3 3/8
7876GG	22.80 ea.	For outside	23 1/2 x 4 1/4
Miscellaneous			
9184GG	4.00 ea.	Push buttons for electric bells	6 3/4 x 2 1/4
2GG	2.50 ea.	Cylinder rosettes	3
892GG	11.20 ea.	Push plates	16 x 3 3/8
1892GG	22.80 ea.	Push plates	23 1/2 x 4 1/4
9933GG	34.00 ea.	Door pulls	23 1/2 x 4 1/4
9933GG	49.00 set	Entrance door handles, cylinder locks	23 1/2 x 4 1/4

* 5/8-in. straight adjustable spindle.

† 1 1/8-in. or 3/8-in. swivel adjustable spindle.

No. 1822GG
with
No. 275GG

No. 2GG



No. 9184GG

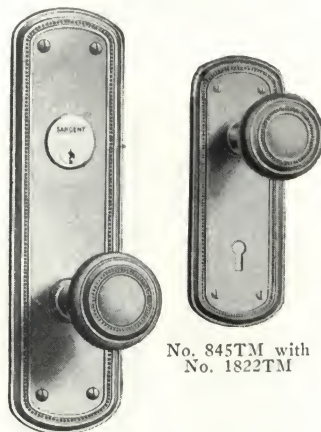
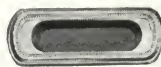
No. 1892GG
No. 892GG,
same as above
without Grip

SARGENT

Illustrations
One-fifth Size

TM—Tramore Design

Cast Bronze and Brass

No. 7876TM with
No. 1825TM

No. 1887TM

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822TM	\$ 4.20 pr.	Door knob, round*, without rose.	2 1/4
1823TM	4.40 pr.	Door knob, round†, without rose.	2 1/4
1825TM	5.00 pr.	Door knob, round†, without rose.	2 1/2 x 2 1/4
Roses			
275TM	1.20 pr.	Round roses for above knobs.	2 1/4
Key Plates			
870TM	.50 ea.	For all door locks.	2 1/8 x 1 1/4
871TM	.50 ea.	For cabinet locks.	1 1/4 x 2 1/8
Escutcheons			
<i>For Inside Doors:</i>			
705TM	1.10 ea.	For French door locks, 3 1/2 in.	5 1/2 x 1 1/4
845TM	2.30 ea.	For 3 1/2-in. locks.	7 1/8 x 2 1/2
847TM	2.30 ea.	For 4 1/4-in. locks.	7 1/8 x 2 1/2
<i>For Bathroom and Communicating Doors:</i>			
841TM	2.30 ea.	Without turn knob.	7 1/8 x 2 1/2
842TM	2.65 ea.	With turn knob.	7 1/8 x 2 1/2
843TM	2.65 ea.	With turn knob.	7 1/8 x 2 1/2
<i>For Three Bolt Locks:</i>			
847 1/4 TM	2.30 ea.	Without turn knob.	7 1/8 x 2 1/2
847 1/2 TM	2.65 ea.	With turn knob.	7 1/8 x 2 1/2
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855TM	2.30 ea.	For inside, with turn knob.	7 1/8 x 2 1/2
7855 1/2 TM	2.30 ea.	For inside, without turn knob.	7 1/8 x 2 1/2
7876TM	3.00 ea.	For outside.	9 x 2 5/8
7896TM	4.50 ea.	For outside.	11 x 3
<i>For Sliding Doors:</i>			
844TM	2.90 ea.	Cup, bitted key.	7 1/8 x 2 1/2
844 1/2 TM	2.90 ea.	Cup, without key hole.	7 1/8 x 2 1/2
Miscellaneous			
9184TM	2.20 ea.	Push buttons for electric bells.	3 1/2 x 1 1/4
102TM	.80 ea.	Cylinder rosettes comp. blocking ring.	2 1/4
892TM	4.50 ea.	Push plates.	11 x 3
7.20 ea.		Push plates.	18 x 4
1895TM	12.00 ea.	Door pulls (grip No. 751).	18 x 4
288TM	10.90 ea.	Letter box plates (with chute) ‡ (1 1/4-in. door).	3 1/4 x 9 1/2
258TM	4.50 ea.	Letter box plates (inside and outside).	2 1/2 x 7 1/2
1887TM	.80 ea.	Flush sash lifts.	1 5/8 x 4

‡Conforms to Government Order 9905. Other sizes for doors to order. Without Chute, deduct \$0.90.

No. 1822TM with
No. 275TM

No. 870TM

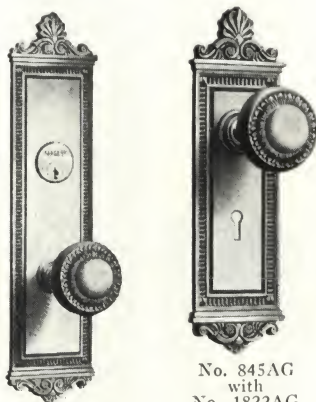


No. 102TM

No. 1895TM
No. 892TM, same
as above with-
out Grip

AG—Argos Design

Cast Bronze and Brass and BB "Rustproof Iron"

No. 7876AG
with
No. 1825AGNo. 845AG
with
No. 1822AG

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822AG	\$ 4.25 pr.	Door knob, round*, without rose.	2 1/4
1823AG	4.45 pr.	Door knob, round†, without rose.	2 1/4
1825AG	5.05 pr.	Door knob, round†, without rose.	2 1/2 x 2 1/4
Roses			
262AG	.50 pr.	Round roses for above knobs.	2
Key Plates			
870AG	.80 ea.	For all door locks.	3 1/16 x 1 3/8
871AG	.80 ea.	For cabinet locks.	1 3/8 x 3 1/16
Escutcheons			
<i>For Inside Doors:</i>			
705AG	1.80 ea.	For French door locks, 3 1/2 in.	7 x 1 5/8
845AG	4.75 ea.	For 3 1/2-in. locks.	9 1/8 x 2 3/4
847AG	4.75 ea.	For 4 1/4-in. locks.	9 1/8 x 2 3/4
<i>For Bathroom and Communicating Doors:</i>			
841AG	4.75 ea.	Without turn knob.	9 1/8 x 2 3/4
842AG	5.10 ea.	With turn knob.	9 1/8 x 2 3/4
843AG	5.10 ea.	With turn knob.	9 1/8 x 2 3/4
<i>For Three Bolt Locks:</i>			
847 1/4 AG	4.75 ea.	Without turn knob.	9 1/8 x 2 3/4
847 1/2 AG	5.10 ea.	With turn knob.	9 1/8 x 2 3/4
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855AG	4.75 ea.	For inside, with turn knob.	9 1/8 x 2 3/4
7855 1/2 AG	4.75 ea.	For inside, without turn knob.	9 1/8 x 2 3/4
7876AG	6.25 ea.	For outside.	10 1/2 x 3 1/4
7896AG	7.80 ea.	For outside.	13 x 3 1/4
<i>For Sliding Doors:</i>			
844AG	6.00 ea.	Cup, bitted key.	9 1/8 x 2 3/4
844 1/2 AG	6.00 ea.	Cup, without key hole.	9 1/8 x 2 3/4
Miscellaneous			
9184AG	2.70 ea.	Push buttons for electric bells.	5 x 1 3/4
892AG	7.70 ea.	Push plates.	13 x 3 1/4
12.40 ea.		Push plates.	18 1/2 x 3 3/4
1895AG	16.40 ea.	Door pulls (grip 751).	18 1/2 x 3 3/4
258AG	6.00 ea.	Letter box plates (inside and outside).	2 3/4 x 9 3/4
809AG	2.50 ea.	Bar sash lifts.	1 5/8 x 6
1887AG	1.50 ea.	Flush sash lifts.	1 3/4 x 5

* 5/8-in. straight adjustable spindle.

† 5/8-in. or 3/4-in. swivel adjustable spindle.

No. 1822AG with
No. 262

No. 870AG

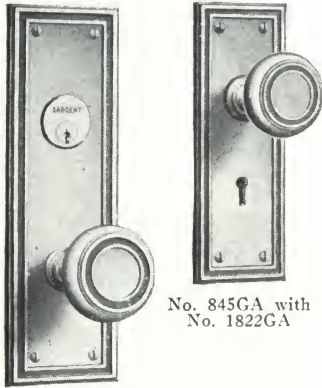


No. 1887AG

No. 1895AG
No. 892AG,
same as above
without Grip

SARGENT**GA—Andros Design**

Cast Bronze and Brass and BB "Rustproof Iron"

Illustrations
One-fifth SizeNo. 1822GA with
No. 275GANo. 845GA with
No. 1822GANo. 7876GA with
No. 1825GA

No. 809GA

No. 7876LA with
No. 1825LANo. 1822LA
with
No. 275LANo. 845LA with
No. 1822LA

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822GA	\$ 3.30 pr.	Door knob, round*, without rose.	2 1/4
1823GA	3.50 pr.	Door knob, round†, without rose.	2 1/4
1825GA	4.10 pr.	Door knob, round†, without rose.	2 1/2 x 2 1/4
Roses			
275GA	1.00 pr.	Round roses for above knobs.	2 1/8
280GA	1.50 pr.	Square roses for above knobs.	2 1/4 x 2 1/4
Key Plates			
879GA	.45 ea.	For all door locks.	2 1/8 x 1 1/4
Escutcheons			
<i>For Inside Doors:</i>			
705GA	1.10 ea.	For French door locks, 3 1/2 in.	5 1/2 x 1 1/4
845GA	2.00 ea.	For 3 1/2-in. locks.	7 1/4 x 2 3/8
847GA	2.00 ea.	For 4 1/4-in. locks.	7 1/4 x 2 3/8
867GA	2.70 ea.	For 4 1/4-in. locks.	8 1/2 x 2 3/8
<i>For Bathroom and Communicating Doors:</i>			
841GA	2.00 ea.	Without turn knob.	7 1/4 x 2 3/8
842GA	2.35 ea.	With turn knob.	7 1/4 x 2 3/8
843GA	2.35 ea.	With turn knob.	7 1/4 x 2 3/8
<i>For Three Bolt Locks:</i>			
847 1/4 GA	2.00 ea.	Without turn knob.	7 1/4 x 2 3/8
847 1/2 GA	2.35 ea.	With turn knob.	7 1/4 x 2 3/8
<i>For Cylinder, 5 1/2 and 6-in. Locks:</i>			
7855GA	2.00 ea.	For inside, with turn knob.	7 1/4 x 2 3/8
7855 1/2 GA	2.00 ea.	For inside, without turn knob.	7 1/4 x 2 3/8
7866 1/2 GA	2.70 ea.	For inside, without turn knob.	8 1/2 x 2 3/8
7866GA	2.70 ea.	For outside.	8 1/2 x 2 3/8
7875GA	3.80 ea.	For inside, with turn knobs.	10 x 3 3/8
7875 1/2 GA	3.80 ea.	For inside, without turn knobs.	10 x 3 3/8
7876GA	3.80 ea.	For outside.	10 x 3 3/8
<i>For Sliding Doors:</i>			
844GA	2.50 ea.	Cup, bitted key.	7 1/4 x 2 3/8
844 1/2 GA	2.50 ea.	Cup, without key hole.	7 1/4 x 2 3/8
Miscellaneous			
9184GA	2.20 ea.	Push buttons for electric bells.	3 3/4 x 1 3/4
1GA	.80 ea.	Cylinder rosettes.	2 1/4 x 2 1/4
102GA	.80 ea.	Cylinder rosettes, with compression ring.	2 1/4 x 2 1/4
892GA	5.60 ea.	Push plates.	16 x 3 1/2
	6.40 ea.	Push plates.	16 x 4
	8.00 ea.	Push plates.	20 x 4
1895GA	7.50 ea.	Door pulls (grip 636).	16 x 4
1897GA	9.90 ea.	Door pulls (grip 636).	20 x 4
3851GA	22.00 set	Door handles, cylinder lock.	14 3/8 x 2 1/4
6833GA	24.00 set	Entrance door handles, cylinder lock.	16 x 3 1/2
7933GA	24.00 set	Entrance door handles, cylinder lock.	16 x 4
8933GA	33.00 set	Entrance door handles, cylinder lock.	20 x 4
258GA	4.50 ea.	Letter box plates (inside and outside).	29 3/8 x 7 1/4
259GA	6.00 ea.	Letter box plates (outside plate in hood).	29 3/8 x 7 1/4
†288GA	10.90 ea.	Letter box plates (with chute).	31 1/2 x 9 1/2
809GA	2.50 ea.	Bar sash lifts.	21 1/8 x 6 7/8
811GA	.80 ea.	Bar sash lifts.	13 1/8 x 4 7/8
1887GA	.80 ea.	Flush sash lifts.	13 1/8 x 3 3/4

‡Conforms to Government Ruling.
Order 9905. (For 1 3/4-in. doors. Other thicknesses to order.)
Without Chute, deduct \$0.90

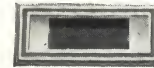
For Union Locks GA Design, see Page 36

LA—Lepanto Design

Cast Bronze and Brass and BB "Rustproof Iron"

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822LA	*\$ 3.30 pr.	Door knob, round*, without rose.	2 1/4
1823LA	3.50 pr.	Door knob, round†, without rose.	2 1/4
1825LA	4.10 pr.	Door knob, round†, without rose.	2 1/2 x 2 1/4
Roses			
275LA	1.20 pr.	Round roses for above knobs.	2
Key Plates			
870LA	.40 ea.	For all door locks.	2 x 1 1/8
871LA	.40 ea.	For cabinet locks.	1 1/8 x 2
Escutcheons			
<i>For Inside Doors:</i>			
705LA	1.20 ea.	For French door locks, 3 1/2 in.	5 1/4 x 1 1/8
845LA	2.50 ea.	For 3 1/2-in. locks.	7 1/2 x 2 3/4
847LA	2.50 ea.	For 4 1/4-in. locks.	7 1/2 x 2 3/4
<i>For Bathroom and Communicating Doors:</i>			
841LA	2.50 ea.	Without turn knob.	7 1/2 x 2 3/4
842LA	2.85 ea.	With turn knob.	7 1/2 x 2 3/4
843LA	2.85 ea.	With turn knob.	7 1/2 x 2 3/4
<i>For Three Bolt Locks:</i>			
847 1/4 LA	2.50 ea.	Without turn knob.	7 1/2 x 2 3/4
847 1/2 LA	2.85 ea.	With turn knob.	7 1/2 x 2 3/4
<i>For Cylinder, 5 1/2 and 6-in. Locks:</i>			
7855LA	2.50 ea.	For inside, with turn knob.	7 1/2 x 2 3/4
7855 1/2 LA	2.50 ea.	For inside, without turn knob.	7 1/2 x 2 3/4
7876LA	3.25 ea.	For outside.	10 x 2 3/4
7886LA	4.30 ea.	For outside.	12 x 3
7896LA	6.30 ea.	For outside.	15 x 3 1/2
<i>For Sliding Doors:</i>			
844 1/2 LA	3.10 ea.	Cup, without key hole.	7 1/4 x 2 3/4
Miscellaneous			
9184LA	2.70 ea.	Push buttons for electric bells.	3 5/8 x 1 1/2
892LA	4.30 ea.	Push plates.	12 x 3
	6.30 ea.	Push plates.	15 x 3 1/2
	9.10 ea.	Push plates.	21 x 3 3/8
1892LA	8.80 ea.	Door pulls (grip No. 632).	15 x 3 1/2
1895LA	11.60 ea.	Door pulls (grip No. 636).	21 x 3 3/8
9933LA	30.00 set	Entrance door handles, cylinder locks.	21 x 3 3/8
258LA	5.00 ea.	Letter box plates (inside and outside).	29 3/8 x 7 1/4
1887LA	.80 ea.	Flush sash lifts.	13 1/8 x 4

* 5/16-in. straight adjustable spindle.
† 1/16-in. or 3/16-in. swivel adjustable spindle.



No. 1887GA



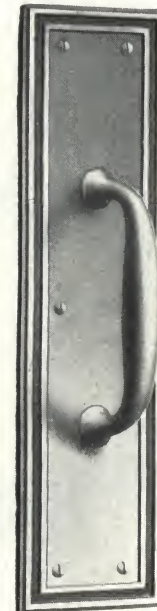
No. 870GA



No. 1GA



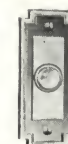
No. 9184GA

No. 1895GA
No. 892GA, same
as above with-
out Grip

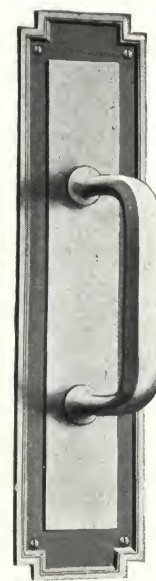
No. 870LA



No. 1887LA



No. 9184LA

No. 1892LA
No. 892LA, same
as above with-
out Grip

SARGENT**PR—Parma Design**

Cast Bronze and Brass

Illustrations
One-fifth SizeNo. 7876PR with
No. 1825PRNo. 1822PR
with
No. 262No. 845PR with
No. 1822PR

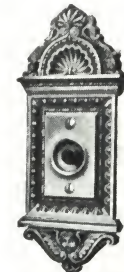
No.	Price	Description	Size, in.
Door Knobs, Model F			
1822PR	\$ 4.60 pr.	Door knob, round*, without rose.	2 1/4
1823PR	4.80 pr.	Door knob, round†, without rose.	2 1/4
1825PR	5.40 pr.	Door knob, round†, without rose.	2 1/2 x 2 1/4
Roses			
262	.50 pr.	Round roses for above knobs.	2
Key Plates			
870PR	1.00 ea.	For all door locks.	2 3/8 x 1 1/8
871PR	1.00 ea.	For cabinet locks.	1 1/8 x 2 3/8
Escutcheons			
<i>For Inside Doors:</i>			
705PR	2.40 ea.	For French door locks, 3 1/2-in.	6 3/4 x 1 1/2
845PR	5.00 ea.	For 3 1/2-in. locks.	10 x 3 3/8
847PR	5.00 ea.	For 4 1/4-in. locks.	10 x 3 3/8
<i>For Bathroom and Communicating Doors:</i>			
841PR	5.00 ea.	Without turn knob.	10 x 3 3/8
842PR	5.35 ea.	With turn knob.	10 x 3 3/8
843PR	5.00 ea.	With turn knob.	10 x 3 3/8
<i>For Three Bolt Locks:</i>			
847 1/4 PR	5.00 ea.	Without turn knob.	10 x 3 3/8
847 1/2 PR	5.35 ea.	With turn knob.	10 x 3 3/8
<i>For Cylinder, 5 1/2 and 6-in. Locks:</i>			
7855PR	5.00 ea.	For inside, with turn knob.	10 x 3 3/8
7855 1/2 PR	5.00 ea.	For inside, without turn knob.	10 x 3 3/8
7876PR	6.20 ea.	For outside.	11 1/2 x 3 3/8
7896PR	8.00 ea.	For outside.	13 1/4 x 3 3/8
<i>For Sliding Doors:</i>			
844PR	6.25 ea.	Cup, bitted key.	10 x 3 1/8
44 1/2 PR	6.25 ea.	Cup, without key hole.	10 x 3 1/8
Miscellaneous			
9184PR	4.00 ea.	Push buttons for electric bells.	6 7/8 x 3 1/8
892PR	8.00 ea.	Push plates.	13 1/4 x 3 3/8
	15.00 ea.	Push plates.	19 1/2 x 4 1/4
1892PR	13.50 ea.	Door pulls.	13 1/4 x 3 3/8
258PR	6.00 ea.	Letter box plates (inside and outside).	2 7/8 x 9 1/2
809PR	3.00 ea.	Bar sash lifts.	1 5/8 x 6 1/8
1887PR	1.50 ea.	Flush sash lifts.	1 5/8 x 4 3/4



No. 1887PR



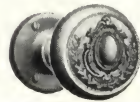
No. 870PR



No. 9184PR

No. 1892PR
No. 892PR,
same as above,
without Grip**BR—Bergerac Design**

Cast Bronze and Brass

No. 7876BR with
No. 1825BRNo. 1822BR
with
No. 262No. 845BR with
No. 1822BR

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822BR	\$ 5.25 pr.	Door knob, round*, without rose.	2 1/4
1823BR	5.45 pr.	Door knob, round†, without rose.	2 1/4
1825BR	6.05 pr.	Door knob, round†, without rose.	2 1/2 x 2 1/4
Roses			
262	.50 pr.	Round roses for the above knobs.	2
Key Plates			
870BR	.80 ea.	For all door locks.	2 3/8 x 1 1/8
871BR	.80 ea.	For cabinet locks.	1 1/8 x 2 3/8
Escutcheons			
<i>For Inside Doors:</i>			
705BR	2.00 ea.	For French door locks, 3 1/2-in.	6 3/4 x 1 1/2
845BR	4.00 ea.	For 3 1/2-in. locks.	8 1/2 x 2 3/8
847BR	4.00 ea.	For 4 1/4-in. locks.	8 1/2 x 2 3/8
<i>For Cylinder, 5 1/2 and 6-in. Locks:</i>			
7855BR	4.00 ea.	For inside, with turn knob.	8 1/2 x 2 3/8
7855 1/2 BR	4.00 ea.	For inside, without turn knob.	8 1/2 x 2 3/8
7876BR	6.00 ea.	For outside.	11 1/4 x 3 3/8
7896BR	6.50 ea.	For outside.	12 3/4 x 3 3/8
<i>For Sliding Doors:</i>			
844BR	5.00 ea.	Cup, bitted key.	8 1/4 x 2 1/2
844 1/2 BR	5.00 ea.	Cup, without key hole.	8 1/4 x 2 1/2
Miscellaneous			
9184BR	4.00 ea.	Push buttons for electric bells.	5 3/4 x 2 1/2
892BR	6.50 ea.	Push plates.	12 3/4 x 3 3/8
	11.00 ea.	Push plates.	19 1/2 x 4 1/8
1892BR	8.30 ea.	Door pulls (grip No. 760).	12 3/4 x 3 3/8
258BR	5.60 ea.	Letter box plates (inside and outside).	2 5/8 x 8 1/2
1887BR	1.30 ea.	Flush sash lifts.	1 5/8 x 4

No. 1892BR
No. 892PR
same as above,
without Grip

No. 9184BR

FL—Lesparre Design

Cast Bronze and Brass

No. 7876FL with
No. 1827FLNo. 845FL with
No. 1822FL

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822FL	\$ 6.00 pr.	Door knob, round*, without rose.	2 1/4
1823FL	6.20 pr.	Door knob, round†, without rose.	2 1/4
1825FL	6.80 pr.	Door knob, round†, without rose.	2 1/2 x 2 1/4
1827FL	7.40 pr.	Door knob, round†, with out rose.	2 1/2
Roses			
262	.50 pr.	Round roses for above knobs.	2
Escutcheons			
<i>For Inside Doors:</i>			
845FL	5.00 ea.	For 3 1/2-in. locks.	9 x 3 1/8
847FL	5.00 ea.	For 4 1/4-in. locks.	9 x 3 1/8
<i>For Cylinder, 5 1/2 and 6-in. Locks:</i>			
7855FL	5.00 ea.	For inside, with turn knob.	9 x 3 1/8
7855 1/2 FL	5.00 ea.	For inside, without turn knob.	9 x 3 1/8
7876FL	6.00 ea.	For outside.	11 1/2 x 3 1/8
7896FL	10.00 ea.	For outside.	16 1/4 x 3 1/2
Miscellaneous			
9184FL	3.20 ea.	Push buttons for electric bells.	5 3/4 x 2 1/2
892FL	10.00 ea.	Push plates.	16 1/4 x 3 1/2
	15.00 ea.	Push plates.	20 1/4 x 3 1/2



No. 9184FL

Right:
No. 892FL* 5/8-in. straight adjustable spindle.
† 1 1/8-in. or 3/8-in. swivel adjustable spindle.

SARGENT**VF—Vernon Design**

Cast Bronze and Brass

Illustrations
One-fifth Size

No. 1887VF

No. 7876VF
with
No. 1823VFNo. 845VF
with
No. 1822VF

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822VF	\$4.00 pr.	Door knob, round*, without rose.....	2 1/4
1823VF	4.20 pr.	Door knob, round†, without rose.....	2 1/4
2233VF	2.10 pr.	Pressed glass knob, round*, with rose...	2
Roses			
275VF	1.00 pr.	Round roses for above knobs.....	2 1/8
Key Plates			
870VF	.40 ea.	For all door locks.....	2 1/2 x 1 1/4
871VF	.40 ea.	For cabinet locks.....	1 1/4 x 2 1/2
Escutcheons			
<i>For Inside Doors:</i>			
705VF	1.10 ea.	For French door locks, 3 1/2 in.	5 3/8 x 1 1/4
747VF	1.90 ea.	For 4 1/4 in. locks.....	7 1/2 x 1 7/8
845VF	1.90 ea.	For 3 1/2 in. locks.....	7 1/2 x 2 1/8
847VF	1.90 ea.	For 4 1/4 in. locks.....	7 1/2 x 2 3/8
865VF	3.50 ea.	For 3 1/2 in. locks.....	10 1/2 x 2 3/4
867VF	3.50 ea.	For 4 1/4 in. locks.....	10 1/2 x 2 3/4
<i>For Bathroom and Communicating Doors:</i>			
841VF	1.90 ea.	Without turn knob.....	7 1/2 x 2 1/8
842VF	2.25 ea.	With turn knob.....	7 1/2 x 2 1/8
843VF	2.25 ea.	With turn knob.....	7 1/2 x 2 1/8
<i>With Three Bolt Locks:</i>			
847 1/2 VF	1.90 ea.	Without turn knob.....	7 1/2 x 2 1/8
847 1/2 VF	2.25 ea.	With turn knob.....	7 1/2 x 2 1/8
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855VF	1.90 ea.	For inside, with turn knob.....	7 1/2 x 2 1/8
7855 1/2 VF	1.90 ea.	For inside, without turn knob.....	7 1/2 x 2 1/8
7875VF	3.50 ea.	For inside, with turn knob.....	10 1/2 x 2 3/4
7875 1/2 VF	3.50 ea.	For inside, without turn knob.....	10 1/2 x 2 3/4
7876VF	3.50 ea.	For outside.....	10 1/2 x 2 3/4
<i>For Sliding Doors:</i>			
844VF	2.40 ea.	Cup, bitted key.....	7 1/2 x 2 1/8
844 1/2 VF	2.40 ea.	Cup, without key hole.....	7 1/2 x 2 1/8
Miscellaneous			
9184VF	2.20 ea.	Push buttons for electric bells.....	3 3/8 x 1 1/2
1VF	.60 ea.	Cylinder rosettes.....	2
102VF	.80 ea.	Cylinder rosettes with compression ring.....	2 1/4
125VF	.75 ea.	Turn knob.....	2 1/4 x 1 1/4
892VF	3.50 ea.	Push plates.....	10 1/2 x 2 3/4
	4.80 ea.	Push plates.....	16 x 3
	8.00 ea.	Push plates.....	20 x 4
3861VF	17.00 set	Entrance door handles, cylinder locks..	14 1/4 x 2
7933VF	20.90 set	Entrance door handles, cylinder locks..	16 x 3
9933VF	30.00 set	Entrance door handles, cylinder locks..	20 x 4
258VF	4.50 ea.	Letter box plates (outside and inside) ..	2 1/2 x 7 1/2
1887VF	.80 ea.	Flush sash lifts.....	1 1/2 x 3 3/8

No. 1822VF
with
No. 275VFNo. 2233VF
with
No. 275VF

No. 870VF



No. 102VF



No. 9184VF



No. 892VF

FF—Frontenac Design

Cast Bronze and Brass

No. 1822FF
with
No. 262No. 7876FF
with
No. 1825FFNo. 845FF
with
No. 1822FF

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822FF	\$6.50 pr.	Door knob, round*, without rose.....	2 1/4
1823FF	6.70 pr.	Door knob, round†, without rose.....	2 1/4
1825FF	7.30 pr.	Door knob, round†, without rose.....	2 1/2 x 2 1/4
Roses			
262	.50 pr.	Round roses for above knobs.....	2
Key Plates			
870FF	.80 ea.	For all door locks.....	2 3/4 x 1 1/4
871FF	.80 ea.	For cabinet locks.....	1 1/4 x 2 3/4
Escutcheons			
<i>For Inside Doors:</i>			
705FF	2.00 ea.	For French door locks, 3 1/2 in.	6 1/2 x 1 3/8
747FF	4.50 ea.	For 4 1/4 in. locks.....	9 1/4 x 1 7/8
845FF	4.50 ea.	For 3 1/2 in. locks.....	9 1/4 x 2 1/2
847FF	4.50 ea.	For 4 1/4 in. locks.....	9 1/4 x 2 1/2
<i>For Bathroom and Communicating Doors:</i>			
841FF	4.50 ea.	Without turn knob.....	9 1/4 x 2 1/2
842FF	4.85 ea.	With turn knob.....	9 1/4 x 2 1/2
843FF	4.85 ea.	With turn knob.....	9 1/4 x 2 1/2
<i>For Three Bolt Locks:</i>			
847 1/2 FF	4.50 ea.	Without turn knob.....	9 1/4 x 2 1/2
847 1/2 FF	4.85 ea.	With turn knob.....	9 1/4 x 2 1/2
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855FF	4.50 ea.	For inside, with turn knob.....	9 1/4 x 2 1/2
7855 1/2 FF	4.50 ea.	For inside, without turn knob.....	9 1/4 x 2 1/2
7876FF	6.50 ea.	For outside.....	12 3/4 x 3
<i>For Sliding Doors:</i>			
844FF	5.65 ea.	Cup, bitted key.....	9 1/4 x 2 1/2
844 1/2 FF	5.65 ea.	Cup, without key hole.....	9 1/4 x 2 1/2
Miscellaneous			
9184FF	3.20 ea.	Push buttons for electric bells.....	6 1/2 x 1 3/8
892FF	6.50 ea.	Push plates.....	12 3/4 x 3
1892FF	12.00 ea.	Push plates.....	20 7/8 x 3 3/8
1822FF	10.50 ea.	Door pulls.....	12 3/4 x 3
258FF	5.60 ea.	Letter box plates (inside and outside) ..	2 1/2 x 9 1/4
1887FF	1.30 ea.	Flush sash lifts.....	1 1/2 x 4



No. 870FF



No. 9184FF

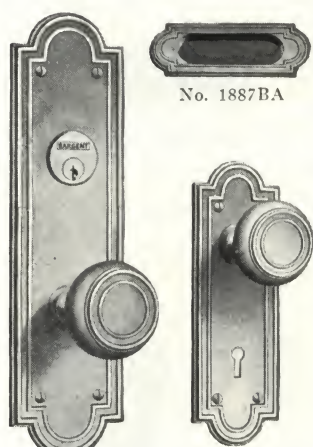
No. 1892FF
No. 892FF
Same as above,
without Grip* 5/8-in. straight adjustable spindle.
† 7/8 or 3/4-in. swivel adjustable spindle.

SARGENT

Illustrations
One-fifth Size

BA—Brecey Design

Cast Bronze and Brass and BB "Rustproof Iron"



No. 7876BA with No. 1825BA

No. 845BA with No. 1822BA

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822BA	\$ 2.90 pr.	Door knob, round*, without rose.	2 1/4
1823BA	3.10 pr.	Door knob, round†, without rose.	2 1/4
1825BA	3.70 pr.	Door knob, round†, without rose.	2 1/2 x 2 1/4
Roses			
262	.50 pr.	Round roses for above knobs.	2
Key Plates			
870BA	.45 ea.	For all door locks.	2 1/4 x 1 1/4
Escutcheons			
<i>For Inside Doors:</i>			
705BA	1.10 ea.	For French door locks, 3 1/2 in.	5 1/4 x 1 1/4
845BA	2.00 ea.	For 3 1/2-in. locks.	7 1/2 x 2 1/2
847BA	2.00 ea.	For 4 1/4-in. locks.	7 1/2 x 2 1/2
<i>For Bathroom and Communicating Doors:</i>			
841BA	2.00 ea.	Without turn knob.	7 1/2 x 2 1/2
842BA	2.35 ea.	With turn knob.	7 1/2 x 2 1/2
843BA	2.35 ea.	With turn knob.	7 1/2 x 2 1/2
<i>For Three Bolt Lock:</i>			
847 1/4 BA	2.00 ea.	Without turn knob.	7 1/2 x 2 1/2
847 1/2 BA	2.35 ea.	With turn knob.	7 1/2 x 2 1/2
<i>For Cylinder, 5 1/2 and 6-in. Lock:</i>			
7855BA	2.00 ea.	For inside, with turn knob.	7 1/2 x 2 1/2
7855 1/2 BA	2.00 ea.	For inside, without turn knob.	7 1/2 x 2 1/2
7875BA	2.75 ea.	For inside, with turn knob.	9 1/2 x 2 1/2
7875 1/2 BA	2.75 ea.	For inside, without turn knob.	9 1/2 x 2 1/2
7876BA	2.75 ea.	For outside.	9 1/2 x 2 1/2
7896BA	4.15 ea.	For outside.	11 1/2 x 3
<i>For Sliding Doors:</i>			
844BA	2.50 ea.	Cup, bitted key.	7 1/2 x 2 1/2
844 1/2 BA	2.50 ea.	Cup, without key hole.	7 1/2 x 2 1/2
Miscellaneous			
9184BA	2.20 ea.	Push buttons for electric bells.	4 1/4 x 1 1/2
	4.15 ea.	Push plates.	11 1/2 x 3
892BA	5.80 ea.	Push plates.	16 x 3 1/2
	6.15 ea.	Push plates.	18 x 3 1/2
1895BA	5.40 ea.	Door pulls (grip No. 748).	11 1/2 x 3
1897BA	7.60 ea.	Door pulls (grip No. 748).	16 x 3 1/2
8933BA	26.00 set	Entrance door handles, cylinder locks.	18 x 3 1/2
258BA	4.50 ea.	Letter box plates (inside and outside).	21 1/2 x 8 5/8
259BA	6.00 ea.	Letter box plates (inside and outside).	21 1/2 x 8 5/8
811BA	.80 ea.	Bar sash lifts.	13 5/8 x 5 1/2
1887BA	.80 ea.	Flush sash lifts.	13 5/8 x 4 1/2



No. 1822BA with No. 262



No. 870BA



No. 9184BA

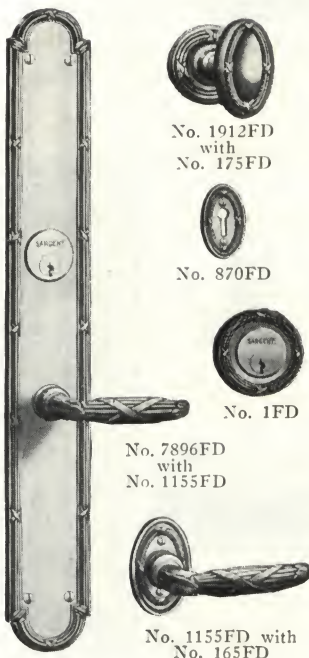


No. 1895BA No. 892 BA, same as above, without Grip

FD—Du Barry Design

Cast Bronze and Brass

Hand Chasing—The raised or ornamental surfaces of Lever Handles Nos. 1155FD and 1156FD are hand chased. Other articles in this design can be furnished to order with hand chasing, at additional prices.



No. 1912FD with No. 175FD



No. 870FD



No. 1FD

No. 7896FD with No. 1155FD



No. 1155FD with No. 165FD

No.	Price	Description	Size, in.
Door Knobs, Model G			
1912FD	\$ 6.00 pr.	Door knob, oval*, without rose.	2 5/8
1913FD	6.20 pr.	Door knob, oval†, without rose.	2 5/8
Lever Handles, Model G			
1155FD	19.40 ea.	Lever handles*, without rose.	Length, 3 3/8 Proj., 2 3/8
1156FD	26.00 ea.	Lever handles*, without rose.	Length, 4 5/8 Proj., 3 3/8
Roses			
165FD	2.40 pr.	Oval, for above knobs and handles.	2 1/2 x 1 1/2
175FD	2.40 pr.	Round, for above knobs and handles.	2 1/2
Key Plates			
870FD	1.30 ea.	For all door locks.	2 x 1 1/4
Escutcheons			
<i>For Inside Doors:</i>			
845FD	4.30 ea.	For 3 1/2-in. locks.	7 1/2 x 2 5/8
847FD	4.30 ea.	For 4 1/4-in. locks.	7 1/2 x 2 5/8
867FD	5.40 ea.	For 4 1/4-in. locks.	9 x 2 1/4
<i>For Cylinder, 5 1/2 and 6-in. Locks:</i>			
7855FD	4.30 ea.	For inside, with turn knob.	7 1/2 x 2 5/8
7855 1/2 FD	4.30 ea.	For inside, without turn knob.	7 1/2 x 2 5/8
7896FD	8.60 ea.	For outside.	17 x 2 1/4
<i>For Sliding Doors:</i>			
844FD	5.40 ea.	Cup, bitted key.	7 1/2 x 2 5/8
844 1/2 FD	5.40 ea.	Cup, without key hole.	7 1/2 x 2 5/8
Miscellaneous			
9184FD	3.00 ea.	Push buttons for electric bells.	2 1/4
1FD	1.30 ea.	Cylinder rosettes.	2 1/4
892FD	6.90 ea.	Push plates.	11 x 3
892FD	8.60 ea.	Push plates.	17 x 2 1/4
1887FD	2.15 ea.	Flush sash lifts.	13 5/8 x 4 1/2

* 5/8-in. straight adjustable spindle.

† 5/8-in. or 3/4-in. swivel adjustable spindle.



No. 1912FD



No. 1887FD



No. 845FD with No. 1912FD



No. 892FD

SARGENT

FA—Anjou Design

Cast Bronze and Brass

Hand Chased, Furnished to order at additional price with Hand Chasing

Illustrations
One-fifth SizeNo. 845FA
with
No. 1822FANo. 1822FA
with
No. 275FA

No. 870FA

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822FA	\$ 6.00 pr.	Door knobs, round*, without rose	2 1/4
1823FA	6.20 pr.	Door knobs, round†, without rose	2 1/4
1825FA	6.80 pr.	Door knobs, round†, without rose	2 1/2 x 2 1/4
1827FA	7.40 pr.	Door knobs, round†, without rose	2 1/2
Roses			
275FA	2.40 pr.	Square roses for above knobs	2 x 2
Key Plates			
870FA	1.30 ea.	For all door locks	2 x 1 1/4
Escutcheons			
<i>For Inside Doors:</i>			
845FA	4.80 ea.	For 3 1/2-in. locks	8 x 2 3/8
847FA	4.80 ea.	For 4 1/4-in. locks	8 x 2 3/8
<i>For Sliding Doors:</i>			
844FA	6.00 ea.	Cup, bitted key	7 x 2 1/2
844 1/2 FA	6.00 ea.	Cup, without key hole	7 x 2 1/2
Miscellaneous			
9184FA	4.50 ea.	Push buttons for electric bells	2 1/8 x 2 1/8
1FA	1.30 ea.	Cylinder rosettes	2 3/8 x 2 3/8
1887FA	2.20 ea.	Flush sash lifts	1 3/8 x 3 1/2



No. 1FA



No. 9184FA



No. 1887FA

SF—St. Denis Design

Cast Bronze and Brass

No. 7876SF
with
No. 1825SFNo. 845SF
with
No. 1822SF

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822SF	\$ 5.40 pr.	Door knob, round*, without rose	2 1/4
1823SF	5.60 pr.	Door knob, round†, without rose	2 1/4
1825SF	6.20 pr.	Door knob, round†, without rose	2 1/2 x 2 1/4
Roses			
262	.50 pr.	Round roses for above knobs	2
Key Plates			
870SF	1.10 ea.	For all door locks	2 1/4 x 1 1/4
971SF	1.10 ea.	For cabinet locks	1 1/4 x 2 1/2
Escutcheons			
<i>For Inside Doors:</i>			
705SF	4.00 ea.	For French door locks, 3 1/4 in.	7 x 1 1/2
845SF	5.00 ea.	For 3 1/2-in. locks	9 x 3
847SF	5.00 ea.	For 4 1/4-in. locks	9 x 3
<i>For Bathroom and Communicating Doors:</i>			
841SF	5.00 ea.	Without turn knob	9 x 3
842SF	5.35 ea.	With turn knob	9 x 3
843SF	5.35 ea.	With turn knob	9 x 3
<i>For Three Bolt Locks:</i>			
847 1/2 SF	5.00 ea.	Without turn knob	9 x 3
847 1/2 SF	5.35 ea.	With turn knob	9 x 3
<i>For Cylinder, 5 1/2 and 6-in. Locks:</i>			
7855SF	5.00 ea.	For inside, with turn knob	9 x 3
7855 1/2 SF	5.00 ea.	For inside, without turn knob	9 x 3
7876SF	7.30 ea.	For outside	12 1/2 x 3 3/4
<i>For Sliding Doors:</i>			
844SF	6.25 ea.	Cup, bitted key	9 x 3
844 1/2 SF	6.25 ea.	Cup, without key hole	9 x 3
Miscellaneous			
9184SF	4.00 ea.	Push buttons for electric bells	3 3/4 x 1 1/4
892SF	8.00 ea.	Push plates	12 1/4 x 3 3/4
1892SF	14.00 ea.	Door pulls	12 1/4 x 3 3/4
258SF	8.00 ea.	Letter box plates (inside and outside)	3 x 9
1887SF	1.50 ea.	Flush sash lifts	1 1/2 x 3 3/4



No. 870SF



No. 9184SF



No. 1887SF

No. 1892SF
No. 892SF,
same as above,
without Grip

MO—Olmedo Design

Cast Bronze and Brass

No. 7876MO
with
No. 1825MO

No. 9184MO

No. 845MO
with
No. 1822MO

No.	Price	Description	Size, in.
Door Knobs, Model F			
1822MO	\$ 6.50 pr.	Door knobs, round*, without rose	2 1/4
1823MO	6.70 pr.	Door knobs, round†, without rose	2 1/4
1825MO	7.30 pr.	Door knobs, round†, without rose	2 1/2 x 2 1/4
Roses			
262	.50 pr.	Round roses for above knobs	2
275MO	2.20 pr.	Round roses for above knobs	2 1/2
Key Plates			
870MO	.70 ea.	For all door locks	2 x 1 1/4
Escutcheons			
<i>For Inside Doors:</i>			
845MO	5.00 ea.	For 3 1/2-in. locks	8 x 3
847MO	5.00 ea.	For 4 1/4-in. locks	8 x 3
<i>For Cylinder, 5 1/2 and 6-in. Locks:</i>			
7855MO	5.00 ea.	For inside, with turn knob	8 x 3
7855 1/2 MO	5.00 ea.	For inside, without turn knob	8 x 3
7876MO	7.75 ea.	For outside	12 x 3 1/2
<i>For Sliding Doors:</i>			
844MO	6.25 ea.	Cup, bitted key	8 x 3
844 1/2 MO	6.25 ea.	Cup, without key hole	8 x 3
Miscellaneous			
1MO	1.10 ea.	Cylinder rosette	2 1/2
9184MO	2.70 ea.	Push buttons for electric bells	2 1/2
892MO	9.50 ea.	Push plates	16 x 3 1/2
1895MO	13.30 ea.	Door pulls (grip No. 751)	16 x 3 1/2
1887MO	1.10 ea.	Flush sash lifts	1 3/4 x 4 3/4

* 5/8-in. straight adjustable spindle.
† 5/8-in. or 3/8-in. swivel spindle.

No. 870MO

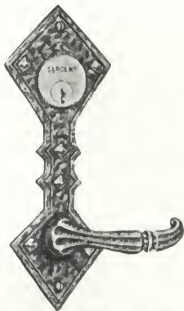


No. 1887MO

Right:
No. 1895MO
No. 892MO
same as above,
without Grip

SARGENTIllustrations
One-fifth size**BK—Barcelona Design**

Solid White Bronze, Forged Iron (HF) Finish

No. 7876BK with
No. 1155BKNo. 845BK
with
No. 1620BKNo. 845BK with
No. 1155BKNo. 7855BK
with
No. 1621BKNo. 1620BK
with
No. 275BK

No. 870BK

No. 7876BK
with
No. 1621BK

No. 810BK



No. 9126BK



No. 1CK



No. 3CK



No. 4CK

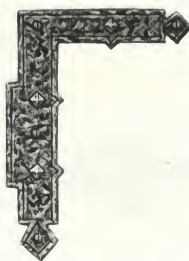
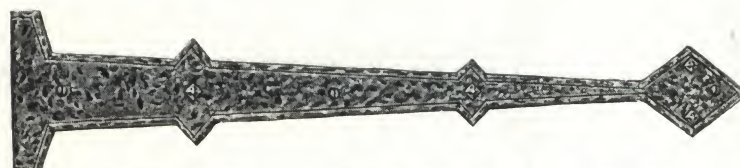
No. 1178BK
Flat strike
can also be
furnished, no
charge



No. 14BK



No. 1BK

No. 2BK
Left-hand, specify
handRim Strike
for
No. 148BKMortise Strike
for
No. 150BKSurface Strike
for
No. 150BKNos. 148BK
and
150BK

Butts HF1343 for use with this design are listed and priced on Page 82



No. 122BK



No. 5BK

Nos. 2661BK
and
2671BK

No.	Price	Description	Size, in.
Door Knob, Model G			
1620BK	\$3.00 pr.	Door knob*, without rose.....	2
1621BK	3.20 pr.	Door knob†, without rose.....	2
Lever Handles			
1155BK	1.50 ea.	Handles without roses.....	3 1/4 (proj. 2 3/4)
Roses			
275BK	1.00 pr.	Roses for above knobs and levers.....	2 3/4 x 2 1/2
Key Plates			
870BK	.40 ea.	For all door locks.....	2 x 1 5/8
Escutcheons			
<i>For Inside Doors:</i>			
705BK	.80 ea.	For French door locks, 3 1/2 in.....	5 1/4 x 1 1/8
845BK	.80 ea.	For 3 1/2-in. locks.....	5 1/4 x 2 1/2
<i>For Bathroom and Communicating Doors:</i>			
821BK	.80 ea.	Without turn knob.....	5 1/4 x 2 1/2
822BK	1.15 ea.	With turn knob.....	5 1/4 x 2 1/2
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855BK	.80 ea.	For inside, with turn knob.....	5 1/4 x 2 1/2
7855 1/2 BK	.80 ea.	For inside, without turn knob.....	5 1/4 x 2 1/2
7876BK	1.50 ea.	For outside.....	7 3/4 x 2 3/8
Miscellaneous			
9126BK	2.20 ea.	Push buttons for electric bells.....	2 1/2 x 1 1/4
125BK	.75 ea.	Turn knobs.....	2 x 1 1/8
14BK	.35 ea.	Drawer knobs.....	1
810BK	.60 ea.	Bar sash lifts.....	1 1/4 x 5 1/8
5BK	3.50 ea.	Door knockers.....	7 3/4 x 2 3/8
148BK	1.70 ea.	Casement fasteners.....	3 1/2 x 1 1/8
150BK	1.70 ea.	Casement fasteners.....	3 1/2 x 1 1/8
1BK	1.00 ea.	H hinge plates (for 2 1/2-in. butts).....	6 x 1 1/4
2BK	1.60 ea.	L hinge plates (for 2 1/2-in. butts).....	6 x 1 1/4
3BK	4.00 ea.	Strap hinge plates.....	4 x 18
4BK	6.50 ea.	Strap hinge plates.....	4 1/2 x 24
6BK	9.00 ea.	Strap hinge plates.....	4 1/2 x 30
2661BK	16.00 set	Entrance door handles, cylinder locks.....	14 1/4 x 2 3/8
2671BK	15.50 set	Entrance door handles, cylinder locks.....	14 1/4 x 2 3/8
1178BK	2.10 ea.	Surface bolts.....	6
	2.50 ea.	Surface bolts.....	10
	3.00 ea.	Surface bolts.....	18
	4.00 ea.	Door handles.....	8 1/2 x 2 1/8
1CK	.45 ea.	Studs, with pins cast in.....	3-4
3CK	.50 ea.	Studs, with pins cast in.....	7/8 x 3/8
4CK	.55 ea.	Studs, with pins cast in.....	1

* 1 1/8-in. straight adjustable spindle.
† 1 1/8 or 3/8-in. swivel spindle.

SARGENTIllustrations
One-fifth size**CK—Catalonia Design**

Solid White Bronze, Forged Iron (HF) Finish

No. 7876CK with
No. 1155CKNo. 845CK
with
No. 1620CKNo. 845CK
with
No. 1155CKNo. 7855CK
with
No. 1621CKNo. 1620CK
with
No. 275CK

No. 870CK

No. 7876CK
with
No. 1621CK

No. 810CK



No. 14CK



No. 9126CK



No. 1CK



No. 3CK

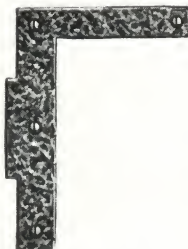


No. 4CK

No. 1178CK
A Flat
Strike fur-
nished in place
of Angle &
Surface Strike
at no addi-
tional price



No. 1CK

No. 2 CK
Left Hand
Specify HandRim Strike for
No. 148CKMortise Strike
No. 150CKSurface Strike
for
No. 150CKNos. 148CK
and
150CK

Butts HF1343 for use with this design are listed and priced on Page 82



No. 5CK

Nos. 2661CK
and
2671CK

No.	Price	Description	Size, in.
Door Knobs, Model G			
1620CK	\$3.00 pr.	Door knob, round*, without rose.....	2
1621CK	3.20 pr.	Door knob, round, without rose.....	2
Lever Handles			
1155CK	1.50 ea.	Handles without rose.....	3 1/8 (Proj. 2 1/4)
Roses			
275CK	1.00 pr.	Roses for above knobs and levers.....	2 3/4 x 2 1/2
Key Plates			
870CK	.40 ea.	For all door locks.....	2 x 1 1/8
Escutcheons			
<i>For Inside Doors:</i>			
845CK	.80 ea.	For 3 1/2-in. locks.....	5 1/4 x 1 3/4
<i>For Bathroom and Communicating Doors:</i>			
821CK	.80 ea.	Without turn knob.....	5 1/4 x 1 3/4
822CK	1.15 ea.	With turn knob.....	5 1/4 x 1 3/4
<i>For Cylinder 5 1/2 and 6-in. Locks:</i>			
7855CK	.80 ea.	For inside, with turn knob.....	5 7/8 x 1 7/8
7855 1/2 CK	.80 ea.	For inside, without turn knob.....	5 7/8 x 1 7/8
7876CK	1.50 ea.	For outside.....	7 5/8 x 2 3/8
Miscellaneous			
78CK	3.00 ea.	Ring handles.....	5 1/4 x 3
125CK	.75 ea.	Turn knobs.....	2 x 1 1/8
14CK	.35 ea.	Drawer knobs.....	1
9126CK	2.20 ea.	Push buttons for electric bells.....	2 1/4 x 1 3/4
810CK	.60 ea.	Bar sash lifts.....	1 1/4 x 5 1/8
5CK	3.00 ea.	Door knockers.....	5 1/4 x 3
148CK	1.70 ea.	Casement fasteners (proj. 1 1/2-in.).....	3 1/2 x 1 1/8
150CK	1.70 ea.	Casement fasteners (proj. 1 1/2-in.).....	3 1/2 x 1 1/8
1CK	1.00 ea.	H hinge plates (for 2 1/2-in. butts).....	6 x 1 1/4
2CK	1.60 ea.	L hinge plates (for 2 1/2-in. butts).....	6 x 4 3/8
3CK	3.50 ea.	Strap hinge plates.....	4 x 18 3/8
4CK	5.50 ea.	Strap hinge plates.....	4 1/2 x 24
2661CK	16.00 set	Entrance door handles, cylinder locks.....	14 1/2 x 2 3/8
2671CK	15.50 set	Entrance door handles, cylinder locks.....	14 1/2 x 2 3/8
1178CK	2.10 ea.	Surface bolts.....	6
1178CK	2.50 ea.	Surface bolts.....	10
1178CK	3.00 ea.	Surface bolts.....	18
1CK	.45 ea.	Studs, with pins cast in.....	3-4
3CK	.50 ea.	Studs, with pins cast in.....	7/8 x 7/8
4CK	.55 ea.	Studs, with pins cast in.....	1
122CK	3.50 ea.	Door handle.....	7 7/8

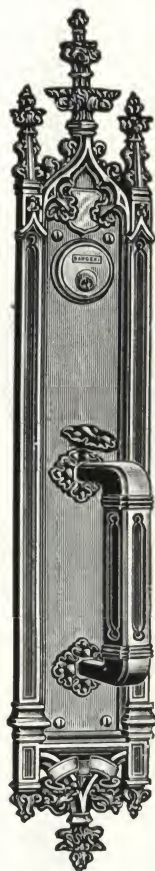
* 3/8-in. straight adjustable spindle.
† 1/8 or 3/8-in. swivel adjustable spindle.

SARGENT

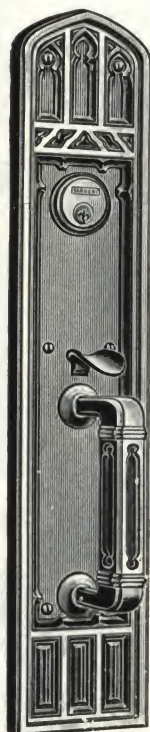
Illustrations
One-fifth Size

Door Handles (Entrance) with Escutcheons

For Description of Locks, see Page 39



No. 9933GG



No. 9933GB



No. 7933CW



No. 7933CE



No. 8933NF



No. 9933LA



No. 6833GA

Description

Number of Handles—2 handles, one for each side of door.

Lock—Complete with adjustable front lock No. 933 (see page 39).

Cylinders—All furnished with 2 cylinders, one for each side of door.

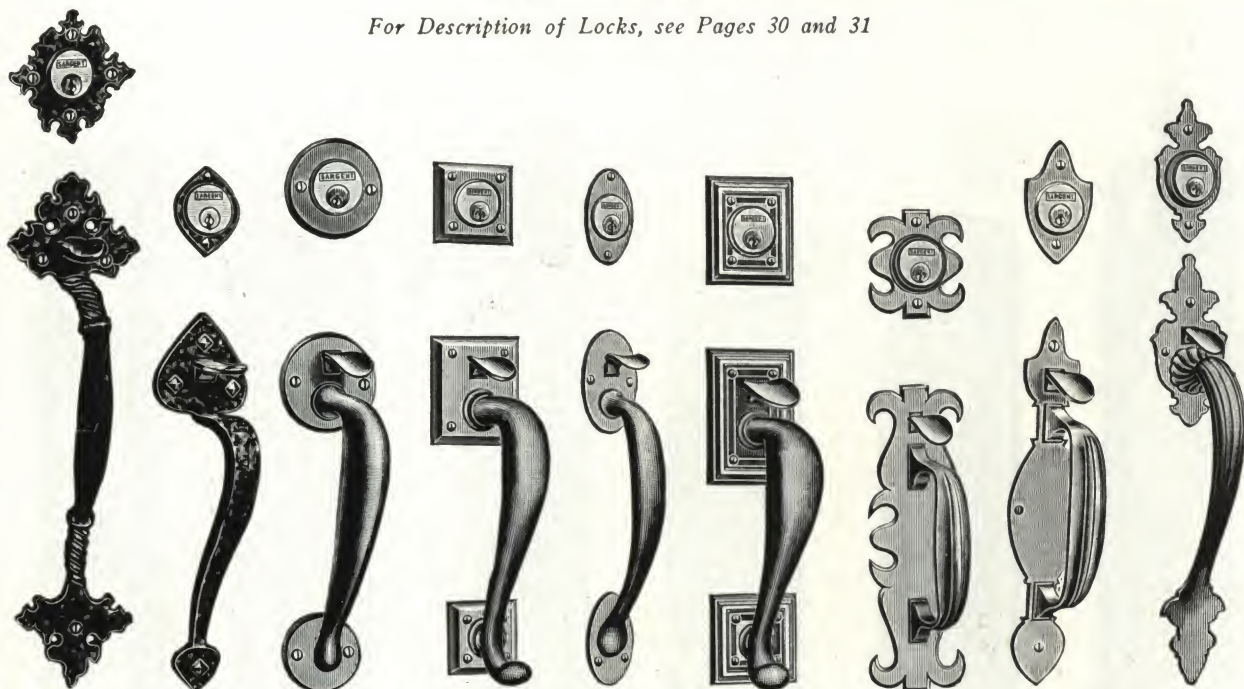
Set No.	Design	Overall size, in.	Grip No.	Finish	Per set
9933GG	Gotha	23½x4¼	757	Cast bronze and brass and "Rustproof" iron.....	\$49.00
9933GB	Belfort	20 x4	757	Cast bronze and brass and "Rustproof" iron.....	38.20
7933CW	Westbrook	18 x3½	727	Cast bronze and brass and "Rustproof" iron.....	34.50
7933CE	Clermont	20¾x3¾	729	Cast bronze and brass and "Rustproof" iron.....	38.20
8933NF	Nantes	21½x4	747	Cast brass and bronze.....	32.00
9933LA	Lepanto	21 x3½	745	Cast brass.....	30.00
6833GA	Andros	16 x3½	735	Cast brass and bronze.....	24.00
8933BA	Bresey	18 x3½	747	Cast brass and bronze.....	26.00



No. 8933BA

SARGENT

Door Handles (Entrance) with Sectional Trim Cylinder Locks

*Illustrations
One-quarter Size*
For Description of Locks, see Pages 30 and 31
Nos. 6361
and 6371Nos. 2661 and
2671Nos. 3351, 3361
and 3371Nos. 4151PB,
4161PB and
4171PBNos. 3451, 3461
and 3471Nos. 3851JA
and 3861JA

Nos. 2061

Nos. 3151, 3161
and 3171Nos. 2861
and 2871

Sectional Entrance Door Handle Locksets

Illustration at right shows entrance door handle on outside and knob on inside.

Illustration on left shows entrance door handles on both sides.

TWO HANDLES—ONE FOR EACH SIDE OF DOOR— CAST BRONZE AND BRASS FINISH

Set No.	Size (including cylinder), in.	Lock			Grip No.	Per set
		No.	Front	See page		
4151PB*	14 $\frac{3}{8}$ x2 $\frac{1}{2}$	951	Adjustable	30	749	\$22.00
3451	15 x1 $\frac{3}{4}$	951	Adjustable	30	736	21.00
3851JA	14 $\frac{3}{8}$ x2 $\frac{1}{2}$	951	Adjustable	30	747	25.00
3151	13 $\frac{1}{2}$ x2	951	Adjustable	30	.....	22.00
2651ME	16 x1 $\frac{7}{8}$	951	Adjustable	30	.....	22.30
2751	14 x3 $\frac{3}{8}$	951	Adjustable	30	.....	20.25
3351*	14 $\frac{1}{2}$ x2 $\frac{1}{2}$	951	Adjustable	30	727	21.00

*Also "Rustproof" iron finish.

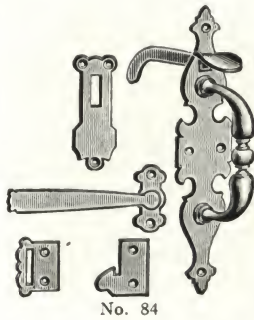
ONE HANDLE—FOR OUTSIDE OF DOOR ONLY

Set No.	Size (including cylinder), in.	Finish	Lock			Grip No.	Per set
			No.	Front	See page		
2661	14 $\frac{3}{4}$ x2 $\frac{5}{8}$	Cast white bronze.....	961	Adjustable	31	.....	\$19.10†
2671	14 $\frac{3}{4}$ x2 $\frac{5}{8}$	Cast white bronze.....	761	Flat	31	.....	18.60†
4161PB	14 $\frac{3}{8}$ x2 $\frac{1}{2}$	Cast bronze and brass*.....	961	Adjustable	31	749	16.50
4171PB	14 $\frac{3}{8}$ x2 $\frac{1}{2}$	Cast bronze and brass*.....	761	Flat	31	749	16.00
3461	15 x1 $\frac{3}{4}$	Cast bronze and brass.....	961	Adjustable	31	736	15.50
3471	15 x1 $\frac{3}{4}$	Cast bronze and brass.....	761	Flat	31	736	15.00
3861JA	14 $\frac{3}{8}$ x2 $\frac{1}{2}$	Cast bronze and brass.....	961	Adjustable	31	747	18.00
2061	13 $\frac{3}{8}$ x2 $\frac{5}{8}$	Cast bronze and brass.....	961	Adjustable	31	691	17.50
3161	13 $\frac{1}{2}$ x2	Cast bronze and brass.....	961	Adjustable	31	.....	17.00
3171	13 $\frac{1}{2}$ x2	Cast bronze and brass.....	761	Flat	31	.....	16.50
2861	16 $\frac{1}{4}$ x2 $\frac{3}{8}$	Cast bronze and brass.....	961	Adjustable	31	.....	18.50
2871	16 $\frac{1}{4}$ x2 $\frac{3}{8}$	Cast bronze and brass.....	761	Flat	31	.....	18.00
2661ME	16 x1 $\frac{7}{8}$	Cast bronze and brass.....	961	Adjustable	31	.....	16.30
2671ME	16 x1 $\frac{7}{8}$	Cast bronze and brass.....	761	Flat	31	.....	15.80
2761	14 x3 $\frac{3}{8}$	Cast bronze and brass.....	961	Adjustable	31	.....	15.50
2771	14 x3 $\frac{3}{8}$	Cast bronze and brass.....	761	Flat	31	.....	15.00
3361	14 $\frac{1}{2}$ x2 $\frac{1}{2}$	Cast bronze and brass*.....	961	Adjustable	31	727	16.00
3371	14 $\frac{1}{2}$ x2 $\frac{1}{2}$	Cast bronze and brass*.....	761	Flat	31	727	15.50
6361	17 $\frac{1}{2}$ x3 $\frac{3}{4}$	Cast white bronze.....	961	Adjustable	31	.....	16.00†
6371	17 $\frac{1}{2}$ x3 $\frac{3}{4}$	Cast white bronze.....	761	Flat	31	.....	15.50†

*Also furnished in "Rustproof" iron finish.

†H. F. finish

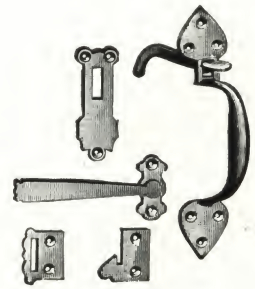
Nos. 2651ME,
2661ME and
2671MENos. 2751, 2761
and 2771

SARGENT**Door Handles with Thumb Latches****Either Right or Left Hand***Illustrations
One-quarter Size*

No. 84

Packed with screws to match

No.	Size of plate, in.	Length of handle, in.	Finish	Each
84	9x17/8	8 1/8	Cast bronze	\$6.00
122			Cast bronze	5.00



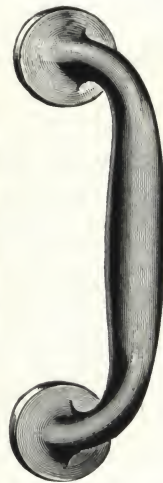
No. 122

Door Pulls

No. 1535



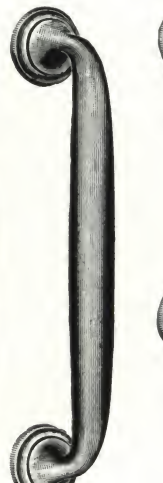
No. 1536



No. 1538



No. 1608



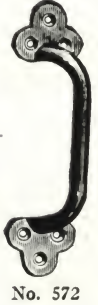
No. 1640



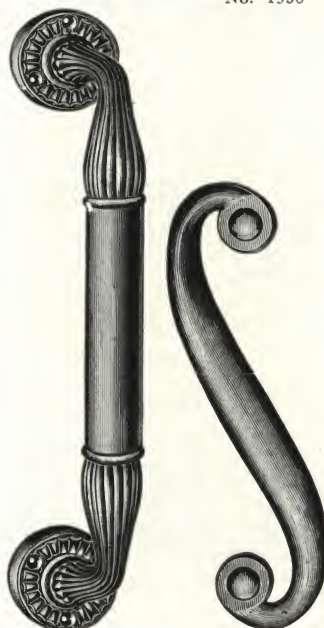
No. 1636



No. 1748



No. 572



No. 1746



No. 692

DOOR PULLS, CAST BRONZE

Packed with machine screws to fasten from the back

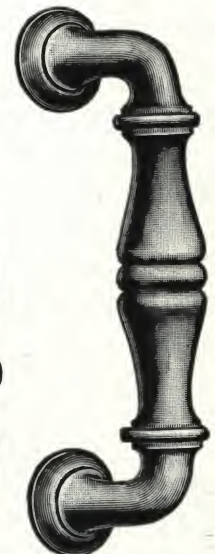
No.	Length over all, in.	Center to center of bases, in.	Diameter of bases, in.	Each
1608†	11 1/2	9	2 1/2	\$3.65
1538	10	7 3/4	2	4.00
1536	7 1/2	5 1/4	2	2.00
1535†	7 1/2	5 1/2	2	1.80
1640	10 5/8	9	1 5/8	4.55
1636	7 5/8	6	1 5/8	3.20
1748	6 5/8	5 1/4	1 5/8	2.75
572†	5 5/8			.55
1746*	16 1/8	13 7/8	2 1/8	8.00
692**	9 1/2	7 5/8	1 1/8	4.55
661	4 3/4	4 1/8		2.50
662	6 1/2	5 5/8		3.25
732	8 3/4	7 1/8		6.50
733	7	5 1/2		5.50

*Diameter of bar, 1 1/8 in.

**These pulls are handed, specify hand wanted.

†Also packed with wood screws.

‡Packed with wood screws only.

Nos. 661 and
662

Nos. 732 and 733

SARGENT**Cylinder Entrance Door Locks for Handle and Thumb Piece Both Sides of Door**

Packed with screws to match

Safety Lock (Always Operative from Inside) with Janitor Control

No. 908 Heavy Lock with Guarded Latch Bolt—Latch bolt operative by thumb piece from inside at all times so that the door may be opened quickly in case of panic or fire. Latch bolt is also operative at all times by thumb piece from outside except when set from inside by key, when it is operative from outside only by key. Also has upper guarded latch bolt which works on the closed strike plate, automatically locking the regular latch bolt so as to prevent its being forced when door is closed. The inside cylinder allows janitor to set the outside thumb piece from the inside with Master Key without opening door, and outside thumb piece cannot be made operative except by Janitor Key from inside.

Made with double guard beveled bolt. These locks are handed but a right-hand

reverse bevel lock can be changed to a right-hand (only) by reversing the latch bolt, and a left-hand reverse bevel lock can be changed to a left-hand lock (only) by reversing the latch bolt. Otherwise these locks cannot be reversed.

Specify thickness of door and entrance door handles to be used with this lock.

Master Keyed—Can be furnished to order in sets of any required number with Master Key to pass each set, and a Grand Master Key to pass all.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Bronze.

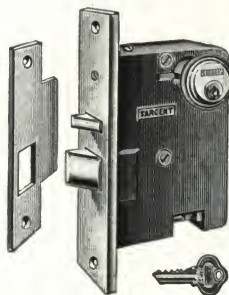
Cylinders: Bronze.

Keys: Nickel bronze.

Latch Construction: Easy spring: Easy on latch bolt.

Reversible: (See description.)

Master Keying: Yes.



No. 908

Lock No.	Front		Size case, in.	Backset, reg., in.	Strike, lip to center, in.	Cylinder	Keys	Latch bolt	Each
	Type	Size, in.							
908	Flat	7 3/4 x 1 1/4	5 1/2 x 3 3/4 x 7/8	2 1/4	1 1/4	2	Three, 267	Easy spring	\$17.00*

*For Master Keyed lock, add \$0.65 for each cylinder.

For Master Keyed lock and Grand Master Keyed, add \$1.00.

Locks Below Do Not Have Safety Feature or Janitor Control

No. 933 Heavy Entrance Door Lock, Dead Bolt Operative by Key Through Cylinders Both Sides—Designed for frequently-used entrance doors, as in stores, etc., kept closed by door closers and where latch bolt is not always necessary.

Latch bolt operative by thumb pieces from either side at all times unless it is held retracted by extra turn of key.

Dead bolt is operative from either side by key.

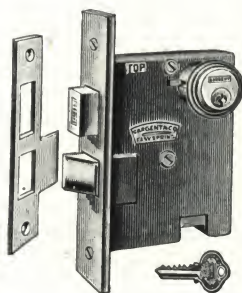
Master Keyed—Can be furnished to order in sets of any required number with Master Key to pass each set, and a Grand Master Key to pass all.

No. 933R—Similar to No. 933, except has rabbeted front.

No. 951 Has Dead Bolt and Stops in Face of Lock; One Cylinder—Latch bolt is operative by thumb piece of handle from either side except when outside thumb piece is set by stop in face of lock. Dead bolt is operative by key from outside and turn knob from inside.

Can also be furnished, at extra cost, so that the upper stop will hold the latch bolt retracted.

Master Keyed—Same as No. 933.



No. 933

No. 951R—Same as No. 951, except has rabbeted front.
No. 953—Same as No. 951, except has two cylinders, and dead bolt is operated from inside by key instead of turn knob.

Master Keyed—Same as No. 933.

No. 953R—Same as No. 953, except has rabbeted front.

Master Keyed—Same as No. 933.

No. 953 Special—Like No. 953, but with additional feature that latch bolt can be held back by pushing in the upper stop. This will permit our furnishing the lock so that at closing hours the outside thumb piece can be set by pushing in the lower stop, allowing no one to enter. With the arrangement to hold the latch bolt the door can be used with a door closer and it will have the same effect as a door equipped with a push plate on the inside and a door pull on the outside.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Bronze.

Bolts and Strike: Heavy bronze.

Turn Knob: Bronze (does not apply to Nos. 933 and 933R).

Cylinders: Bronze.

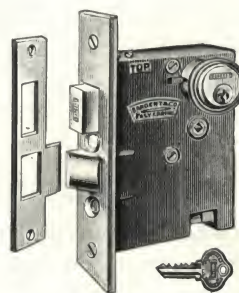
Keys: Nickel bronze.

Latch Construction: Easy spring: Easy on latch bolt.

Reversible: Flat front: Yes, by removing cap. Rabbeted front:

No; specify hand.

Specify thickness of door.



No. 951

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Cylinder	Keys	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.					
933	*Flat	7 3/4 x 1 1/4	5 1/8 x 3 3/8 x 1 1/16	2 3/4	†	1 1/4	2	Three, 267	Easy spring	\$10.00\$
933R	Rabbeted	7 3/8 x 1 1/2	5 1/8 x 3 3/8 x 1 1/16	2 3/4 & 2 1/4	†	1 1/4	2	Three, 267	Easy spring	13.00\$
951	*Flat	7 3/4 x 1 1/4	5 1/2 x 3 3/4 x 7/8	2 3/4	†	1 1/4	1	Three, 267	Easy spring	10.00\$
951R	Rabbeted	7 3/8 x 1 1/2	5 1/2 x 3 3/4 x 7/8	2 3/4 & 2 1/4	†	1 1/4	1	Three, 267	Easy spring	13.00\$
953	*Flat	7 3/4 x 1 1/4	5 1/2 x 3 3/4 x 7/8	2 3/4	†	1 1/4	2	Three, 267	Easy spring	11.00\$
953R	Rabbeted	7 3/8 x 1 1/2	5 1/2 x 3 3/4 x 7/8	2 3/4 & 2 1/4	†	1 1/4	2	Three, 267	Easy spring	14.00\$
953 special	*Flat	7 3/4 x 1 1/4	5 1/2 x 3 3/4 x 7/8	2 3/4	†	1 1/4	2	Three, 267	Easy spring	18.50\$

† 1/2-in. rabbet.

† For special backsets 1 1/2 to 2 1/2 in., add \$6.00 each.

† For special backsets 2 3/4 to 6 in., add \$6.00 each.

*Also made with Standard Fronts 8 x 1 1/4 in. with composite strike.

† For these locks, Master Keyed, add \$0.65 each cylinder.

† For these locks, Master Keyed and Grand Master Keyed, add \$1.00.

*Has Adjustable Protected Front. Can be beveled at any angle from flat to 3/8 in. in 2 in.

SARGENT**Cylinder Entrance Door Locks****for Handle and Thumb Piece on Outside and Knob and Escutcheon Inside**

All packed with screws to match

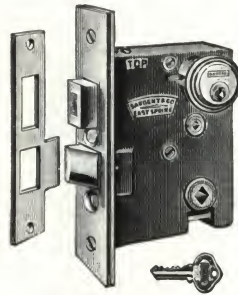
No. 961 Has Dead Bolt and Stops in Face of Lock—Similar to No. 951, but latch bolt is operative from outside by thumb piece of handle and from inside by knob at all times, except when thumb piece is set by stop in face of lock. Dead bolt is operated from outside by key and from inside by turn knob.

Adjustable Protected Front—Can be beveled at any angle from flat to $\frac{1}{8}$ in. in 2 in.

Master Keyed—Same as No. 933.

No. 961R—Similar to No. 961, except has rabbetted front.

Master Keyed—Same as No. 933.



No. 961

No. 761—Same as No. 961, but lighter and smaller lock.

Master Keyed—Same as No. 933.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Bronze.

Bolts and Strike: Bronze (Nos. 961 and 961R, heavy bronze).

Hubs: Brass: Knob hub for $\frac{1}{8}$ -in. spindle.

Turn Knob: Turn knob hub for $\frac{1}{8}$ -in. spindle.

Cylinder: Bronze.

Keys: Nickel bronze.

Latch Construction: Easy spring: Easy on latch bolt, firm on knob.

Reversible: Flat front: Yes, by removing cap; rabbetted; no; specify hand.

Specify thickness of door.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.		Cylinder	Keys	Turn knob	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.		Lower hub to upper hub	Lower hub to cylinder					
961	Flat	$7\frac{3}{4} \times 1\frac{1}{4}$ †	$5\frac{1}{2} \times 4$ x $7\frac{7}{8}$	$2\frac{3}{4}$	†	$1\frac{1}{4}$	$2\frac{1}{2}$	$3\frac{7}{8}$	1	Keys, 267	Yes	Easy spring	\$10.00#
961R	Rabbetted	$7\frac{3}{4} \times 1\frac{1}{2}$ *	$5\frac{1}{2} \times 4$ x $7\frac{7}{8}$	$2\frac{3}{4}$, $2\frac{1}{4}$	†	$1\frac{1}{4}$	$2\frac{1}{2}$	$3\frac{7}{8}$	1	Keys, 267	Yes	Easy spring	13.00#
761	Flat	$7\frac{1}{2} \times 1\frac{1}{8}$	$5\frac{1}{2} \times 3\frac{3}{4}$ x $3\frac{3}{4}$	$2\frac{1}{2}$	§	$1\frac{1}{4}$	$2\frac{1}{2}$	$3\frac{7}{8}$	1	Keys, 267	Yes	Easy spring	9.50

* $\frac{1}{2}$ -in. rabbet.

† Special backset $1\frac{1}{2}$ to $2\frac{1}{2}$ in., \$6.00 extra; 2 in., \$3.00 extra; $3\frac{1}{2}$ in., \$6.00 extra.

For this lock Master Keyed add \$0.65 each; for Master Keyed and Grand Master Keyed, add \$1.00.

‡ Also made with standard fronts $8 \times 1\frac{1}{4}$ in. with composite strike for hollow metal doors.

§ Special backset of 2 in., \$3.00 extra.

Cylinder Vestibule Door Locks

Packed with screws to match

For Handles with Thumb Piece Both Sides of Door

No. 951½ Heavy Lock with Stops in Face of Lock—Latch bolt operative from inside at all times by thumb piece, also from outside by thumb piece except when thumb piece is set by stop in face of lock, then operative by key from outside.

Can also be furnished, at extra cost, so that upper stop will hold the latch bolt retracted.

Adjustable Protected Front—Reversible, and the front can be beveled at any angle from flat to $\frac{1}{8}$ in. in 2 in.

Master Keyed—Can be furnished to order in sets of any required number with Master Key to pass each set, and a Grand Master Key to pass all.

No. 951½R—Similar to No. 951, except has rabbetted front.

For Handles and Thumb Piece Outside and Knob and Escutcheon Inside

These locks are used mainly for vestibule doors.

No. 961½ Heavy Lock with Stops in Face of Lock—Latch bolt is operative from inside at all times by knob. Operative from outside by thumb piece of handle except when thumb piece is set by stop in face of lock, when it is operated by key from outside. Has one cylinder.

Master Keyed—Same as No. 951½.

Adjustable Protected Front—Same as No. 951½.

No. 761½—Same as No. 961½, except lighter and smaller lock.

Master Keyed—Same as No. 951½.

GENERAL CONSTRUCTION

Case: Japanned.

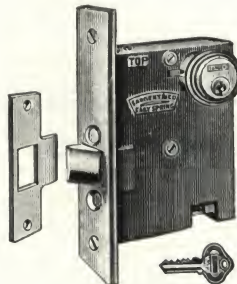
Front: Bronze.

Bolts and Strike: Heavy bronze; No. 761½—Bronze.

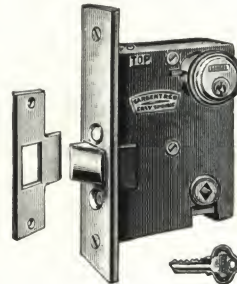
Hub: Brass, for $\frac{1}{8}$ -in. spindle (Nos. 961½ and 761½ only).

Cylinder: Bronze.

Keys: Nickel Bronze.



No. 951½



No. 961½

Latch Construction: Easy spring: Nos. 951½ and 951½R—Easy on latch bolt; Nos. 961½ and 761½—Easy on latch bolt, firm on knob.

Reversible: Flat front: yes, by removing cap. Rabbetted front: No; specify hand. Specify thickness of door.

Lock No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Spacing, in., lower hub to cylinder	Cylinder	Keys	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.						
951½	Flat	$7\frac{3}{4} \times 1\frac{1}{4}$ §	$5\frac{1}{2} \times 3\frac{3}{4}$ x $7\frac{7}{8}$	$2\frac{3}{4}$	+	$1\frac{1}{4}$	.....	1	Three, 267	Easy spring	\$ 9.00#
951½R	Rabbetted	$7\frac{3}{4} \times 1\frac{1}{2}$ *	$5\frac{1}{2} \times 3\frac{3}{4}$ x $7\frac{7}{8}$	$2\frac{3}{4}$, $2\frac{1}{4}$	+	$1\frac{1}{4}$	.....	1	Three, 267	Easy spring	12.00#
961½	Flat	$7\frac{3}{4} \times 1\frac{1}{4}$ §	$5\frac{1}{2} \times 4$ x $7\frac{7}{8}$	$2\frac{3}{4}$	+	$1\frac{1}{4}$	$3\frac{7}{8}$	1	Three, 267	Easy spring	9.00#
761½	Flat	$7\frac{1}{2} \times 1\frac{1}{8}$	$5\frac{1}{2} \times 3\frac{3}{4}$ x $3\frac{3}{4}$	$2\frac{1}{2}$	▲	$1\frac{1}{4}$	$3\frac{7}{8}$	1	Three, 267	Easy spring	8.50#

* $\frac{1}{2}$ -in. rabbet.

For this lock Master Keyed, add \$0.65 each; for Master Keyed and Grand Master Keyed, add \$1.00.

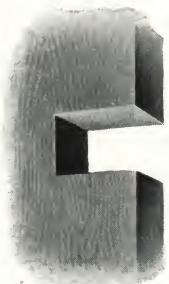
§ Also made with standard fronts $8 \times 1\frac{1}{4}$ in. with composite strike for hollow metal door.

‡ Special backsets $1\frac{1}{2}$ to $2\frac{1}{2}$ in., \$6.00 extra; $2\frac{3}{4}$ to 6 in., \$6.00 extra.

▲ Special backset 2 in., add \$3.00 extra.

SARGENT*Illustrations
One-quarter Size*

Union Lock Sets



Application

Template directions make the application of the Sargent Union Lock easy. The lock is set into the simple cut in the door stile.

Working Parts

The construction of the Sargent Union Lock is such that it is unnecessary to take it apart. All parts are carefully fitted (the steel parts cadmium plated), insuring perfect action and great durability.

Knobs

The knobs are firmly anchored to the lock frame so that they will not rattle, nor work loose, nor can they be stolen.

Latch Bolt

The Latch Bolt of all Union Locks, except the 9916 series, is of the hinged type, sometimes called swinging or car latch; it is easy in its action and operates without friction, thus permitting the easy closing of the door. The 9916 series is regularly made with a $\frac{3}{4}$ -in. throw anti-friction straight back latch bolt to meet the requirements of the Fire Underwriters.



Strikes

For Wooden Doors—A protected box strike as illustrated is furnished for all Union Locks that are to be attached to wood frames and doors.

For Steel or Iron Doors—A box strike as illustrated is furnished for all Union Locks that are to be attached to steel or iron frames and doors.

In ordering specify by "TMS" if wanted for steel or iron doors.

Cylinder

The cylinder mechanism, with pin tumbler security, is contained in the knob. Any of the modern keying combinations and systems, such as Master Key, Grand Master Key, are obtainable with these cylinders. In addition to this, Sargent Union Locks can be furnished with special demountable knobs and changeable cylinders.

Tenants' Keys

Three keys of the familiar and convenient grooved type are furnished with each lock for the use of the tenant.



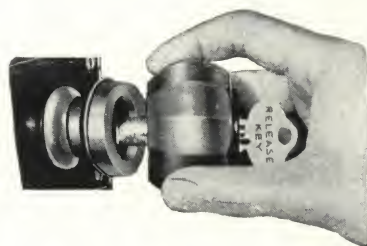
Master Key and Grand Master Key

These locks may be mastered keyed in sets as required for the convenient operation of the building, with a master key for each set, or a group of sets, with a grand master key that will operate all the locks in all the sets.

Demountable Knob and Cylinder—Its Particular Advantage

Allows Changing of Cylinder System for Any Set of Union Locks by the Building Management

The illustration shows the operation of removing or replacing the Knob on a Sargent Union Lock with demountable knob and changeable cylinder with the release key. The lock does not have to be taken off the door. This is an exclusive Sargent feature of great importance to the management of large buildings. Tenant changes, loss of keys, or in other cases where the exclusive



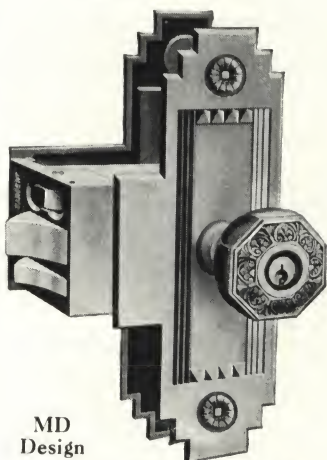
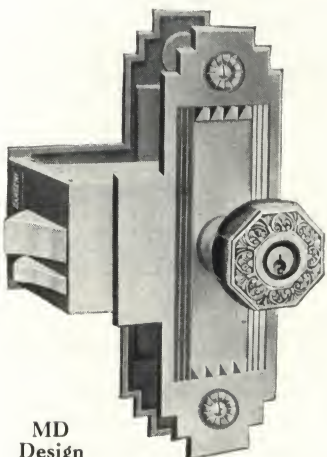
another of an entirely different tenant key change—thus guaranteeing the key control of any lock.

control of a lock by known existing keys is doubted, make the changing of the cylinder of one lock or a series of locks imperative. This is simply and quickly accomplished by means of a release key (no tools required), permitting the cylinder to be removed and replaced with

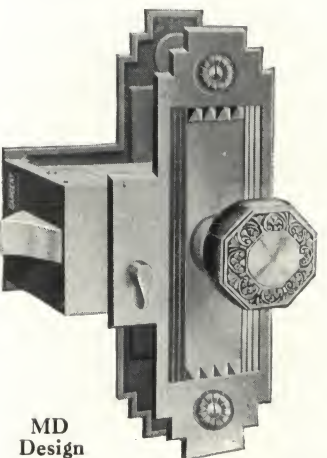
SARGENT**Union Lock Sets**

Cast Brass and Bronze and "Rustproof" Iron

All packed with screws to match

Illustrations
One-quarter Size**MD—Modern Design**Escutcheons
Outside— $8\frac{7}{8} \times 3\frac{7}{8}$ in.
Inside— $8\frac{7}{8} \times 4\frac{1}{8}$ in.**MD
Design**Nos. 8805 1/2 MD and 18805 1/2 MD
Style of Nos. 8845 1/2 MD and
18845 1/2 MD**MD
Design**

Nos. 8816MD and 18816MD

**MD
Design**No. 8665MD, Dead Locking Lever,
one side
No. 8675MD, Dead Locking Lever,
both sides
No. 8645MD, No Dead Locking Lever**For Office Doors, with Guarded Bolt
One Cylinder. Key Hole in Knob**

Latch bolt operative from either side by knob except when outside knob is set by stop in face of lock, then by key from outside. The auxiliary latch bolt, working on the closed strike plate, automatically locks the regular latch bolt when the door is closed.

No.	For doors opening	Per set†	No.	For doors opening	Per set†
8805 1/2 MD	In	\$36.30	8805 1/2 ME	In	\$34.80
8805 1/2 MD RB	Out	36.30	8805 1/2 MERB	Out	34.80
*18805 1/2 MD	In	38.30	*18805 1/2 ME	In	36.80
*18805 1/2 MD RB	Out	38.30	*18805 1/2 MERB	Out	36.80

**For Office Doors, without Guarded Bolt
One Cylinder. Key Hole in Knob**

Latch bolt operative from either side by knobs except when outside knob is set by stop in face of lock, then by key from outside.

No.	For doors opening	Per set†	No.	For doors opening	Per set†
8845 1/2 MD	\$33.90	8845 1/2 ME	.....	\$32.40
*18845 1/2 MD	35.90	*18845 1/2 ME	.....	34.40

**For Public Toilet Doors, with Guarded Bolt
Two Cylinders. Key Hole in Knob**

Latch bolt operative at all times from inside by knob. Operative from outside by knob except when knob is set from inside by key, then only by key from outside. Knob released only by key from inside. Also has protection of auxiliary guarded latch bolt.

No.	For doors opening	Per set†	No.	For doors opening	Per set†
8816MD	In	\$42.30	8816ME	In	\$40.80
8816MD RB	Out	42.30	8816ME RB	Out	40.80
*18816MD	In	44.30	*18816ME	In	42.80
*18816MD RB	Out	44.30	*18816ME RB	Out	42.80

For Private Toilet Doors, No Key

Locks from one side only. When the latch bolt is deadlocked by deadlocking lever on one side the door cannot be unlocked from the other side.

No.	For doors opening	Per set	No.	For doors opening	Per set
8665MD	In	\$21.90	8665ME	In	\$20.40
8665MD RB	Out	21.90	8665ME RB	Out	20.40

For Communicating Doors, No Key

Locks from either side. When the latch bolt is deadlocked by deadlocking lever on either side, the door cannot be unlocked from the other side.

No.	For doors opening	Per set	No.	For doors opening	Per set
8675MD	\$21.90	8615ME	.....	\$20.40

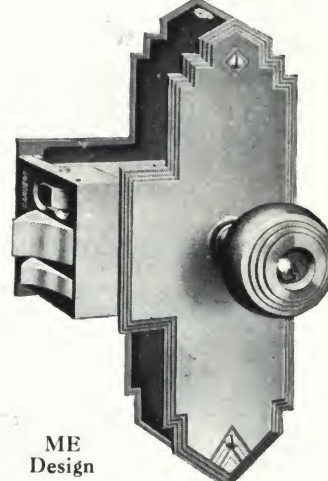
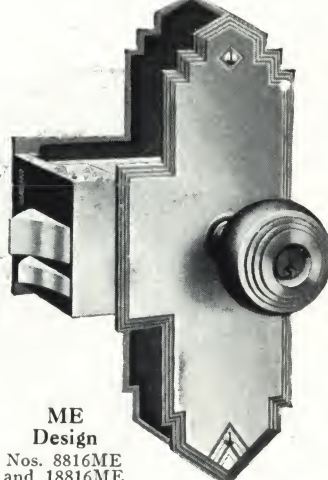
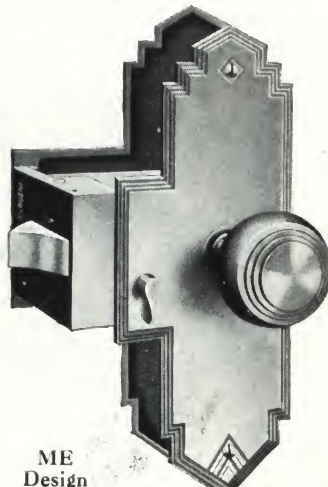
For Closet Doors, No Key

Operated from either side by the knobs.

No.	For doors opening	Per set	No.	For doors opening	Per set
8645MD	\$19.50	8645ME	.....	\$18.00

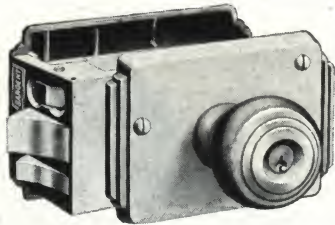
†Prices include all key functions described on page 32.
*Regularly furnished with demountable knobs and changeable cylinders. See page 32.

†Corridor side only furnished with demountable knobs and changeable cylinders. See page 32.

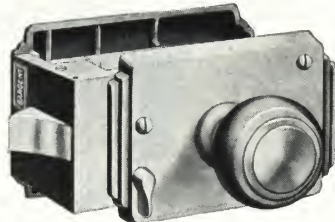
GENERAL CONSTRUCTIONBackset: 2 3/4 in.
For Doors: 1 3/8 to 1 3/4 in. thick. Furnished to order for 1 3/8 to 2 3/4 in. doors.
Bolts: Bronze. Front: Beveled 1/4 in. in 2 in.
Handed: Not reversible. Specify hand.
Keys: Three nickel bronze keys No. 279.**ME—Modern Design**Escutcheons
Outside— $9\frac{1}{8} \times 3\frac{7}{8}$ in.
Inside— $9\frac{1}{8} \times 4\frac{1}{8}$ in.**ME
Design**Nos. 8805 1/2 ME and 18805 1/2 ME
Style of Nos. 8845 1/2 ME and
18845 1/2 ME**ME
Design**Nos. 8816ME
and 18816ME**ME
Design**No. 8665ME, Dead Locking Lever,
one side
No. 8675ME, Dead Locking Lever,
both sides
No. 8645ME, No Dead Locking Lever

SARGENT**Union Lock Sets***Cast Brass and Bronze***ML—Modern Design**

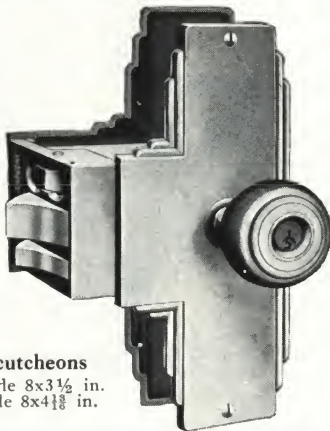
All packed with screws to match

*Illustrations
One-quarter Size***Escutcheons**

Outside $3\frac{3}{8} \times 4\frac{1}{8}$ in. Inside $3\frac{3}{8} \times 4\frac{1}{8}$ in.
 Nos. 9805½ ML and 19805½ ML
 Style of Nos. 9845½ ML, 19845½ ML, 9816ML
 and 19816ML

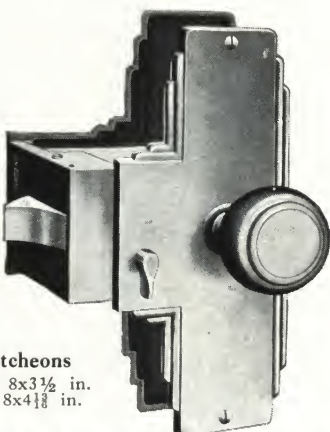
**Escutcheons**

Outside $3\frac{3}{8} \times 4\frac{1}{8}$ in. Inside $3\frac{3}{8} \times 4\frac{1}{8}$ in.
 No. 9665ML, Dead Locking Lever one side
 No. 9675 ML, Dead Locking Lever both sides
 No. 9645ML, No Dead Locking Lever

**Escutcheons**

Outside $8 \times 3\frac{1}{2}$ in.
 Inside $8 \times 4\frac{1}{8}$ in.

Nos. 8805½ ML and 18805½ ML
 Style of Nos. 8845½ ML
 18845½ ML, 8816ML and 18816ML

**Escutcheons**

Outside $8 \times 3\frac{1}{2}$ in.
 Inside $8 \times 4\frac{1}{8}$ in.

No. 8665ML, Dead Locking Lever, one side
 No. 8675ML, Dead Locking Lever, both sides
 No. 8645ML, No Dead Locking Lever

For Office Doors, with Guarded Bolt**One Cylinder. Key Hole in Knob**

Latch bolt operative from either side by knob except when outside knob is set by stop in face of lock, then by key from outside. The auxiliary latch bolt, working on the closed strike plate automatically locks the regular latch bolt when the door is closed.

No.	For doors opening	Per set†	No.	For doors opening	Per set†
9805½ ML	In	\$32.40	8805½ ML	In	\$34.80
9805½ ML RB	Out	32.40	8805½ ML RB	Out	34.80
*19805½ ML	In	34.40	*18805½ ML	In	36.80
*19805½ ML RB	Out	34.40	*18805½ ML RB	Out	36.80

For Office Doors, without Guarded Bolt**One Cylinder. Key Hole in Knob**

Latch bolt operative from either side by knobs except when outside knob is set by stop in face of lock, then by key from outside.

No.	For doors opening	Per set†	No.	For doors opening	Per set†
9845½ ML	\$30.00	8845½ ML	.....	\$32.40
*19845½ ML	32.00	*18845½ ML	.....	34.40

For Public Toilet Doors, with Guarded Bolt**Two Cylinders. Key Hole in Knob**

Latch bolt operative at all times from inside by knob. Operative from outside by knob except when knob is set from inside by key, then only by key from outside. Knob can be released only by key from inside. Also has protection of auxiliary guarded latch bolt.

No.	For doors opening	Per set†	No.	For doors opening	Per set†
9816ML	In	\$38.40	8816ML	In	\$40.80
9816ML RB	Out	38.40	8816ML RB	Out	40.80
†*19816ML	In	40.40	†*18816ML	In	42.80
†*19816ML RB	Out	40.40	†*18816ML RB	Out	42.80

For Private Toilet Doors, No Key

Locks from one side only. When latch bolt is deadlocked by deadlocking lever on one side, the door cannot be unlocked from the other side.

No.	For doors opening	Per set	No.	For doors opening	Per set
9665ML	In	\$18.00	8665ML	In	\$20.40
9665ML RB	Out	18.00	8665ML RB	Out	20.40

For Communicating Doors, No Key

Locks from either side. When the latch bolt is deadlocked by deadlocking lever on either side, the door cannot be unlocked from the other side.

No.	For doors opening	Per set	No.	For doors opening	Per set
9675ML	\$18.00	8675ML	.....	\$20.40

For Closet Doors, No Key

Operated from either side by the knobs.

No.	For doors opening	Per set	No.	For doors opening	Per set
9645ML	\$15.60	8645ML	.....	\$18.00

*Regularly furnished with demountable knobs and changeable cylinders. See page 32.
 †Corridor side only furnished with demountable knob and changeable cylinders. See page 32.

‡Prices include all key functions described on page 32.

GENERAL CONSTRUCTION

Backset: 2¾ in.

For Doors: 1¾ to 1¾ in. thick. Furnished to order for 1¾ to 2¾ in. doors.

Bolts: Bronze.

Front: Beveled ¼ in. in 2 in.

Handed: Not reversible. Specify hand.

Keys: Three nickel bronze keys No. 279.

SARGENT**Union Lock Sets**

Cast Brass and Bronze and "Rustproof" Iron

All packed with screws to match

HB—Hadley Design**MB—Milton Design****For Office Doors, with Guarded Bolt****One Cylinder. Key Hole in Knob**

Latch bolt operative from either side by knob except when outside knob is set by stop in face of lock, then by key from outside. The auxiliary latch bolt, working on the closed strike plate automatically locks the regular latch bolt when the door is closed.

No.		For doors opening	Per set†
Hadley	Milton		
9805½ HB	9805½ MB	In	\$28.20
9805½ HB RB	9805½ MB RB	Out	28.20
*19805½ HB	*19805½ MB	In	30.20
*19805½ HB RB	*19805½ MB RB	Out	30.20
8805½ HB	8805½ MB	In	30.60
8805½ HB RB	8805½ MB RB	Out	30.60
*18805½ HB	*18805½ MB	In	32.60
*18805½ HB RB	*18805½ MB RB	Out	32.60

For Office Doors, without Guarded Bolt**One Cylinder. Key Hole in Knob**

Latch bolt operative from either side by knobs except when outside knob is set by stop in face of lock, then by key from outside.

No.		For doors opening	Per set†
Hadley	Milton		
9845½ HB	9845½ MB	.....	\$25.80
*19845½ HB	*19845½ MB	.....	27.80
8845½ HB	8845½ MB	.....	28.20
*18845½ HB	*18845½ MB	.....	30.20

For Public Toilet Doors, with Guarded Bolt**Two Cylinder. Key Hole in Knob**

Latch bolt operative at all times from inside by knob. Operative from outside by knob except when knob is set from inside by key, then only by key from outside. Knob can be released only by key from inside. Also has protection of auxiliary guarded latch bolt.

No.		For doors opening	Per set†
Hadley	Milton		
9816HB	9816MB	In	\$34.20
9816HB RB	9816MB RB	Out	34.20
†*19816HB	†*19816MB	In	36.20
†*19816HB RB	†*19816MB RB	Out	36.20
8816HB	8816MB	In	36.60
8816HB RB	8816MB RB	Out	36.60
†*18816HB	†*18816MB	In	38.60
†*18816HB RB	†*18816MB RB	Out	38.60

For Hollow Metal Exit and Stair Doors

Acceptable to Board of Underwriters. With anti-friction latch with ¾-in. throw. Operation as Nos. 9816HB, 8816HB and 8816MB.

No.		For doors opening	Per set†
Hadley	Milton		
9916HB RB	9916MB RB	.....	\$40.20
8916HB RB	.....	.....	42.20

For Private Toilet Doors, No Key

Locks from one side only. When the latch bolt is deadlocked by deadlocking lever on one side, the door cannot be unlocked from the other side.

No.		For doors opening	Per set
Hadley	Milton		
9665HB	9665 MB	In	\$13.80
9665HB RB	9665 MB RB	Out	13.80
8665HB	8665 MB	In	16.20
8665HB RB	8665 MB RB	Out	16.20

For Communicating Doors, No Key

Locks from either side. When the latch bolt is deadlocked by deadlocking lever on either side, the door cannot be unlocked from the other side.

No.		For doors opening	Per set
Hadley	Milton		
9675HB	9675MB	.....	\$13.80
8675HB	8675MB	.....	16.20

For Closet Doors, No Key

Operated from either side by the knobs.

No.		For doors opening	Per set
Hadley	Milton		
9645HB	9645MB	.....	\$11.40
8645HB	8645MB	.....	13.80

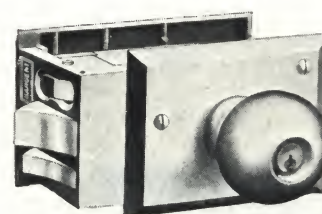
*Are regularly furnished with demountable knobs and changeable cylinders. See page 32.
†Corridor side only furnished with demountable knobs and changeable cylinders. See page 32.
‡Prices include all key functions described on page 32.

GENERAL CONSTRUCTION

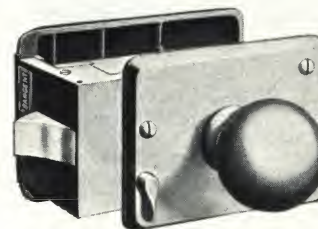
Backset: 2½ in.
For Doors: 1½ to 1¾ in. thick. Furnished to order for 1½ to 2½ in. doors.
Bolts: Bronze.

Front: Beveled ¼ in. in 2 in.
Handed: Not reversible. Specify hand.
Keys: Three nickel bronze keys No. 279.

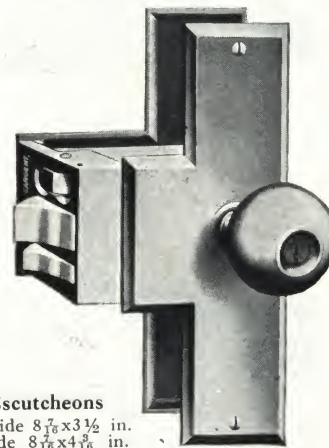
Illustrations
One-quarter Size

**Escutcheons**

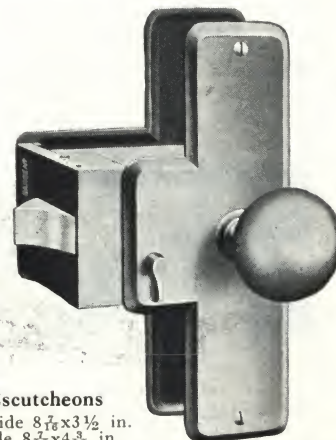
Outside 3 7/8 x 4 1/2 in. Inside 3 7/8 x 4 1/8 in.
Nos. 9805 1/2 HB and 19805 1/2 HB
Style of Nos. 9845 1/2 HB, 19845 1/2 HB, 9816HB and 19816HB
Similar to No. 9805 1/2 MB, etc.

**Escutcheons**

Outside 3 7/8 x 4 in. Inside 3 7/8 x 4 1/8 in.
No. 9665MB, Dead Locking Lever, one side
No. 9675MB, Dead Locking Lever, both sides
No. 9645MB, No Dead Locking Lever
Similar to No. 9665 HB, etc.

**Escutcheons**

Outside 8 7/8 x 3 1/2 in. Inside 8 7/8 x 4 1/8 in.
Nos. 8805 1/2 HB and 18805 1/2 HB
Style of Nos. 8845 1/2 HB, 18845 1/2 HB, 8816HB and 18816HB
Similar to No. 8805 1/2 MB, etc.

**Escutcheons**

Outside 8 7/8 x 3 1/2 in. Inside 8 7/8 x 4 1/8 in.
No. 8665MB, Dead Locking Lever, one side
No. 8675MB, Dead Locking Lever, both sides
No. 8645MB, No Dead Locking Lever
Similar to No. 9665HB, etc.

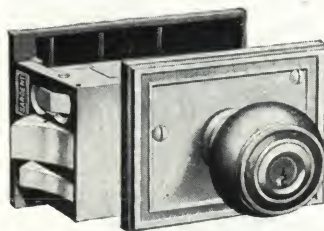
SARGENT**Union Lock Sets**

Cast Brass and Bronze and "Rustproof" Iron

All packed with screws to match

*Illustrations
One-quarter Size***GA—Andros Design
JA—Jamestown Design****For Office Doors, with Guarded Bolt****One Cylinder. Key Hole in Knob**

Latch bolt operative from either side by knob except when outside knob is set by stop in face of lock, then by key from outside. The auxiliary latch bolt, working on the closed strike plate, automatically locks the regular latch bolt when the door is closed.

**Escutcheons**

Outside, $3\frac{7}{8} \times 4\frac{1}{8}$ in.
Inside, $3\frac{7}{8} \times 4\frac{1}{8}$ in.

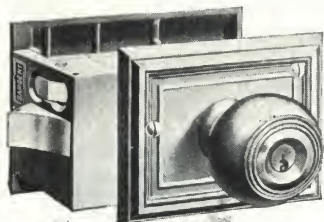
Nos. 9805 1/2 GA to 19805 1/2 GA

Similar to Nos. 9805 1/2 JA to 19805 1/2 JA

No.		For doors opening	Per set†
Andros	Jamestown	In	
9805 1/2 GA	9805 1/2 JA	Out	\$32.40
9805 1/2 GA RB	9805 1/2 JA RB	In	32.40
*19805 1/2 GA	*19805 1/2 JA	Out	34.40
*19805 1/2 GA RB	*19805 1/2 JA RB		34.40

For Office Doors, without Guarded Bolt**One Cylinder. Key Hole in Knob**

Latch bolt operative from either side by knobs except when outside knob is set by stop in face of lock, then by key from outside.

**Escutcheons**

Outside, $3\frac{7}{8} \times 4\frac{1}{8}$ in.
Inside, $3\frac{7}{8} \times 4\frac{1}{8}$ in.

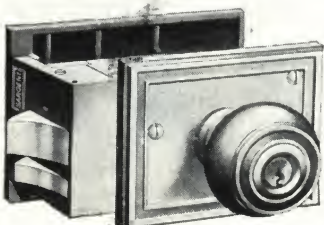
Nos. 9845 1/2 JA and 19845 1/2 JA

Similar to Nos. 9845 1/2 GA and 19845 1/2 GA

No.		For doors opening	Per set†
Andros	Jamestown		
9845 1/2 GA	9845 1/2 JA		\$30.00
*19845 1/2 GA	*19845 1/2 JA		32.00

For Public Toilet Doors, with Guarded Bolt**Two Cylinders. Key Hole in Knob**

Latch bolt operative at all times from inside by knob. Operative from outside by knob except when knob is set from inside by key, then only by key from outside. Knob can be released only by key from inside. Also has protection of auxiliary guarded latch bolt.

**Escutcheons**

Outside, $3\frac{7}{8} \times 4\frac{1}{8}$ in.
Inside, $3\frac{7}{8} \times 4\frac{1}{8}$ in.

Nos. 9816 GA to 19816 GA

Similar to Nos. 9816 JA to 19816 JA

No.		For doors opening	Per set†
Andros	Jamestown	In	
9816 GA	9816 JA	Out	\$38.40
†*9816 GA RB	†*9816 JA RB	In	38.40
†*9816 GA RB	†*9816 JA RB	Out	40.40

For Hollow Metal Exit and Stair Doors

Acceptable to Board of Underwriters. With anti-friction latch with 3/4-in. throw. Operation as Nos. 9816 GA and 9816 JA.

No.		For doors opening	Per set†
Andros	Jamestown		
9916 GA RB	9916 JA RB		\$44.40

For Private Toilet Doors, No Key

Locks from one side only. When the latch bolt is deadlocked by deadlocking lever on one side, the door cannot be unlocked from the other side.

No.		For doors opening	Per set
Andros	Jamestown	In	
9665 GA	9665 JA	Out	\$18.00
9665 GA RB	9665 JA RB		18.00

For Communicating Doors, No Key

Locks from either side. When the latch bolt is deadlocked by deadlocking lever on either side, the door cannot be unlocked from the other side.

No.		For doors opening	Per set
Andros	Jamestown		
9675 GA	9675 JA		\$18.00

For Closet Doors, No Key

Operated from either side by the knobs.

No.		For doors opening	Per set
Andros	Jamestown		
9645 GA	9645 JA		\$15.60

*Regularly furnished with demountable knobs and changeable cylinders. See page 32.
†Corridor side only furnished with demountable knobs and changeable cylinders. See page 32.

‡Price includes all key functions described on page 32.

GENERAL CONSTRUCTION

Backset: 2 3/4 in.

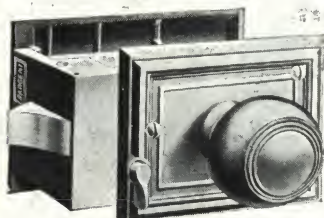
For Doors: 1 3/8 to 1 3/4 in. thick. Furnished to order for 1 3/8 to 2 3/4 in. door.

Bolts: Bronze.

Front: Beveled 1/8 in. in 2 in.

Handed: Not reversible. Specify hand.

Keys: Three nickel bronze keys No. 279.

**Escutcheons**

Outside, $3\frac{7}{8} \times 4\frac{1}{8}$ in.
Inside, $3\frac{7}{8} \times 4\frac{1}{8}$ in.

No. 9665 JA, Dead Locking Lever, one side

No. 9675 JA, Dead Locking Lever, both sides

No. 9645 JA, No Dead Locking Lever

Similar to Nos. 9665 GA, 9675 GA and 9645 GA

SARGENT**LOCK SECTION****Numerical Index to Cylinder Locks and Lock Sets**

No.	Description	Page	No.	Description	Page	No.	Description	Page	No.	Description	Page
.99	Coupon Booth Door...	45	4851R	Mortise Dead Lock...	44	*4685MB	Union Lock Sets...	35	9805½ML	Union Lock Sets...	34
761	Entrance Door...	31	4861	Mortise Dead Lock...	44	*8645MD	Union Lock Sets...	33	9805½ML RB	Union Lock Sets...	33
761½	Entrance Door...	31	4861R	Mortise Dead Lock...	44	*8645ME	Union Lock Sets...	33	9816GA	Union Lock Sets...	36
684 51	Narrow Stiles...	41	4865	Mortise Dead Lock...	44	*8645ML	Union Lock Sets...	34	9816GA RB	Union Lock Sets...	36
684 51½	Narrow Stiles...	41	4865R	Mortise Dead Lock...	44	*8665HB	Union Lock Sets...	35	9816HB	Union Lock Sets...	35
684 51½R	Narrow Stiles...	41	4871	Mortise Dead Lock...	44	*8665HB RB	Union Lock Sets...	35	9816HB RB	Union Lock Sets...	35
684 52	Narrow Stiles...	41	4875R	Front Door...	40	*8665MB	Union Lock Sets...	35	9816JA	Union Lock Sets...	36
684 52R	Narrow Stiles...	41	4881	Mortise Dead Lock...	44	*8665MB RB	Union Lock Sets...	35	9816JA RB	Union Lock Sets...	36
684 52½	Narrow Stiles...	41	4885	Mortise Dead Lock...	44	*8665MD	Union Lock Sets...	33	9816MB	Union Lock Sets...	35
684 52½R	Narrow Stiles...	41	4886	Mortise Dead Lock...	44	*8665MD RB	Union Lock Sets...	33	9816MB RB	Union Lock Sets...	35
N896HSD	Padlock...	65	4887	Mortise Dead Lock...	44	*8665ME	Union Lock Sets...	33	9816ML	Union Lock Sets...	34
P896HS	Padlock...	65	4888	Mortise Dead Lock...	44	*8665ME RB	Union Lock Sets...	33	9816ML RB	Union Lock Sets...	34
P896HSC	Padlock...	65	6705½	Apartment Entrance...	60	*8665ML RB	Union Lock Sets...	34	9845½GA	Union Lock Sets...	36
908	Entrance Door...	30	6705½R	Apartment Entrance...	60	*8665ML	Union Lock Sets...	34	9845½HB	Union Lock Sets...	35
933	Entrance Door...	30	6718	School House...	48	*8675HB	Union Lock Sets...	35	9845½JA	Union Lock Sets...	36
933R	Entrance Door...	30	6725	Office, Front, Corridor...	43	*8675MB	Union Lock Sets...	35	9845½MB	Union Lock Sets...	35
951	Entrance Door...	30	6726	Office, Front, Corridor...	43	*8675MD	Union Lock Sets...	33	9845½ML	Union Lock Sets...	34
951R	Entrance Door...	30	6745	Front Door...	40	*8675ME	Union Lock Sets...	33	9916GA RB	Union Lock Sets...	36
951½	Entrance Door...	31	6745R	Front Door...	40	*8675ML	Union Lock Sets...	34	9916HB RB	Union Lock Sets...	35
951½R	Entrance Door...	31	6745½	Vestibule or Office...	42	8805½GB	Union Lock Sets...	35	9916JA RB	Union Lock Sets...	36
953	Entrance Door...	30	6745½R	Vestibule or Office...	42	8805½GB RB	Union Lock Sets...	35	9916MB RB	Union Lock Sets...	35
953R	Entrance Door...	30	6805½	Apartment Entrance...	60	8805½GB RB	Union Lock Sets...	35	9933GB	Entrance Door Handle...	27
953 Special	Entrance Door...	30	6805½R	Apartment Entrance...	60	8805½GMB RB	Union Lock Sets...	35	9933GG	Entrance Door Handle...	27
961	Entrance Door...	31	6807½	Hollow Metal, Kalamein...	46	8805½GMD	Union Lock Sets...	33	9933LA	Entrance Door Handle...	27
961R	Entrance Door...	31	6808	Hollow Metal, Kalamein...	46	8805½GMD RB	Union Lock Sets...	33	18805½HB	Union Lock Sets...	35
961½	Entrance Door...	31	6815	Hotel Corridor...	54	8805½GME	Union Lock Sets...	33	18805½HB RB	Union Lock Sets...	35
993	Fire Exit Lock...	73	6816	School House...	48	8805½GME RB	Union Lock Sets...	33	18805½MB	Union Lock Sets...	35
997	Fire Exit Lock...	73	6818	School House...	48	8805½GML	Union Lock Sets...	34	18805½MB RB	Union Lock Sets...	35
1123	Fire Exit Lock...	73	6825	Office Door...	42	8805½GML RB	Union Lock Sets...	34	18805½GMD	Union Lock Sets...	33
2061	Entrance Door Handle...	28	6825R	Office Door...	42	8816HB	Union Lock Sets...	35	18805½MD RB	Union Lock Sets...	33
2651ME	Entrance Door Handle...	28	6826	Office Door...	42	8816HB RB	Union Lock Sets...	35	18805½GME	Union Lock Sets...	33
2661	Entrance Door Handle...	28	6826R	Office Door...	42	8816MB	Union Lock Sets...	35	18805½GME RB	Union Lock Sets...	33
2661ME	Entrance Door Handle...	28	6827	Hollow Metal, Kalamein...	46	8816MB RB	Union Lock Sets...	35	18805½GML	Union Lock Sets...	34
2671	Entrance Door Handle...	28	6828	Hollow Metal, Kalamein...	46	8816MD	Union Lock Sets...	33	18805½GML RB	Union Lock Sets...	34
2671ME	Entrance Door Handle...	28	6830	Apartment Entrance...	60	8816MD RB	Union Lock Sets...	33	18816HB	Union Lock Sets...	35
2751	Entrance Door Handle...	28	6833GA	Entrance Door Handle...	27	8816ME	Union Lock Sets...	33	18816HB RB	Union Lock Sets...	35
2761	Entrance Door Handle...	28	6845	Front Door...	40	8816ME RB	Union Lock Sets...	33	18816MB	Union Lock Sets...	35
2771	Entrance Door Handle...	28	6845R	Front Door...	40	8816ML	Union Lock Sets...	34	18816MB RB	Union Lock Sets...	35
2861	Entrance Door Handle...	28	6845½	Vestibule or Office...	42	8816ML RB	Union Lock Sets...	34	18816MD	Union Lock Sets...	33
2871	Entrance Door Handle...	28	6845½R	Vestibule or Office...	42	8845½GB	Union Lock Sets...	35	18816MD RB	Union Lock Sets...	33
3151	Entrance Door Handle...	28	6850	Hotel Corridor...	54	8845½GMB	Union Lock Sets...	35	18816ME	Union Lock Sets...	33
3161	Entrance Door Handle...	28	6850x2	Hotel Corridor...	54	8845½GMD	Union Lock Sets...	33	18816ME RB	Union Lock Sets...	33
3171	Entrance Door Handle...	28	6851	Hotel Corridor...	53	8845½GME	Union Lock Sets...	33	18816ML	Union Lock Sets...	34
3351	Entrance Door Handle...	28	6851½	Hotel Corridor...	53	8845½GML	Union Lock Sets...	34	18816ML RB	Union Lock Sets...	34
3361	Entrance Door Handle...	28	6852	Hotel Corridor...	53	8916HB RB	Union Lock Sets...	35	18845½HB	Union Lock Sets...	35
3371	Entrance Door Handle...	28	6852½	Hotel Corridor...	53	8933BA	Entrance Door Handle...	27	18845½GMB	Union Lock Sets...	35
3451JA	Entrance Door Handle...	28	6855	Hotel Corridor...	55	8933NF	Entrance Door Handle...	27	18845½GMD	Union Lock Sets...	33
3461	Entrance Door Handle...	28	6855R	Hotel Corridor...	55	*9645GA	Union Lock Sets...	36	18845½GME	Union Lock Sets...	33
3471	Entrance Door Handle...	28	6857	Hotel Corridor...	55	*9645HB	Union Lock Sets...	35	18845½ML	Union Lock Sets...	34
3861JA	Entrance Door Handle...	28	6859	Hotel Corridor...	54	*9645JA	Union Lock Sets...	36	19805½GA	Union Lock Sets...	36
4151PB	Entrance Door Handle...	28	6859x1	Hotel Corridor...	54	*9645MB	Union Lock Sets...	35	19805½GA RB	Union Lock Sets...	36
4161PB	Entrance Door Handle...	28	6863	Hotel Communicating...	55	*9645ML	Union Lock Sets...	34	19805½HB	Union Lock Sets...	35
4171PB	Entrance Door Handle...	28	6873	Hotel Communicating...	55	*9665GA	Union Lock Sets...	36	19805½HB RB	Union Lock Sets...	35
4287	Rim Night Latch...	65	6875	Public Building, Front...	40	*9665GA RB	Union Lock Sets...	36	19805½JA	Union Lock Sets...	36
N4287	Rim Night Latch...	65	6875R	Public Building, Front...	40	*9665HB	Union Lock Sets...	35	19805½JA RB	Union Lock Sets...	36
OB4287	Rim Night Latch...	65	6880	Apartment Entrance...	60	*9665HB RB	Union Lock Sets...	35	19805½MB	Union Lock Sets...	35
P4287P	Rim Night Latch...	65	6885	Apartment Entrance...	60	*9665JA	Union Lock Sets...	36	19805½MB RB	Union Lock Sets...	35
4287½	Rim Night Latch...	65	6912	Garage Door Lock...	69	*9665JA RB	Union Lock Sets...	36	19805½GML	Union Lock Sets...	34
M4290	Rim Night Latch...	65	6928x83	Sliding Door Latch...	67	*9665MB	Union Lock Sets...	35	19805½GML RB	Union Lock Sets...	34
M4290½	Rim Night Latch...	65	6928x1620x30F	Sliding Door Latch...	67	*9665MB RB	Union Lock Sets...	35	19816GA	Union Lock Sets...	36
4299	Garage Door...	69	6949	Sliding Door...	67	*9665ML	Union Lock Sets...	34	19816GA RB	Union Lock Sets...	36
4330	Rim Dead Lock...	66	6981	Sliding Door, Dead...	67	*9665ML RB	Union Lock Sets...	34	19816HB	Union Lock Sets...	35
M4330	Rim Dead Lock...	66	6982	Sliding Door, Dead...	67	*9675GA	Union Lock Sets...	36	19816HB RB	Union Lock Sets...	35
4337	Rim Dead Lock...	66	6983	Sliding Door, with Pulls...	67	*9675HB	Union Lock Sets...	35	19816JA	Union Lock Sets...	36
4375	Rim Dead Lock...	66	6984	Sliding Door, with Pulls...	67	*9675JA	Union Lock Sets...	36	19816JA RB	Union Lock Sets...	36
M4395	Rim Dead Lock...	66	7805	Office, Front, Corridor...	43	*9675MB	Union Lock Sets...	35	19816MB	Union Lock Sets...	35
P4399	Rim Dead Lock...	66	7805R	Office, Front, Corridor...	43	*9675ML	Union Lock Sets...	34	19816MB RB	Union Lock Sets...	35
4781x2cylinders	Mortise Night Latch...	45	7805½	Office, Front, Corridor...	43	9805½GA	Union Lock Sets...	36	19816ML	Union Lock Sets...	34
4781x1034	Mortise Night Latch...	45	7805½R	Office, Front, Corridor...	43	9805½GA RB	Union Lock Sets...	36	19816ML RB	Union Lock Sets...	34
4781x1620x30F	Mortise Night Latch...	45	7816	School House...	48	9805½HB	Union Lock Sets...	35	19845½GA	Union Lock Sets...	36
4787x1620x30F	Mortise Night Latch...	45	7845½	Office, Front, Corridor...	43	9805½HB RB	Union Lock Sets...	35	19845½GB	Union Lock Sets...	35
4789x1620x30F	Mortise Night Latch...	45	7845½R	Office, Front, Corridor...	43	9805½JA	Union Lock Sets...	36	19845½JA	Union Lock Sets...	36
4802	Mortise Dead Lock...	44	7933CE	Entrance Door Handle...	27	9805½JA RB	Union Lock Sets...	36	19845½MB	Union Lock Sets...	35
4903	Mortise Dead Lock...	44	7933CW	Entrance Door Handle...	27	9805½MB	Union Lock Sets...	35	19845½GML	Union Lock Sets...	34
4851	Mortise Dead Lock...	44	*8645HB	Union Lock Sets...	35	9805½MB RB	Union Lock Sets...	35			

*No key.

For Bitted Key Lock Index, see Page 38

SARGENT**Numerical Index to Bitted Key Locks**

No.	Description	Page	No.	Description	Page	No.	Description	Page
498	Hospital Lock.....	51	Hospital and Asylum Mortise Dead Locks:			Hospital and Asylum Mortise Dead Locks:		
1133	Fire Exit Latch.....	73	4998	Mortise Asylum Lock.....	52	5659	Inside Door.....	61
1134	Fire Exit Latch.....	73	4999	Mortise Asylum Lock.....	52	6113	Hotel Corridor.....	57
3121	Rim Lock Set.....	65	5054	French Door.....	63	6119	Hotel Corridor.....	57
B3525B	Horizontal Rim Knob.....	62	5054R	French Door.....	63	6120	Hotel Corridor.....	56
J3525	Horizontal Rim Knob.....	62	5059	French Door.....	63	6123	Hotel Corridor.....	56
J3729	Horizontal Rim Knob.....	62	5059R	French Door.....	63	6129	Hotel Closet Door.....	59
4607	Mortise Knob Latch.....	47	5069	French Door.....	63	6139	Hotel Communicating.....	58
4607R	Mortise Knob Latch.....	47	5069R	French Door.....	63	Hotel Communicating and Bath Room:		
4615	Mortise Knob Latch.....	47	5079	French Door.....	63	6143	.....	58
4634	Mortise Knob Latch.....	47	5079R	French Door.....	63	Hotel Communicating Door:		
4643	Mortise Knob Latch.....	47	5134	French Door.....	63	6159	.....	58
4643R	Mortise Knob Latch.....	47	5134R	French Door.....	63	6193	Hotel Corridor.....	57
4643½	Mortise Knob Latch.....	47	5139	French Door.....	63	6199	Hotel Corridor.....	56
4643½R	Mortise Knob Latch.....	47	5139R	French Door.....	63	6199¼	Hotel Corridor.....	56
4645	Mortise Knob Latch.....	47	5234	Inside Door.....	62	6215	Hotel Corridor.....	57
4645R	Mortise Knob Latch.....	47	5234R	Inside Door.....	62	Hotel Bath Room and Twin Communicating:		
4650	Mortise Knob Latch.....	47	5239MK	Inside Door.....	62	6218	.....	59
4651	Mortise Knob Latch.....	47	5249	Inside Door.....	62	6229	Hotel Closet Doors.....	59
4730	Asylum Latch.....	52	5249R	Inside Door.....	62	Hotel Communicating and Bath Room:		
4731	Asylum Latch.....	52	5259	Inside Door.....	61	6243	.....	58
4732	Asylum Latch.....	52	5269	Inside Door.....	61	6260	Hotel Corridor.....	56
4735	School House.....	49	5269R	Inside Door.....	61	6263	Hotel Corridor.....	56
4736	School House.....	49	5299	Inside Door.....	62	6945	Sliding Door Lock.....	68
4737	School House.....	49	5299R	Inside Door.....	62	Sliding Door Locks with Pulls:		
4903	Mortise Dead Bolt.....	50	5629	Inside Door.....	61	6973	.....	68
4944	Mortise Dead Lock.....	50	5629R	Inside Door.....	61	6974	.....	68
4949	Mortise Dead Lock.....	50	5639	Inside Door.....	61	6993	.....	68
Hospital and Asylum Mortise Dead Locks:			5639R	Inside Door.....	61	6994	.....	68
4979	.....	52	P5649B	Inside Door.....	61			
4979R	.....	52	5656½	Asylum Latches.....	52			
4984	Hospital Lock.....	51	5956	Inside Door.....	61			
			5956R	Inside Door.....	61			

Miscellaneous Locks and Latches

No.	Description	Page	No.	Description	Page	No.	Description	Page
Mortise Locks:			Locks with Emergency Keys:			Locks without Keys:		
4607	Knob Latch.....	47	4663¾	Bath Room.....	64	4660	French Door.....	63
4607R	Knob Latch.....	47	4669¾	Bath Room.....	64	4660R	French Door.....	63
4898	Bolt.....	50	Bolts without Keys:			4663½	Bath Room Door.....	64
4907	Turnbuckle.....	50				4665	Bath Room Door.....	64
4907R	Turnbuckle.....	50				4668	Bath Room Door.....	61
4908	Turnbuckle.....	50	287	.....	66	4675	Communicating Door.....	64
4908R	Turnbuckle.....	50	289	.....	66	4678	Communicating Door.....	64
						4679	Communicating Door.....	64

For Cylinder Lock Index, see Page 37

SARGENT**Hand of Locks**

When Reversible Locks are not used, always specify the hand of the *lock* wanted—not the hand of the door. Beveled Front Locks and Rabbeted Locks are never reversible, except a few numbers as noted in the description of the locks.

The hand of a lock is determined from the outside of the door to which it is applied. The outside of a cupboard, bookcase, or closet door is the room side.

If, standing outside of a door, the butts are on the right, it takes a right-hand lock; if on the left, it takes a left-hand lock.

If, standing outside, the door opens from you, it takes a lock with a regular bevel latch bolt; if open-

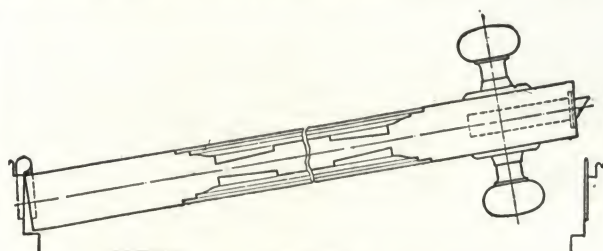
ing toward you, it takes a lock with a reverse bevel latch bolt.

Designation

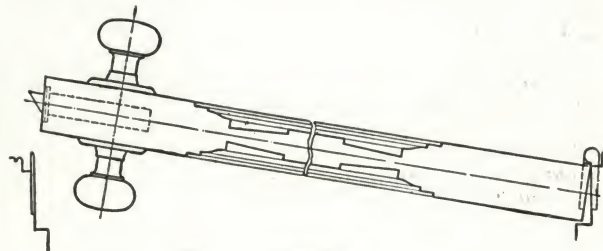
The following abbreviations are used to designate the hand and other items of Sargent Locks:

For Right Hand Lock	RH
For Left Hand Locks	LH
For Right Hand Reverse Bevel Locks	RHRB
For Left Hand Reverse Bevel Locks	LHRB

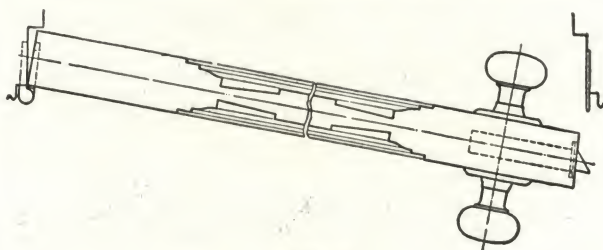
These designations follow the number of the lock, with a dash between, for example: No. 6845-RH, and for a rabbeted lock, No. 6845 R-RH.

**Outside**

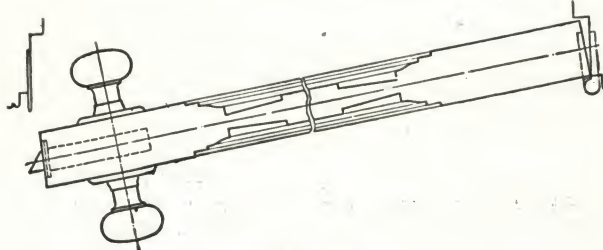
Door opening from you, butts on left, takes a Left Hand Lock

**Outside**

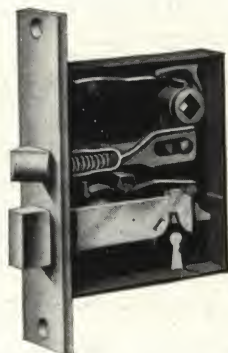
Door opening from you, butts on right, takes a Right Hand Lock

**Outside**

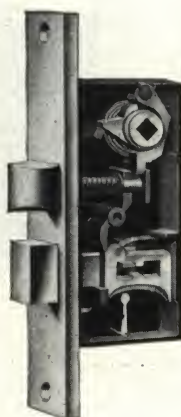
Door opening toward you, butts on left, takes a Left Hand Reverse Bevel Lock

**Outside**

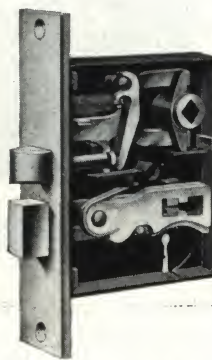
Door opening toward you, butts on right, takes a Right Hand Reverse Bevel Lock

Types of Spring Construction**Free Action Latch Bolt**

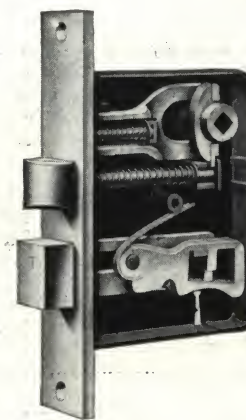
This illustration of Lock No. 5164 shows this type of construction

**Easy Spring**

Easy on latch bolt, extra heavy hub spring to hold up lever handles.
This illustration shows the type of construction used in Lock No. 5079

**Easy Spring**

Easy on latch bolt, firm on knob.
This illustration of Lock No. 5259 shows this type of construction

**Easy Spring, Two Compression Springs**

Easy on latch bolt, firm on knob.
This illustration of Lock No. 5639 shows this type of construction

SARGENT

Cylinder Knob Locks For Entrance Doors to Public Buildings

Illustrations
One-quarter Size

Packed with screws to match

The locks listed below are for use with knobs both sides.

For locks for use with Entrance Door Handles, see pages 30-31.

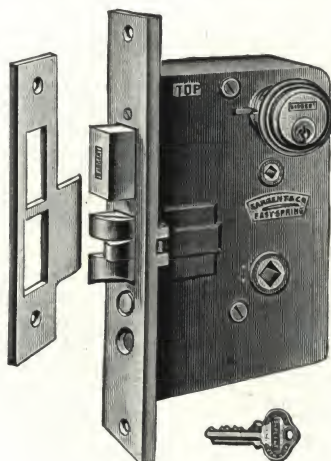
Extra Heavy Cylinder Front Door Locks

No. 6875 Extra Heavy Lock with Center Anti-friction Latch Bolt, Heavy Dead Bolt and Stops for Setting Outside Knob—The Anti-friction type latch bolt assures easy latch action and reduces wear on the latch. The latch bolt is operative from either side by knobs unless outside knob is made inoperative by lower stop in face of lock. The dead bolt is operated from the outside by key and inside by turn knob.

Note: Can also be furnished (at extra cost) with two cylinders so that dead bolt may be locked from inside by key instead of by turn knob.

Master Keyed—Can be furnished to order in sets of any required number, with Master Key to pass each set and a Grand Master Key to pass all.

Escutcheons Suitable—Escutcheons for 5½-in. Cylinder Locks are suitable for these locks.



No. 6875

No. 6875R—Same as No. 6875, except has rabbeted front.

Master Keyed—Same as No. 6875.

Escutcheons Suitable—Same as No. 6875.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Heavy Bronze.

Cylinders: Bronze.

Turn Knob: Bronze.

Keys: Nickel bronze.

Hubs: Brass: Knob hub for ¾-in. swivel spindle; turn knob hub for ⅝-in. spindle.

Latch Construction: Easy spring, (easy on latch bolt, firm on knob), with center latch anti-friction.

Reversible: No; specify hand.

Master Keying: Yes.

EXTRA HEAVY CYLINDER FRONT DOOR LOCKS

Lock No.	Front		Case size, in.	Backset in.		Strike, lip to center, in.	Spacing, in.		Cylinders	Keys	Master keying	Turn knob	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.		Knob to turn knob	Knob to cylinder						
6875	Flat	9½x1½#	7x4½x1	3	*	1¾	2½	3¾	1	Three, 267	Yes	Yes	Easy spring	\$18.20
6875R	Rabbeted	9½x1½†	7x4½x1	3 & 2½	*	1¾	2½	3¾	1	Three, 267	Yes	Yes	Easy spring	22.20

#Beveled ¼ in. in 2 in.
†½-in. rabbet.

*Furnished with special backsets 2 to 2¾ in. and 3½ to 6 in. at extra charge of \$6.00 each.

Cylinder Front Door Locks

No. 6845 Heavy Lock with Dead Bolt and with Knob Controlled by Stop in Face of Lock—Latch bolt operative from either side by knobs, except when outside knob is set by stop in face of lock. Dead bolt is operative by key from outside and by turn knob from inside.

Note: Can also be furnished (at extra cost) with two cylinders so that dead bolt may be locked from inside by key instead of by turn knob.

Auxiliary Springs—Can be furnished to order with auxiliary springs within the lock, for use with lever handles, at an additional charge of \$1.00 each.

Master Keyed—Can be furnished to order in sets of any required number, with Master Key to pass each set and a Grand Master Key to pass all. For Master Keyed Locks add 65¢ each cylinder. For

Master and Grand Master Keyed Locks, \$1.00 each cylinder.

No. 6845R—Same as No. 6845 except it has rabbeted front.

No. 6745—Same as No. 6845, except lighter lock but can also be furnished with two cylinders the same as No. 6845. Not furnished with Auxiliary Springs.

No. 6745R—Same as No. 6845R, except a lighter lock, and also has a rabbeted front.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze. No. 6845 has adjustable protected front, No. 6745 has front not adjustable, but beveled to order.

Bolts and Strike: Bronze.

Cylinders: Bronze.

Turn Knob: Bronze.

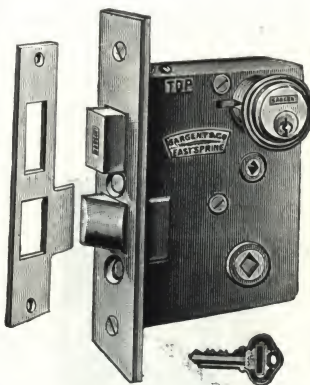
Keys: Nickel bronze.

Hubs: Brass: Knob hub for ¾-in. swivel spindle; turn knob hub for ⅝-in. spindle.

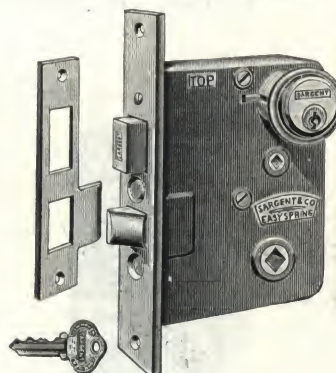
Latch Construction: Easy spring; easy on latch bolt, firm on knob; two compression springs.

Reversible: Flat front: yes, by removing cap; rabbeted front: no; specify hand.

Master Keying: Yes.



No. 6845



No. 6745

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.		Cylinders	Keys	Master keying	Turn knob	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.		Knob to turn knob	Knob to cylinder						
6845	Adjustable	7¾x1¼	5½x4x1½	2¾	2¾ to 6#	1¼†	2½	3¾	1	Three, 267	Yes	Yes	Easy spring	\$10.00
6845R	Rabbeted	7¾x1½*	5½x4x1½	2¾ & 2½	2¾ to 6#	1¼	2½	3¾	1	Three, 267	Yes	Yes	Easy spring	13.00
6745	Flat	7½x1¼	5½x3½x¾	2½	1½, 2, 2¾†	1¼	2½	3¾	1	Three, 267	Yes	Yes	Easy spring	9.20
6745R	Rabbeted	7½x1½*	5½x3½x¾	2½ & 2	1½, 2, 2¾†	1¼	2½	3¾	1	Three, 267	Yes	Yes	Easy spring	12.00

†Dustproof strikes furnished at \$3.00 extra, each.

‡Special backsets furnished at \$3.00 extra, each.

*½-in. rabbet.

‡Special backsets furnished at \$6.00 extra, each.

SARGENT**Cylinder Entrance Door Locks for Narrow Stile Doors**

Nos. 684 52 and 684 52½ for Use with Knobs Both Sides—The latch bolt is operative from either side by knobs except when outside knob is set by stop in face of lock.

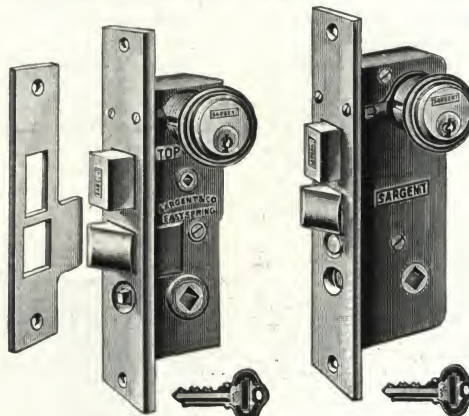
The dead bolt is operated by key from outside and by turn knob from inside.

Note: These locks furnished, at extra cost, with two cylinders, so that the dead bolt may be thrown from inside by key instead of by turn knob.

Master Keyed—Can be furnished to order in sets of any required number, with Master Key to pass each set and a Grand Master Key to pass all. (Master Key No. 272.) For Master Keyed Locks add 65¢ each Cylinder. For Master and Grand Master Keyed Locks add \$1.00 each Cylinder.

Escutcheons Suitable—Outside of Door: Escutcheons for 5½ and 6-in. Cylinder Locks are suitable for use with these locks.

Inside of Door: Escutcheons having 6 in. between screw holes can be cut to fit these locks. If escutcheons in ornamental designs are desired, the same size must be used for the inside as for the outside. In ordering, specify the number of the escutcheon wanted and order it "cut to fit."



No. 684 51

No. 684 51 ½

Beveled to Order—No. 684 52½ can be furnished (not reversible) with beveled front.

Nos. 684 51 and 684 51½ for Use with Lever Handles and Cylinder Rosettes—Same as Nos. 684 52 and 684 52½, except they are operated by lever handles instead of knobs.

Master Keyed—Same as Nos. 684 52 and 684 52½.

Escutcheons Suitable—Same as Nos. 684 52 and 684 52½.

Heavy Hub Spring—The spring on the hub is made extra heavy to hold up lever handles.

Beveled to Order—No. 684 51 can be furnished (not reversible) with beveled front.

Nos. 684 51½R, 684 52R and 684 52½R—Same as Nos. 684 51½, 684 52 and 684 52½ respectively, except have rabbeted fronts.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Heavy bronze.

Cylinders: Bronze.

Turn Knob: Bronze.

Keys: Nickel bronze. Three No. 267.

Hubs: Brass: Knob hub for ¾-in. swivel spindle; Turn knob hub for ⅝-in. spindle.

Latch Construction: Easy spring: Easy on latch bolt, extra firm on knob; two compression springs.

Reversible: No; specify hand.

Master Keying: Yes.

Specify thickness of door. Cannot be used on doors less than 1¾-in. thick.

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.		Cylinders	Keys	Master keying	Turn knob	Latch bolt	Each
	Type	Size, in.				Knob to turn knob	Knob to cylinder						
684 52	Flat	8½x1¼	6 x3 x7/8	2	1½	3½	3½	1	Three, 267	Yes	No	Easy spring	\$13.50
684 52½	Flat	8½x1¼	6 x3½x7/8	2½	1½	3½	3½	1	Three, 267	Yes	No	Easy spring	13.50
684 51	Flat	7¾x1¼	5½x2 x7/8	1	1½	2½	3½	1	Three, 267	Yes	Yes	Easy spring	13.50
684 51½	Flat	8½x1¼	6 x2½x7/8	1½	1½	3½	3½	1	Three, 267	Yes	No	Easy spring	13.50
684 51½R	Rabbeted	8½x1¼*	6 x2½x7/8	1½ & 1	1½	3½	3½	1	Three, 267	Yes	No	Easy spring	16.50
684 52R	Rabbeted	8½x1¼*	6 x3 x7/8	2 & 1½	1½	3½	3½	1	Three, 267	Yes	No	Easy spring	16.50
684 52½R	Rabbeted	8½x1¼*	6 x3½x7/8	2½ & 2	1½	3½	3½	1	Three, 267	Yes	No	Easy spring	16.50

* ½-in. rabbet.

Two cylinders for all above numbers can be furnished at extra price so that the dead bolt may be also operated from the inside by key instead by turn knob.

Cylinder Vestibule Door Locks for Narrow Stile Doors

All the locks listed above for Narrow Stile Doors can be furnished without dead bolt for use on vestibule doors at the same prices as above.

In ordering, add Vestibule to the number: "684 51½ Vestibule," etc.

Locks with Standard Fronts and Composite Strikes

Following Recommendations of Bureau of Standards

Following the program adopted by the manufacturers of Builders' Hardware and the makers of Hollow Metal Doors and Bucks under the auspices of the Bureau of Standards, we are prepared to furnish the following locks with standard fronts 8x1¼ in. and with a composite strike:

951	961½	6816
951½	6805	6825
953	6805½	6826
961	6815	6830
6845	6851½	6859

6845½	6852	7805
6850	6852½	7805½
6851	6855	7816

In ordering any of the locks so furnished, it will be necessary to specify the size of front, in order to have the locks furnished with composite strike, as, for example: Lock No. 6850, 8x1¼ in. x strike No. 6850HM.

When furnished Master Keyed and Emergency Keyed, an additional charge will be made.

SARGENT**Cylinder Knob Locks***Illustrations
One-quarter Size***For Vestibule Doors or Corridor Doors to Offices***For Vestibule Doors with Narrow Stiles, see Page 41***Packed with screws to match**

No. 6845½ Lock with Deadlocked Latch Bolt—Latch bolt is operative from either side by knob, except when outside knob is set by stop in face of lock. Then operated from the outside by key. Has adjustable protected front. One cylinder. Can also be furnished to order with auxiliary spring within the lock for use with lever handles at an addition to list prices of \$1.00 each.

Master Keyed—Can be furnished to order in sets of any required number with Master Key to pass each set and a Grand Master Key to pass all. For Master Keyed Locks add 65¢ for each Cyl-

inder. For Master and Grand Master Keyed, add \$1.00.

No. 6845½R—Similar to No. 6845½, except has rabbeted front.

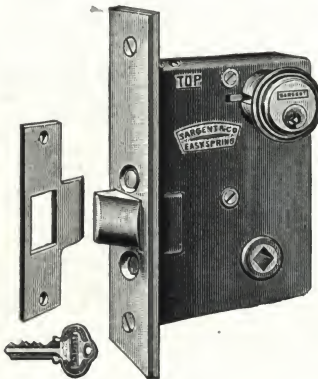
Master Keyed—Same as No. 6845½.

No. 6745½—Same as No. 6845½, except is a lighter lock and does not have adjustable protected front. Can be furnished (not reversible) with beveled front.

Master Keyed—Same as No. 6845½.

No. 6745½R—Same as No. 6745½, except has rabbeted front.

Master Keyed—Same as No. 6845½.



No. 6845½

GENERAL CONSTRUCTION

Case: Japanned.

Front: Bronze.

Bolts and Strike: Bronze.

Cylinders: Bronze.

Keys: Nickel bronze.

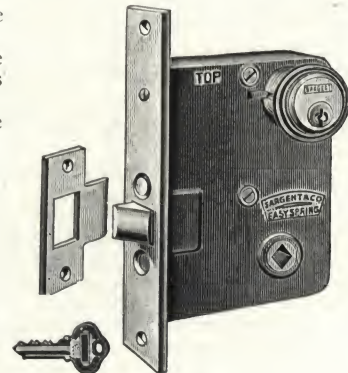
Hubs: Brass, for ¾-in. swivel spindle.

Latch Construction: Easy spring: easy on latch bolt, firm on knob;

two compression springs.

Reversible: Flat front, yes, by removing cap; rabbeted front, no; specify hand. (Can be beveled at any angle from flat to ¼ in. in 2-in. front.)

Master Keying: Yes.



No. 6745½

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in., knob to cylinder	Cylinders	Keys	Master keying	Latch bolt	Each
	Type	Size, in.									
6845½	Adjustable	7¾x1¼	5½x4 x¾	2¾	1¼	3¾	1	Three, 267	Yes	Easy spring	\$ 8.90
6845½R	Rabbeted	7¾x1¼†	5½x4 x¾	2¾ & 2¼	1¼	3¾	1	Three, 267	Yes	Easy spring	11.90
6745½	Flat	7½x1¼	5½x3¾x¾	2¼*	1¼	3¾	1	Three, 267	Yes	Easy spring	8.00
6745½R	Rabbeted	7½x1¼†	5½x3¾x¾	2¼ & 2*	1¼	3¾	1	Three, 267	Yes	Easy spring	11.00

*Special backsets, 1½, 2 and 2¾ in., furnished at \$3.00 extra.

†½-in. rabbet.

Cylinder Knob Locks for Office Doors**Packed with screws to match****These Locks Are for Use on Doors to Offices from Corridors**

No. 6825 Heavy Lock with Dead Bolt—Latch bolt is operative from either side by knobs at all times. Dead bolt operative from outside by key and inside by turn knob.

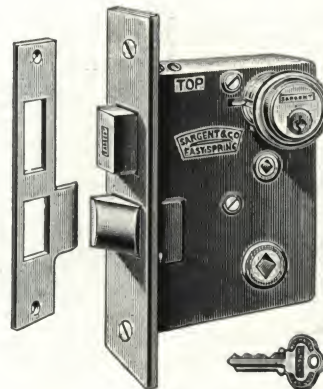
Adjustable Protected Front—This lock is reversible and the front can be beveled at any angle from flat to ¼ in. in 2 in.

Master Keyed—Can be furnished to order in sets of any required number, with Master Key to pass each set and a Grand Master Key to pass all. For Master Keyed Locks add 65¢ for each cylinder. For Master and Grand Master Keyed add \$1.00.

No. 6825R—Same as No. 6825, except has rabbeted front.

Master Keyed—Same as No. 6825.

No. 6826—Same as No. 6825, except



No. 6825

has two cylinders, so that dead lock may be thrown by key instead of turn knob from inside.

Adjustable Protected Front—Same as No. 6825.

Master Keyed—Same as No. 6825.

No. 6826R—Same as No. 6825, except has rabbeted front.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Bronze.

Bolts and Strike: Heavy bronze.

Cylinders: Bronze.

Turn Knob: Bronze.

Keys: Nickel bronze.

Hubs: Brass: Knob hub for ¾-in. straight spindle;

turn knob for hub for ⅝-in. spindle.

Latch Construction: Easy spring: easy on latch

bolt, firm on knob; two compression springs.

Reversible: Flat front, yes, by removing cap;

rabbeted front, no; specify hand.

Master Keying: Yes.

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.		Cylinders	Keys	Master keying	Turn knob	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.		Knob to turn knob	Knob to cylinder						
6825	Adjustable	7¾x1¼	5½x4x¾	2¾	*1, 1½, 2, 2½	1¼	2½	3¾	1	Three, 267	Yes	Yes	Easy spring	\$10.50
6825R	Rabbeted	7¾x1¼†	5½x4x¾	2¾ & 2¼	*1, 1½, 2, 2½	1¼	2½	3¾	1	Three, 267	Yes	Yes	Easy spring	13.50
6826	Adjustable	7¾x1¼	5½x4x¾	2¾	*1, 1½, 2, 2½	1¼	2½	3¾	2	Three, 267	Yes	Yes	Easy spring	11.50
6826R	Rabbeted	7¾x1¼†	5½x4x¾	2¾ & 2¼	*1, 1½, 2, 2½	1¼	2½	3¾	2	Three, 267	Yes	Yes	Easy spring	14.50

*Special backsets are \$3.00 extra.

†½-in. rabbet.

SARGENT

Cylinder Knob Locks for Front Doors or Corridor Doors to Offices

All packed with screws to match

Illustrations
One-quarter Size

Nos. 7805½ and 7805½R Are Also Suitable for Entrance Doors to Apartments

No. 7805½ Heavy Lock with Center Anti-friction Latch Bolt, Upper Guard Latch Bolt and Stops in Face of Lock for Setting—The Anti-friction Latch Bolt assures easy latch action and reduces wear on the latch. Latch bolt is operative from either side by knobs unless outside knob is set by lower stop in face of lock, then can only be operated by key from outside. Upper latch bolt, working on closed strike plate, automatically locks the regular latch bolt as well as stops in face of lock and prevents their being forced when door is closed. Beveled ½ in. in 2 in.

Dead-locking Stop—This lock has a dead-locking stop which is a desirable feature, especially on reverse bevel doors, making it impossible for anyone to push back the stop from the hall side and open the door with the knob.

Master Keyed—Can be furnished to order in sets of any required number, with Master Key to pass each set

and a Grand Master Key to pass all. For Master Keyed Locks add 65¢. For Grand Master Keyed Locks add \$1.00.

No. 7805½R—Same as No. 7805½, except has rabbeted front.

Master Keyed—Same as No. 7805½.

No. 7805—Similar to No. 7805½, but does not have guarded latch bolt. It does have a turn knob which dead-locks the Anti-friction latch bolt from inside against operation of both key and outside knob.

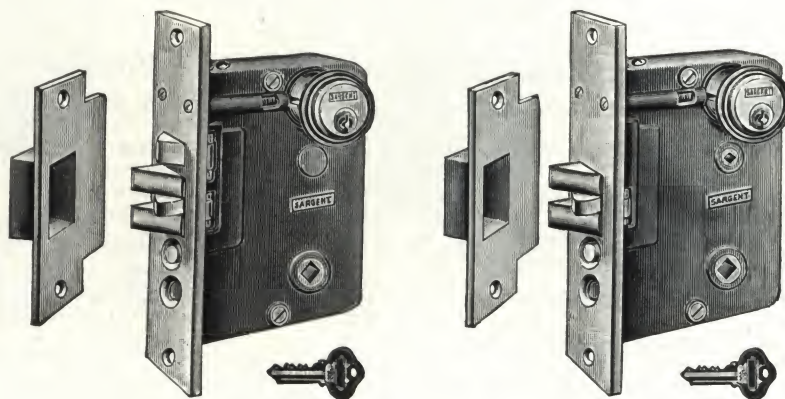
Master Keyed—Same as No. 7805½.

No. 7805R—Same as No. 7805, except has rabbeted front.

Master Keyed—Same as No. 7805½.

No. 7845½—Same as No. 7805½, except that it does not have the upper guarded latch bolt.

No. 7805½R—Same as No. 7805½, except has rabbeted front.



No. 7805½

No. 7805

*(See table at bottom of this page)

Locks with Dead Bolts

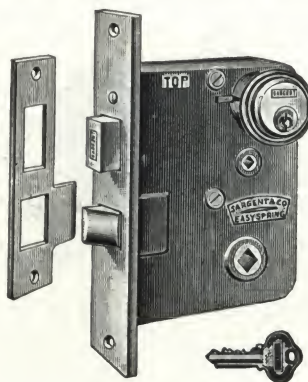
No. 6725 Has Protection of Dead Bolt Only—Latch bolt operative from either side at all times. Dead bolt operative from outside by key and from inside by turn knob.

Beveled Front to Order—Can be furnished (not reversible) with beveled front.

Master Keyed—Can be furnished to order in sets of any required number, with Master Key to pass each set and a Grand Master Key to pass all. For Master Keyed Locks add, for each Cylinder, 65¢. For Master and Grand Master Keyed Locks add \$1.00.

No. 6726—Same as No. 6725, except has two cylinders and dead bolt is operative by turn knob.

Master Keyed—Same as No. 6725.



No. 6725

GENERAL CONSTRUCTION

Case: Japanned.

Front: Bronze.

Bolts and Strike: Bronze, bolt ⅝-in. throw.

Cylinders: Bronze.

Turn Knob: Bronze (for Nos. 7805, 7805R, 6725 and 6726 only).

Keys: Nickel bronze.

Hubs: Brass: Knob hub for ⅜-in. swivel spindle. Turn knob hub for ⅝-in. spindle.

(Nos. 7805½ and 7805½R, 7845½, 7845½R have ⅜-in. swivel spindle only.)

Latch Construction: Easy spring: Easy on latch bolt, firm on knob; two compression springs. Center latch, anti-friction on Nos. 7805, 7805R, 7805½, 7805½R, 7845½ and 7845½R.

Reversible: No, specify hand (Nos. 7805, 7805R, 7805½, 7805½R, 7845½ and 7845½R). Yes, by removing cap (Nos. 6725 and 6726).

Master Keying: Yes.

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike lip to center, in.	Spacing, in.		Cylinders	Keys	Master keying	Turn knob	Latch bolt	Each
	Type	Size, in.				Knob to turn knob	Knob to cylinder						
7805½	Flat	7¾x1⅝	5¾x4 x 7/8	2¾	1¼†	3⅞	1	1	Three, 267	Yes	.....	Anti-friction	\$11.60
7805½R	Rabbeted	7¾x1⅝†	5¾x4 x 7/8	2¾	1¼†	3⅞	1	1	Three, 267	Yes	.....	Anti-friction	14.60
7805	Flat	7¾x1⅝	5¾x4 x 7/8	2¾	1¼†	2½	1	1	Three, 267	Yes	Yes	Anti-friction	11.10
7805R	Rabbeted	7¾x1⅝†	5¾x4 x 7/8	2¾	1¼†	2½	1	1	Three, 267	Yes	Yes	Anti-friction	14.10
7845½	Flat	7¾x1⅝	5¾x4 x 7/8	2¾	1¼	2½	1	1	Three, 267	Yes	.....	Anti-friction	10.00
7845½R	Rabbeted	7¾x1⅝†	5¾x4 x 7/8	2¾	1¼	2½	1	1	Three, 267	Yes	.....	Anti-friction	13.00
6725	Flat	7½x1⅝	5½x3¾x¾	2¾	1¼	2½	1	1	Three, 267	Yes	Yes	Easy spring	9.50
6726	Flat	7½x1⅝	5½x3¾x¾	2¾	1¼	2½	2	2	Three, 267	Yes	.....	Easy spring	10.50

†Thickness including housing 1⅜ in., instead of ⅞ in. (Nos. 7805 and 7805R are beveled ½ in. in 2 in.).

†Box strike.

†½-in. rabbet.

•Special backsets, 1¼, 2 and 2½ in. furnished at \$3.00 extra charge

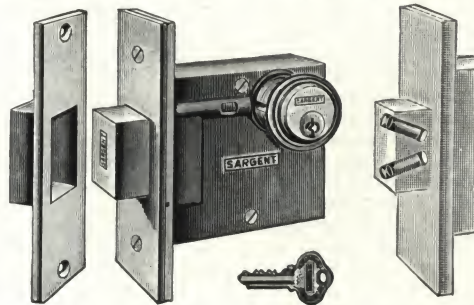
SARGENT**Cylinder Mortise Dead Locks***Illustrations
One-quarter Size*

Packed with screws to match

These heavy locks are especially adapted for under Janitor control and ordinarily have no other Entrance Doors of Public Buildings, etc., which are means of locking.

Extra Heavy Especially Adapted for Entrance Doors of Public Buildings

No. 4886 Operated from One Side Only by Key—Heavy bronze dead bolt is made with two hardened steel rollers as illustrated. These, when attacked with a hack saw, revolve, making it impossible to cut off dead bolt. Has one cylinder.



No. 4886

Sectional View

For Tabulated Data, see Bottom of Page

No. 4887—Same construction as No. 4886, but operates from outside by key and from inside by turn knob No. 125.

No. 4888—Same as No. 4886, but operated from both sides by key. Has two cylinders.

Lighter Dead Locks with Standard Bolts

No. 4881 Operated from Outside by Key and Inside by Turn Knob—Has one cylinder.

No. 4885 Operated from Both Sides by Key—Has two cylinders.

No. 4871 Operated from Outside Only by Key—Similar to No. 4881, but has no turn knob. Has one cylinder.

No. 4861 Operated from Outside by Key, Inside by Turn Knob—A lighter lock than No. 4881. Has one cylinder.

No. 4861R—Similar to No. 4861, except has rabbeted front.

No. 4865 Operated from Both Sides by Key—Similar to No. 4861, except has two cylinders.

No. 4865R—Similar to No. 4865, except has rabbeted front.

No. 4851 Operated from Outside by Key Only—Similar to No. 4861. Has no turn knob, and one cylinder.

No. 4851R—Similar to No. 4851, except has rabbeted front.

No. 4802 for Very Thin Doors 1 $\frac{3}{8}$ in. and Thicker—Operated from outside by key, inside by turn knob.

No. 4803 for Class Room Doors in Schools—Can always be opened but never locked from inside. Similar to No. 4802, except the turn knob will retract dead bolt when thrown but will not throw same.

MASTER KEYING

Any of the above Locks can be furnished to order in sets of any required number, with Master Key to pass each and a Grand Master Key to pass all. For Master Keyed Locks add \$.65 each Cylinder. For Master Keyed and Grand Master Keyed Locks add \$1.00.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze. Nos. 4886, 4887 and 4888 have protected front.

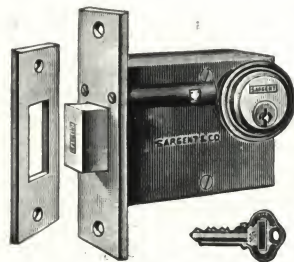
Bolts and Strike: Heavy bronze. Nos. 4886, 4887 and 4888, extra heavy bronze and box strike 5 $\frac{1}{8}$ x1 $\frac{1}{2}$ in.

Cylinders: Bronze

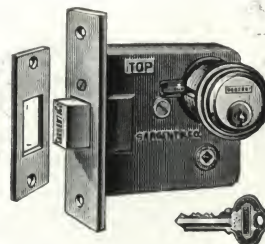
Keys: Nickel Bronze.

Reversible: All flat front locks, yes; rabbeted front locks, no; specify hand.

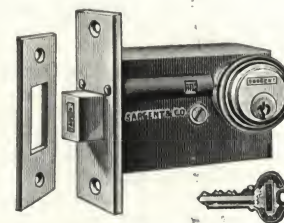
Master Keying: Yes.



No. 4881



No. 4802



No. 4861

Lock No.	Front		Case size, in.	Backset, reg., in.	Cylinders	Keys	Master keying	Turn knob	Each
	Type	Size, in.							
Extra Heavy, for Entrance Doors of Public Buildings									
4886	Protected	5 ¹³ / ₁₆ x1 ³ / ₈	3 ¹ / ₂ x4 x ³ / ₄	2 ³ / ₄	1	Three, 267	Yes	One,	\$ 8.70
4887	Protected	5 ¹³ / ₁₆ x1 ³ / ₈	3 ¹ / ₂ x4 x ³ / ₄	2 ³ / ₄	1	Three, 267	Yes	One,	9.20
4888	Protected	5 ¹³ / ₁₆ x1 ³ / ₈	3 ¹ / ₂ x4 x ³ / ₄	2 ³ / ₄	2	Three, 267	Yes	One,	10.20
Lighter Dead Locks with Standard Bolts									
4881	Flat	5 ¹ / ₄ x1 ¹ / ₄	3 x3 ⁵ / ₈ x ¹⁵ / ₁₆	2 ³ / ₄ *	1	Three, 267	Yes	One, 125	\$ 6.00
4885	Flat	5 ¹ / ₄ x1 ¹ / ₄	3 x3 ⁵ / ₈ x ¹⁵ / ₁₆	2 ³ / ₄ *	2	Three, 267	Yes	One, 125	7.00
4871	Flat	5 ¹ / ₄ x1 ¹ / ₄	3 x3 ⁵ / ₈ x ¹⁵ / ₁₆	2 ³ / ₄ *	1	Three, 267	Yes	None	5.50
4861	Flat	4 ¹ / ₄ x1 ¹ / ₂	2 ³ / ₈ x3 ⁵ / ₈ x ¹⁵ / ₁₆	2 ⁷ / ₈ **	1	Three, 267	Yes	One, 125	4.90
4861R	Rabbeted	4 ⁵ / ₈ x1 ¹ / ₂ †	2 ³ / ₈ x3 ⁵ / ₈ x ¹⁵ / ₁₆	2 ³ / ₄ & 2 ¹ / ₂	1	Three, 267	Yes	One, 125	6.90
4865	Flat	4 ¹ / ₄ x1 ¹ / ₂	2 ³ / ₈ x3 ⁵ / ₈ x ¹⁵ / ₁₆	2 ⁷ / ₈ **	2	Three, 267	Yes	One, 125	5.90
4865R	Rabbeted	4 ⁵ / ₈ x1 ¹ / ₂ †	2 ³ / ₈ x3 ⁵ / ₈ x ¹⁵ / ₁₆	2 ³ / ₄ & 2 ¹ / ₂	2	Three, 267	Yes	One, 125	7.90
4851	Flat	4 ¹ / ₄ x1 ¹ / ₂	2 ³ / ₈ x3 ⁵ / ₈ x ¹⁵ / ₁₆	2 ⁷ / ₈ **	1	Three, 267	Yes	None	4.40
4851R	Rabbeted	4 ⁵ / ₈ x1 ¹ / ₂ †	2 ³ / ₈ x3 ⁵ / ₈ x ¹⁵ / ₁₆	2 ³ / ₄ & 2 ¹ / ₂	1	Three, 267	Yes	None	6.40
4802	Flat	4 ⁵ / ₈ x ⁷ / ₈	3 x3 ¹ / ₄ x ³ / ₄	2 ¹ / ₂	1	Three, 267	Yes	One, 125	4.90
4803	Flat	4 ⁵ / ₈ x ⁷ / ₈	3 x3 ¹ / ₄ x ³ / ₄	2 ¹ / ₂	1	Three, 267	Yes	One, 125	4.90

*Special backsets, 1 $\frac{1}{2}$, 1 $\frac{3}{4}$, 2, 2 $\frac{1}{2}$ to 4 $\frac{1}{2}$ in. at \$3.00 additional.

**Special backsets, 1 to 1 $\frac{1}{4}$, 1 $\frac{5}{8}$ to 2 $\frac{5}{8}$, 2 $\frac{3}{4}$ to 4 in. at \$3.00 additional.

† $\frac{1}{2}$ -in. rabbet.

SARGENT**Cylinder Mortise Night Latches**

Packed with screws to match

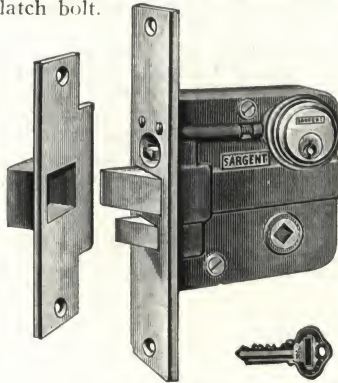
Illustrations
One-quarter Size

Generally used to give additional protection to existing lock service, pipe shafts, etc.

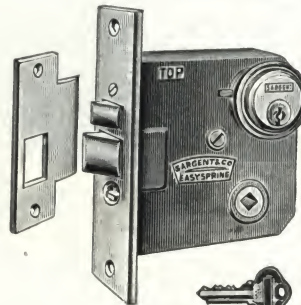
No. 4789x1620x30F with Guarded and 3/4-in. Long Throw Latch Bolt—For Underwriters' service on hollow metal and metal covered doors to pipe shafts. Latch bolt operated by key from outside and by turn knob inside, and held by stop in face of lock. Also has guarded latch bolt, working on the closed strike plate, which automatically locks the regular latch bolt and prevents its being forced from outside when door is closed.

Master Keyed—Can be furnished to order in sets of any required number, with Master Key to pass each set and a Grand Master Key to pass all. For Master Keyed Locks add 65¢ for each Cylinder. For Master Keyed and Grand Master Keyed Locks add \$1.00.

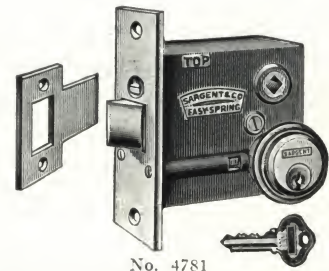
No. 4787x1620x30F—Similar to No. 4789, but has standard throw and the guarded latch bolt is above the regular latch bolt.



No. 4789



No. 4787



No. 4781

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Cylinders	Keys	Master keying	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.						
4789x1620x30F	Beveled #	8 x 1 1/4	4 1/2 x 4 x 1	2 3/4	1 1/2, 2, 2 1/2	1*	1	Three, 267	Yes	Easy spring	\$8.90
4781x1034	Flat	5 x 1 1/2	3 1/4 x 3 3/8 x 1 1/2	2 3/4	1 1/2, 2, 2 1/2	1 1/4	1	Three, 267	Yes	Easy spring	7.20
4781x1620x30F	Flat	5 x 1 1/2	3 1/4 x 3 3/8 x 1 1/2	2 3/4	1 1/2, 2, 2 1/2	1 1/4	1	Three, 267	Yes	Easy spring	7.20
4781x2 cylinders	Flat	5 x 1 1/2	3 1/4 x 3 3/8 x 1 1/2	2 3/4	1 1/2, 2, 2 1/2	1 1/4	2	Three, 267	Yes	Easy spring	9.40
4787x1620x30F	Flat	6 1/2 x 1 1/2	4 1/4 x 4 x 3 3/4	2 3/4	1 1/2, 2, 2 1/2	1 1/4	1	Three, 267	Yes	Easy spring	8.00

*With box strike.

#Beveled 3/8 in. in 2 in.

†For special backsets add \$3.00 each.

Cylinder Knob Lock Sets for Coupon Booth Doors

For Coupon Booth Door Holders, see Page 89

Packed with screws to match

These lock sets are designed especially for doors on coupon booths and afford complete control of booth by safe deposit officials.

Lock Set No. 99—Latch bolt is operative by key from outside of door at all times, and from inside by knob at all times. The inside knob also operates the indicator in outside knob when turned by person leaving booth.

The outside knob has a push button indicator which projects in the center of knob when booth is unoccupied. Attendant pushes the indicator in flush with the knob when it is to be occupied. The action of turning the inside knob to open the door projects the indicator again.



Inside of Door



Outside of Door

Lock Set No. 99

Master Keyed—Can be furnished to order in sets of any required number of Change Keys, with nickel bronze Master Key to pass each set, and a Grand Master Key to pass all. For Master Keyed Locks add, each cylinder, 65¢. For Master Keyed and Grand Master Keyed add \$1.00.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Escutcheon: Cast bronze, 8x2 1/2 in.

Bolts and Strike: Bronze, reverse bevel.

Latch Bolt: Easy spring; Easy on latch bolt, firm on knob; two compression springs.

Hub: Brass, for 3/8-in. straight spindle.

Knob: 2 in.

Reversible: Yes, by removing cap.

Master Keying: Yes.

Specify thickness of door.

No.	Front		Case size, in.	Backset, in. Reg.	Strike, lip to center, in.	Spacing*	Keys	Master keying	Cylinders	Latch bolt	Per set
	Type	Size, in.									
99	Flat	7 1/2 x 1 1/2	5 1/2 x 3 3/8 x 3/4	2 1/2	1 1/4	3 3/8	Three, 267	Yes	1	Easy spring	\$16.00

*Hub center to cylinder center.

SARGENT

Cylinder Knob Locks For Hollow Metal and Kalamein Fire Doors to Stairways

*Illustrations
One-quarter Size*
Latch Bolt Has $\frac{3}{4}$ -in. Throw
For Latches Approved by Underwriters, see page 47
All packed with screws to match

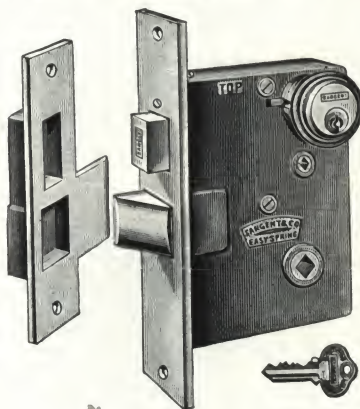
These locks have extra long $\frac{3}{4}$ -in. throw for Metal and Metal Covered Doors to stairways, meeting latch bolt and are especially designed for Hollow the requirements of the Fire Underwriters.

Nos. 6827 and 6828 Have Dead Bolt Protection Only

No. 6827 Has Dead Bolt Protection Only—Latch bolt is operative by knobs from either side at all times. Dead bolt is operative by key from outside and turn knob from inside. One cylinder only.

Escutcheons Suitable—Escutcheons for $5\frac{1}{2}$ -in. locks are suitable for these locks.

Master Keyed—Can be furnished to order in sets of any required number with Master Key to pass each set, and a



No. 6827

See table at bottom of page

Grand Master Key to pass all. Master Key No. 272.

Master Keyed, add 65¢ for each cylinder. Master Keyed and Grand Master Keyed, add \$1.00 each.

No. 6828—Similar to No. 6827, except has two cylinders and the dead bolt is thrown by key through inside cylinder, instead of by turn knob.

Escutcheons Suitable—Same as No. 6827.

Master Keyed—Same as No. 6827.

Nos. 6808 and 6807 $\frac{1}{2}$ Have Upper Guarded Latch Bolt

No. 6808 Has Upper Guarded Latch Bolt—The long throw latch bolt is operative from either side by knobs unless outside knob is set by key in cylinder from inside, then can only be operated by key from outside. Operative from inside at all times. Upper latch bolt, working on closed strike, automatically locks the regular latch bolt and prevents its being forced when door is closed.

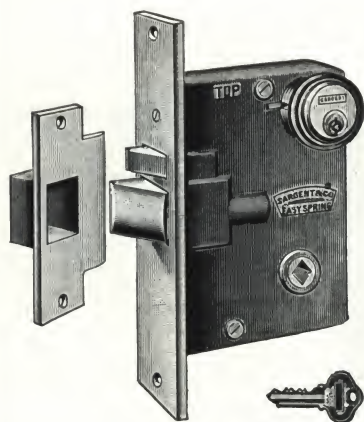
Escutcheons Suitable—Same as No. 6827.

Master Keyed—Same as No. 6827.

No. 6807 $\frac{1}{2}$ —Similar to No. 6808, but has stops in face of lock in place of inside cylinder and bottom stop will set outside knob when pushed in, making it inoperative.

Escutcheons Suitable—Same as No. 6827.

Master Keyed—Same as No. 6827.



No. 6808

GENERAL CONSTRUCTION

Case: Japanned.

Front: Bronze.

Bolts and Strike: Heavy bronze, with $\frac{3}{4}$ -in. throw on latch bolt.

Cylinders: Bronze.

Turn Knob: Bronze (Nos. 6827 and 6828 only).

Keys: Nickel bronze No. 267.

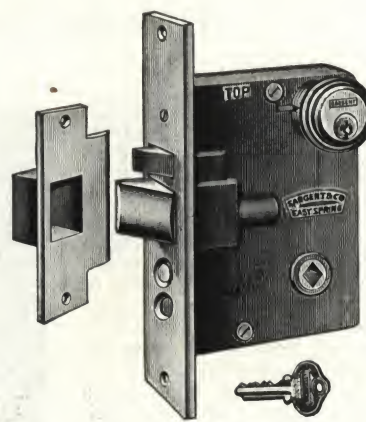
Hubs: Brass knob hub for $\frac{3}{8}$ -in. spindle. Turn knob hub for $\frac{1}{8}$ -in. spindle.

Latch Construction: Easy spring; Easy on latch bolt, firm on knob; two compression springs.

Reversible: No; specify hand.

Master Keying: Yes.

Specify thickness of doors.

No. 6807 $\frac{1}{2}$

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.		Cylinders	Keys	Master keying	Latch bolt	Each
	Type	Size, in.				Knob to turn knob	Knob to cylinder					
6827	Flat	$8\frac{3}{8} \times 1\frac{1}{4}$ †	$6 \times 4\frac{3}{8} \times \frac{7}{8}$ *	$3\frac{1}{4}$	$1\frac{1}{4}$ ‡	$2\frac{1}{2}$	$3\frac{7}{8}$	1	Three, 267	Yes	Easy spring	\$17.00
6828	Flat	$8\frac{3}{8} \times 1\frac{1}{4}$ †	$6 \times 4\frac{3}{8} \times \frac{7}{8}$ *	$3\frac{1}{4}$	$1\frac{1}{4}$ ‡	$2\frac{1}{2}$	$3\frac{7}{8}$	2	Three, 267	Yes	Easy spring	18.00
6808	Flat	$8\frac{1}{2} \times 1\frac{1}{4}$	$6 \times 4\frac{1}{2} \times \frac{7}{8}$ †	3	$1\frac{1}{4}$‡	.....	$3\frac{7}{8}$	2	Three, 267	Yes	Easy spring	14.50
6807 $\frac{1}{2}$	Flat	$8\frac{1}{2} \times 1\frac{1}{4}$	$6 \times 4\frac{1}{2} \times \frac{7}{8}$ †	3	$1\frac{1}{4}$‡	.....	$3\frac{7}{8}$	1	Three, 267	Yes	Easy spring	13.75

†Thickness including housing is $1\frac{1}{8}$ in. instead of $\frac{7}{8}$ in.

‡Box strike.

†Beveled $\frac{1}{8}$ in. in 2 in.

*Thickness including housing is $1\frac{1}{8}$ in. instead of $\frac{7}{8}$ in.

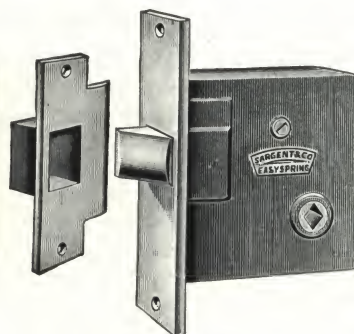
SARGENT**Knob Latches—Mortise**Illustrations
One-quarter Size**Underwriters' Latches for Hollow Metal and Metal Covered Doors to Stairways**

All packed with screws to match

No. 4650, Extra Heavy for Doors to Fire Escape Stairways—Meets the requirements of the Underwriters for these types of doors. Has a regular latch bolt with $\frac{3}{4}$ -in. throw, operative only from the inside by knob. Also has upper guard latch bolt working on the closed strike-plate, which automatically locks the regular latch bolt, preventing its being forced back when the door is closed.



No. 4650



No. 4651

No. 4651—Similar to No. 4650, except without upper guard latch bolt.

GENERAL CONSTRUCTION

Case: No. 4650—Cadmium plated.
No. 4651—Japanned.
Front: cast bronze. Beveled $\frac{1}{8}$ in 2 in.
Bolts and Strike: Heavy bronze.
Hub: Brass.
Spindle: $\frac{3}{8}$ -in.
Latch Construction: Easy spring: Easy on latch bolt, firm on knob.
Reversible: No. Specify hand.

No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.			
4650	Flat	$6\frac{5}{8} \times 1\frac{1}{4}$	$4\frac{1}{4} \times 4\frac{3}{8} \times 1\frac{1}{2}$ *	3	$3\frac{1}{4}$ #	$1\frac{1}{4}$	Easy spring	\$4.60
4651	Flat	$6\frac{5}{8} \times 1\frac{1}{4}$	$4\frac{1}{4} \times 4\frac{3}{8} \times 1\frac{1}{2}$ *	3	$3\frac{1}{4}$ #	$1\frac{1}{4}$	Easy spring	4.00

* $1\frac{1}{2}$ in. thick including housing.
‡For special backsets, add \$1.50.

Knob Latches—Mortises for Wood Doors**Used Mostly on Closets and Cupboards**

Packed with Screws to Match

No. 4645 Extra Heavy Lock with Latch Bolt Only—Operative from both sides by knobs.

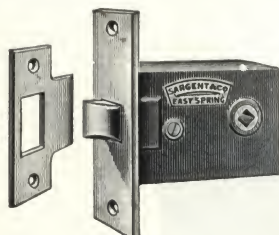
Note: Can be furnished with dustproof strikes at additional cost of \$1.60 each.

No. 4645R—Similar to No. 4645, except has rabbeted front.

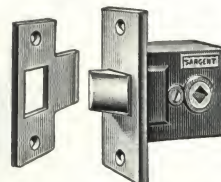
No. 4643½—Extra heavy latch but smaller case than No. 4645. With spring in latch bolt suitable for knob action.

No. 4643½R—Similar to No. 4643½, except has rabbeted front.

No. 4643—Similar to No. 4643½, except has heavy hub spring for lever handles. With easy spring and easy on latch bolt, firm in knob.



No. 4645



Nos. 4643 and 4643½

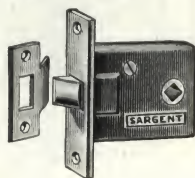
No. 4643R—Similar to No. 4643, except has rabbeted front.

Nos. 4615, 4634 and 4607—All latches are operated by knobs from either side at all times. They are all for similar service, varying in size and weight. No. 4615 suitable for lever handles with $\frac{3}{8}$ -in. spindle.

No. 4607R—Similar to No. 4607, except has rabbeted front.

GENERAL CONSTRUCTION

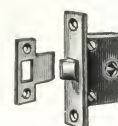
Case: Japanned.
Front: Cast bronze.
Bolts and Strike: Nos. 4615, 4634, 4607 and 4607R—Bronze. All others—heavy bronze.
Hub: Brass.
Spindle: $\frac{3}{8}$ in. (Nos. 4607 and 4607R— $\frac{1}{2}$ in.)
Latch Construction: Easy spring: Easy on latch bolt, firm on knob.
Reversible: Right or left hand.
Master Keying: No.



No. 4615



No. 4634



No. 4607



No. 4607R

No.	Front		Size case, in.	Backset, in.		Strike, lip to center, in.	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.			
4645	Flat	$4\frac{3}{4} \times 1\frac{1}{8}$	$2\frac{1}{2} \times 3\frac{1}{2} \times \frac{5}{8}$	$2\frac{3}{4}$		$1\frac{1}{4}$	Easy spring	\$2.10
4645R	Rabbeted	$4\frac{1}{2} \times 1\frac{1}{8}$ *	$2\frac{1}{2} \times 3\frac{1}{2} \times \frac{5}{8}$	$2\frac{3}{4}$ & $2\frac{1}{4}$		$1\frac{1}{4}$	Easy spring	4.10
4643½	Flat	$3\frac{5}{8} \times 1\frac{1}{8}$	$1\frac{7}{8} \times 2\frac{1}{4} \times \frac{5}{8}$	$1\frac{1}{2}$	$2\frac{1}{2}$ §	$1\frac{1}{4}$	Easy spring	1.80
4643½R	Rabbeted	$4\frac{1}{8} \times 1\frac{1}{8}$	$1\frac{7}{8} \times 2\frac{1}{4} \times \frac{5}{8}$	$1\frac{1}{2}$ & 1	$2\frac{1}{2}$ §	$1\frac{1}{4}$	Easy spring	3.80
4643	Flat	$3\frac{5}{8} \times 1\frac{1}{8}$	$1\frac{7}{8} \times 2\frac{1}{4} \times \frac{5}{8}$	$1\frac{1}{2}$	$2\frac{1}{2}$ §	$1\frac{1}{4}$	Easy spring	1.80
4643R	Rabbeted	$4\frac{1}{8} \times 1\frac{1}{8}$	$1\frac{7}{8} \times 2\frac{1}{4} \times \frac{5}{8}$	$1\frac{1}{2}$ & 1	$2\frac{1}{2}$ §	$1\frac{1}{4}$	Easy spring	3.80
4615	Flat	$3\frac{5}{8} \times 1\frac{1}{8}$	$2 \times 2\frac{1}{4} \times \frac{5}{8}$	$1\frac{3}{4}$		$\frac{3}{4}$	(-)	1.00
4634	Flat	$3\frac{5}{8} \times 1$	$1\frac{3}{4} \times 3\frac{1}{4} \times \frac{5}{8}$	$2\frac{1}{2}$	$2\frac{3}{4}$ §	$1\frac{1}{8}$	Easy spring	.90
†4607	Flat	$2\frac{1}{2} \times \frac{9}{16}$	$1\frac{3}{8} \times 1\frac{1}{2} \times \frac{1}{2}$	$\frac{3}{4}$		$\frac{7}{8}$	(-)	1.00
†4607R	Rabbeted	$2\frac{3}{8} \times \frac{9}{16}$ ‡	$1\frac{3}{8} \times 1\frac{1}{2} \times \frac{1}{2}$	$1\frac{1}{8}$ & $\frac{3}{4}$		$\frac{7}{8}$	(-)	2.00

* $\frac{1}{2}$ -in. rabbet.

§No extra charge for this special backset.

‡ $\frac{3}{8}$ -in. rabbet.

†Turn knob having $\frac{1}{16}$ -in. spindle suitable.

SARGENTIllustrations
One-quarter Size**Cylinder Knob Locks for School Houses**

Packed with Screws to Match

Safety Locks—Always Operative from Inside

These locks are operative from the inside at all times by the knob so that the door may be quickly opened in case of fire or panic. All the exterior doors may be locked by Master Key from the inside without going out, so that they cannot be entered from the outside without a key, but still can be operated from the inside by the knob.

The outside knob is made operative or inopera-

tive only by Master Key, assuring full control of doors.

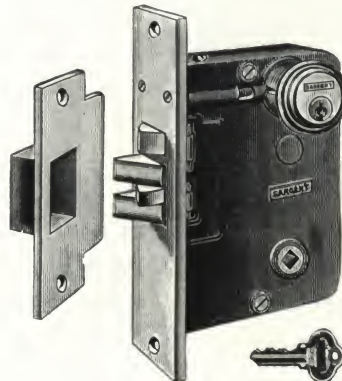
The same feature is good for any place where it is desired to bar entrance after a certain hour, but permits those inside to go out at will.

Many communities require the use of Exit Devices on all Exit Doors. For complete line of this type of hardware, see pages 70-73.

Cylinder Knob Locks for Entrance or Corridor Doors

No. 7816 Heavy, High Grade Lock for Entrance Doors—Has center anti-friction latch bolt operative at all times by knob from inside and by knob from outside except when outside knob is set by Master Key from inside cylinder. Then the outside knob is not affected by key operating the latch bolt from outside and outside knob can only be released again by Master Key from inside.

Latch bolt is operative at all times by key from outside and by knob from inside. Latch bolt is also protected from forcing by the upper guard latch bolt which, working on the closed strike, automatically locks the regular latch bolt when the door is closed.



No. 7816

No. 6816—A high grade lock with same operation as No. 7816, except it does not have anti-friction latch bolt.

No. 6818—Similar to No. 6816, but does not have the upper guard latch bolt.

No. 6718—Similar to No. 6816, except it is a lighter lock for thin doors 1 3/8 in.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Bronze. Nos. 7816, 6816 and 6818—heavy bronze.

Cylinders: Bronze.

Keys: Nickel bronze.

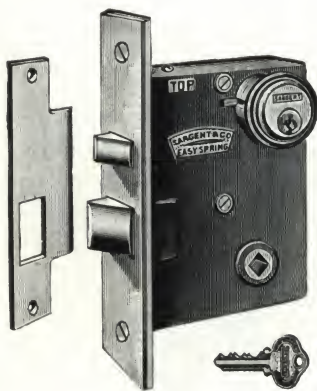
Hubs: Brass, for 3/8-in. swivel spindle.

Latch Construction: Easy spring; easy on latch bolt, firm on knob. Two compression springs.

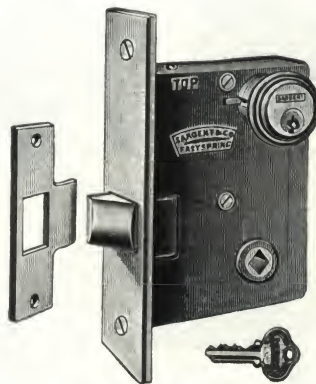
Reversible: No; specify hand. No. 6718—Yes, by removing cap. Can be furnished to order (not reversible) with beveled front.

Master Keying: Yes.

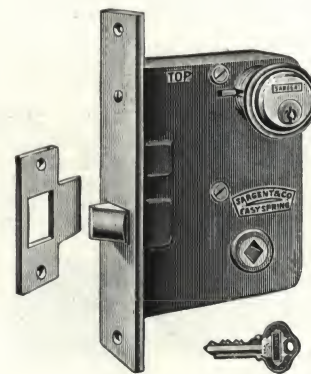
Specify: Thickness of doors.



No. 6816



No. 6818



No. 6718

Lock No.	Front		Case size, in.	Back-set, reg., in.	Strike, lip to center, in.	Spacing, in. knob to cylinder	Cylinders	Keys	Master keying	Turn knob	Latch bolt	Price each
	Type	Size, in.										
7816	Flat	7 3/4 x 1 3/8	5 3/4 x 4 x 7/8*	2 3/4	1 1/4 #	3 7/8	2	Three, 267	Yes	No	Center anti-friction	\$13.90
7816R	Rabbeted	7 3/4 x 1 3/8	5 3/4 x 4 x 7/8*	2 3/4	1 1/4 #	3 7/8	2	Three, 267	Yes	No	Center anti-friction	16.90
6816	Adjustable	7 3/4 x 1 1/4	5 1/2 x 4 x 7/8	2 3/4 †	1 1/4	3 7/8	2	Three, 267	Yes	No	Easy spring	12.10
6818	Adjustable	7 3/4 x 1 1/4	5 1/2 x 4 x 7/8	2 3/4	1 1/4	3 7/8	2	Three, 267	Yes	No	Easy spring	11.00
6718	Flat	7 1/2 x 1 1/8	5 1/2 x 3 3/8 x 7/8	2 3/4	1 1/4	3 7/8	2	Three, 267	Yes	No	Easy spring	10.00

*Thickness including housing, 1 3/8 in.

‡Box strike.

†Special backsets, 1 3/4 to 2 3/4 and 2 3/4 to 6 in., add \$6.00 each.

‡Can be beveled any angle from flat to 3/8 in. in 2 in.

For Master Keyed locks, add \$.65 each cylinder.

For Grand Master Keyed, add \$1.00 each cylinder.

SARGENTIllustrations
One-quarter Size**Locks for School Houses****Bitted Key Locks for Class Room Doors Opening Out****Always Operative from Inside**

All packed with screws to match

These locks are operative from the inside at all times, and are especially designed for doors to corridor from class rooms.

They may be locked from corridor side by teacher or janitor, but anyone on inside can always come out but cannot re-enter after closing the door.

No. 4736 Heavy Bitted Key Lock with Upper Guard Latch Bolt—Latch bolt operative by knob from inside at all times, and by knob from outside when upper guard latch bolt and lower latch are locked backed by key from either side. When released by key, upper guard latch bolt, working on the closed strike plate, automatically locks the regular latch bolt, and makes the outside knob stationary.

Master Keyed (Class A)—Can be furnished in one set of 800 locks (or less), all different, with Master Key to pass. Can also be furnished in sets as desired (every lock different), with Master Key for each set, and with a Grand Master Key to pass the whole 800 locks when desired. Can also be Master Keyed in sets with all other three and four tumbler locks in Class A. For Master Keyed Locks add 40¢ each.

Escutcheons Suitable—Escutcheons having 6 in. between the screw holes can be cut out to fit these locks. In ordering, specify the number of the escutcheon wanted and order it "cut to fit."

No. 4735—This lock is the same as No. 4736 except that the latch bolt and auxiliary bolt will both be drawn back and held by the same key action that now draws back and holds the auxiliary bolt.

Especially designed for class room doors opening "in" or "out" and to be used in connection with a door closer.

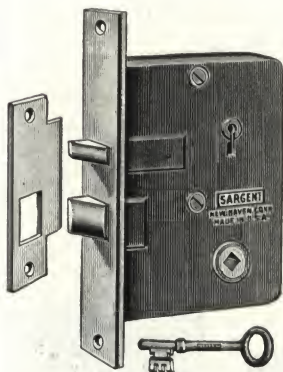
When the auxiliary latch and latch bolt are drawn back by the key and held in the retracted position, the door can be operated as a push and pull door.

No. 4737 Lock with Recessed Face and Latch Bolt Instead of the Upper Guard Latch Bolt—The recess face prevents the latch from being forced from the outside by an instrument. The latch bolt is operative from the inside at all times by the knob, and outside by knob, except when knob is locked by key from either side.

Can be furnished only with Reverse Bevel.

Master Keyed (Class A)—Same as No. 4736.

Escutcheons Suitable—Same as No. 4736.



No. 4736

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Nos. 4736 and 4735, heavy bronze;

No. 4737—heavy bronze, reverse bevel.

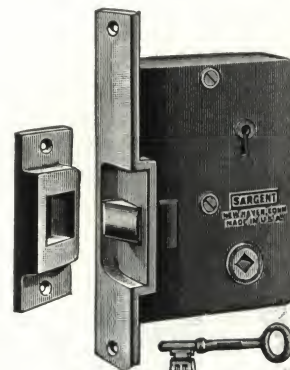
Tumblers: Wrought steel

Keys: Nickel plated steel.

Hub: Brass, for $\frac{1}{8}$ -in. swivel spindle.

Reversible: Nos. 4736 and 4735, yes, by removing cap; No. 4737, no, specify hand.

Master Keying: Yes.



No. 4737

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Master keying	Changes	Each
	Type	Size, in.									
4736	Flat	$7\frac{1}{2} \times 1\frac{1}{2}$	$5\frac{1}{2} \times 3\frac{3}{8} \times 1\frac{1}{16}$	$2\frac{3}{4}$	$1\frac{1}{4}$	$2\frac{7}{8}$	3	C338	Class A	260	\$6.40
4737	Recessed	$7\frac{1}{2} \times 1\frac{1}{2}$ *	$5\frac{1}{2} \times 3\frac{3}{8} \times 1\frac{1}{16}$	$2\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{7}{8}$	3	C338	Class A	260	4.70
4735	Flat	$7\frac{1}{2} \times 1\frac{1}{2}$	$5\frac{1}{2} \times 3\frac{3}{8} \times 1\frac{1}{16}$	$2\frac{3}{4}$	$1\frac{3}{4}$	$2\frac{7}{8}$	3	C338	Class A	260	6.40

*Recess, $\frac{1}{8}$ in.

SARGENT**Bitted Key Dead Locks—Mortise**Illustrations
One-quarter Size

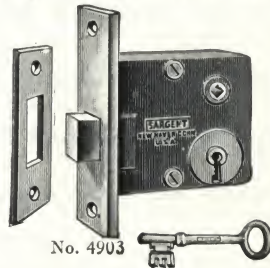
Used for Class Room Doors of Schools and Hospital Doors to Private Rooms—
Always Operative from the Inside

Packed with screws to match

No. 4903—Dead bolt operative from outside by key. Turn knob on inside will retract the dead bolt, but will not project it.

Note: Keyhole should not be cut through door, but on the outside only.

Master Keyed (Class A)—Can be furnished in one set of 800 locks (or less), all different, with Master Key to pass. Can also be furnished in sets as desired (every lock different), with Master Key for each set and with a Grand Master Key to pass the whole 800 locks when desired. Can also



No. 4903

be Master Keyed in sets with all other three and four tumbler locks in Class A. Master Key No. 919.

For these locks Master Keyed, add 40¢.

GENERAL CONSTRUCTION

Case: Japanned.
Front: Cast bronze.
Bolts and Strike: Bronze.
Tumblers: Wrought steel, three.
Keys: Nickel plated steel.
Reversible: Yes.
Master Keying: Yes.

Lock No.	Front		Case size, in.	Backset, reg., in.	Tumblers	Keys	Master keying	Changes	Thumb knob, bronze	Each
	Type	Size, in.								
4903	Flat	4 3/4 x 1	3 x 3 1/2 x 3/8	2 1/2	3	One, C-338	Class A	260	No. 125	\$3.20

Bitted Key Dead Locks—Mortise for Closet Doors

Nos. 4944 and 4949—Light mortise dead locks. Similar to each other, except No. 4949 can be Master Keyed. Both lock from one side by key only.

Master Keyed—No. 4949, same as No. 4903.



No. 4944

GENERAL CONSTRUCTION

Case: Japanned.
Front: Cast bronze.
Bolts and Strike: Bronze.
Tumblers: Wrought steel. No. 4944, one; No. 4949, three.
Keys: Nickel plated steel.
Reversible: Yes.

Lock No.	Front		Case size, in.	Backset, reg., in.	Tumblers	Keys	Master keying	Changes	Thumb knob, bronze	Each
	Type	Size, in.								
4944	Flat	3 3/4 x 1	2 1/2 x 3 1/4 x 9/16	2 1/2*	1	One, C-336	Class A	260	None	\$1.35
4949	Flat	3 3/4 x 1	2 1/2 x 3 1/4 x 9/16	2 1/2*	3	One, C-338			None	1.65

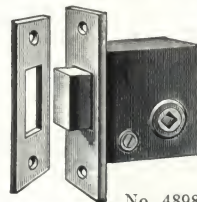
*Special backsets, 1 1/2 to 3 1/2 in. furnished at \$3.00 each additional.

Mortise Bolts

Packed with screws to match

No. 4898—Used with knob only—no key. Any of our door knobs fitted with spindles No. 30 and 30F may be used.

For Mortise Dutch Door Bolts, see page 90.



No. 4898

GENERAL CONSTRUCTION

Case: Japanned.
Hub: Brass.
Bolt: Heavy bronze.
Reverse: Right or left hand.
Operation: By turn knob from one side only.

EXTRA HEAVY

No.	Front		Case size, in.	Backset, reg., in.	Hub, in.*	Each
	Type	Size, in.				
4898	Flat	4 x 1	2 1/2 x 2 3/4 x 1 1/8	1 3/4	3/8	\$1.10

*Turn knobs, having 3/8-in. spindle, suitable for the above bolts.

Mortise Turnbuckles

Packed with screws to match

No. 4908—Heavy bolt to draw door tight. Flat front.

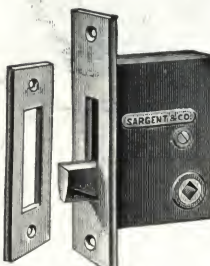
No. 4908R—Similar to No. 4908, but has rabbeted front.

No. 4907—Similar to No. 4908, except with dead locking attachment.

No. 4907R—Similar to No. 4907, except has rabbeted front.

GENERAL CONSTRUCTION

Case: Japanned.
Front, Bolts, Strike: Bronze.
Hub: Brass, for 3/8-in. spindle.
Reversible: Flat front—yes. Rabbeted front—no; specify hand.



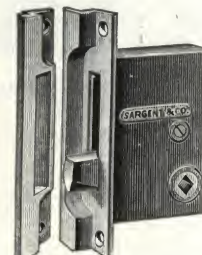
No. 4908



No. 4907



No. 4907R



No. 4908R

Lock No.	Front		Case size, in.	Backset, reg., in.	Each
	Type	Size, in.			
4908	Flat	5 1/4 x 1	3 1/2 x 2 1/2 x 3/8	2	\$2.80
4908R	Rabbeted	5 1/4 x 7/8	3 1/2 x 2 1/2 x 3/8	2 3/4 & 2	4.30
4907*	Flat	4 x 1 1/8	2 3/4 x 1 1/2 x 3/8	1 3/4	2.25
4907R*	Rabbeted	4 1/2 x 1 1/8	2 3/4 x 2 1/4 x 3/8	1 3/4 & 1 3/8	3.75

† 3/8-in. rabbet. *For special backsets 1 inch, add \$1.50.

SARGENT*Illustrations
One-quarter Size*

Locks, Latches and Dead Locks for Hospitals and Asylums

For Other Hospital Hardware, see Page 80

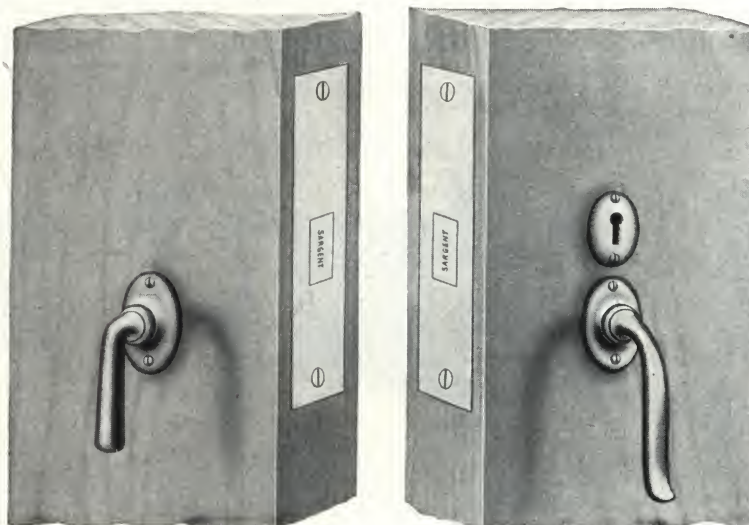
Mortise Bitted Key Hospital Lock Sets

"No Click" Noiseless Operation

Set No. 498—
This set consists of lock, lever handles and key plate complete for one door, made up as follows:

One Lock No. 4984— $4\frac{3}{4} \times 3\frac{1}{2}$ in., described below.

One Lever Handle No. 1153, $3\frac{3}{8}$ in., Rose No. 164 $\frac{1}{2}$ for outside of door.



Lock Set No. 498

One Lever Handle No. 1159, $2\frac{1}{2}$ in., Rose No. 164 $\frac{1}{2}$ for inside of door.

One Key Plate No. 810, $1\frac{3}{4} \times 1\frac{1}{4}$ in., for outside of door.

For complete description of lock, strikes and keying, see detailed description below.

No. 498, per set, \$11.00.

Mortise Hospital Locks

"No Click" Noiseless Operation

Key Hole Above the Lever Handle or Knob

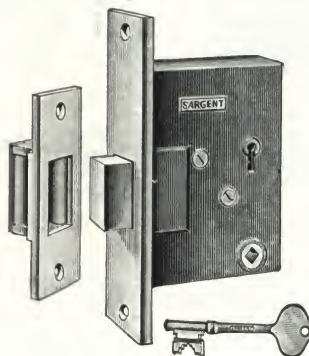
*This Lock is used in set illustrated above**Packed with screws to match*

Lock No. 4984—Heavy lock designed especially for this purpose. The dead bolt is operative from either side by lever handles or knobs, unless the dead bolt is locked by key, making handles or knobs inoperative.

The strike is made with a spring box which allows the dead bolt to enter with a "no click" noiseless operation.

Keying—Locks are generally used with same Change Key for all doors, with small number of keys for all locks.

Master Keyed (Class B)—Can also be furnished in sets with all other Class B locks.



No. 4984

Escutcheons—Escutcheons having 6 in. between the screw holes can be "cut to fit." In ordering, specify the number of the escutcheon wanted and order it "cut to fit."

GENERAL CONSTRUCTION

Case: Japanned.
Front: Cast bronze.
Bolts and Strike: Cast bronze
Tumblers: One.
Key: Nickel plated steel.
Hub: Bronze, for $\frac{1}{8}$ -in. straight spindle.
Reversible: Yes.
Master Keying: Yes.

Lock No.	Front		Case size, in.	Backset, reg., in.	Spacing, in.	Tumblers	Keys	Master keying	Each
	Type	Size, in.							
4984	Flat	$6\frac{7}{8} \times 1\frac{1}{4}$	$4\frac{3}{4} \times 3\frac{1}{2} \times 7\frac{3}{8}$	$2\frac{3}{4}$	$2\frac{3}{4}$	1	948	Class B	\$6.60

SARGENT

All packed with screws to match

Mortise Asylum Latches, Extra Heavy
For Doors from Rooms to CorridorsIllustrations
One-quarter Size

No. 4732 Heavy Latch with Heavy Latch Bolt and Lower Guard Latch Bolt—Latch bolt operative from either side by knobs except when deadlocked by key from either side. Can always be operated by key from inside. Lower latch bolt, working on closed strike plate, automatically locks the regular latch bolt, preventing its being forced back when door is closed.

Master Keyed (Class B).

Escutcheons—Any of our escutcheons suitable for 3½ and 4¼-in. locks can be cut to fit these locks. In ordering, specify the number of the escutcheon wanted, and order it "cut to fit."

No. 4730 Extra Heavy with Recessed Face and Latch Bolt—The recessed face and projecting box strike prevents the latch bolt from being forced back. Latch bolt operated from either side by knob, except when deadlocked by key from the inside. Has three tumblers.

Master Keyed (Class A).

Escutcheons—Same as for No. 4732.

No. 4731—Same as No. 4730, except has four tumblers and more changes and Master Keyed Class B.

Master Keyed (Class B).

Escutcheons—Same as No. 4732.

No. 5656½ Extra Heavy with Latch Bolt Operated by Key Only—Latch bolt operative from either side of door by key only; the knobs being stationary. The door is always locked when closed.

Master Keyed (Class B).**GENERAL CONSTRUCTION**

Front: Cast bronze.

Case: Japanned.

Tumblers: Wrought steel.

Bolts and Strike: Heavy bronze.

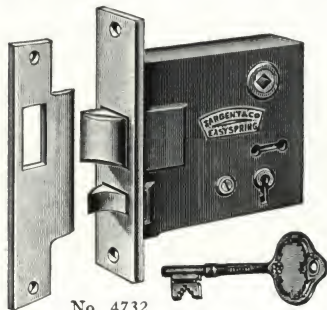
Latch Bolt: No. 5656½—Easy spring: Easy on latch bolt, firm on knob.

Hub: Brass, for ⅝-in. straight spindle.

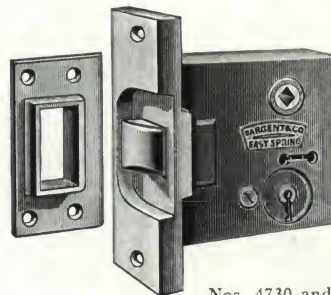
Reversible: No. 5656½—Yes, by removing cap. Others—No, specify hand.

Key: Nickel plated steel.

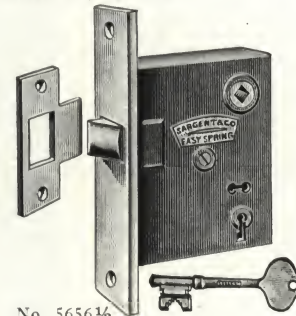
Master Keying: Yes.



No. 4732



Nos. 4730 and 4731

Key No. 938 for No. 4730
Key No. 969 for No. 4731

No. 5656½

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Master keying	Changes	Latch bolt	Each
	Type	Size, in.										
4730	Recessed	5½ x 1½†	3¾ x 4¼ x 7⁄8	3	1½	2½	3	One, 938	Class A	260	Easy spring	\$ 6.00
4731	Recessed	5½ x 1½†	3¾ x 4¼ x 7⁄8	3	1½	2½	4	One, 969	Class B	280	Easy spring	6.50
4732	Flat	5½ x 1½	3¾ x 4¼ x 7⁄8	3	1½	2½	4	One, 969	Class B	280	Easy spring	10.50
5656½	Flat	6 x 1½	4¼ x 3½ x 7⁄8	2¾	1¼	2½	4	One, 948	Class B	280	Easy spring	6.50#

†Recess, ⅛-in. Other sizes to order. #Including key functions.

Bitted Key Mortise Asylum Knob Locks and Dead Locks**Knob Locks, Key Hole Above Knob**

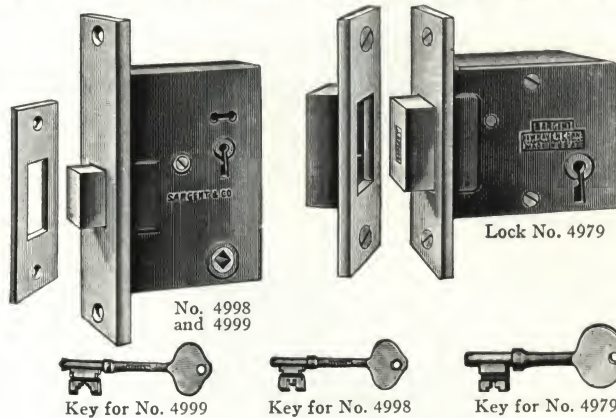
No. 4998 Extra Heavy Dead Bolt—The dead-bolt, when unlocked, is operated from both sides by the knobs. The key locks the dead-bolt so that it cannot be operated by the knobs. No. 4998 has an extra heavy bolt and is noiseless (no click) in its operation.

Master Keyed (Class B).

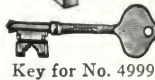
Escutcheons—Escutcheons having 6 in. between the screw holes can be cut to fit these locks. In ordering, specify the number of the escutcheon wanted and order it "cut to fit."

No. 4999—Same as No. 4998, except has fewer changes and is Master Keyed (Class A).

Escutcheons—Same as No. 4998.



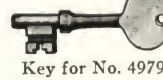
No. 4998 and 4999



Key for No. 4998



Key for No. 4999



Key for No. 4979

Dead Locks

This is a heavy type deadlock made especially for asylum use. Made regularly with two changes, one for Male Ward, and one for Female Ward. The three tumblers are made of cold rolled steel of unusual thickness. The keys are made of extra heavy cold forged steel. Locks and keys are priced separately as number of keys for groups of locks vary.

No. 4979—Operated by key only from either side. Not furnished Master Keyed.

No. 4979R—Same as No. 4979, except has rabbeted front.

GENERAL CONSTRUCTION

Case: Japanned.

Front, Bolts, Strike: Bronze. No. 4979, box;

No. 4998, flat.

Keys: Nos. 4998 and 4999—Nickel plated steel; Nos. 4979 and 4979R—Extra heavy, of cold forged steel.

Tumblers: Nos. 4998 and 4999—Wrought steel. Nos. 4979 and 4979R—Cold rolled

steel of unusual thickness.

Hub: Nos. 4998 and 4999—Brass, for ⅝-in.

straight spindle.

Reversible: Nos. 4998, 4999 and 4979—Yes;

No. 4979R—No; specify hand.

Master Keying: Nos. 4998 and 4999—Yes;

Nos. 4979 and 4979R—No.

Lock No.	Front		Case size, in.	Backset, reg., in.	Tumblers	Keys	Master keying	Changes	Each
	Type	Size, in.							
4998	Flat	6¾ x 1½	4¾ x 3½ x 7⁄8	2¾	3	One, 948	Class B	280	\$7.30*
4999	Flat	6¾ x 1½	4¾ x 3½ x 7⁄8	2¾	3	One, 938	Class A	260	6.60#
4979	Flat	5½ x 1½	4 x 3½ x 1½	3	3	979	None	2	4.60†
4979R	Rabbeted	5½ x 1½	4 x 3½ x 1½	3	3	979	None	2	6.60†

*This price includes all key functions. Master Keys No. 933. †½-in. rabbet.

#This price does not include Master Keying. For Master Keyed locks, add \$0.40 each. Master Keys No. 919.

†Prices are for locks without keys, as number of keys desired for groups of locks vary. These prices may be obtained by adding the price of the lock to the price of the quantity of keys desired with each group of locks. No. 979 keys are \$0.38 each.

SARGENT**Cylinder Hotel Locks**

Packed with screws to match

Illustrations
One-quarter Size**Key Arrangement**

Guest Key—Operates only one Lock, and that when not locked on the inside. Three Guest Keys are supplied with each Lock.

Master or Floor Key—Operates the Locks on all room doors of a floor, when not locked on the inside. Designed for the use of the maid.

Grand Master Key—Operates the locks on all room doors in the hotel when not locked on the inside.

Emergency Key—Operates all locks on all room doors in the hotel from the outside, even when locked from the inside. This key is designed exclusively for the owner or manager, and is kept in a secure place, accessible only

to them, for use only in case of great necessity, such as fire, sickness, suicide or other unusual occurrence in the room. The Emergency Key can also be used as a "shut-out Key," locking the door so that it cannot be opened by either the Guest Key, Master Key or Grand Master Key.

Display Key—Can be furnished to order with Display Key which will lock the door against all keys except the Emergency Key. This Key is designed for a room in which there is a display of samples or merchandise and enables the salesman, or owner of the goods displayed, to lock the room against the maid or housekeeper during his absence.

Cylinder Locks for Hotel Corridor Doors

With Locks Nos. 6851, 6852, 6851½ and 6852½ Doors Are Automatically Locked When Closed

No. 6851 Has Double Protection of Guarded Latch Bolt and Dead Bolt—This lock guarantees absolute privacy to guest when dead bolt is thrown from inside. Outside knob is stationary at all times. Closing the door locks the latch bolt by means of upper latch bolt working on the closed strike-plate, and prevents forcing of latch bolt. Latch bolt is operative from inside by knob at all times but only by key from outside.

When dead bolt is thrown from inside by turn knob, it can only be operated through outside cylinder by Emergency Key, and any other key will turn freely in the cylinders without operating the bolt or injuring the lock. The lock is operative from inside at all times, whether locked from outside or not, and door can be quickly opened in case of fire or emergency.

Master Keyed—See below.

Indicators Suitable—Hotel Lock Indicators Nos. 8, 9, 11, 12, 13, 14 and 110 are suitable for use with these locks. These indicators have a button that cannot be pushed in when door is locked from inside, thus indicating that the room is occupied.

No. 6852—Same features as No. 6851, except that it has two cylinders instead of one cylinder and thumb piece. from inside by key instead of by turn knob. Key cannot

be removed from inside cylinder when dead lock is thrown.

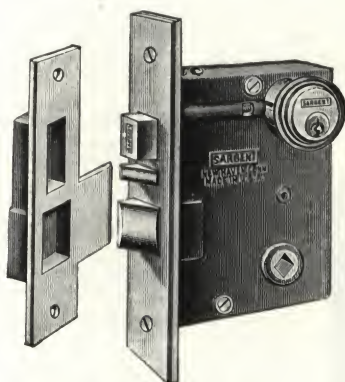
No. 6851½ Has Double Protection of Guarded and Dead Locked Latch Bolt—This lock affords protection similar to Nos. 6851 and 6852, but does not have a dead bolt, the latch bolt being dead locked by turn knob from inside instead.

Outside knob is stationary at all times. Closing the door locks the latch bolt by means of upper latch working on the closed strike plate and prevents forcing of latch bolt. Latch bolt is operative from the inside by knob at all times but only by key from outside.

When the latch bolt is dead locked by turn knob from inside, all keys, except Emergency Key, are inoperative from the outside and will turn freely in the cylinder without operating the latch bolt or injuring the lock in any way. The lock is operative from inside at all times, whether locked from outside or not, and door can be quickly opened in case of fire or emergency.

Master Keyed—See below.

Indicators Suitable—Same as for Nos. 6851 and 6852.
No. 6852½—Same features as No. 6851½, except that it has two cylinders instead of one cylinder and thumb piece. The inside cylinder, operated by key, dead locks the latch bolt and key cannot be removed while it is dead locked.



Nos. 6851 and 6852



MASTER KEYING

Master Keyed with Master Key, Grand Master Key and Emergency Key. Can be furnished in sets of any required number, with Master Key for each set, and with a Grand Master Key and an Emergency Key to pass all.

Can also be Master Keyed in sets with all other Cylinder Locks.

The price of the Lock includes all Key Functions.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Bronze—Adjustable protected. Beveled from any angle from flat to ¼ in. in 2 in.

Bolts and Strike: Heavy bronze.

Cylinders: Bronze.

Turn Knob: Bronze.

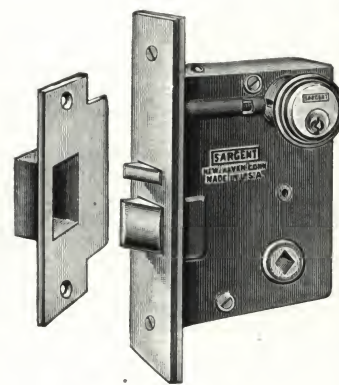
Keys: Nickel bronze.

Hubs: Brass: Knob hub for ¾-in. swivel spindle; turn knob hub for ⅜-in. spindle.

Latch Construction: Easy spring; Easy on latch bolt, firm on knob; two compression springs.

Reversible: No; specify hand.

Master Keying: Yes.



Nos. 6851½ and 6852½

CYLINDER LOCKS FOR HOTEL CORRIDOR DOORS

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.		Cylinders	Keys	Master Keying	Latch bolt	Each
	Type	Size, in.				Knob to turn knob	Knob to cylinder					
6851	Adjustable	7½ x 1½	5½ x 4 x ¾	2½	1¼*	.....	3¾	1	Three, 279	Yes	Easy spring	\$22.30
6852	Adjustable	7½ x 1½	5½ x 4 x ¾	2½	1¼*	.....	3¾	2	Three, 279	Yes	Easy spring	24.70
6851½	Adjustable	7½ x 1½	5½ x 4 x ¾	2½	1¼*	.....	3¾	1	Three, 279	Yes	Easy spring	18.00
6852½	Adjustable	7½ x 1½	5½ x 4 x ¾	2½	1¼*	.....	3¾	2	Three, 279	Yes	Easy spring	20.50

*Box strike.

SARGENT**Cylinder Locks for Hotel Corridor Doors***Illustrations
One-quarter Size*

All packed with screws to match

With Locks Nos. 6850 and 6850x2, Doors When Closed Are Automatically Deadlocked*For Key Arrangement, see Page 53*

No. 6850 Has Protection of Fixed Outside Knob and Dead Bolt—This lock guarantees absolute privacy to guest when dead bolt is thrown from inside. Outside knob is stationary at all times. Closing the door automatically locks it and latch bolt can only be operated by key from outside but by knob from inside at all times.

When dead bolt is thrown by turn knob from inside, it can only be operated through the outside cylinder by the Emergency Key and any other key will turn freely in the cylinder without operating the bolt or injuring the lock. The lock is operative from inside at all times, whether locked from outside or not, and door can be quickly opened in case of fire or emergency.

MASTER KEYED

With Master Key, Grand Master Key and Emergency Key. Can be furnished in sets of any required number, with Master Key for each set, and with a Grand Master Key and an Emergency Key to pass all. Can also be Master Keyed in sets with all other Cylinder Locks. Furnished with Display Key to order.



Nos. 6850 and 6850x2

INDICATORS

Hotel Lock Indicators Nos. 8, 9, 11, 12, 13, 14 and 110, are suitable for use with these locks. These indicators have a button that cannot be pushed in when door is locked from inside, thus indicating that room is occupied.

No. 6850X2—Same as No. 6850, except has two cylinders and dead bolt is thrown by key through inside cylinder instead of turn knob.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Bronze, adjustable, protected, beveled at any angle from flat to $\frac{1}{8}$ in. in 2 in.

Bolts and Strike: Heavy bronze.

Cylinders: Bronze.

Turn Knob: Bronze.

Keys: Nickel bronze.

Hubs: Brass: Knob hub for $\frac{3}{8}$ -in. swivel spindle. Turn knob hub for $\frac{1}{8}$ -in. spindle.

Latch Construction: Easy spring: Easy on latch bolt, firm on knob.

Two compression springs.

Reversible: No, specify hand.

Master Keying: Yes.

CYLINDER MORTISE LOCKS FOR HOTEL CORRIDOR DOORS

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.		Cylinders	Keys	Master keying	Turn knob	Latch bolt	Each#
	Type	Size, in.				Knob to turn knob	Knob to cylinder						
6850	Adjustable	$7\frac{3}{4} \times 1\frac{1}{4}$	$5\frac{1}{2} \times 4 \times \frac{7}{8}$	$2\frac{3}{4}$	$1\frac{1}{4} \uparrow$	$2\frac{3}{8}$	$3\frac{7}{8}$	1	Three, 279	Yes	Yes	Easy spring	\$14.00
6850X2	Adjustable	$7\frac{3}{4} \times 1\frac{1}{4}$	$5\frac{1}{2} \times 4 \times \frac{7}{8}$	$2\frac{3}{4}$	$1\frac{1}{4} \uparrow$	$2\frac{3}{8}$	$3\frac{7}{8}$	2	Three, 279	Yes	Yes	Easy spring	16.50

Special backset can be furnished.

†Box strike.

‡Prices include all key functions described.

With Locks Nos. 6859, 6859x1 and 6815, in Order to Automatically Lock Door When Closed, the Outside Knob Must Be Set by Pushing in the Lower Stop in Face of Lock

No. 6859 Has Stops in Face of Lock and a Dead Bolt; Two Cylinders; No Turn Knob—Same privacy guaranteed as with No. 6850, but lock differs in that latch bolt is operated from both sides by knobs except when outside knob is set by lower stop in face of lock. Outside knob can only be released by pushing in upper stop. Door is automatically locked when closed if outside knob is set by lower stop.

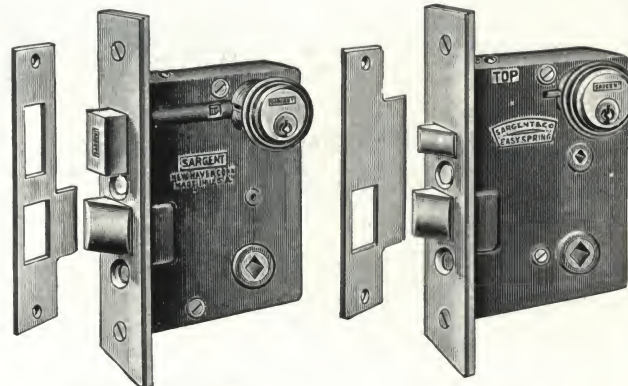
Dead bolt and outside knob are dead-locked against all keys except Emergency Key when locked through inside cylinder and key inside cannot be taken out when thus locked.

The lock is operative at all times from the inside, whether locked from the outside or not, and door can be quickly opened in case of fire or emergency.

Master Keying and Indicators—Same as No. 6850.

No. 6859X1—Same as No. 6859, but dead bolt is operated by turn knob instead of key from the inside.

Has one cylinder.
Master Keying and Indicators—Same as No. 6850.



Nos. 6859 and 6859x1

No. 6815

CYLINDER MORTISE LOCKS FOR HOTEL CORRIDOR DOORS

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.		Cylinders	Keys	Master keying	Turn knob	Latch bolt	Each#
	Type	Size, in.				Knob to turn knob	Knob to cylinder						
6859	Adjustable	$7\frac{3}{4} \times 1\frac{1}{4}$	$5\frac{1}{2} \times 4 \times \frac{7}{8}$	$2\frac{3}{4}$	$1\frac{1}{4}$	.....	$3\frac{7}{8}$	2	Three, 279	Yes	.....	Easy spring	\$16.50
6859X1	Adjustable	$7\frac{3}{4} \times 1\frac{1}{4}$	$5\frac{1}{2} \times 4 \times \frac{7}{8}$	$2\frac{3}{4}$	$1\frac{1}{4}$	.....	$3\frac{7}{8}$	1	Three, 279	Yes	Yes	Easy spring	14.00
6815	Adjustable	$7\frac{3}{4} \times 1\frac{1}{4}$	$5\frac{1}{2} \times 4 \times \frac{7}{8}$	$2\frac{3}{4} \uparrow$	$1\frac{1}{4}$	$2\frac{1}{2}$	$3\frac{7}{8}$	1	Two, 279	Yes	Yes	Easy spring	13.00

*Prices include all key functions described.

†Special backset, $2\frac{1}{2}$ in., furnished at \$3.00 extra.

SARGENT**Cylinder Locks for Hotel Corridor Doors**

For Key Arrangement, see Page 53

All packed with screws to match

No. 6857 Three-bolt Lock Has Protection of Two Dead Bolts—This lock guarantees absolute privacy to guest when dead bolt is thrown on inside by turn knob. Outside knob is operative at all times except when dead bolt is thrown by turn knob from inside, then lock can only be operated through outside cylinder by Emergency Key, all other keys being inoperative. Stationary knob indicates occupied room.

Upper dead bolt is operated only from outside by key. Turn knob operates both upper and center dead bolts and prevents operation from outside except by Emergency Key.

Master Keyed—See below.

Indicators—Hotel Lock Indicators No. 10 are suitable for these locks. Indicator is mortised into door jamb, has push button projected out by center dead bolt operated by turn knob from inside, thus indicating that door is locked. Can also be used with Indicators Nos. 8, 11, 12, 13 and 14.

No. 6855 Has Dead Bolt Operated by Turn Knob; Latch Bolt Operated from Both Sides by Knobs—Absolute privacy assured when dead bolt is thrown from inside by turn knob, which also sets outside knob. When thrown from inside, dead bolt can

be operated from outside only by Emergency Key. Outside knob regularly operates latch bolt at all times except when dead bolt is thrown from inside. When knob is stationary, it indicates that room is occupied.

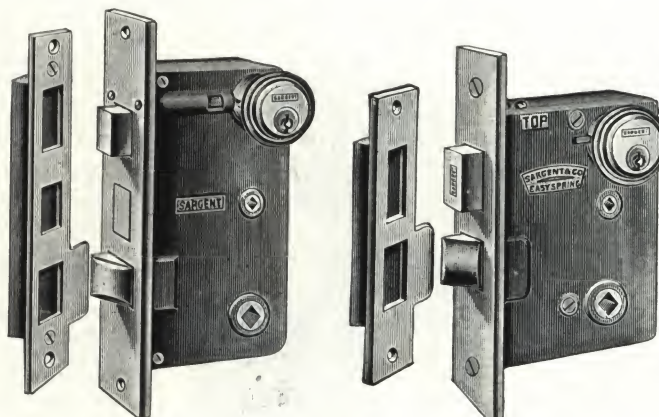
Lock is operative from inside at all times, whether locked from the outside or not, and door can be quickly opened in case of fire or emergency. Can be furnished with Indicators 8, 9, 11, 12, 13, 14.

Master Keyed—See below.

No. 6855R—Same as No. 6855, except that face of lock is rabbeted to order and beveled any angle from flat to $\frac{1}{8}$ in. in 2 in.

Master Keyed—See below.

Guest Master or Floor Grand Master Emergency



No. 6857

No. 6855

FOR CORRIDOR DOORS. SUITABLE ALSO FOR OFFICE AND PUBLIC BUILDINGS, ETC.

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.		Cylinders	Keys	Turn knob	Latch bolt	Each**
	Type	Size, in.				Knob to turn knob	Knob to cylinder					
6857†	Flat	8½x1½	6¾x3½x¾	2¾	1½†	2½	4¾	1	Three, 279	Yes	Easy spring	\$19.80
6855*†	Adjustable	7¾x1½	5½x4 x¾	2¾	1¼	2½	3¾	1	Two, 279	Yes	Easy spring	14.00
6855R†	Rabbeted	7¾x1½*	5½x4 x¾	2¾ & 2¾	1¼	2½	3¾	1	Two, 279	Yes	Easy spring	17.00

†Can be beveled $\frac{1}{8}$ in. in 2 in.*With $\frac{1}{2}$ -in. rabbet.

†Box strike.

§Backsets to order.

**Prices include all key functions described.

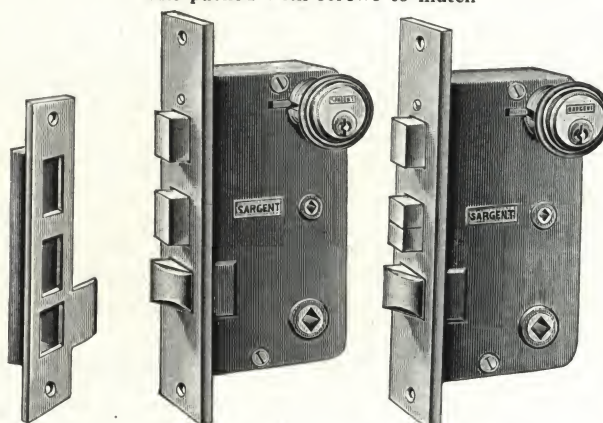
*Adjustable protected front.

Cylinder Locks for Hotel Communicating Doors

All packed with screws to match

No. 6863 for Twin Communicating Doors—Latch bolt is operated from both sides by the knobs. Upper dead bolt is operated from outside only by the key. Lower dead bolt is operated from room side by turn knob. Lock is master keyed and key is kept in hands of hotel management.

No. 6873 for Single Communicating Doors—The latch bolt is operated from both sides by the knobs. Upper dead bolt is operated from both sides by the turn knobs. Key to



Strike

No. 6863

No. 6873

upper dead bolt is kept in hands of hotel management.

MASTER KEYED

Can be furnished in sets of any required number, Master Keyed as specified, with all other Cylinder Locks.

For these Locks Master Keyed add \$0.65 each Cylinder.

For these Locks Master and Grand Master Keyed add \$1.00.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Bronze.

Bolts and Strike: Heavy bronze.

Cylinders: Bronze.

Turn Knob: Bronze.

Latch Construction: Easy spring; Easy on latch bolt, firm on knob; two compression springs.

Reversible: No; specify hand.

Master Keying: Yes.

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.		Cylinders	Turn knob	Latch bolt	Each
	Type	Size, in.				Knob to turn knob	Knob to cylinder				
6863	Beveled	8½x1½*	6¾x3½x¾	2¾	1½†	2½	4¾	1	Yes	Easy spring	\$19.80
6873	Beveled	8½x1½*	6¾x3½x¾	2¾	1½†	2½	4¾	2	Yes	Easy spring	21.80

*Beveled $\frac{1}{8}$ in. in 2 in.

†Box strike.

SARGENT

Bitted Key Mortise Locks for Hotel Corridor Doors

Illustrations
One-quarter Size

Packed with screws to match

For Key Arrangement, see Page 53

When Dead Locked from Inside Can Be Opened Only by Emergency Key, Except No. 6199

No. 6260 Heavy Bitted Key Corridor Door Locks—3 Bolts and 5 Tumblers—When dead locked from inside, cannot be operated except by Emergency Key.

A heavy lock offering greatest protection to guest. Latch bolt operated from both sides at all times except that when dead bolt is thrown on inside, the outside knob is set, indicating to maid that room is occupied. When lower dead bolt is thrown by key from inside, key cannot be removed, assuring key being in lock in an emergency, and all keys are inoperative from outside except Emergency Key. Guest key is operative in lock from inside at all times, whether locked from outside or not.

When locked with Emergency Key, all other keys are inoperative from outside. When locked with Display Key, all locks except Emergency Key are inoperative from outside. Can be furnished to order with Display Key.

Master Keyed—Class B (see below). The price of the Lock includes all Key Functions.

Indicators and Escutcheons Suitable—Hotel Lock Indicators Nos. 8, 9, 11, 12, 13 and 14 are suitable for use with these locks. These indicators have a button that cannot be pushed in when the door is locked from the inside, thus indicating that the room is occupied.

Escutcheons having 6 in. between the screw holes can be cut to fit these locks. In ordering, specify the number of the escutcheon wanted and order it "cut to fit."

No. 6263—Same as No. 6260 except has turn knob instead of key for dead bolt on inside. Price of Lock includes all Key Functions.

No. 6120, a High Grade Lock But Lighter than No. 6260 and with Fewer Key Changes (800)—This lock has exactly the same functions as No. 6260, but has 4 tumblers.

Master Keyed—Class A (see below). The price of the Lock includes all Key Functions.

Indicators and Escutcheons Suitable—Same indicators may be used as for Nos. 6260 and 6263. Escutcheons same as 6260 and 6263 except 5 $\frac{3}{4}$ in. between screw holes.

Escutcheons having 5 $\frac{3}{4}$ in. between the screw holes can be cut to fit these locks. In ordering, specify the number of the escutcheon wanted and order it "cut to fit."

No. 6123—Same as No. 6120, except has turn knob to operate inside dead bolt instead of key.

No. 6199, a Lighter Lock than No. 6120—3 Tumblers with 280 Key Changes—Latch bolt is operated from both sides by knobs at all times. The upper dead bolt is operated from both sides by the key.

The lower dead bolt is thrown from the inside only by the turn knob and cannot be operated from the outside.

Master Keyed—Class B (see below) except Emergency Key. Master Keys No. 933. The price of the Lock includes all Key Functions.

Indicators and Escutcheons Suitable—Hotel Lock Indicators No. 10 are suitable for use with these locks. This indicator, which is mortised into the door jamb, has a push button that is thrown out by the lower dead bolt operated by turn knob from the inside, thus indicating that the room is occupied.

Escutcheons with turn knobs are suitable for use with these locks.

No. 6199 $\frac{1}{4}$ —Same as No. 6199, except that Emergency Key will operate lower dead bolt from the outside when thrown by turn knob from inside.

Master Keyed—Same as No. 6199 except can be supplied with Emergency Key in addition to Master and Grand Master to pass the whole 2,400 locks. The price of the Lock includes all Key Functions.



Nos. 6260 and 6263

MASTER KEYING

Class A—With Master, Grand Master and Emergency Key, also Display Key to order. Furnished in one set of 800 locks or less, all different, with Master Key to pass. Also furnished in sets as desired (every lock different) with Master Key for each set and Grand Master and Emergency Key to pass all 800 locks when desired. Also Master Keyed in sets with all other 3 or 4 tumbler locks in Class A. (Master Key No. 919.)

Class B—With Master, Grand Master and Emergency; also with Display Key to order. Furnished in one set of 2,400 locks (or less), all different with Master Key to pass. Also furnished in sets as desired (every lock different) with Master Key for each set, and with Grand Master and Emergency Key to pass all 2,400 locks when desired. Also Master Keyed in sets with all other Class B Locks. (Master Keys No. 933.)

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze (Nos. 6260 and 6263 have beveled front). Nos. 6260, 6263. Beveled $\frac{1}{8}$ in., 2 in.

Bolts and Strike: Heavy bronze (three bolts).

Tumblers: Wrought steel.

Keys: Nickel plated steel.

Latch Bolt: Easy spring—easy on latch bolt, firm on knob. Two compression springs.

Hub: Brass: Knob hub for $\frac{1}{8}$ -in. straight spindle; turn knob hub for $\frac{3}{8}$ -in. spindle.

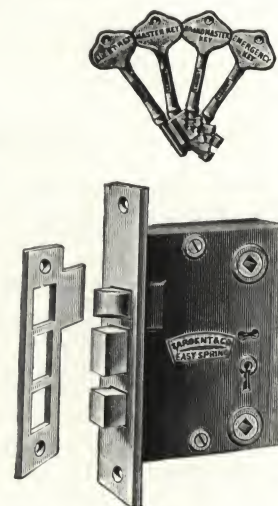
Reversible: Nos. 6260, 6263, 6120 and 6123: no; specify hand. Nos. 6199 and 6199 $\frac{1}{4}$: yes, by removing cap.

Master Keying: Yes.

BITTED KEY MORTISE LOCKS FOR HOTEL CORRIDOR DOORS



Nos. 6120 and 6123



Nos. 6199 and 6199 $\frac{1}{4}$

Lock No.	Front		Case size, in.	Back-set, in.	Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Master keying	Changes	Latch bolt	Each
	Type	Size, in.										
6260	Flat	8 $\frac{1}{4}$ x1 $\frac{1}{8}$	6 x3 $\frac{1}{2}$ x $\frac{7}{8}$	2 $\frac{3}{4}$	1 $\frac{3}{8}$	*	5	Two, 948	Class B	.....	Easy spring	\$14.00
6263	Flat	8 $\frac{1}{4}$ x1 $\frac{1}{8}$	6 x3 $\frac{1}{2}$ x $\frac{7}{8}$	2 $\frac{3}{4}$	1 $\frac{3}{8}$	+	5	Two, 948	Class B	.....	Easy spring	14.00
6120	Flat	7 $\frac{3}{4}$ x1 $\frac{1}{8}$	5 $\frac{1}{4}$ x3 $\frac{1}{2}$ x $\frac{7}{8}$	2 $\frac{3}{4}$	1 $\frac{3}{8}$	+	4	Two, 938	Class A	.....	Easy spring	9.85
6123	Flat	7 $\frac{3}{4}$ x1 $\frac{1}{8}$	5 $\frac{1}{4}$ x3 $\frac{1}{2}$ x $\frac{7}{8}$	2 $\frac{3}{4}$	1 $\frac{3}{8}$	+	4	Two, 938	Class A	.....	Easy spring	11.00
6199	Flat	6 $\frac{3}{4}$ x1 $\frac{1}{8}$	5 x3 $\frac{1}{2}$ x $\frac{7}{8}$	2 $\frac{3}{4}$	1 $\frac{3}{8}$	#	3	One, 948	Class B	280	Easy spring	7.00
6199 $\frac{1}{4}$	Flat	6 $\frac{3}{4}$ x1 $\frac{1}{8}$	5 x3 $\frac{1}{2}$ x $\frac{7}{8}$	2 $\frac{3}{4}$	1 $\frac{3}{8}$	#	3	Two, 948	Class B	280	Easy spring	12.40

*Center of hub to center of upper key hole, 4 in.; center of hub to center of lower key hole, 2 $\frac{3}{8}$ in.

†Center of lower hub to center of key hole, 4 in.; center of lower hub to center of upper hub, 2 $\frac{3}{8}$ in.

‡Center of hub to center of upper key hole, 3 $\frac{7}{8}$ in.; center of hub to center of lower key hole, 2 $\frac{3}{8}$ in.

§Center of lower hub to center of key hole, 3 $\frac{7}{8}$ in.; center of lower hub to center of upper hub, 2 $\frac{3}{8}$ in.

#Center of upper hub to center of key hole, 2 $\frac{3}{8}$ in.; center of upper hub to center of lower hub, 3 $\frac{1}{8}$ in.

SARGENT

Bitted Key Mortise Locks for Hotel Corridor Doors

*Illustrations
One-quarter Size*
For Key Arrangement, see Page 53
All packed with screws to match

**Only No. 6119 Allows Operation of Lock by Emergency Key When Locked from Inside.
Price of Lock Includes Key Functions Described**

No. 6119 Has One Dead Bolt Which Is Inoperative to All Keys Except Emergency Key When Thrown by Turn Knob from Inside—Latch bolt is operative by knobs from both sides at all times. Dead bolt when thrown by turn knob from inside can only be operated by the Emergency Key from outside. The lock is operative from inside at all times, whether locked from outside or not, and can be quickly opened in case of fire or emergency. Lock has 4 tumblers and 260 changes.

Master Keyed (Class A)—See below.

Escutcheons Suitable—Escutcheons having 6 in. between the screw holes can be cut to fit these locks. In ordering, specify the number of the escutcheon wanted and order it "cut to fit."

No. 6119, 6113, Special Note: Do not cut the key hole nor the hole for the lower hub clear through the door, but into one side only; the key hole always for the outside of the door and the lower hub for the inside. (The latch bolt is reversible.)

No. 6113 Has One Dead Bolt Similar to No. 6119, But Does Not Offer the Same Protection—The dead bolt is operated at all times by the key from the outside and by the thumb bolt from inside. The latch bolt is operated at all times by knobs from both sides. Lock has 3 tumblers and 260 changes.

Master Keyed (Class A) Except Emergency Key—See below.

Escutcheons Suitable—Same as for No. 6119.

No. 6215—Same as No. 6113, except has 4 tumblers and 280 changes.

(Price of lock includes all key functions described.)

Master Keyed (Class B)—See below.

Escutcheons Suitable—Same as for No. 6119.

No. 6193 Three-bolt Lock Does Not Allow Operation of Lower Dead Bolt by Any Key When Locked from Inside—The latch bolt is operated by knobs from both sides at all times. Upper dead bolt is operated from both sides by key. Lower bolt is operated only by turn knob from inside and cannot be operated by key from outside. Has 3 tumblers and 260 changes.

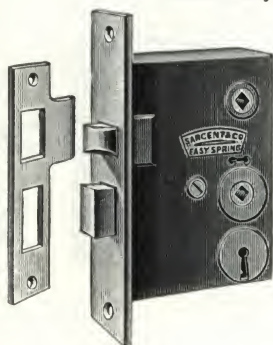
Special Shutter Attachment—Can also be furnished, on special order, with a sliding shutter which covers the outside key hole so that no key can enter the lock. Turn knob is turned from inside. Specify if Special Shutter Attachment is desired.

Master Keyed (Class A) Except Emergency Key—See below.

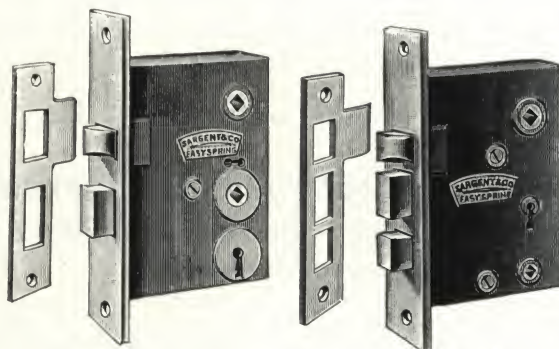
For these locks Master Keyed, add 40¢ each.

Escutcheons Suitable—Escutcheons with turn knobs should be used with this lock. We can also furnish, cut special, any of our escutcheons which are long enough to allow the space between the two hubs.

Indicators—Hotel Lock Indicators No. 10 are suitable for use with these locks. This indicator, which is mortised into the door jamb, has a push button that is thrown out by the lower dead bolt operated by turn knob from the inside, thus indicating that the room is occupied.



No. 6119



Nos. 6113 and 6215

No. 6193

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Heavy bronze.

Tumblers: Wrought steel.

Keys: Nickel plated steel.

Latch Bolt: Easy spring; Easy on latch bolt, firm on knob. Two compression springs.

Hub: Brass: Knob hub for $\frac{7}{8}$ -in. straight spindle; turn-knob hub for $\frac{7}{8}$ -in. spindle.

Reversible: Yes, by removing cap.

Master Keying: Yes.

BITTED KEY MORTISE LOCKS FOR HOTEL CORRIDOR DOORS

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Master keying	Changes	Latch bolt	Each
	Type	Size, in.										
6119	Flat	6 $\frac{7}{8}$ x1	5x3 $\frac{1}{2}$ x $\frac{5}{8}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$	*	4	Two, 938	Class A	260	Easy spring	\$6.70**
6113	Flat	6 $\frac{7}{8}$ x1	5x3 $\frac{1}{2}$ x $\frac{5}{8}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$	*	3	One, 938	Class A	260	Easy spring	5.65**
6215	Flat	6 $\frac{7}{8}$ x1	5x3 $\frac{1}{2}$ x $\frac{5}{8}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$	*	4	One, 948	Class B	280	Easy spring	6.10**
6193	Flat	6 $\frac{7}{8}$ x1 $\frac{1}{16}$	5x3 $\frac{1}{2}$ x $\frac{5}{8}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$	†	3	One, 938	Class A	260	Easy spring	6.10

†Center of upper hub to center of key hole, 2 $\frac{3}{8}$ in.; center of upper hub to center of lower hub, 3 $\frac{1}{8}$ in.

*Center of upper hub to center of lower hub, 2 $\frac{3}{4}$ in.; center of upper hub to center of key hole, 3 $\frac{1}{2}$ in.

**Price of lock includes all key functions described.

Keying Arrangement

Class A—With Master Key, Grand Master Key and Emergency Key. Locks furnished in 1 set of 800 locks (or less), all different, with Master Key to pass. Can also be furnished in sets as desired (every lock different), with Master Key for each set, and with a Grand Master Key and Emergency Key to pass the whole 800 locks when desired. Can also be Master Keyed in sets with all other 3 and 4-tumbler locks in Class A. (Master Key No. 919.)



Class B—With Master Key and Grand Master Key. Can be furnished in 1 set of 2,400 locks (or less), all different, with Master Key to pass. Can also be furnished in sets as desired (every lock different), with Master Key for each set, and with a Grand Master Key to pass the whole 2,400 locks when desired.

Can also be Master Keyed in sets with all other Class B locks. (Master Key No. 933.)



SARGENT

Illustrations
One-quarter Size

Bitted Key Mortise Locks for Hotel Communicating and Bathroom Doors

Assuring Complete Control of Communicating and Bathroom Doors by Management

For Keying Arrangement, see Page 53

All packed with screws to match

No. 6143, a Four-bolt, Three-tumbler Lock with Double Dead Bolt Operated by Turn Knob and Upper Dead Bolt Operated by Grand Master Key—Latch bolt operated by knobs at all times. Has two dead bolts, and when either dead bolt is thrown by turn knob from one side, it cannot be retracted from the other side. The short spindles of the turn knobs do not go through the lock.

The Grand Master Key deadlocks the upper dead bolt, preventing communicating between the connecting rooms or between bath room and guest room, should the latter be rented without the bath room.

Master Keyed (Class A)—With Grand Master Key and Emergency Key. Can be furnished in 1 set of 800 locks (or less), all different, with Grand Master Key to pass. Can also be furnished in sets as desired (every lock different), with a Grand Master Key and an Emergency Key to pass the whole 800 locks when desired. Master Key No. 919.

Can also be Master Keyed in sets with all other three and four-tumbler locks in Class A. The price of the lock includes all key functions.

Escutcheons Suitable—Escutcheons with turn knobs are suitable for use with

these locks. Any of our turn knobs with $\frac{3}{8}$ -in. spindle may also be used.

No. 6243—Same as No. 6143, except has four tumblers and Master Keyed, Class B.

Master Keyed (Class B)—With Grand Master Key and Emergency Key. Can be furnished in 1 set of 2,400 locks (or less), all different, with Grand Master Key to pass. Can also be furnished in sets as desired (every lock different), with a Grand Master Key and an Emergency Key to pass the whole 2,400 locks when desired. Master Key No. 933.

Can also be Master Keyed in sets with all other Class B locks. Price of lock includes all key functions.

Escutcheons Suitable—Same as No. 6143.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Heavy bronze (4 bolts).

Tumblers: Wrought steel.

Latch Bolt: Easy spring: Easy on latch bolt, firm on knob.

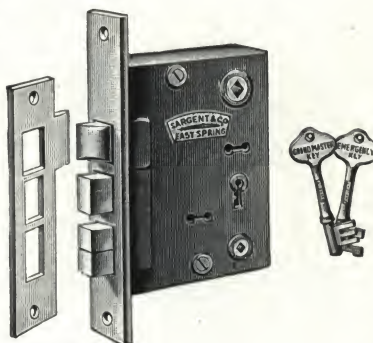
Two compression springs.

Hub: Brass: Knob hub for $\frac{3}{8}$ -in. straight spindle.

Turn knob hub for $\frac{3}{8}$ -in. spindle.

Reversible: Yes, by removing cap.

Master Keying: Yes.



No. 6143

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing	Tumblers	Master keying	Latch bolt	Each
	Type	Size, in.								
6143	Flat	$7\frac{1}{8} \times 1\frac{1}{16}$	$5\frac{1}{8} \times 3\frac{1}{2} \times \frac{5}{8}$	$2\frac{3}{4}$	$1\frac{1}{4}$	*	3	Class A	Easy spring	\$10.20
6243	Flat	$7\frac{1}{8} \times 1\frac{1}{16}$	$5\frac{1}{8} \times 3\frac{1}{2} \times \frac{5}{8}$	$2\frac{3}{4}$	$1\frac{1}{4}$	*	4	Class B	Easy spring	11.20

*Center of upper hub to center of key hole, $2\frac{1}{8}$ in. Center of upper hub to center of lower hub, $3\frac{1}{8}$ in.

Bitted Key Mortise Locks for Communicating Doors

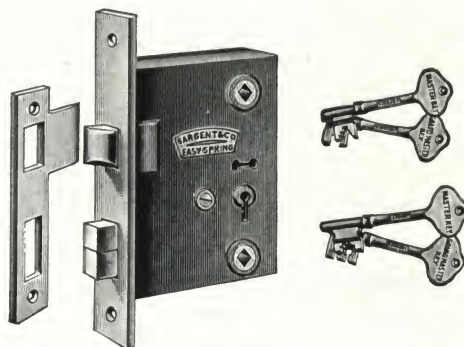
Assuring Complete Control by Management

All packed with screws to match

No. 6139, a Three-bolt, Three-tumbler Lock, with Double Dead Bolt—One Operated from Each Side—and Latch Bolt Which Is Deadlocked by Master Key—The latch bolt is operative by knobs from either side unless deadlocked by Master Key. Has two dead bolts, and when either dead bolt is thrown by turn knob from one side, it cannot be retracted from other side. The turn knob short spindle does not go through the lock. The Master Key assures positive control of communicating rooms by hotel management. Regular change keys are not required and not furnished unless especially ordered.

Master Keyed (Class A)—Same as No. 6143.

Escutcheons Suitable—Same as No. 6143.



No. 6139

No. 6159—Same as No. 6139, except has four tumblers and has Class B Master Keying System.

Master Keyed (Class B)—Same as No. 6243.

Escutcheons Suitable—Same as No. 6143.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Three bolts, heavy bronze.

Tumblers: Wrought steel.

Latch Bolt: Easy spring: Easy on latch bolt, firm on knob.

Two compression springs.

Hub: Brass: Knob hub for $\frac{3}{8}$ -in. straight spindle.

Turn knob hub for $\frac{3}{8}$ -in. spindle.

Reversible: Yes, by removing cap.

Master Keying: Yes.

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing	Tumblers	Master keying	Latch bolt	Each
	Type	Size, in.								
6139	Flat	$7\frac{1}{8} \times 1$	$5 \times 3\frac{1}{2} \times \frac{15}{16}$	$2\frac{3}{4}$	$1\frac{1}{4}$	*	3	Class A	Easy spring	\$ 7.70*
6159	Flat	$7\frac{1}{8} \times 1$	$5 \times 3\frac{1}{2} \times \frac{15}{16}$	$2\frac{3}{4}$	$1\frac{1}{4}$	*	4	Class B	Easy spring	10.00*

*Center of upper hub to center of key hole, $2\frac{1}{8}$ in. Center of upper hub to center of lower hub, $3\frac{1}{8}$ in.

#Prices include all key functions described.

SARGENT

Bitted Key Mortise Locks for Bathroom and Twin Communicating Doors

Illustrations
One-quarter Size

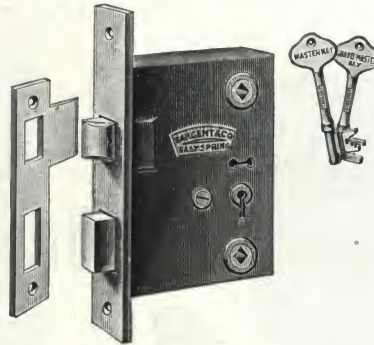
Assuring Control of Doors by Management

For Keying Arrangement, see Page 53

All packed with screws to match

No. 6218, a Two-bolt Lock with Four Tumblers and Latch Bolt Deadlocked by Master Key—Latch bolt operative by knobs from either side except when deadlocked by Master Key, making it inoperative from either side. Dead bolt is operated by turn knobs from either side. Guest Keys are not required and not furnished unless especially ordered.

Master Keyed (Class B)—Can be furnished in 1 set of 2,400 locks (or less), all different, with Master Key to pass. Can also be furnished in sets as desired (every lock different), with Master Key for each set, and with a Grand Master Key to pass the whole 2,400 locks when desired. Master Key No. 933.



No. 6218

Can also be Master Keyed in sets with all other Class B locks. Price of lock includes all Key Functions.

Escutcheons Suitable—Design escutcheons with turn knobs are suitable for use with these locks. Any of our turn knobs may also be used.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Heavy bronze.

Tumblers: Wrought steel.

Latch Bolt: Easy spring; Easy on latch bolt, firm on knob.

Two compression springs.

Hub: Brass: Knob hub for $\frac{7}{8}$ -in. straight spindle. Turn knob hub for $\frac{7}{8}$ -in. spindle.

Reversible: Yes, by removing cap.

Master Keying: Yes.

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing	Tumblers	Master keying	Latch bolt	Each
	Type	Size, in.								
6218	Flat	$7\frac{1}{8} \times 1$	$5 \times 3\frac{1}{2} \times 3\frac{3}{4}$	$2\frac{3}{4}$	$1\frac{1}{4}$	*	4	Class B	Easy spring	\$9.30

*Center of upper hub to center of key hole, $2\frac{7}{8}$ in.
Center of upper hub to center of lower hub, $3\frac{1}{8}$ in.

Bitted Key Knob Locks for Closet Doors in Hotel Rooms Also Suitable for Inside Doors of Residences

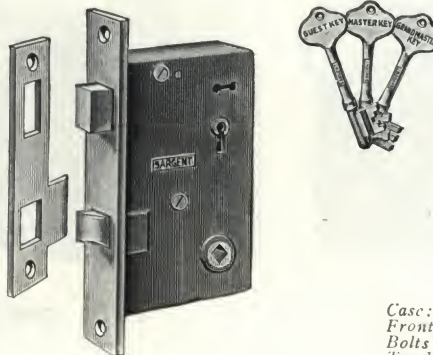
Packed with screws to match

The locks listed below can be Master Keyed under the same system as the bitted key locks for the corridor doors. The Guest Key then controls the lock and the closets have the same protection from intrusion as the room itself.

Nos. 6129 and 6229 Locks for Closets with Latch Bolt and Dead Lock—These locks are for similar use and differ from each other principally in size and number of tumblers.

The latch bolts are operated by knobs from both sides at all times. The dead bolt is also operated by key from both sides. Locks have keys above the knobs.

Master Keyed—No. 6129—Class A, with Guest, Master and Grand Master Keys. Master Key No. 919. For these locks Master keyed add \$0.40.



No. 6129

No. 6229—Class B, with Guest, Master and Grand Master Keys. Master Key No. 933. The price of locks includes all Key Functions.

Escutcheons Suitable—Escutcheons having 6 in. between the screw holes can be cut to fit these locks.

In ordering specify the number of the escutcheon wanted and order it "cut to fit."

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Heavy bronze.

Tumblers: Wrought steel.

Keys: Nickel plated steel.

Latch Bolt: Easy spring; Easy on latch bolt, firm no knob.

Two compression springs.

Hub: Brass: for $\frac{7}{8}$ in. straight spindle.

Reversible: Yes, by removing cap.

Master Keying: Yes.

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Master keying	Changes	Latch bolt	Each
	Type	Size, in.										
6129	Flat	$7\frac{1}{8} \times 1\frac{1}{16}$	$5\frac{1}{2} \times 3\frac{3}{8} \times 3\frac{3}{4}$	$2\frac{1}{2}$	$1\frac{1}{4}$	$2\frac{1}{16}$	3	One, 938	Class A	260	Easy spring	\$4.00
6229	Flat	$7\frac{1}{8} \times 1\frac{1}{16}$	$5\frac{1}{2} \times 3\frac{3}{8} \times 3\frac{3}{8}$	$2\frac{1}{2}$	$1\frac{1}{4}$	$2\frac{1}{16}$	4	One, 948	Class B	280	Easy spring	5.00

SARGENT

High Grade Cylinder Locks for Entrance Doors to Apartments

Packed with screws to match

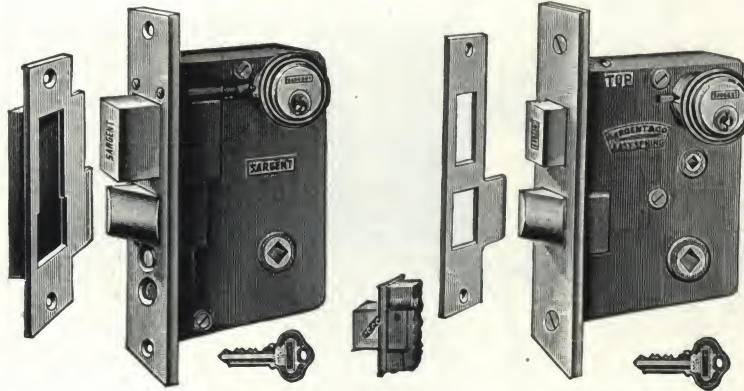
*Illustrations
One-quarter Size*

With Nos. 6880, 6885 and 6830, Dead Bolt Cannot Be Operated by Janitor's (Master) Key

No. 6880 Heavy Lock Offering Greatest Security Has One Inch Patented Dead Bolt—The latch bolt is operated from the outside by the Tenant's and Janitor's Key and from the inside by the knob. Outside knob is always stationary.

The dead bolt is operative from the outside by the Tenant's Key and from the inside by turn knob. When dead bolt is thrown from inside by turn knob, Janitor's Key is inoperative and prevents Janitor's entrance to apartment. The dead bolt is also patented. It has 1-in. throw and bolt is made with an oblique channel inside filled with steel balls and provides the maximum resistance against forced entrance of jimmy, hack saw or drill. See illustration.

Master Keyed—Can be furnished to order in sets of any required number, with nickel bronze Master Key to pass each set; and a Grand Master Key to pass all.



No. 6880

No. 6830

No. 6885—Similar to No. 6880, except it has stops in the face of lock so that the latch bolt is operated from both sides by knobs or set stationary by pushing in lower stop. In ordering 6885 the thickness of door should be specified and Inside Escutcheon 7855 ordered "cut to fit."

No. 6830—Has the same functions as No. 6880, except that it has a standard solid bronze dead bolt instead of the patented bolt used in No. 6880. It does not have stops in face of front. The front of this Lock is Adjustable Protected Front and can be beveled at any angle from flat to $\frac{1}{8}$ in. in 2 in.

GENERAL CONSTRUCTION

Case: Japanned.
Front: Bronze.
Bolts and Strike: Heavy bronze.

Cylinders: Bronze.
Turn Knob: Bronze.
Keys: Nickel bronze.

Hubs: Brass; Knob hub for $\frac{3}{8}$ -in. swivel spindle; turn knob hub for $\frac{1}{2}$ -in. spindle.

Latch Construction: Easy spring; Easy on latch bolt, firm on knob; two compression springs.

Reversible: No. 6830—Yes, by removing cap.
Nos. 6880, 6885—No; specify hand.
Master Keying: Yes.

HIGH GRADE LOCKS FOR ENTRANCE DOORS TO APARTMENTS

Lock No.	Front		Case size, in.	Backset reg., in.	Strike, lip to center, in.	Spacing, in.		Cylinders	Keys	Master keying	Turn knob	Latch bolt	Each*
	Type	Size, in.				Knob to turn knob	Knob to cylinder						
6880	Flat	8 x $1\frac{1}{4}$	$6\frac{1}{8}$ x $3\frac{3}{4}$ x 1	$2\frac{3}{4}$	$1\frac{1}{4}$	.....	$3\frac{7}{8}$	1	Three, 267	Yes	Yes	Easy spring	\$17.50
6885	Flat	8 x $1\frac{1}{4}$	$6\frac{1}{8}$ x $3\frac{3}{4}$ x 1	$2\frac{3}{4}$	$1\frac{1}{4}$	.....	$3\frac{7}{8}$	1	Three, 267	Yes	Yes	Easy spring	14.00
6830	Adjustable	$7\frac{3}{4}$ x $1\frac{1}{4}$	$5\frac{1}{2}$ x 4 x $\frac{7}{8}$	$2\frac{3}{4}$	$1\frac{1}{4}$	$2\frac{1}{2}$	$3\frac{7}{8}$	1	Three, 267	Yes	Yes	Easy spring	13.00

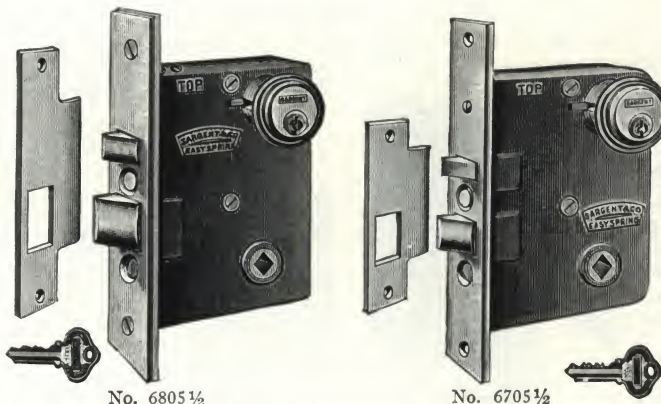
*Prices include all key functions described.

No. 6805 $\frac{1}{2}$ Has Upper Latch Bolt and Stop Guard and Dead Locking Stop in Front of Lock—The latch bolt is operated from both sides by knobs except when outside knob is set inoperative by lower stop in face of lock. The upper latch bolt, working on the closed strike-plate, automatically locks the latch bolt and stops in face of lock and prevents forcing of them when door is closed.

Dead-Locking Stop—This lock has a dead-locking stop which is a desirable feature, especially on reverse bevel doors, making it impossible for anyone to push back the stop from the hall side and open the door with the knob.

Adjustable Protected Front as No. 6830 see above.

Master Keyed—Can be furnished to order in sets of any required number, with nickel bronze Master Key to pass each set; and a Grand Master

No. 6805 $\frac{1}{2}$ No. 6705 $\frac{1}{2}$

Key to pass all. For Master Key Locks add \$0.65 each cylinder. For Master and Grand Master Keyed Locks add \$1.00.

No. 6805 $\frac{1}{2}$ R—Same as No. 6805 $\frac{1}{2}$, except has rabbeted front.

No. 6705 $\frac{1}{2}$ —Same as No. 6805 $\frac{1}{2}$, except is a slightly lighter lock.

No. 6705 $\frac{1}{2}$ R—Same as No. 6705 $\frac{1}{2}$, except has rabbeted front.

GENERAL CONSTRUCTION

Case: Japanned.
Front: Bronze.

Bolts and Strike: Bronze.
Cylinders: Bronze.
Keys: Nickel bronze.

Hubs: Brass, for $\frac{3}{8}$ -in. swivel spindle.
Latch Construction: Easy spring; Easy on latch bolt, firm on knob; two compression springs.

Reversible: No. 6705 $\frac{1}{2}$ —Yes, by removing cap.

Nos. 6805 $\frac{1}{2}$, 6805 $\frac{1}{2}$ R and 6705 $\frac{1}{2}$ R—No; specify hand.

Master Keying: Nos. 6805 $\frac{1}{2}$ and 6805 $\frac{1}{2}$ R—Yes.
Nos. 6705 $\frac{1}{2}$ and 6705 $\frac{1}{2}$ R—Yes.

HIGH GRADE LOCKS FOR ENTRANCE DOORS TO APARTMENTS

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Knob to cylinder	Cylinders	Keys	Master keying	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.							
6805 $\frac{1}{2}$	Adjustable	$7\frac{3}{4}$ x $1\frac{1}{4}$	$5\frac{1}{2}$ x 4 x $\frac{7}{8}$	$2\frac{3}{4}$	*	$1\frac{1}{4}$	$3\frac{7}{8}$	1	Three, 267	Yes	Easy spring	\$10.50
6805 $\frac{1}{2}$ R	Rabbeted	$7\frac{3}{4}$ x $1\frac{1}{4}$	$5\frac{1}{2}$ x 4 x $\frac{7}{8}$	$2\frac{3}{4}$ & $2\frac{1}{4}$	*	$1\frac{1}{4}$	$3\frac{7}{8}$	1	Three, 267	Yes	Easy spring	13.50
6705 $\frac{1}{2}$	Flat	$7\frac{3}{4}$ x $1\frac{1}{4}$	$5\frac{1}{2}$ x $3\frac{3}{4}$ x $\frac{7}{8}$	$2\frac{3}{4}$	$\frac{1}{2}$, $2\frac{1}{2}$	$1\frac{1}{4}$	$3\frac{7}{8}$	1	Three, 267	Yes	Easy spring	9.50
6705 $\frac{1}{2}$ R	Rabbeted	$7\frac{3}{4}$ x $1\frac{1}{4}$	$5\frac{1}{2}$ x $3\frac{3}{4}$ x $\frac{7}{8}$	$2\frac{3}{4}$ & $2\frac{1}{4}$	$2\frac{1}{2}$	$1\frac{1}{4}$	$3\frac{7}{8}$	1	Three, 267	Yes	Easy spring	12.50

*Furnished with special backsets as follows: $1\frac{1}{4}$ to 2-in., $2\frac{1}{4}$ to $2\frac{1}{2}$ -in., and $2\frac{1}{2}$ to 6-in. at additional charge of \$6.00; $2\frac{1}{2}$ -in. at \$3.00 extra.

$\frac{1}{2}$ -in. Special Backset, \$3.00 extra charge; $2\frac{1}{2}$ -in. Special Backset, no extra charge.

$\frac{1}{2}$ With $\frac{1}{2}$ -in. rabbet.

SARGENT

Illustrations
One-quarter Size

Bitted Key Mortise Knob Locks for Inside Doors of Fine Residences, Public Buildings, etc.

All packed with screws to match

These locks all have the same operation. Latch bolt is operative at all times by knobs and deadlocked by key from either side.

No. 5956 Extra Heavy 5-in. Lock—Flat front.

Master Keyed (Class B)—Can be furnished in 1 set of 2,400 locks (or less), all different, with Master Key to pass. Can also be furnished in sets as desired (every lock different), with Master Key for each set, and with a Grand Master Key to pass the whole 2,400 locks when desired. Can also be Master Keyed in sets with all other Class B locks. Master Key No. 934.

No. 5956R—Similar to No. 5956, except has rabbetted front.

No. 5659 Extra Heavy 4¼-in. Lock—Flat front.

Master Keyed (Class B)—Same as No. 5956.

No. 5639 Extra Heavy 4¼-in. Lock—Flat front. Used also for closet doors in hotels.

Master Keyed (Class A)—Can be furnished in 1 set of 800 locks (or less), all different, with Master Key to pass. Can also be furnished in sets as desired (every lock different), with Master Key for each set, and with a Grand Master Key to pass the whole 800 locks when desired. Master Key No. 919. Master Keyed locks add 40¢.

Can also be Master Keyed in sets with all other three and four-tumbler locks in Class A.

No. 5639R—Same as No. 5639, but has rabbetted front.

Master Keyed (Class A)—Same as No. 5639.

No. P 5649 B—Has brass case and brass inside work.

Master Keyed (Class A)—Same as No. 5639.

No. 5629 Heavy 4¼-in. Lock—Flat front.

Master Keyed (Class A)—Same as No. 5639.

No. 5629R—Same as No. 5629, but has rabbetted front.

No. 5269 Heavy 3½-in. Lock—Flat front.

Master Keyed (Class A)—Same as No. 5639.

No. 5269R—Same as No. 5269, but has rabbetted front.

Master Keyed (Class A)—Same as No. 5639.

No. 5259—Flat front. Has three tumblers.

Master Keyed (Class A)—Same as No. 5639.

GENERAL CONSTRUCTION

Case: Japanned. No. P5649B—Brass.

Front: Cast bronze.

Bolts and Strike: Heavy bronze.

Tumblers: Wrought steel. No. P5649B—Brass.

Keys: Nickel plated steel; No. P5649B—Bronze.

Latch Bolt: Easy spring: Easy on latch bolt, firm on knob. Two compression springs.

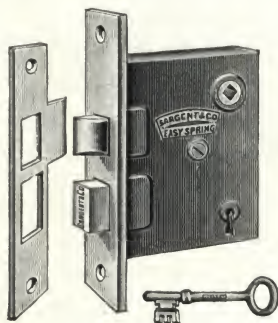
No. P5649B—Easy spring: Easy on latch bolt, firm on knob.

Hub: Brass, for ⅝-in. straight spindle. No. P5649B—For ¾-in. straight spindle.

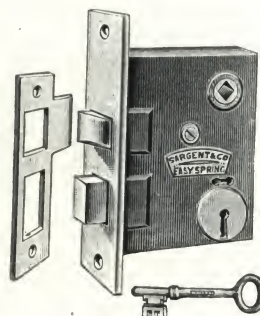
Reversible: Flat Front: Yes, by removing cap.

Rabbetted Front: No; specify hand.

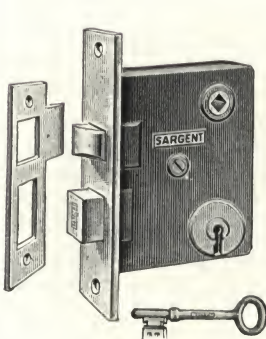
Master Keying: Yes.



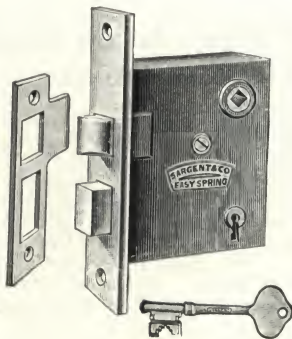
No. 5639



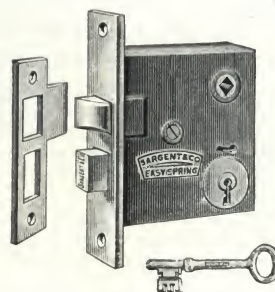
No. P5649B



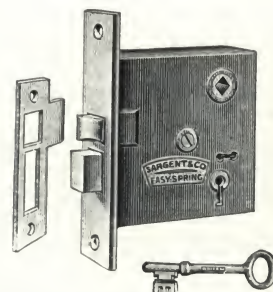
No. 5629



No. 5659



No. 5269



No. 5259

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Master keying	Changes	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.								
5956	Flat	7 x 1¼	5 x 4 x 7¼	3¼	2½	1¼	3¾	4	One, 948	Class B	280	Easy spring	\$ 8.50**
5956R	Rabbetted	7½ x 1½*	5 x 4 x 7¼	3¼ & 2½	2½	1¼	3¾	4	One, 948	Class B	280	Easy spring	10.90*
5659	Flat	6½ x 1½	4¼ x 3½ x 7¼	2¾	2¾ to 5†	1¼	2½	4	One, 948	Class B	280	Easy spring	5.00*
5639	Flat	6½ x 1½	4¼ x 3½ x 7¼	2¾	2¾ to 3¾†	1¼	2½	3	One, C338	Class A	260	Easy spring	4.00**
5639R	Rabbetted	6½ x 1½*	4¼ x 3½ x 7¼	2¾ & 2¼	2¾ to 3¾†	1	2½	3	One, C338	Class A	260	Easy spring	6.00
P5649B	Flat	6½ x 1	4¼ x 3¾ x 7¼	2½	To order	1½	2½	3	One, 838	Class A	260	Easy spring	3.80
5629	Flat	6 x 1½	4¼ x 3¾ x 7¼	2½	.....	1½	2½	3	One, C338	Class A	260	Easy spring	3.00
5629R	Rabbetted	6 x 1½*	4¼ x 3¾ x 7¼	2½	.....	1½	2½	3	One, C338	Class A	260	Easy spring	5.00
5269	Flat	5½ x 1	3½ x 3¼ x 7¼	2½	.....	1	2½	3	One, C338	Class A	260	Easy spring	2.60
5269R	Rabbetted	5½ x 1*	3½ x 3¼ x 7¼	2½ & 2	.....	1	2½	3	One, C338	Class A	260	Easy spring	4.60
5259	Flat	5½ x 1½	3½ x 3¼ x 7¼	2½	2¾	1	2½	3	One, C338	Class A	260	Easy spring	2.00

*½-in. rabbet.

†Add \$1.50 extra.

‡Add \$3.00 extra to list price of lock.

*Includes all key functions.

**For dustproof strike, add \$3.20.

Illustrations
One-quarter Size

SARGENT

Bitted Key Mortise Knob Locks

Packed with screws to match

For Inside Doors of Fine Residences, Public Buildings, etc.

No. 5239MK 3½-in. Lock—Furnished Master Keyed only. The price of the lock includes Master Keying.

Master Keyed (Class A)—Locks No. 5239MK can be furnished in 1 set of 200 locks (or less), all different, with Master Key to pass. Can also be furnished in sets as desired, not to exceed 200 locks (each lock different) with Master Key for each set. Can also be Master Keyed in sets with all other locks in Class A.

Master Keys for the above locks (No. 919).

Nos. 5249 and 5234 3½-in. Locks—Differ in weight from 5239MK and are not Master Keyed.

Nos. 5249R and 5234R 3½-in. Locks—Rabbeted front. Not Master Keyed.

No. 5299 Horizontal Lock—Intended especially for Colonial work.

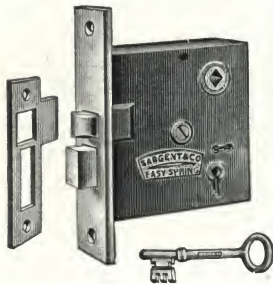
Case is long in horizontal direction.

Escutcheons—These locks are particularly suitable for use with key plates. They can also be used with plain escutcheons, used in a horizontal position, but the escutcheons must be ordered "cut to fit."

Master Keyed (Class A)—Can be furnished in 4 sets of 800 locks (or less), all different, with Master Key to pass. Can also be Master Keyed in sets as desired with Master Key for each set, and with a Grand Master Key to pass the whole 800 locks when desired. Can also be Master Keyed in sets with all other three and four-tumbler locks in Class A.

No. 5299R—Same as No. 5299, but has rabbeted front.

Master Keyed (Class A)—Same as No. 5299.



No. 5239MK
Style of 5234 and 5249 not
Master Keyed

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Heavy bronze.

Tumblers: Wrought steel.

Keys: Nickel plated steel.

Latch Bolt: Easy spring: Easy on latch bolt, firm on knob. Nos.

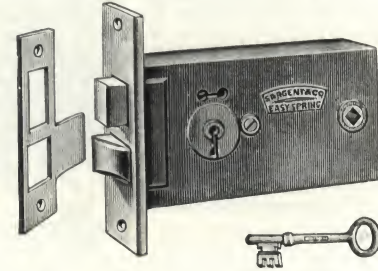
5299 and 5299R have two compression springs.

Hub: Brass, for ⅝-in. straight spindle.

Reversible: Flat Front: Yes, by removing cap. Rabbeted Front:

No; specify hand.

Master Keying: Nos. 5239MK, 5299 and 5299R—Yes.



No. 5299

Lock No.	Front		Case size, in.	Backset, reg., in.	Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Master keying	Changes	Latch bolt	Each
	Type	Size, in.										
5239MK	Flat	5½ x 1½	3½ x 3¼ x 5½	2½	1	2½	3	One, M338	Class A	260	Easy spring	\$2.00*
5249	Flat	5½ x 1½	3½ x 3¼ x 5½	2½	1	2½	3	One, 913	.....	24	Easy spring	1.60
5234	Flat	5½ x 1½	3½ x 3¼ x 5½	2½	1	2½	3	One, 911	.....	24	Easy spring	1.30
5249R	Rabbeted	5½ x 1½	3½ x 3¼ x 5½	2½ & 2	1	2½	3	One, 913	.....	24	Easy spring	3.10
5234R	Rabbeted	5½ x 1½	3½ x 3¼ x 5½	2½ & 2	1	2½	3	One, 911	.....	24	Easy spring	2.80
5299	Flat	5½ x 1	3½ x 5½ x 5½	†	1½	.....	3	Two, C338	Class A	260	Easy spring	6.00
5299R	Rabbeted	5½ x 1½	3½ x 5½ x 5½	†	1	.....	3	Two, C338	Class A	260	Easy spring	8.40

*½-in. rabbet.

‡Face to center of: key hole, 2 in.; hub, 5 in.

†Face to center of: key hole, 2 and 1½ in.; hub, 5 and 4½ in.

*Includes all Key Functions.

Bitted Key Horizontal Rim Knob Locks

Intended Especially for Colonial Work

Packed with screws and machine screws

Locks are mounted on inside face of door as was common in Colonial work.

No. J3729 Three-bolt Lock—Latch bolt operative by knobs from either side at all times. Dead bolt operated by key from either side. Thumb bolt deadlocks the door from inside only and cannot be retracted by key.

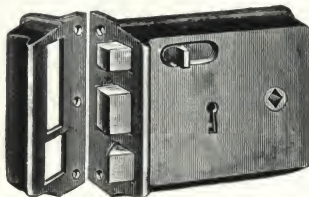
Master Keyed (Class A)—Can be furnished in 1 set of 800 locks (or less), all different, with Master Key to pass. They can also be furnished in sets as desired (every lock

different), with Master Key for each set and with a Grand Master Key to pass the whole 800 locks when desired. Master Key No. 917. For Master Keyed locks add 40¢.

No. J3525 Two-bolt Lock—This is a smaller lock than No. J3729, and does not have the thumb bolt dead lock.

Master Keyed (Class A)—Similar to No. J3729.

No. B3525B—Same as J3525 but polished brass case and strike. Knobs illustrated on page 76 are appropriate for use with these Rim Knob Locks.



No. J3729

GENERAL CONSTRUCTION

Case: Dead black japanned.

For Doors: From 1½ to 1¾ in. thick.

Hub: For ⅝-in. straight spindle.

Bolts: Brass: Nos. J3525 and B3525B, two; No. J3729,

three.

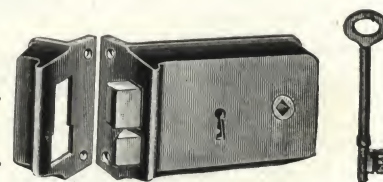
Keys: Brass.

Hub: For ⅝-in. straight spindle.

Latch Construction: Easy spring. Easy on latch bolt,

firm on knob. Two compression springs.

Reversible: No; specify hand.



No. J3525

No.	Front		Case size, in.	Backset, in.		Tumblers	Key	Master keying	Changes	Each
	Size, in.			Keyhole reg.	Hub*					
J3729	3½ x 1½		3½ x 4¾ x ¾	1½	3½	3	One, 873	Class A	260	\$4.25
J3525	3 x 1½		3 x 4½ x 1	1½	3½	3	One, 873	Class A	260	4.00
B3525B	3 x 1½		3 x 4½ x 1	1½	3½	3	One, 873	Class A	206	8.00

*Face to center of hub.

SARGENT

Bitted Key Mortise Locks for Interior French Doors

All packed with screws to match

*Illustrations
One-quarter Size*

These locks are designed for use on French doors where the stiles of the doors are generally narrow. The locks are longer vertically than horizontally.

They differ in weight, depth of lock and backset for lever handles. The springs on the hub are made extra heavy to hold up the lever handles.

High Grade Locks

No. 5079 Heavy, High Grade Lock—The latch bolt is operative either by knobs or lever handles from either side at all times. Dead lock operative by key from either side. Lock has four tumblers, 280 changes.

Master Keyed (Class B)—Can be furnished in 1 set of 2,400 locks (or less), all different, with Master Key to pass. Can also be furnished in sets as desired (every lock different), with Master Key for each set, and with a Grand Master Key to pass the whole 2,400 locks when desired. Price of lock includes Master Keying.

Can also be Master Keyed in sets with all other Class B locks. (Master Key No. 933.)

No. 5079R—Same as No. 5079, except has rabbeted front.

Master Keyed (Class B)—Same as No. 5079.

No. 5069—Smaller lock than No. 5079, but same operation. Has three tumblers, 260 changes.

Master Keyed (Class A)—Can be furnished in 1 set of 800 locks (or less), all different, with Master Key to pass. Can also be furnished in sets as desired (every lock different), with Master Key for each set, and with a Grand Master Key to pass the whole 800 locks when desired.

Can also be Master Keyed in sets with all other three and four-tumbler locks in Class A. (Master Key No. 919.) For Master Keying, add 40¢.

No. 5069R—Same as No. 5069, except has rabbeted front.

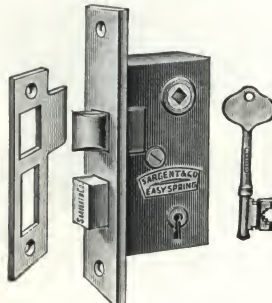
Master Keyed (Class A)—Same as No. 5069.

No. 5059—Smaller lock than No. 5069, but same operation. Has three tumblers, 260 changes.

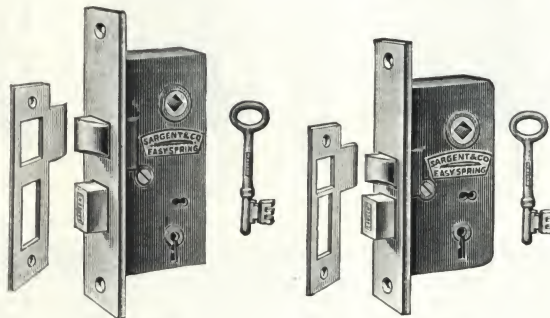
Master Keyed (Class A)—Same as No. 5069.

No. 5059R—Same as No. 5059, but has rabbeted front.

Master Keyed (Class A)—Same as No. 5069.

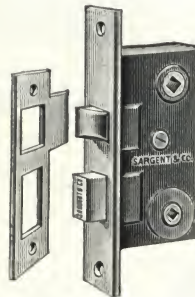


No. 5079



No. 5069

No. 5054



No. 4660

No. 5054—Same as No. 5059, but has one tumbler and only 50 changes. Not Master Keyed.

No. 5054R—Same as No. 5054, except has rabbeted front.

Not Master Keyed

The spring on hub is made strong enough to hold up small lever handles.

No. 5139—Similar to No. 5054, but lighter and with less changes. Has three tumblers, 40 changes.

Not Master Keyed.

No. 5139R—Same as No. 5139, except has rabbeted front.

Not Master Keyed.

No. 5134—Same as No. 5139, except has only 1 tumbler and 12 changes.

Not Master Keyed.

No. 5134R—Same as No. 5134, except has rabbeted front. Not Master Keyed.

French Door Locks—No Key

Deadlocked by turn knob from one side only.

No. 4660—Latch bolt is operative from either side by lever handles or knobs. Dead bolt is operative only from inside by turn knob. Any of our turn knobs may be used.

No. 4660R—Same as No. 4660, except has rabbeted front.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Heavy bronze.

Tumblers: Nos. 5079, 5079R, 5069 and 5069R—Wrought steel; all others—Brass.

Keys: Nickel Plated Steel.

Latch Bolt: Easy spring: Easy on latch bolt, firm on knob.

Hub: Brass, for $\frac{1}{8}$ -in. straight spindle. Nos. 4660, 4660R

hub, heavy bronze. Turn knob hub, $\frac{1}{8}$ -in. spindle.

Reversible: Flat front—yes, by removing cap; Rabbeted

front—No; specify hand.

Master Keying: Yes (except Nos. 4660 and 4660R).

Lock No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Tumblers	Keys	Master keying	Changes	Latch bolt	Each
	Type	Size, in.		Reg.	Spec.								
5079	Flat	6 $\frac{1}{2}$ x 1 $\frac{1}{2}$	4 $\frac{1}{4}$ x 2 $\frac{1}{4}$ x $\frac{7}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$ to 2 $\frac{3}{4}$	1 $\frac{1}{2}$	2 $\frac{7}{8}$	4	One, 948	Class B	280	Easy spring	\$6.00#
5079R	Rabbeted	6 $\frac{1}{2}$ x 1 $\frac{1}{2}$ *	4 $\frac{1}{4}$ x 2 $\frac{1}{4}$ x $\frac{7}{8}$	1 $\frac{1}{2}$ & 1	1 $\frac{1}{2}$ to 2 $\frac{3}{4}$	1 $\frac{1}{2}$	2 $\frac{7}{8}$	4	One, 948	Class B	280	Easy spring	8.00#
5069	Flat	6 $\frac{3}{8}$ x 1 $\frac{1}{8}$	4 $\frac{5}{8}$ x 2 $\frac{1}{4}$ x $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$, 2 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{7}{8}$	3	One, C338	Class A	260	Easy spring	4.00
5069R	Rabbeted	5 $\frac{7}{8}$ x 1*	4 $\frac{5}{8}$ x 2 $\frac{1}{4}$ x $\frac{3}{4}$	1 $\frac{1}{2}$ & 1	1 $\frac{1}{2}$, 2 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{7}{8}$	3	One, C338	Class A	260	Easy spring	6.00
5059	Flat	5 $\frac{11}{16}$ x 1	4 x 2 $\frac{1}{4}$ x $\frac{3}{4}$	1 $\frac{1}{2}$	1, 1 $\frac{1}{4}$, 2 $\frac{1}{2}$	1	2 $\frac{3}{8}$	3	One, C338	Class A	260	Easy spring	3.30
5059R	Rabbeted	5 $\frac{11}{16}$ x 1*	4 x 2 $\frac{1}{4}$ x $\frac{3}{4}$	1 $\frac{1}{2}$ & 1	1, 1 $\frac{1}{4}$, 2 $\frac{1}{2}$	1	2 $\frac{3}{8}$	3	One, C338	Class A	260	Easy spring	5.30
5054	Flat	5 $\frac{11}{16}$ x 1	4 x 2 $\frac{1}{4}$ x $\frac{3}{4}$	1 $\frac{1}{2}$	1, 1 $\frac{1}{4}$, 2 $\frac{1}{2}$	1	2 $\frac{3}{8}$	1	One, C336	Class A	260	Easy spring	3.00
5054R	Rabbeted	5 $\frac{11}{16}$ x 1*	4 x 2 $\frac{1}{4}$ x $\frac{3}{4}$	1 $\frac{1}{2}$ & 1	1, 1 $\frac{1}{4}$, 2 $\frac{1}{2}$	1	2 $\frac{3}{8}$	1	One, C336	Class A	260	Easy spring	5.00
5139	Flat	5 x $\frac{13}{16}$	3 $\frac{3}{8}$ x 2 x $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1	2 $\frac{3}{8}$	3	One, 909	.....	40	Easy spring	2.30
5139R	Rabbeted†	5 x $\frac{13}{16}$	3 $\frac{3}{8}$ x 2 x $\frac{1}{2}$	1 $\frac{1}{2}$ & 1 $\frac{1}{2}$	1 $\frac{1}{2}$	1	2 $\frac{3}{8}$	3	One, 909	.....	40	Easy spring	3.30
5134	Flat	5 x $\frac{13}{16}$	3 $\frac{3}{8}$ x 2 x $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1	2 $\frac{3}{8}$	1	One, 906	.....	12	Easy spring	1.65
5134R	Rabbeted†	5 x $\frac{13}{16}$	3 $\frac{3}{8}$ x 2 x $\frac{1}{2}$	1 $\frac{1}{2}$ & 1 $\frac{1}{2}$	1 $\frac{1}{2}$	1	2 $\frac{3}{8}$	1	One, 906	.....	12	Easy spring	2.65
4660	Flat	6 $\frac{3}{8}$ x 1 $\frac{1}{8}$	4 $\frac{5}{8}$ x 2 $\frac{1}{4}$ x $\frac{3}{4}$	1 $\frac{1}{2}$	1, 1 $\frac{1}{4}$, 2 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{7}{8}$**	.....	.....	.....	.....	Easy spring	3.50
4660R	Rabbeted	6 $\frac{3}{8}$ x 1 $\frac{1}{8}$ *	4 $\frac{5}{8}$ x 2 $\frac{1}{4}$ x $\frac{3}{4}$	1 $\frac{1}{2}$ & 1	1, 1 $\frac{1}{4}$, 2 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{7}{8}$**	.....	.....	.....	.....	Easy spring	5.50

* $\frac{1}{8}$ -in. rabbet.

† $\frac{1}{8}$ -in. rabbet regularly furnished; $\frac{1}{2}$ -in. to order.

‡ Can be furnished with 1-in. backset at \$1.50 each, additional.

§ Backsets listed furnished at no extra charge.

• Knob center to key hole center.

• Hub center to key hole center.

• Price includes master keying.

• Hub center to hub center.

• For special backset add \$3.00.

SARGENT

Mortise Knob Locks for Bathroom Doors in Fine Residences

All packed with screws to match

Illustrations
One-quarter Size

No. 4665 Heavy Two Bolt Lock—No Key—Locks From One Side Only—Latch bolt is operative by knobs at all times. When the dead bolt is thrown by turn knob from bath room side, it cannot be unlocked from the other side.

Escutcheons—Escutcheons having 6 in. between the screw holes can be cut to fit these locks. In ordering, specify the number of escutcheons wanted and order it "cut to fit." Any of our turn knobs with $\frac{1}{8}$ -in. spindle may also be used.

No. 4669 $\frac{3}{4}$ Heavy Two Bolt Lock, with Emergency Key—Same operation as No. 4665, but has Emergency Key which will retract the dead bolt from the outside in case of necessity.

No. 4663 $\frac{1}{2}$ —Same as No. 4669 $\frac{3}{4}$, only lighter lock.

Escutcheons—Inside: With turn knob. Outside: For $3\frac{1}{2}$ -in. mortise lock can be used without special cutting.

No. 4663 $\frac{1}{2}$ —Same as No. 4665, only lighter lock.

Escutcheons—Escutcheons with turn knobs are suitable for use with this lock.

No. 4668 Heavy Horizontal Lock—Intended especially for Colonial work. Same operation as No. 4665, but lock is long in horizontal direction.

GENERAL CONSTRUCTION

Case: Japanned. Front: Cast bronze.

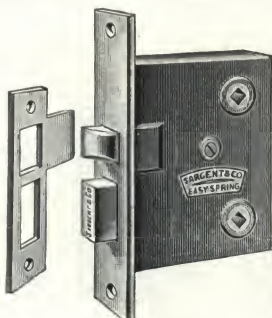
Bolts and Strike: Bronze.

Keys: Nos. 4663 $\frac{3}{4}$ and 4669 $\frac{3}{4}$ —Nickel; Emergency Key—No. 211 $\frac{3}{4}$.

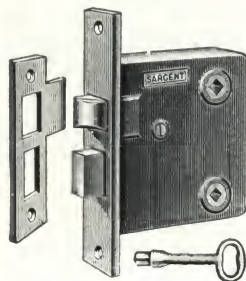
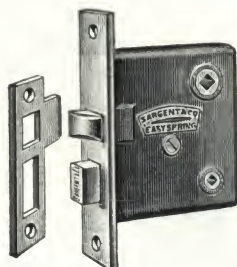
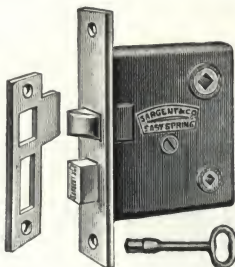
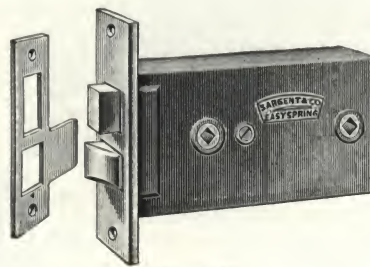
Latch Bolt: Easy spring: Easy on latch bolt, firm on knob. (Nos. 4663 $\frac{3}{4}$, 4663 $\frac{1}{2}$, 4665 and 4668 also have two compression springs.)

Hubs: Brass: Knob hub for $\frac{1}{8}$ -in. straight spindle; turn knob hub for $\frac{1}{8}$ -in. spindle.

Reversible: Yes, by removing cap.



No. 4665

No. 4669 $\frac{3}{4}$ No. 4663 $\frac{1}{2}$ No. 4663 $\frac{3}{4}$ 

No. 4668

Lock no.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Latch bolt	Each
	Type	Size, in.		Regular	Special				
4665	Flat	6 $\frac{1}{2}$ x1	4 $\frac{1}{2}$ x3 $\frac{1}{2}$ x $\frac{7}{8}$	2 $\frac{3}{4}$	3*	1 $\frac{3}{8}$	2 $\frac{7}{8}$	Easy spring	\$3.40
4669 $\frac{3}{4}$	Flat	5 $\frac{1}{2}$ x1	3 $\frac{3}{4}$ x3 $\frac{1}{4}$ x $\frac{5}{8}$	2 $\frac{3}{8}$		1	2 $\frac{1}{4}$	Easy spring	2.60
4663 $\frac{3}{4}$	Flat	5 $\frac{1}{2}$ x1 $\frac{1}{16}$	3 $\frac{1}{2}$ x3 $\frac{1}{4}$ x $\frac{5}{8}$	2 $\frac{1}{2}$		1	2 $\frac{3}{8}$	Easy spring	1.35
4663 $\frac{1}{2}$	Flat	5 $\frac{1}{2}$ x1 $\frac{1}{16}$	3 $\frac{1}{2}$ x3 $\frac{1}{4}$ x $\frac{5}{8}$	2 $\frac{1}{2}$		1	2 $\frac{3}{8}$	Easy spring	1.25
4668	Flat	5 $\frac{1}{2}$ x1	3 $\frac{1}{2}$ x5 $\frac{1}{2}$ x $\frac{5}{8}$	#		1 $\frac{3}{8}$		Easy spring	5.00

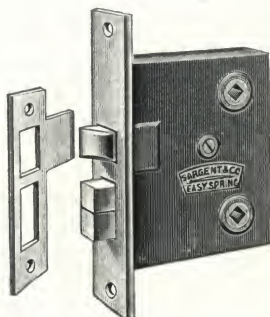
*Furnished with this special backset at \$1.50 extra.

#Face to center of: knob hub, 5 in.; turn-knob hub, 2 in.

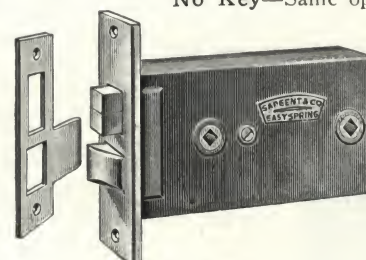
Mortise Knob Locks for Communicating Doors in Fine Residences

No. 4675 Lock with Three Bolts, No Key—Latch bolt is operated from either side. When locked by turn knob on either side, it cannot be unlocked from the other side. Dead bolts work with short spindle turn knobs. The spindle does not go through the lock.

Escutcheons—Escutcheons having 6 in. between the screw holes can be cut to fit these locks. In ordering, specify the number of the escutcheon wanted and order it "cut to fit." Any of our turn knobs may also be used.



No. 4675



No. 4678

No. 4679—Same as No. 4675, but lighter dead bolts. **Escutcheons**—Escutcheons with turn knobs should be used with this lock. Escutcheons Nos. 841 and 842, in the various designs, when not wider than $2\frac{1}{4}$ in., may be used with this lock.

No. 4678 Horizontal Lock, Three Bolts, No Key—Same operation as No. 4679, but lock is long in horizontal direction.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Heavy bronze (three bolts).

Latch Bolt: Easy spring: Easy on latch bolt, firm on knob.

Two compression springs.

Hub: Brass: Knob hub for $\frac{1}{8}$ -in. straight spindle; turn-knob hub for $\frac{1}{8}$ -in. spindle.

Reversible: Yes, by removing cap.

No.	Front		Case size, in.	Backset, in.		Strike, lip to center, in.	Spacing, in.	Latch bolt	Each
	Type	Size, in.		Regular	Special				
4675	Flat	6 $\frac{1}{2}$ x1	4 $\frac{1}{2}$ x3 $\frac{1}{2}$ x $\frac{3}{4}$	2 $\frac{3}{4}$	3 $\frac{1}{4}$ #	1 $\frac{3}{8}$ †	2 $\frac{7}{8}$	Easy spring	\$4.30
4679	Flat	5 $\frac{1}{2}$ x1	3 $\frac{3}{4}$ x3 $\frac{1}{4}$ x $\frac{5}{8}$	2 $\frac{3}{8}$		1	2 $\frac{1}{4}$	Easy spring	3.50
4678	Flat	5 $\frac{1}{2}$ x1	3 $\frac{1}{2}$ x5 $\frac{1}{2}$ x $\frac{5}{8}$	* $\frac{1}{16}$		1 $\frac{3}{8}$		Easy spring	6.00

*Face to center of: knob hub, 5 in.; turn-knob hub, 2 in.

†Special backset furnished to order, \$1.50 extra.

#Can also be furnished with Dustproof Strike at \$3.20 extra.

SARGENT**Cylinder Rim Night Latches**

Packed with screws to match

These latches are intended as auxiliary protection to doors from $\frac{7}{8}$ to $2\frac{1}{2}$ in. thick. They are all equipped with push button stop which is simple, positive and sure in action.

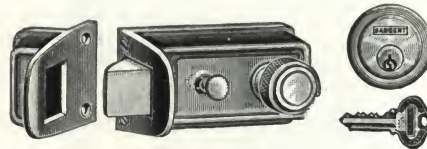
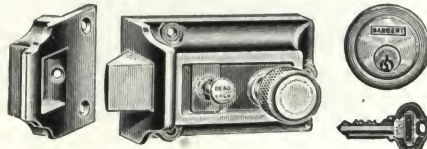
Master Keyed as other Cylinder Locks.

No. M4290 $\frac{1}{4}$ with Dead Locking Attachment—The latch bolt can be operated from outside by key and inside by turn knob and can be held back by pushing in push button stop. It can also be deadlocked by pushing in the push button stop so that latch cannot be operated from outside by key.

Latch case and keeper secured by screws in edge of door.

No. 4287 $\frac{1}{4}$ —Operation similar to No. M4290 $\frac{1}{4}$, except case is screwed to face of door.

No. M4290—Similar to No. M4290 $\frac{1}{4}$, except does not have deadlocking feature.

No. M4290 $\frac{1}{4}$ No. 4287 $\frac{1}{4}$

No. OB4287—Similar to No. 4287, but has iron case dull brass plated.

No. P4287P—Similar to No. 4287, but with bronze case, polished edges and raised parts.

GENERAL CONSTRUCTION

Case: Nos. 4287 and 4287 $\frac{1}{4}$ —Japanned.

No. OB4287—Iron, dull brass plated.

No. N4287—Iron, nickel plated.

No. P4287P—Bronze, polished edges and raised parts.

Nos. M4290 and M4290 $\frac{1}{4}$ —Iron,

dark oxidized background, high parts bronze plated and relieved.

Bolts and Strike: Bronze.

Cylinder: Bronze.

Push Button Stop: Bronze.

Turn Knob: Bronze.

Keys: Nickel bronze.

Reversible: Yes.

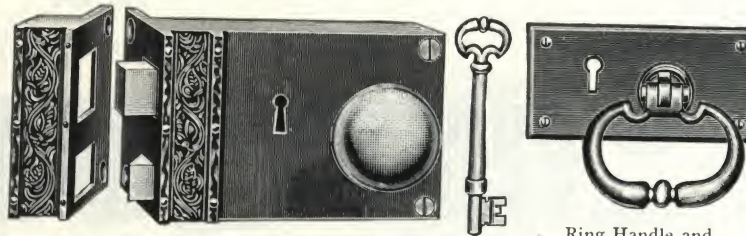
Master Keying: Yes.

Lock No.	Case size, in.	Backset, in.	Cylinders	Tumblers	Keys	Master keying	Each
4287	2 $\frac{1}{8}$ x3 $\frac{3}{4}$ x1	2 $\frac{3}{8}$	1	5	Three, 267	Yes	\$2.30
OB4287	2 $\frac{1}{8}$ x3 $\frac{3}{4}$ x1	2 $\frac{3}{8}$	1	5	Three, 267	Yes	2.60
N4287	2 $\frac{1}{8}$ x3 $\frac{3}{4}$ x1	2 $\frac{3}{8}$	1	5	Three, 267	Yes	2.60
P4287P	2 $\frac{1}{8}$ x3 $\frac{3}{4}$ x1	2 $\frac{3}{8}$	1	5	Three, 267	Yes	5.00
4287 $\frac{1}{4}$	2 $\frac{1}{8}$ x3 $\frac{3}{4}$ x1	2 $\frac{3}{8}$	1	5	Three, 267	Yes	2.30
M4290	2 $\frac{1}{8}$ x3 $\frac{3}{4}$ x1	2 $\frac{3}{8}$	1	5	Three, 267	Yes	3.20
M4290 $\frac{1}{4}$	2 $\frac{1}{8}$ x3 $\frac{3}{4}$ x1	2 $\frac{3}{8}$	1	5	Three, 267	Yes	3.20

Rim Lock Sets

Packed with screws to match

A modern trend of many architects is to design dwellings and interiors in the Early English, Norman, Colonial and other styles where mortise locks were unknown. In order to have the hardware carry out the spirit of the design of the architect, rim locks have been designed for this purpose, one of which is illustrated.

Rim Lock with Knob and Key
For Inside of DoorRing Handle and
Escutcheon
For Outside of Door

Set No. 3121

A set complete comprises: 1 Lock No. 3549, 1 Knob and Ring Handle No. 1065, and 1 Escutcheon No. 560.

For doors $\frac{7}{8}$ to $2\frac{1}{8}$ in. thick.

GENERAL CONSTRUCTION

Hub: For $\frac{1}{8}$ -in. straight spindle.

Reversible: No; specify hand.

Backset: Face to center of hub, $3\frac{3}{4}$ in. Key hole, $2\frac{1}{8}$ in.

For brass rim locks suitable for Colonial work, see Nos. J3729 and J3525 on page 62

No.	Escutcheon		Case size, in.	Size ring handle, in.	Tumblers	Changes
	Type	Size, in.				
3121	Flat	2 $\frac{1}{4}$ x4 $\frac{3}{4}$	3 $\frac{1}{2}$ x5 $\frac{1}{8}$ x $\frac{7}{8}$	2 $\frac{3}{8}$ x3 $\frac{3}{8}$	3	260

Furnished in cast bronze in HF imitation hand forged finish, per set, \$17.80; also furnished in cast white bronze in HF imitation hand forged finish; HFEM finish, per set, \$21.60, hand forged; also furnished in cast white bronze in imitation. Hand Forged Finish, per set, \$17.80; HFEM Finish, per set, \$21.60.

Master Keyed in Class A with other Locks. Master Key No. 917.

Face to center of hub, $3\frac{3}{4}$ in.; face to center of key hole, $2\frac{1}{8}$ in.

Cylinder Padlocks

These padlocks have a heavy cast bronze case and Carbo-tempered, self-locking spring shackles. They are extra strong and heavy. Five pin tumblers. Two nickel bronze keys No. 267. Can be Master Keyed as cylinder locks.

No. N896HSD—Has no chain, but has dust cap.

No. P896HS—Has no chain.

No. P896HSC—Furnished with 8-in. galvanized steel chain.

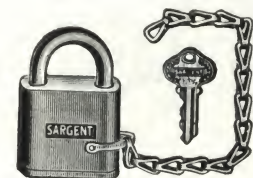


No. P896HS

No. N896HSD style of above with dust cap key hole cover

Nos.	Size, in.	Shackle, in.		Per doz.
		Diam.	Opening	
N896HSD*	1 $\frac{3}{4}$	$\frac{7}{8}$	$\frac{3}{4}$ x $\frac{7}{8}$	\$39.00
P896HS	1 $\frac{3}{4}$	$\frac{7}{8}$	$\frac{3}{4}$ x $\frac{7}{8}$	36.60
P896HSC	1 $\frac{3}{4}$	$\frac{7}{8}$	$\frac{3}{4}$ x $\frac{7}{8}$	42.00

*Nickel plated, with dust cap.



No. P896HSC

SARGENT**Cylinder Rim Dead Locks***Illustrations
One-quarter Size*

All packed with screws to match

These locks are for doors opening in. All are operated from outside by key and from inside by turn knob.

No. P4399 Especially Adapted for Use on Apartment House and Store Doors—Has three bolts which pass through holes in strike and then again into case. Cannot be forced by jimmy or other means. Bolt will operate even if door shrinks. For doors $1\frac{1}{4}$ to $2\frac{1}{4}$ in. thick. Approved by Underwriters.

Note: Lock can be furnished with reverse bevel strike instead of regular strike if ordered thus: "P4399RB."

Master Keyed—Can be furnished to order in sets of any required number, with Master Key to pass each set and a Grand Master Key to pass all. For Master Keyed Locks add 65¢ each Cylinder. For Master Keyed and Grand Master add \$1.00.

No. 4375 Extra Heavy Single Bronze Bolt, 1-in. Throw—Iron case, dull brass enameled. Bronze cylinder, bronze bolt, brass turn knob. For doors $1\frac{1}{4}$ to $2\frac{1}{2}$ in. thick.

Master Keyed—Same as No. P4399.

No. M4395—Similar to No. 4375, but lighter and with $\frac{3}{4}$ -in. throw. For doors $\frac{7}{8}$ to $2\frac{1}{2}$ in. thick.

Master Keyed—Same as No. P4399.

No. 4337—Similar to No. M4395 with $\frac{3}{4}$ -in. throw.

Master Keyed—Same as No. P4399. For doors $\frac{7}{8}$ to $2\frac{1}{2}$ in. thick.

No. 4330—Heavy bolt for narrow stile doors.

Master Keyed—Same as No. P4399.

No. M4330—Similar to No. 4330, except case is dark oxidized background, high parts bronze plated and relieved.

Master Keyed—Same as No. P4399.

GENERAL CONSTRUCTION

Case: No. P4399—Bright bronze.

Nos. 4330 and 4337—Iron case, japanned.

No. M4395—Iron case, dark oxidized background, high parts bronze plated and relieved.

No. 4375—Dull brass enameled.

Bolt and Strike: Bronze.

Cylinder: Bronze.

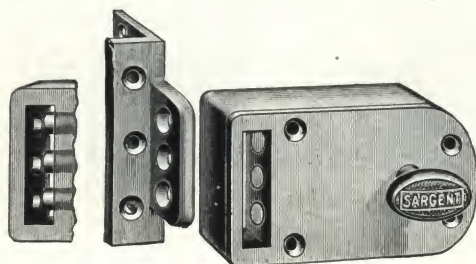
Turn Knob: Bronze.

Keys: Nickel bronze.

Tumblers: Five pin.

Reversible: Yes.

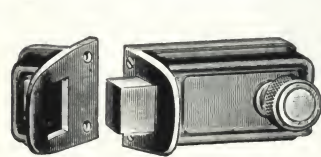
Master Keying: Yes.



No. P4399



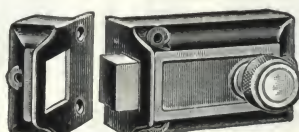
No. 4375



No. M4395



No. 4337



No. 4330



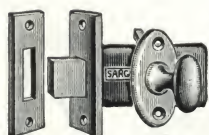
Lock No.	Case size, in.	Backset, in.	Cylinders	Keys	Master keying	Changes	Each
P4399	$2\frac{1}{2} \times 4\frac{3}{8} \times \frac{3}{4}$	$2\frac{1}{4}$	1	Three, 267	Yes	Unlimited	\$6.50
4375	$2\frac{3}{4} \times 3\frac{1}{2} \times 1\frac{1}{8}$	$2\frac{1}{4}$	1	Three, 267	Yes	Unlimited	5.00
M4395	$2\frac{1}{4} \times 3\frac{1}{2} \times 1$	$2\frac{3}{4}$	1	Three, 267	Yes	Unlimited	4.50
4337	$2\frac{1}{2} \times 3\frac{3}{4} \times 1$	$2\frac{3}{4}$	1	Three, 267	Yes	Unlimited	2.60
4330	$2\frac{3}{4} \times 2\frac{1}{2} \times 1\frac{1}{8}$	$1\frac{1}{4}$	1	Three, 267	Yes	Unlimited	4.40
M4330	$2\frac{3}{4} \times 2\frac{1}{2} \times 1\frac{1}{8}$	$1\frac{1}{4}$	1	Three, 267	Yes	Unlimited	4.80

zFrom edge of door to center of cylinder.

Mortise Door Bolts

For Use on Closet Doors

Packed with screws to match



No. 287

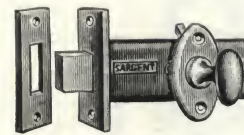
GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolt: Cast bronze.

Trim: Cast bronze.



No. 289

Bolt No.	Type	Front size, in.	Case size, in.	Turn knob plate, in.	Backset, in.	Per dozen
287	Flat	$2\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{4}$	$1\frac{1}{4} \times 2\frac{1}{2} \times \frac{1}{2}$	$2\frac{1}{4} \times \frac{7}{8}$	$1\frac{1}{2}$	\$13.45
289	Flat	$2\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{4}$	$1\frac{1}{4} \times 3\frac{1}{2} \times \frac{1}{2}$	$2\frac{1}{4} \times \frac{7}{8}$	$2\frac{1}{2}$	13.45

SARGENT

Cylinder Locks for Exterior Sliding Doors

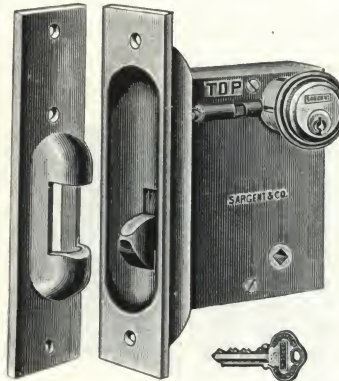
Illustrations
One-quarter Size

All packed with screws to match

No. 6949 Extra Heavy, with Concave Front and Recessed Latch Bolt for Stables, Fire Houses, Garages, etc.—The concave face of the lock contains the latch bolt, which does not project beyond the face of the lock. The strike is convex to match the face of lock. All edges and corners are rounded to prevent possible injury to animals or vehicles when passing through the doorway.

Flush Cup and Drop Handles Nos. 56, 86, 287½ and 297 are especially adapted for use with these locks.

Operation—The latch bolt is operative



No. 6949

from either side by drop handles except when locked by key, when the drop handles will not operate the latch bolt.

Master Keyed—Like other cylinder locks.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Bronze.

Cylinders: Bronze (two).

Keys: Nickel bronze.

Hubs: Brass, for ⅝-in. straight spindle.

Reversible: Yes.

Master Keying: Yes.

For Doors: Not less than 2-in. thick.

Lock No.	Front		Case size, in.	Backset, in.		Spacing, in.	Tumblers	Keys	Master keying	Each
	Type	Size, in.		Reg.	Spec.					
6949	Concave	8x1½	5x4x¾	3	2, 2½, 3½, 4*	3¾	2	Three, 267	Yes	\$15.00

*Special backsets furnished at extra charge as follows: 2-in. and 2½-in., \$1.50; 3½-in., \$2.00; 4-in., \$3.00 extra.

Cylinder Sliding Door Locks and Latches for Inside Doors

Packed with screws to match

Cylinder Sliding Door Locks with Pulls

No. 6983 for Single Doors—Latch bolt, with safeguard cover, operative from either side by key. The pull is projected by means of push button in face of lock and as door is closed, it is pushed back flush with lock face. Has two cylinders.

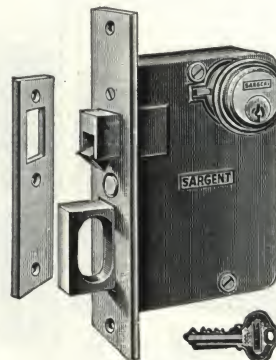
Master Keyed—Like other cylinder locks.

Cup Escutcheons—We can furnish any of our cup escutcheons with the key holes omitted for side pulls for this lock. The escutcheons can be used below the cylinders.

No. 6984—Same as No. 6983, except for Double Doors and with box strike.

Master Keyed—Like other cylinder locks.

Cup Escutcheons—Same as No. 6983.



No. 6983

Master Keyed—Like other cylinder locks.

No. 6982—Same as 6981, except has two cylinders and dead lock operated by key from either side.

Cylinder Sliding Door Night Latches

No. 6928x83—For single door. Latch bolt operated from outside by key and inside by bronze flush cup handle with half spindle.

Master Keyed—Like other cylinder locks.

No. 6928x1620x30F—Similar to No. 6928x83, except has bronze knob with half spindle instead of cup handle.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Bronze.

Pull: Nos. 6983 and 6984—Bronze.

Cylinders: Bronze.

Hub: Nos. 6928x83 and 6928x1620x30F—Brass for ⅝-in. spindle.

Cup Handle: No. 6928x83—Bronze.

Knob: No. 6928x1620x30F—Bronze.

Keys: Nicked bronze.

Reversible: Yes.

Master Keying: Yes.

For Doors: Thickness should be specified.



No. 6928

No. 6981

Cylinder Sliding Door Dead Locks

No. 6981—This dead lock has the safeguard cover for the dead bolt and prevents it from being forced. Has one cylinder for operation by key from one side only.

Lock No.	Front		Case size, in.	Backset, in.		Cylinders	Keys	Master keying	Each
	Type	Size, in.		Reg.	Spec.				
6983	Flat	7½x1½	5½x3¾x¾	2½	.....	2	Three, 267	Yes	\$17.30
6984	Flat	7½x1½	5½x3¾x¾	2½	.....	2	Three, 267	Yes	20.50
6928x83	Flat	5 x 1½	3½x3¼x¾	2¾	2 to 4*	1	Three, 267	Yes	8.60
6928x1620x30F	Flat	5 x 1½	3½x3¼x¾	.....	2 to 4*	1	Three, 267	Yes	9.20
6981	Flat	5 x 1½	2½x3¼x¾	2½	.....	1	Three, 267	Yes	11.20
6982	Flat	5 x 1½	2½x3¼x¾	2½	.....	2	Three, 267	Yes	13.20

*Special backset of sizes mentioned furnished at \$3.00 extra.

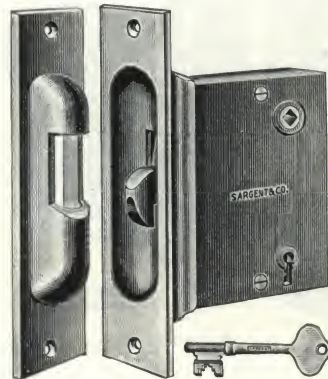
SARGENTIllustrations
One-quarter Size

Bitted Key Locks for Exterior Sliding Doors

All packed with screws to match

No. 6945 Extra Heavy with Concave Front and Recessed Latch Bolt for Stables, Fire Houses, Garages, etc.—This lock has the same construction as No. 6949, except that the latch bolt is operative by bitted key instead of by cylinder lock. Has four tumblers and 280 changes.

Master Keyed (Class B)—Can be furnished in 1 set of 2,400 locks (or less, all different), with Master Key to pass. Can also be furnished in sets as desired (every lock different), with Master Key for each set, and with a Grand Master Key to pass the whole 2,400 locks when desired.



No. 6945

Can also be Master Keyed in sets with all other Class B locks. Master Key No. 933. For these Locks Master Keyed, add 40¢.

Flush Cup Handles on page 75 are especially adapted for use with these locks: Nos. 56, 86, 256, 257, 286, 287.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts and Strike: Bronze.

For doors not less than 2-in. thick.

Tumblers: Wrought steel.

Keys: Nickel plated steel.

Hub: Brass, for $\frac{1}{8}$ -in. straight spindle.

Reversible: Yes.

Master Keying: Yes.

Lock No.	Front		Case size, in.	Backset, in.		Spacing, in.	Tumblers	Keys	Master keying	Changes	Each
	Type	Size, in.		Reg.	Spec.						
6945	Concave	8x1½	5x4x¾	3	2¼, 3½, 4*	3¾	4	Two, 948	Class B	280	\$9.50

*Special backsets furnished as follows: 2½-in., \$1.50; 3½-in., \$2.00; 4-in., \$3.00 extra.

Bitted Key Locks for Interior Sliding Doors

All packed with screws to match

Sliding Door Locks with Pulls, for Light and Medium Weight Inside Doors

No. 6973 for Single Doors—Flat front.

Master Keyed (Class A)—Can be furnished to order in sets with any of our Master Keyed Locks using Keys No. 918.

Can also be furnished Master Keyed to order with any of our locks in Class B.

For these Locks Master Keyed, add 40¢.

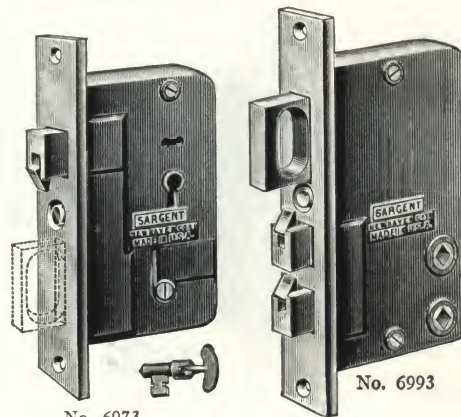
No. 6974 for Double Doors—Same as No. 6973, but has dummy lock with pull on one side.

With dustproof strikes.

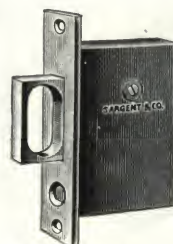
Master Keyed (Class A)—Same as No. 6973.

Mortise Sliding Door Pull

No. 33—Mortise Sliding Door Pull—Has pull only projected by push button in face of lock.



No. 6973



No. 33

Extra Heavy Sliding Door Locks for Communicating Doors

No. 6993 for Single Doors—

Has double lock each bolt thrown by T handle from opposite sides of doors. When door is locked by T handle on either side, it cannot be unlocked from the other. Also has pull projected by push button in face of lock.

Escutcheons—Flush Cup Handles No. 290 are intended especially for use with these locks. Any of our Cup Escutcheons can be made to fit, and when so ordered will

take the T Handle of No. 290.

No. 6994—Same as No. 6993, except for Double Doors.

Escutcheons—Same as No. 6993.

GENERAL CONSTRUCTION

Case: Japanned.

Front: Cast bronze.

Bolts, Strikes and Pulls: Bronze.

Tumblers: Nos. 6973 and 6974—Wrought steel.

Hub: Nos. 6993 and 6994—Brass, for $\frac{1}{8}$ -in. straight spindle.

Keys: Nos. 6973 and 6974—Nickel bronze.

Reversible: Yes.

Master Keyed: Yes.

Lock No.	Front		Case size, in.	Backset, in.		Keys	Tumblers	Master keying	Changes	Each
	Type	Size, in.		Reg.	Spec.					
6973	Flat	7½x1½	5½x3¾x1½	2½	2, 3, 3½, 4*	One, 806#	1	Class A	260	\$ 6.00
6974	Flat	7½x1½	5½x3¾x1½	2½	2, 3, 3½, 4*	One, 806#	1	Class A	260	8.00
33	Flat	5 x 1	3¾x2½x1½	2¾	2½, 3, 3½, 4*	None				1.60
6993	Flat	8½x1½	6¾x3½x¾	2¾	2½, 3, 3½, 4*	None				20.50
6994	Flat	8½x1½	6¾x3½x¾	2¾	2½, 3, 3½, 4*	None				27.00

*Special backsets listed can be furnished at \$1.50 extra.

†For 1¾ to 2¾ in. doors.

SARGENT

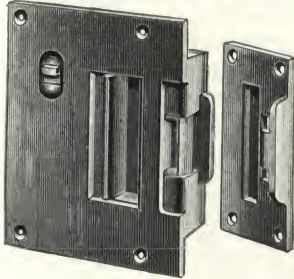
Cylinder Locks for Garage Doors

Packed with screws to match

Illustrations
One-quarter Size

For Sliding Doors

No. 6912 Has Protected Strike and Self-latching Bolt—The bolt will operate even if doors sag. Latch bolt is operative from outside by key and from inside by lever. Can also be held back by stop, as well as by key, allowing use of both hands when opening the door. For doors 1 3/4 to 3 in. thick.



No. 6912

Master Keyed—As No. 4299—opposite.

GENERAL CONSTRUCTION

Case: No. 6912, dead black japanned; No. 4299, japanned.

Bolt: Malleable iron (No. 6912 only).

Keys: Nickel bronze.

Cylinder: Bronze.

Latch Bolt: Self-latching.

Reversible: Yes.

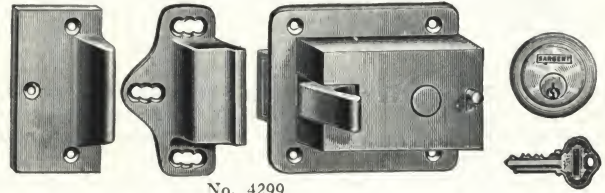
Slide Stop: Bronze (No. 4299 only).



For Hinged Doors

No. 4299 for Single or Double Doors Opening Out—The bolt will operate even if doors sag. Latch bolt operated from outside by key and from inside by pushing back the latch bolt slide stop, releasing it from the strike. Latch bolt can be held back by the slide stop. For doors 3/8 to 2 1/2 in. thick.

Master Keyed—Can be furnished to order in sets of any required number of Change Keys, with nickel bronze Master Key to pass each set and a Grand Master Key to pass all. For Master Keyed Locks, add \$0.65 each cylinder. For Master and Grand Master Keyed Locks, add \$1.00.

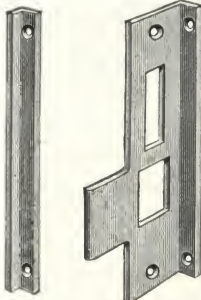


No. 4299

Lock No.	Case size, in.	Backset, in.	Keys	Tumblers	Each
6912	5 1/4 x 4	3	Three, 267	5	\$4.00

Lock No.	Case size, in.	Backset, in.	Keys	Tumblers	Each
4299	3 1/2 x 4 1/4 x 1 1/4	3	Three, 267	5	\$3.50

Special Lock Strikes



Safety Strike

Protected Strike

Safety Strikes—Packed with locks Nos. 6705 and 6805, in addition to regular strike. Furnished to order with other locks. Price, 40¢ each.

Protected Strikes—Furnished with cylinder locks and latches at additional charge. Furnished to order with other locks.

To Order—Give exact thickness of door and length of strike from center of opening to end of lip.

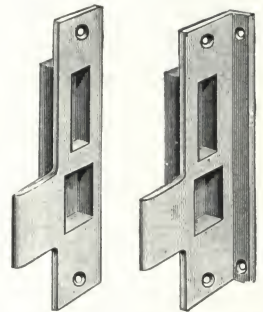
Box Strikes—Furnished with cylinder locks and latches at additional charge. Furnished to order with other locks.

Protected Box Strikes—Furnished with cylinder locks and latches at additional charge. Furnished to order with other locks.

To Order—Give exact thickness of door and length of strike from center of opening to end of lip.

Strikes with Extra Long Lips—Special strikes, to protect moulding, regularly packed with cast bronze strikes. Also furnished to order for all Mortise Locks.

To Order—Specify distance from center of opening to end of lip.



Box Strike

Protected Box Strike

Hotel Lock Indicators

Packed with screws to match

No. 110—Furnished to order with Cylinder Hotel Locks Nos. 6850, 6851, 6851 1/2, 6852, 6852 1/2 and 6859. Indicators have button that cannot be pushed in when door is locked from inside, thus indicating room is occupied. No knob rose larger than 2 in. can be used with this indicator.

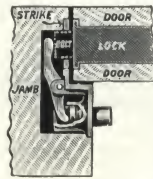
Nos. 8 and 9—Furnished to order with Hotel Locks Nos. 6120, 6123, 6260, 6263, 6290, 6293, 6850, 6851, 6851 1/2, 6852, 6852 1/2 and 6859. No. 8 comes mounted; No. 9 comes unmounted, but may be used with any cast or wrought escutcheon. Add price given to price of the escutcheon.

No. 10—Mortised into the jamb of the door, is visible from the corridor side. Can

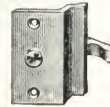
be used with Three-bolt Hotel Locks having dead bolt operated from inside by Guest Key or turn knob. Has polished brass button in the center of plate, connected with lever which extends to opening in strike for the dead bolt. Dead bolt, when thrown, strikes against lever, forcing the button out, indicating room is occupied. When bolt is withdrawn, button sets flush with the plate.

To Order—Give thickness of door and number of lock. No. 10 furnished regularly for doors 1 3/4, 2 and 2 1/4 in. thick. Other sizes furnished to order without additional charge.

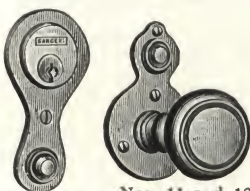
Nos. 11, 12, 13 and 14—Nos. 11 and 12 show knob No. 1614; Nos. 13 and 14, knob No. 2233, but any of our door knobs may be used.



No. 10
Showing Indicator mortised into jamb of door



CAST BRONZE HOTEL LOCK INDICATORS

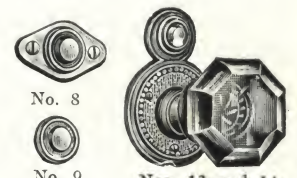


No. 110

Nos. 11 and 12

No.	Description	Size, in.	Each
110	Indicator and cylinder rosette combined	3 3/4 x 2	\$2.70
8	Indicator mounted on escutcheon	3 3/4 x 1 3/4	1.35
9	Indicator button only mounted on any escutcheon specified	3/4	1.35
10	Indicator-plate for 1 3/4-in. door	2 x 1 1/4	1.30
	Indicator-plate for 2-in. door	2 x 1	
	Indicator-plate for 2 1/4-in. door	2 x 3/8	
11	Indicator and rose combined, regular bushing	3 3/4 x 2	2.70*
12	Indicator and rose combined, Model F	3 3/4 x 2	2.70*
13	Indicator and rose combined, regular bushing	3 3/4 x 2 1/4	2.70*
14	Indicator and rose combined, Model F	3 3/4 x 2 1/4	2.70*

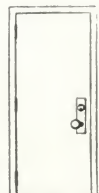
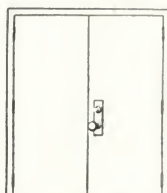
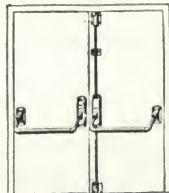
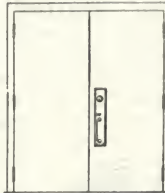
*Price given does not include knob.



No. 8

No. 9

Nos. 13 and 14

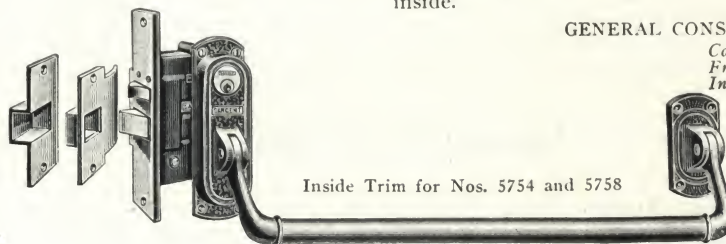
SARGENT**Exit Bolts****For Doors Used for Entrance and Exit, Opening Out****Double Acting Cross Bar, Always Operative from Inside**Outside Trim
No. 5754Outside,
with
No. 5754Outside, with
Nos. 5754 and
5525Inside,
with
Nos. 5754
or 5758Inside, with
Nos. 5754 or 5758
and No. 5525Outside,
with
No. 5758Outside, with
Nos. 5758 and
5525Outside Trim
No. 5758

No. 5754 and No. 5758—Have the same uses and operation but differ in that No. 5754 has knob and escutcheon on the outside and No. 5758 has handle with thumb piece and escutcheon.

Always operative from inside by slight pressure on an upward pull on cross bar at any point. Latch bolt and dead bolt can be set retracted from inside by complete turn of key in inside cylinder while door is in open position.

Latch bolt is always operative from outside by knob or thumb piece except when set by half turn of key in inside

cylinder when the door is in closed position. The dead lock on the latch bolt can be retracted by a quarter turn of the key in the outside cylinder when the door is in a closed position without releasing the knob or thumb piece when set from inside.



Inside Trim for Nos. 5754 and 5758

GENERAL CONSTRUCTION

Case: Galvanized.

Front: Bronze.

Inside: All parts brass or bronze.

Bolts: Heavy bronze.

Cross Bar: Wrought bronze.

Roll-back: Roll-back latch

bolt.

Stiles: 5½ in.; 4½ in.

minimum.

Not Reversible: Specify

hand.

Keys: Nickel bronze.

Screws: To match.

CAST BRONZE

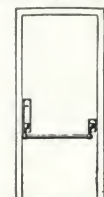
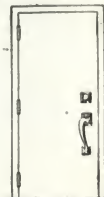
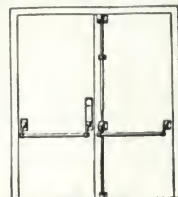
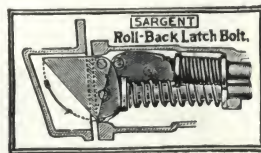
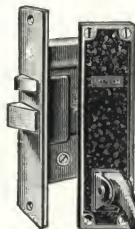
No.	Front		Case size, in.	Backset, in.	Strike, lip to center, in.	Plates, in.		Knob, in.	Cross bar, in.	Cylinders	Lock No.▲	Keys	Per† set
	Type	Size, in.				Outside	Inside						
5754	Flat	8¾x1½	5⅞x3⅞x7⅞*	2¾	1¼	10x3	8x2 and 4⅞x2	2¼	1	2	997	Three, 267	\$44.50
5758	Flat	8¾x1½	5⅞x3⅞x7⅞*	2¾	1¼	16x3	8x2 and 4⅞x2	.....	1	2	997	Three, 267	44.50

*Thickness including housing, 1⅞ in.

†Prices include Master Keying.

▲For description of lock see page 73.

‡Cross bars for doors 48 in. wide and wider made with center bearing brackets at \$3.00 additional.

Outside of Single and Double
Doors Trimmed with Bolts
No. 5221 or 5228Inside of Single and Double Doors
Trimmed with Bolts No. 5221,
5228, 5291 or 5298 and No. 5244Outside of Single and Double
Doors Trimmed with Bolts
No. 5291 or 5298Outside Trim
Nos. 5221, 5228

Nos. 5221, 5228, 5291, 5298

Outside Trim
Nos. 5291, 5298

Nos. 5221, 5228 and 5291, 5298—Have the same uses and operation except that Nos. 5221 and 5228 have a mortise bitted key lock while Nos. 5291 and 5298 have a cylinder lock.

Always operative from inside by a slight pressure or upward pull at any point on the cross bar at all times. Oper-

ative from outside by entrance handle and thumb piece except when the thumb piece is set by key from outside.

Set No.	Lock No.*	Cross Bar		Door Pull		Inside plates, in.	Keys	Per set
		No.	Diam., in.	No.	Size, in.			
P5221	P1123	J5221	¾	P3702TC	14½x2½	8x2 and 3x1¼	1	\$18.20
OB5221	OB1123	OBW5221	¾	OB3702TC	14½x2½	8x2 and 3x1¼	1	19.20
OB5228	OB1123	D5218	¾	OB3702TC	14½x2½	8x2 and 3x1¼	1	21.20
P5291	P993	J5221	¾	P3702TC	14½x2½	8x2 and 3x1¼	3	26.25
OB5291	OB993	OBW5221	¾	OB3702TC	14½x2½	8x2 and 3x1¼	3	27.25
OB5298	OB993	D5218	¾	OB3702TC	14½x2½	8x2 and 3x1¼	3	29.25

*For descriptions of locks, see page 73.

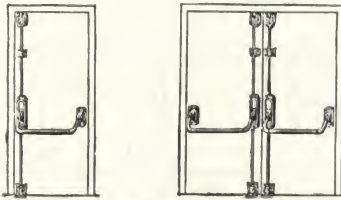
GENERAL CONSTRUCTION
Key Plate and Cylinder Plate:
Wrought bronze or brass.
Bases: Wrought bronze or
brass. Bronze grip.

SARGENT

Exit Bolts With Top and Bottom Bolts

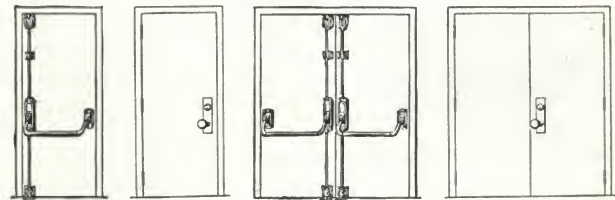
No. 5535, For Exit and Entrance Use.
With Outside Trim

No. 5525, Used for Exit
Only. Cannot Be Oper-
ated from Outside



Inside of Single and Double Doors
Trimmed with Fire Exit Bolt No. 5525

Top and bottom bolts are oper-
ative at all times from inside by
slight pressure or upward pull at
any point on cross bar. When bolts
are withdrawn by cross bar, they
are automatically held in retracted
position until door is closed when
the bolts are automatically projected
into strikes. Withdrawing of the
bolts allows operation over carpets
and rugs, marble or tile, etc., with-
out interference.



Inside and Outside
of Single Door Trimmed
with Fire Exit Bolt No.
5535

Inside and Outside of Double Doors
Trimmed with Fire Exit Bolts Nos. 5525
and 5535.

No. 5535 same as 5525 except that bolts are also oper-
ative from outside by knob except when deadlocked by
key from outside.

Furnished with interlocking machine screws for attach-
ing.

GENERAL CONSTRUCTION

For Stiles: Not less than 3 in. wide.

Handed: Not reversible; specify hand.

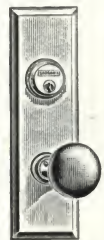
Height: Floor to cross bar, 3 ft.

Reversible: Not reversible; specify hand.

Screws: Packed with screws to match.

Keys: No. 5535—Three, No. 267. Can be master

Keyed as other cylinder locks.



Outside Trim
for No. 5535

CAST BRONZE, WROUGHT BRONZE CROSS BAR

Bolt No.	Dimensions, in.							Cylin- ders	Escutcheon, in.	Knob, § in.	Keys	Per set †
	Bar	Rod	Handle case	Top case	Center guide	Bottom case	Top strike					
5525	1	3/8	8x2	3 1/2 x 2 1/8	1 1/8 x 1 1/8	2 1/2 x 2 1/8	2 1/2 x 1 3/4					\$34.50
5535	1	3/8	8x2	3 1/2 x 2 1/8	1 1/8 x 1 1/8	2 1/2 x 2 1/8	2 1/2 x 1 3/4		10x3	2 1/4	Three, No. 267	50.00*

†Diameter.

§Adjustable spindle, model F.

*Prices include all key functions.

†Cross bars for doors 48 in. wide and wider made with center
brackets at \$3.00 additional.

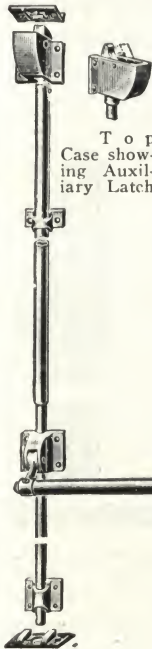
Gravity Locking Exit Bolt With Top and Bottom Bolts

No. J5244, For Doors Used as
Exit Only, Opening Out

Both top and bottom bolts are operated
from inside of door only by slight pressure
on the cross bar at any point. Inclosed in the
top case is a device which holds the ends of
the rod in position when they are withdrawn
from the strikes by the operation of the
cross bar, so that the door may be swung
over a carpeted, marble or tile floor.

When the door is closed, the rod is
instantly released by the auxiliary latch and
returns, by gravity, to its locked position.

Cannot be operated from the out-
side of door and
no hardware is
required on the
outside.



Top
Case show-
ing Auxil-
iary Latch

J5244—Cast iron. Steel tubing and rods. Dead
black japanned.

OBW5244—Cast iron. Steel tubing and rods. Gal-
vanized and dull brass finish.

D5248—Brass, unpolished.

B5248—Brass, bright.

P5248—Bronze, bright.

RD5248—Sanded brass plated, oxidized and relieved.

GENERAL CONSTRUCTION

For Stiles: Not less than 3 in. wide.

For Doors: 8 ft. high; 3 ft. wide.

Arms, Guides, Strikes and Working Parts in Top Case: Brass in
Nos. J5244 and OBW5244.

Height: Floor to cross bar, 3 ft.

Reversible: Yes.

Screws: Packed with screws to match.

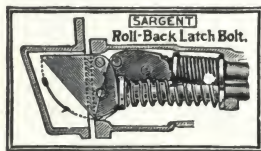
CAST IRON, BRASS AND BRONZE

Bolt No.	Dimensions, in.										Each†
	Bar	Rods		Brackets		Top case	Guides		Strikes		
		Upper	Lower	Rod end	Outer end		Top	Bottom	Top	Bottom	
J5244	$\frac{3}{4}$	$\frac{5}{8}$	$\frac{1}{2}$	2x2 $\frac{1}{4}$	2x1 $\frac{3}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{8}$	1 $\frac{1}{8}$ x1 $\frac{1}{8}$	1 $\frac{1}{2}$ x1 $\frac{1}{8}$	2 $\frac{1}{4}$ x1 $\frac{1}{2}$ *	2 $\frac{3}{4}$ x1 $\frac{1}{4}$	\$14.50
OBW5244	$\frac{3}{4}$	$\frac{5}{8}$	$\frac{1}{2}$	2x2 $\frac{1}{4}$	2x1 $\frac{3}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{8}$	1 $\frac{1}{8}$ x1 $\frac{1}{8}$	1 $\frac{1}{2}$ x1 $\frac{1}{8}$	2 $\frac{1}{4}$ x1 $\frac{1}{2}$ *	2 $\frac{3}{4}$ x1 $\frac{1}{4}$	16.00
D5248	$\frac{3}{4}$	$\frac{5}{8}$	$\frac{1}{2}$	2x2 $\frac{1}{4}$	2x1 $\frac{3}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{8}$	1 $\frac{1}{8}$ x1 $\frac{1}{8}$	1 $\frac{1}{2}$ x1 $\frac{1}{8}$	2 $\frac{1}{4}$ x1 $\frac{1}{2}$ *	2 $\frac{3}{4}$ x1 $\frac{1}{4}$	19.00
B5248	$\frac{3}{4}$	$\frac{5}{8}$	$\frac{1}{2}$	2x2 $\frac{1}{4}$	2x1 $\frac{3}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{8}$	1 $\frac{1}{8}$ x1 $\frac{1}{8}$	1 $\frac{1}{2}$ x1 $\frac{1}{8}$	2 $\frac{1}{4}$ x1 $\frac{1}{2}$ *	2 $\frac{3}{4}$ x1 $\frac{1}{4}$	22.00
P5248	$\frac{3}{4}$	$\frac{5}{8}$	$\frac{1}{2}$	2x2 $\frac{1}{4}$	2x1 $\frac{3}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{8}$	1 $\frac{1}{8}$ x1 $\frac{1}{8}$	1 $\frac{1}{2}$ x1 $\frac{1}{8}$	2 $\frac{1}{4}$ x1 $\frac{1}{2}$ *	2 $\frac{3}{4}$ x1 $\frac{1}{4}$	22.00
RD5248	$\frac{3}{4}$	$\frac{5}{8}$	$\frac{1}{2}$	2x2 $\frac{1}{4}$	2x1 $\frac{3}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{8}$	1 $\frac{1}{8}$ x1 $\frac{1}{8}$	1 $\frac{1}{2}$ x1 $\frac{1}{8}$	2 $\frac{1}{4}$ x1 $\frac{1}{2}$ *	2 $\frac{3}{4}$ x1 $\frac{1}{4}$	24.00

*Lip to center, 3/4 in.

§Lip to center, 5/8 in.

†For brackets Nos. J5244 and OBW5244, add \$2.50. Other
numbers add \$3.00.

SARGENT**Exit Bolts****Special Features and Information Regarding Exit Bolts****Roll-Back Latch Bolt**

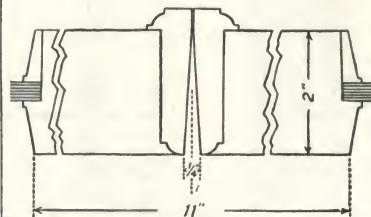
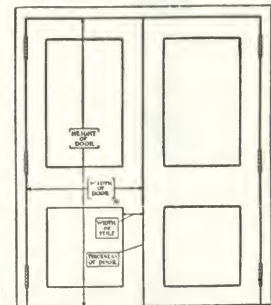
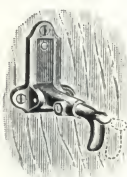
Locks Nos. 997, 993, 1123, 1133, and 1134, used with Fire Exit Bolts on the following pages, are made with an improved action by which they operate instantly when pressure is applied on the cross bar, the

lower latch-bolt being rolled back into the case of the lock instead of being drawn back.

This feature prevents any jamming of the latch-bolt and interference with the operation of the cross bar when sudden pressure is exerted against any part of the door.

Specifications in Ordering

Specify—The height and full width of the door, the thickness of the door, the thickness of the door including the astragal, the width of the stile, the hand of the bolt, whether wanted for single or double doors.

**Hook Attachments**

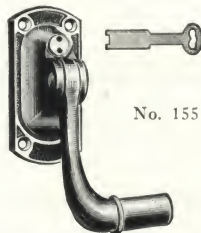
For use with Fire Exit Bolts Nos. 5754, 5758, 5525, 5535 and 5533 to hold the cross bar in an inactive position and allow its use as a push bar during those hours when free passage through the doorway is desired.

No. 1—Cast bronze. Price, \$1.00 each.

In ordering specify number of Exit Bolt to be used with.

Bar Locking Devices

Furnished at additional charge of \$2.00 each, when ordered with Fire Exit Bolts, Nos. 5754, 5758, 5525, 5535 and 5533.



No. 155

Threshold Stops

For use with Fire Exit Bolts when used on double doors. The Rabbet Former is applied to the threshold so as to act as a stop for the active door. The Buffer Plate is applied to the bottom of the active door so as to strike against the Rabbet Former, protecting the door.

No. 10—Cast bronze. Price, 70¢ each.

Furnished without additional charge when ordered with Fire Exit Bolts.

Rim Fire Exit Bolts**With Roll-back Latch Bolt and Special Hold Back Feature**

No. 5858—Latch bolt operative at all times from inside by slight pressure or upward pull on cross bar at any point, and from outside by key. Latch bolt may be stopped back by key from inside and cross bar locked in an inactive position for use as push bar from inside and door pull is used for opening door from outside.

No. 5858½—Same as No. 5858, except operated from inside only. No trim on outside.

GENERAL CONSTRUCTION

Cross Bar: Wrought bronze, 1 in. diameter.

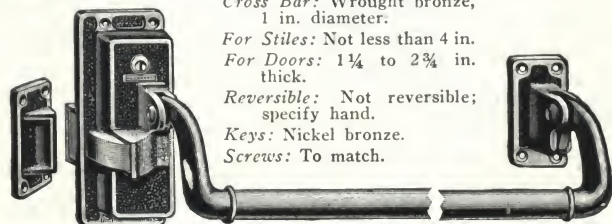
For Stiles: Not less than 4 in.

For Doors: 1¼ to 2¾ in. thick.

Reversible: Not reversible; specify hand.

Keys: Nickel bronze.

Screws: To match.

**CAST BRONZE**

No.	Inside case, in.	Outside plate, in.	Keys	Per set
5858	7¼x3½	10½x3½	Three, No. 278	\$42.00
5858½	7¼x3½	10½x3½	Three, No. 278	35.00

With Mortise Latch**For Single Doors from Auditorium to Corridors; from Corridors and Stairways to Play Courts**

No. 5533—Latch bolt operative at all times from inside by slight pressure or upward pull on cross bar at any point. Latch bolt can be stopped back by key from outside; the outside stationary knob then serves as a door pull. Also has upper guarded latch bolt for additional safety.

GENERAL CONSTRUCTION

Case: Galvanized.

Front: Bronze, 8x1½ in.

Strike: Lip to center, 1 in.

Inside: All parts brass or bronze.

Bolts: Heavy bronze.

Cross Bar: Wrought bronze, 1 in. diameter.

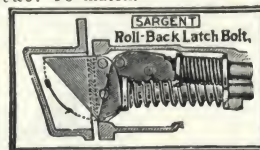
Roll-back: Roll-back latch bolt.

Stiles: 5 in. 4½ in. minimum.

Reversible: Not reversible; specify hand.

Keys: Nickel plated steel.

Screws: To match.

**CAST BRONZE**

No.	Case* size, in.	Back-set, in.	Plates, in. Outside Inside	Latch No.†	Keys	Per† set
5533	5¼x3½x7½	2¾	8x2½ 7¼x2 and 4¾x2	1133	Two, No. 948	\$33.00†

*Thickness including housing, 1½ in. †See page 73.

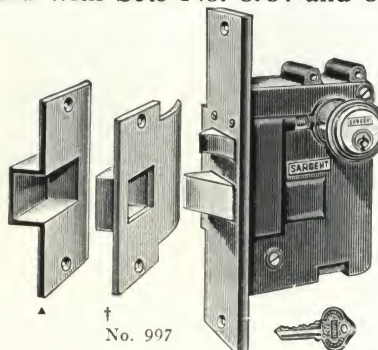
†Price includes Master Keying.

‡Cross bars for doors 48 in. wide and wider made with center bearing brackets at \$3.00 additional.

SARGENT**Locks for Exit Bolts****With Roll-Back Latch Bolt****No. 997 Mortise Cylinder Lock for Exit and Entrance****Used with Sets No. 5754 and 5758***Illustrations
One-fifth Size*

Always operative from inside by slight pressure on an upward pull on cross bar at any point. Latch bolt and dead bolt can be set retracted from inside by complete turn of key in inside cylinder while door is in open position.

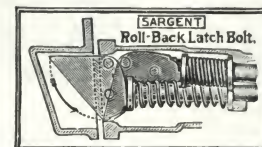
Latch bolt or thumb piece is always operative from outside by knob except when knob or thumb piece is set by half turn of key in inside cylinder when the door is in closed position. The dead lock on the latch bolt can be retracted by a quarter turn of the key in the outside cylinder when the door is in a closed position without releasing the knob or thumb piece when set from inside.



No. 997

REVERSE BEVEL ONLY

Master keyed in sets to order with other cylinder locks.

GENERAL CONSTRUCTION*Case:* Galvanized*Front:* Heavy bronze.*Inside:* All parts brass or bronze.*Bolts:* Heavy bronze, reverse bevel.*Roll-Back:* Roll-back latch bolt.*Reversible:* Not reversible; specify hand.*Cylinders:* Two. Bronze.*For Doors:* Specify thickness.

No.	Front		Case,* in.	Backset, in.	Strike, lip to center, in.	Keys, nickel bronze	Each§
	Type	Size, in.					
997	Flat	8 3/4 x 1 1/8	5 7/8 x 3 3/8 x 7/8	2 3/4	1 1/4	Three, No. 267	\$20.00

*Thickness with housing, 1 1/8 in.

*Open strike for double doors.

†Closed strike for single doors.

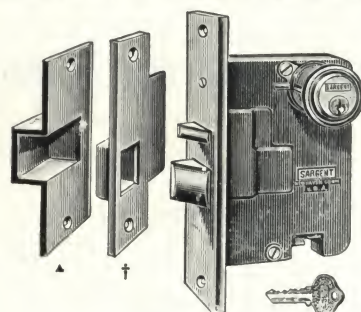
§Price includes Master Keying.

No. 993 Cylinder and No. 1123 Bitted Key Locks**Used with Sets No. 5221, 5228, 5291, 5298**

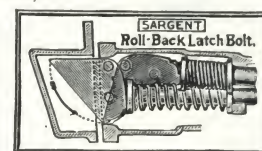
Always operative from inside by a slight pressure or upward pull at any point on the cross bar at all times. Operative from outside by entrance handle and thumb piece except when the thumb piece is set by key from outside.

Nos. 993 and 1123 have the same uses and operation, except that No. 993 is a cylinder lock and No. 1123 is a bitted key lock.

No. 993 master keyed in sets to order with other cylinder locks.



No. 993

REVERSE BEVEL ONLY**GENERAL CONSTRUCTION***Case:* No. 993, galvanized. No. 1123 japanned.*Front:* No. 993, cast bronze. No. 1123 cast bronze.*Bolts:* Heavy bronze, reverse bevel.*Roll-Back:* Roll-back latch bolt.*Reversible:* Not reversible; specify hand.*Tumblers:* No. 1123, wrought steel.*Cylinders:* No. 993, bronze.*Keys:* No. 993, nickel bronze; No. 1123, nickel plated steel.

No.	Front		Case,* in.	Backset, in.	Strike, lip to center, in.	Cylinders	Tumblers	Keys	Changes	Each
	Type	Size, in.								
993	Flat	8 x 1 1/4	5 1/2 x 3 3/4 x 1 1/8	2 3/4	1 1/4	1	.....	Three, 267	Unlimited	\$14.50†
1123	Flat	8 x 1 1/4	5 1/2 x 3 3/4 x 1 1/8	2 3/4	1 1/4	.....	3	One, C338	250	7.25**

*Thickness, including housing, 1 in.

*Open strike for double doors.

†Closed strike for single doors.

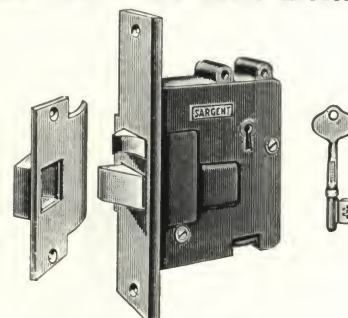
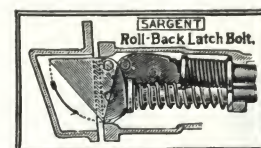
‡Master keyed add \$0.65 each cylinder. Master keyed and grand master keyed add \$1.00.

**Master keyed add \$0.40.

Latches for Fire Exit Bolts

No. 1133—Latch bolt operative at all times from inside by slight pressure or upward pull on cross bar at any point. Latch bolt can be stopped back by key from outside; and can be released by turning it in the opposite direction. Also has upper guarded latch bolt for additional safety. Can be furnished master keyed in sets in class B locks and latches.

No. 1134—Operated from inside of door only by the cross bar.

No. 1133, with Key Action
No. 1134, without Key Action**REVERSE BEVEL ONLY****GENERAL CONSTRUCTION***Case:* Galvanized.*Front:* Cast bronze.*Inside:* All parts brass or bronze.*Bolts:* Heavy bronze, reverse bevel.*Reversible:* Not reversible; specify hand.*Roll-Back:* Roll-back latch bolt.*Keys:* No. 1133, nickel plated steel.

No.	Front		Case,* in.	Backset, in.	Strike, lip to center, in.	Keys	Each
	Type	Size, in.					
1133	Flat	8 x 1 1/8	5 1/4 x 3 3/8 x 2 1/8	2 3/4	1 1/4	Two, No. 948	\$15.00§
1134	Flat	8 x 1 1/8	5 1/4 x 3 3/8 x 2 1/8	2 3/4	1 1/4	None	12.00

*Thickness, including housing, 1 1/8 in.

§Prices include Master Keying.

SARGENTIllustrations
One-quarter Size**Cylinder Rosettes**

No. 1



No. 3



No. 2



No. 102



No. 104



No. 105

CAST BRONZE

Nos.	Diam., in.	Each
1 (X)	2	\$0.50
2	2 1/2	.60
3	2 1/4	.60
102*	2 1/4	.60
104	2 3/4	1.60
105†	3	1.00

†Furnished with screws.
(X) Especially adapted for use in connection with knob roses Nos. 162, 262 and 278.

*With compression spring.

Escutcheon (Flush Cup)

All packed with screws to match



No. 884

CAST BRONZE

No.	Description	Dimensions, in.		Each
		Size of escutcheon	Depth of cut required	
884	For all bit key sliding door locks	4x2 1/8	3/16	\$2.70

Escutcheons, with and without Drop

No. 811 1/2



No. 810

CAST BRONZE

Nos.	Description	Size, in.	Per hundred
Escutcheons Without Drop*			
810	For steel bit keys.....	1 3/4 x 1 1/4	\$20.00
811 1/2	For steel bit keys.....	2 x 1 1/8	27.00
812	For steel bit keys.....	1 7/8 x 3/4	27.00
Escutcheons With Drop			
			Each
811	For steel bit keys.....	2 x 7/8	.56
814	For steel bit keys.....	2 3/4 x 3/4	.56
815	For steel bit keys.....	1 7/8 x 5/8	.56
816	For steel bit keys.....	1 7/8 x 3/4	.56
817	For steel bit keys.....	2 1/4 x 1	.56
817 1/2	For steel bit keys.....	2 x 7/8	.56
580	For steel bit keys.....	2 x 7/8	.75
584	For steel bit keys.....	2 x 7/8	.75
808	For steel bit keys.....	1 1/4	.75
811 3/4	1 3/4 in. turn knob; 3/16 in. spindle.....	3 3/4 x 1 1/4	1.60



No. 580



No. 584



No. 811



No. 816



No. 815



No. 814



No. 817 1/2



No. 808



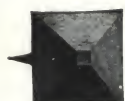
No. 817

No. 811 3/4
For three Bolt Locks**Studs**

All with pins cast in



No. 4

No. 1
Style of
No. 25

No. 5



No. 12

CAST BRONZE

Nos.	Size, in.	Height, in.	Each
1	3/4	1/4	\$0.32
2	9/16 x 9/16	1/4	.22
3	7/8 x 7/8	5/16	.31
4	1	1/4	.37
5	1x1	5/16	.37
12	1x1	3/4	.55
13	1 1/2 x 1 1/2	1/2	.50
25	3/4	1/4	.22



No. 2



No. 3



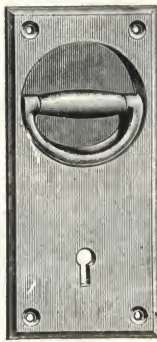
No. 13

SARGENT**Cup Handles (Flush)**

Furnished also for use for Dummy Trim

*Illustrations
One-quarter Size*

Nos. 92 and 93



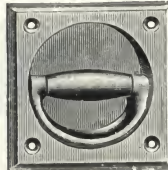
Nos. 256 and 286



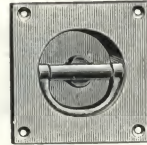
No. 287 1/2



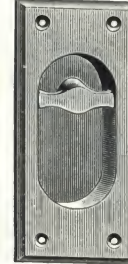
No. 281



Nos. 56 and 86



Nos. 81, 83 and 95



No. 290



No. 82



Nos. 257 and 287



No. 297

Packed with Screws to Match

CUP HANDLES (FLUSH)
1/8-in. Short Spindle

Nos.	Dimensions, in.						Each
	Overall size	Size of handle		Depth of cut required	Thickness of doors		
		Drop	T		When used singly	When used in pairs	
Cast Bronze							
92	1 3/4	1 1/4 x 3/4	1 1/2	1 1/2 to 2 1/2	1 1/2 to 3	\$1.60	
93	2 1/4	1 7/8 x 1 1/8	1 1/2	1 1/2 to 2 1/2	1 1/2 to 3	2.20	
82	1 3/4 x 1 3/4	1 1/4 x 3/4	1 1/2	1 1/2 to 2 1/2	1 1/2 to 2 1/2	1.60	
81	1 3/4 x 1 3/4	1 1/4 x 3/4	1 1/2	1 1/2 to 3 1/2	1 1/2 to 3 1/2	1.60	
83	2 1/4 x 2 1/4	1 3/4 x 1	1 1/2	1 3/4 to 3 1/2	1 3/4 to 3 1/2	2.20	
95	3 x 3	1 3/4 x 1	1 1/2	1 3/4 to 3	1 3/4 to 3 1/2	2.40	
86	3 1/2 x 3 1/2	2 1/2 x 1 5/8	1 1/2	2 to 4	2 to 4	3.20	
281†	5 x 1 5/8	3 1/4 x 1 1/4	3/4 x 1 1/4	1 3/8 to 2 1/2	1 3/8 to 2 1/2	2.00	
286	7 x 3 1/4	1 5/8 x 2 1/2	1 1/2	2 to 4	2 to 4	4.75	
287	7 x 3 1/4	1 5/8 x 2 1/2	1 1/2	2 to 4	2 to 4	4.75	
287 1/2	8 x 3 3/4	1 5/8 x 2 1/2	1 1/2	2 to 4	2 to 4	5.00	
297	7 3/4 x 3 1/4	2 1/4 (X)	1 1/2	2 to 4	2 to 4	5.00	
Cast Iron, Japanned							
The Drop Handle Part is of Malleable Iron							
56	3 1/2 x 3 1/2	2 1/2 x 1 5/8	5/8	2 to 4	2 to 4	1.25	
256	7 x 3 1/4	1 5/8 x 2 1/2	5/8	2 to 4	2 to 4	1.80	
257	7 x 3 1/4	1 5/8 x 2 1/2	5/8	2 to 4	2 to 4	1.80	

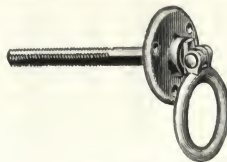
†Flush Cup Handle No. 281 is suitable for use with any of our 3 1/2-in. Mortise Locks having a 2 3/4-in. spacing and with backset not less than 1 1/2 in.
(X) Size of lever handle.

Drop Handles

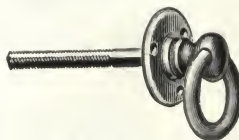
1 5/8-in. Straight Adjustable Brass Spindle, Model F, with Handle on one end

Packed with screws to match

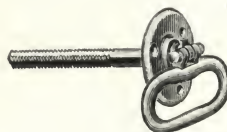
Any of our Door Knobs are suitable for adjustable spindle.



No. 78F



No. 72F



No. 76F

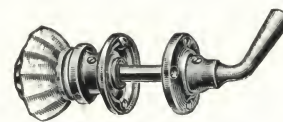
CAST BRONZE

Nos.	Handle		Rose			Each
	Material	Size, in.	Style No.	Material	Size, in.	
Lock Handle						
76F	Cast bronze	2 1/2	162	Cast bronze	2	\$2.00
Ring Handle						
78F	Cast bronze	2	162	Cast bronze	2	\$ 2.00
72F	Cast bronze	2 1/4	262	Cast bronze	2	2.00

Lever Handles (with Knobs)
Straight Spindle

Knob on one end, and Lever Handle on the other

For Doors 1 1/2 to 1 3/4 in. thick



No. 1087

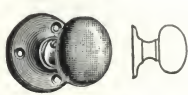
Packed with screws to match

GLASS KNOB AND CAST BRONZE LEVER HANDLE
For Mortise Locks with Two Roses

No.	Knob		Lever handle		Spindle		Two roses		Per pair
	Material	Size, in.	Material	Size, in.	Material	Size, in.	Style No.	Size, in.	
1087	Pressed glass	2	Cast bronze	2	Steel	5/16	150	1 3/4	\$1.50

SARGENT**Bronze Door Knobs***Illustrations
One-quarter Size***Straight and Swivel Spindle, Knob Each End**

Packed one pair in a box with screws to match



No. 1600



Nos. 1608 and 1609



No. 1606



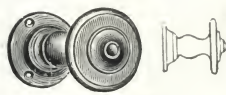
No. 1618



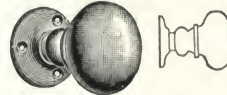
No. 1610



Nos. 1604 and 1614



No. 1614A



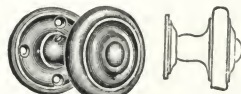
Nos. 1602 and 1620



Nos. 1922, 1923 and 1925



No. 1652



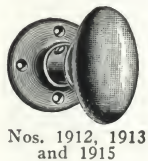
No. 1654



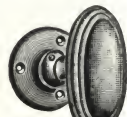
No. 1656



No. 1607

Nos. 1912, 1913
and 1915

No. 1980



No. 1982



No. 1984

CAST AND WROUGHT BRONZE

Nos.	Knob		Description			Cast Bronze Rose		Per pair
			Shank	Spindle		No.	Diam., in.	
	Type	Diam., in.		Type	Size, in.			
Cast Bronze Knobs								
1852	Round	2 1/4	.....	Straight*	5/16	278	2 1/8	\$3.60
1852†	Round	2 1/4	.....	Straight*	5/16	278	2	3.20
1853	Round	2 1/4	.....	Swivel*	5/16 or 3/8	278	2	3.80
1853†	Round	2 1/4	.....	Swivel*	5/16 or 3/8	278	2	3.40
1842	Round	2 1/4	.....	Straight*	5/16 or 3/8	262	2	3.60
1842†	Round	2 1/4	.....	Straight*	5/16 or 3/8	262	2	3.20
1843	Round	2 1/4	.....	Swivel*	5/16 or 3/8	262	2	3.80
1843†	Round	2 1/4	.....	Swivel*	5/16 or 3/8	262	2	3.40
1845	Oval	2 1/2 x 2 1/4	.....	Swivel*	5/16 or 3/8	262	2	4.45
1845†	Oval	2 1/2 x 2 1/4	.....	Swivel*	5/16 or 3/8	262	2	4.05
1922	Ball	2 1/4	.....	Straight*	5/16	262	2	4.80
1922†	Ball	2 1/4	.....	Straight*	5/16	262	2	4.40
1923	Ball	2 1/4	.....	Swivel*	5/16 or 3/8	262	2	5.00
1925	Oval	2 1/2 x 2 1/4	.....	Swivel*	5/16 or 3/8	262	2	5.60
1912	Oval	2 3/8	.....	Straight*	5/16	262	2	3.80
1912†	Oval	2 3/8 x 1 5/8	.....	Straight*	5/16	262	2	3.40
1913	Round	2 3/8 x 1 5/8	.....	Swivel*	5/16 or 3/8	262	2	4.00
1915	Oval	2 1/2 x 1 3/4	.....	Swivel*	5/16 or 3/8	262	2	4.60
1980	Oval	2 1/2 x 1 3/4	Curved	Straight§	5/16	163	1 3/4	6.00
1982	Oval	2 3/8 x 1 3/4	††	Straight§	5/16	163	1 3/4	5.50
1984	Oval	2 1/2 x 1 3/4	††	Straight§	5/16	163	1 3/4	5.50
1600	Oval	1 1/2	Curved	Straight	5/16	160	1 3/8	2.65
1600†	Round	1 1/2	Curved	Straight	5/16	160	1 3/8	2.25
1608*	Round	1 3/4	Curved	Swivel	5/16	160	1 3/8	2.50
1609	Round	2	Curved	Swivel	5/16	160	1 3/8	2.50
1602	Round	1 3/4	.....	Straight§	5/16	160	1 3/8	2.80
1602†	Round	1 3/4	.....	Straight§	5/16	160	1 3/8	2.40
1620	Round	2	.....	Straight§	5/16	160	1 3/8	3.15
1620†	Round	2	.....	Straight§	5/16	160	1 3/8	2.75
1606	Round	1 7/8	.....	Straight§	5/16	160	1 3/8	3.20
1610	Round	1 7/8	Curved	Straight	5/16	163	1 3/4	2.40
1610†	Round	1 7/8	Curved	Straight	5/16	160	1 3/8	2.00
1618	Round	2	Curved	Straight	5/16	160	1 3/8	3.00
1618†	Round	2	Curved	Straight	5/16	160	1 3/8	2.60
1604	Round	1 3/4	.....	Straight§	5/16	163	1 3/4	3.50
1614	Round	2	.....	Straight§	5/16	163	1 3/4	3.50
1614A	Round	1 3/4	.....	Straight	5/16	263	1 3/4	3.50
1652	Round	2	.....	Straight	5/16	169	1 3/4	3.80
1652†	Round	2	.....	Straight	5/16	169	1 3/4	3.20
1654	Round	2	.....	Straight	5/16	169	1 3/4	3.80
1654†	Round	2	.....	Straight	5/16	169	1 3/4	3.20
1656	Round	2 1/4	.....	Straight	5/16	169	1 3/4	4.10
1656†	Round	2 1/4	.....	Straight	5/16	169	1 3/4	3.50
1607	Round	1 3/4	.....	Swivel	5/16	263	1 3/4	2.65
Wrought Bronze Knobs								
1622	Round	2 1/4	Cast bronze	Straight†	5/16 or 3/8	162	2	\$1.50
1622†	Round	2 1/4	Cast bronze	Straight†	5/16 or 3/8	162	2	1.10
1623	Round	2 1/4	Cast bronze	Swivel†	5/16 or 3/8	162	2	1.70
1623†	Round	2 1/4	Cast bronze	Swivel†	5/16 or 3/8	162	2	1.30
1624	Oval	2 1/2 x 2 1/4	Cast bronze	Straight†	5/16 or 3/8	162	2	1.90
1624†	Oval	2 1/2 x 2 1/4	Cast bronze	Straight†	5/16 or 3/8	162	2	1.50
1625	Oval	2 1/2 x 2 1/4	Cast bronze	Swivel†	5/16 or 3/8	162	2	2.10
1625†	Oval	2 1/2 x 2 1/4	Cast bronze	Swivel†	5/16 or 3/8	162	2	1.70
1642	Round	2 1/4	Cast bronze	Straight*	5/16	278	2 1/8	1.90
1642†	Round	2 1/4	Cast bronze	Straight*	5/16	278	2 1/8	1.50
1643	Round	2 1/4	Cast bronze	Swivel*	5/16 or 3/8	278	2 1/8	2.10
1643†	Round	2 1/4	Cast bronze	Swivel*	5/16 or 3/8	278	2 1/8	1.70

*Adjustable threaded.

†No roses.

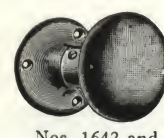
•Adjustable spindle, Model F.

§Adjustable spindle, Model G.

†Can be furnished with Adjustable Spindle, Model F, at 40c pair extra, add letter F in ordering or with Adjustable Screwless Spindle, Model C, at \$1.00 pair extra, add letter C in ordering.

††1/8-in. thick.

**Cannot be used on Doors trimmed on outside with Entrance Door Handles.

Nos. 1622, 1623,
1624 and 1625Nos. 1642 and
1643

SARGENT**Turn Knobs**

Packed with screws to match

Illustrations
One-quarter Size

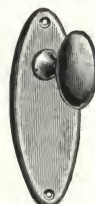
No. 117



No. 127



No. 125



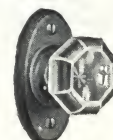
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No. 128



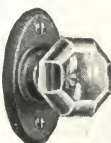
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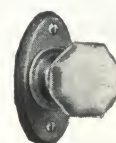
No. 913



No. 902



No. 933

Nos. 900
and 903

No. 923

No.	Plate		Turn knob		Size spindle, in.	Each
	Material	Size, in.	Material	Size, in.		
Cast Bronze						
117	Cast bronze	1 ¹³ ₁₆ x1 ¹ ₄	Cast bronze	1 ³ ₈	³ ₁₆ or ⁵ ₁₆	\$0.95
118	Wrought bronze	1 ¹¹ ₁₆ x1 ¹ ₈	Cast bronze	1 ³ ₈	³ ₁₆	.36
125	Wrought bronze	2 x1 ¹ ₈	Cast bronze	1 ³ ₈	³ ₁₆ or ⁵ ₁₆	.45
126	Wrought bronze	2 x1 ¹ ₈	Cast bronze	1 ³ ₈	³ ₁₆ or ⁵ ₁₆	.60
127	Wrought bronze	2 x1 ¹ ₈	Cast bronze	1 ¹ ₄	³ ₁₆ or ⁵ ₁₆	.60
128	Cast bronze	1 ¹ ₂	Cast bronze	1 ³ ₈	³ ₁₆ or ⁵ ₁₆	.75
1034	Cast bronze	4 x1 ¹ ₂	Cast bronze	1 ³ ₈	³ ₁₆ or ⁵ ₁₆	1.00
Glass						
902	Wrought bronze	2 x1 ¹ ₈	Pressed glass	1 ¹ ₄ (X)	³ ₁₆	1.00
933	Wrought bronze	2 x1 ¹ ₈	Pressed glass	1 ³ ₄ †	³ ₁₆	.90
913	Wrought bronze	2 x1 ¹ ₈	Cut glass	1 ³ ₄ †	³ ₁₆	3.00
Opal and Opalescent Glass						
900	Wrought bronze	2 x1 ¹ ₈	Opal glass	1 ¹ ₄ (X)	³ ₁₆	1.30
923	Wrought bronze	2 x1 ¹ ₈	Opal glass	1 ¹ ₄ †	³ ₁₆	1.30
903	Wrought bronze	2 x1 ¹ ₈	Opalescent glass	1 ¹ ₄ (X)	³ ₁₆	3.00

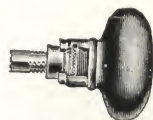
(X) Round knob.
† Octagon knob.**Adjustable Screwless Spindle Knobs**

Any of Our Escutcheons Fitted to the Following Knobs Without Charge for Fitting

Model C

Model C is an adjustable screwless spindle knob, threaded at one end, with adjusting collar. It will not rattle or work loose on the shank; suitable for doors of any thickness and can be adjusted accurately without the use of washers. Furnished with a spanner wrench for adjusting and tightening. Made with wide, high collar; any of our escutcheons can be made to fit. On Model C Knobs the outside knob is securely fastened to the spindle; the inside knob only is removable.

Cannot be furnished with Glass Knobs.
For Cast Bronze Knobs (including No. 1622F) with Model C Spindles and suitable Roses add to the list, per pair, \$0.60.



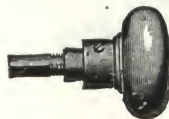
Model C

Model F

Model F is an adjustable spindle, threaded at both ends. Easily and quickly adjusted by grub screws operating through the neck against the spindle. Made with wide, high collar; any of our escutcheons can be made to fit.

Adjustable Spindle Model F can be furnished with Cast Bronze Door Knobs and also with Glass and Opal Knobs and Wrought Bronze Door Knobs where so listed. Nos. 1762 and 1763 can also be furnished to order with Adjustable Spindle, Model F. When ordered with Glass and Opal Knobs, the thickness of the door must be given as the adjustment on these knobs is very limited. Model F Spindle is recommended for use with Oval Knobs, Monogram Knobs or other knobs that must be set in a definite position.

Nos. 1762 and 1763 with Model F Spindles and suitable Roses add to the list, per pair, \$0.20.



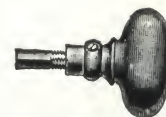
Model F

For all other knobs with Model F Spindles and suitable Roses add to the list, per pair, \$0.40.

Model G

Model G is an adjustable spindle, threaded at both ends. Easily and quickly adjusted by grub screws operating through the neck against the spindle. Made with Knob Neck to fit standard bushings; any of our roses and escutcheons with standard bushings will fit.

Adjustable Spindle Model G is furnished regularly with door knobs and lever handles where so listed.



Model G

Model H

Model H is an adjustable spindle similar to Model F but with a bushing to protect the grub screw in the shank of the knob. It is suitable for sectional trim and can also be used on elongated escutcheons when not fitted with turn knobs. By turning the escutcheon or rose, the knob may be adjusted in the usual manner and the grub screw driven down through the hole in the bushing; the escutcheon or rose is then turned back to its proper position and screwed into place.

Adjustable Spindle Model H can be furnished with any of our, Cast Bronze Door Knobs that are made in Model F.

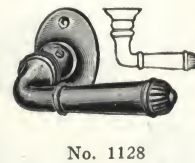
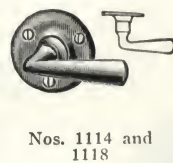
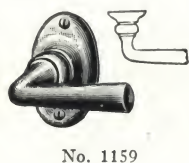
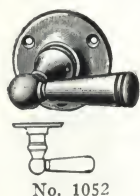
For Cast Bronze Knobs, (including No. 1622) with Model H Spindles with Roses Nos. 282 or 283, add, per pair \$0.50.



Model H

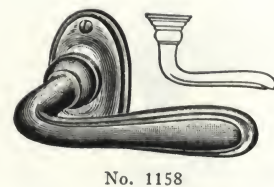
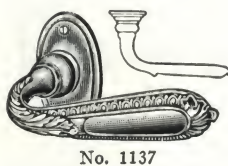
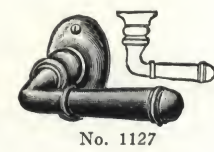
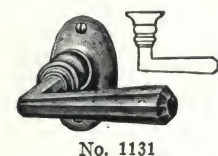
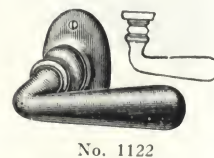
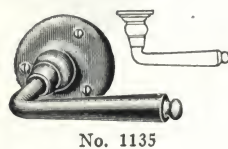
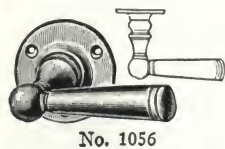
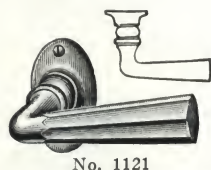
SARGENT

Lever Handles

Illustrations
One-quarter Size $\frac{5}{16}$ -in. Straight Spindle, Model G, with Handle in One End

CAST IRON AND CAST BRONZE

No.	Projection over all, in.	Length of lever, center of post to end of handle, in.	Roses		Each
			No.	Size, in.	
Cast Iron					
1114	1 $\frac{5}{8}$	2	140	1 $\frac{3}{4}$	\$0.40
1014	1 $\frac{7}{8}$	2 $\frac{7}{8}$	140	1 $\frac{3}{4}$	.50
1115	2	3 $\frac{1}{2}$	140	1 $\frac{3}{4}$	.50



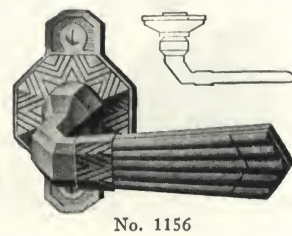
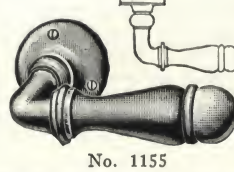
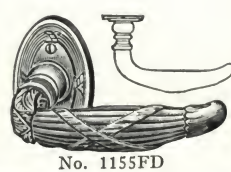
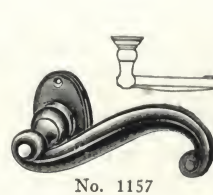
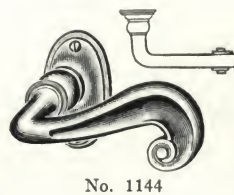
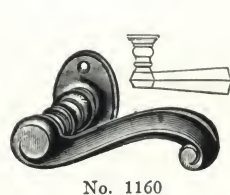
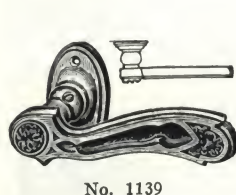
* $\frac{3}{8}$ -in. spindle, instead of $\frac{5}{16}$ in.
 $\frac{1}{2}$ -in. spindle, instead of $\frac{5}{16}$ in.
 Nos. 1024 and 1024 $\frac{1}{2}$ are not reversible; specify hand wanted.
 When lever handles are used with locks not having an extra hub spring,
 an auxiliary spring should be used.

The above lever handles are priced with the roses shown in the illustrations;
 they can be furnished to order with other roses or without roses for use
 with escutcheons.

Lever handles can be furnished to order with $\frac{3}{8}$ -in. spindle. They can
 also be furnished to order with swivel spindle.

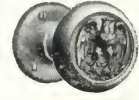
†Wrought bronze roses.

Cast Bronze					
$\frac{5}{16}$ in. spindle, Model G, with handle in one end—No. 1118, not Model G					
1118	1 $\frac{5}{8}$	2	160	1 $\frac{3}{4}$	1.00
1139	1 $\frac{5}{8}$	4 $\frac{1}{4}$	166	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	4.00
1156	1 $\frac{3}{4}$	4	156 $\frac{1}{2}$	3 $\frac{1}{2}$ x 1 $\frac{3}{4}$	7.00
1018	1 $\frac{7}{8}$	2 $\frac{7}{8}$	160	1 $\frac{3}{4}$	2.70
1159	2	2 $\frac{1}{2}$	164	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	2.00
1052	2 $\frac{1}{2}$	2 $\frac{3}{4}$	162	2	2.40
1127	2 $\frac{1}{2}$	3 $\frac{1}{8}$	164	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	2.75
1135	2 $\frac{1}{2}$	3 $\frac{1}{2}$	162	2	2.30
1143	2 $\frac{1}{2}$	2 $\frac{1}{2}$	166	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	3.00
1155KA	2 $\frac{1}{2}$	3 $\frac{1}{8}$	164KA	2 $\frac{1}{2}$ x 1 $\frac{1}{2}$	13.00
1158	2 $\frac{1}{2}$	3 $\frac{1}{4}$	166	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	3.00
1131	2 $\frac{1}{4}$	2 $\frac{7}{8}$	164	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	2.10
1137	2 $\frac{1}{4}$	4	166	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	3.00
1154	2 $\frac{1}{4}$	3	166	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	5.00
1160*	2 $\frac{1}{4}$	3 $\frac{7}{8}$	166	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	6.25
1161	2 $\frac{1}{4}$	3	166	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	5.50
1155FD	2 $\frac{3}{8}$	3 $\frac{3}{8}$	165FD	2 $\frac{1}{2}$ x 1 $\frac{1}{2}$	19.40
1156KA	2 $\frac{3}{8}$	4	165KA	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	16.00
1157	2 $\frac{3}{8}$	3 $\frac{7}{8}$	166	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	6.50
1122	2 $\frac{1}{2}$	3 $\frac{1}{2}$	164	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	2.50
1129	2 $\frac{1}{2}$	2 $\frac{7}{8}$	164	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	2.55
1145ER	2 $\frac{1}{2}$	3 $\frac{3}{8}$	165ER	2 $\frac{3}{4}$ x 1 $\frac{3}{4}$	4.00
1121	2 $\frac{5}{8}$	3 $\frac{1}{4}$	164	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	2.30
1128	2 $\frac{5}{8}$	3 $\frac{1}{4}$	164	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	2.75
1141	2 $\frac{5}{8}$	3 $\frac{3}{8}$	166	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	4.50
1147	2 $\frac{5}{8}$	3 $\frac{3}{8}$	166	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	4.00
1056	2 $\frac{3}{4}$	3 $\frac{3}{8}$	162	2	2.75
1124	2 $\frac{3}{4}$	4 $\frac{1}{4}$		2 $\frac{3}{4}$ x 1 $\frac{1}{4}$	10.00
1144	2 $\frac{3}{4}$	3 $\frac{3}{8}$	166	2 $\frac{1}{2}$ x 1 $\frac{3}{4}$	5.50
1151	2 $\frac{7}{8}$	3 $\frac{1}{2}$	170DC	1 $\frac{3}{4}$	5.50
1155*	3	4 $\frac{3}{8}$	162 $\frac{1}{2}$	2	8.00
1156FD	3 $\frac{3}{4}$	4 $\frac{5}{8}$	165FD	2 $\frac{1}{2}$ x 1 $\frac{1}{2}$	26.00
1024		2		2 x 1	3.80
1024 $\frac{1}{2}$ †		2		2 x 1	3.80
1031†		1 $\frac{3}{4}$		2 x 1 $\frac{1}{2}$	1.10
1031 $\frac{1}{2}$ †		1 $\frac{3}{4}$		2 x 1 $\frac{1}{2}$	1.10



SARGENT**Emblematic and Special Door Knobs***Illustrations
One-quarter Size***Door Knobs with Monograms, Society Emblems, etc., Furnished to Order**

The following illustrations are examples of this special work.

No. 1337PH
Knights TemplarNo. 1406PH
MasonicNo. 1672PH
Mystic ShrineNo. 1196PH
Knights of ColumbusNo. 1603PH
Knights of PythiasNo. 1372PH
State Seal of
ConnecticutNo. 1818PH
Fraternal Order of
Eagles

No. 1275PH

Door Knobs (Glass)**With 5/16-in. Straight Spindle, Knob Each End**

Furnished with or without roses.

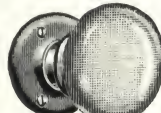
All packed with screws to match



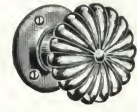
Nos. 2113 and 2013



No. 2223

Nos. 2103, 2003 and
3003

Nos. 2226 and 3226



Nos. 2236 and 3236

No.	Knob		Rose			Per pair †
	Diam., in.	Kind of glass	No.	Diam., in.	Material	

Adjustable Spindle, Model F

2214	2	Pressed, round	263	1 3/4	Cast bronze	\$1.50
3214	2	Pressed, round	250	1 3/4	Wrought bronze	1.30
2243	2	Pressed, fluted	263	1 3/4	Cast bronze	1.50
3243	2	Pressed, fluted	250	1 3/4	Wrought bronze	1.30
2226	2	Pressed, fluted	263	1 3/4	Cast bronze	1.60
3226	2	Pressed, fluted	250	1 3/4	Wrought bronze	1.40
2236	2	Pressed, fluted	263	1 3/4	Cast bronze	1.60
3236	2	Pressed, fluted	250	1 3/4	Wrought bronze	1.40
2133	1 3/4	Pressed, octagon	260	1 3/4	Cast bronze	1.85
2233	2	Pressed, octagon	262	2	Cast bronze	1.50
2113	1 3/4	Cut, octagon	260	1 3/4	Cast bronze	8.00
2013	2 1/4	Cut, octagon	262	2	Cast bronze	8.00
2018	2 1/4	Cut, octagon	262	2	Cast bronze	10.00
2156	1 3/4	Cut, ball	260	1 3/4	Cast bronze	10.80
2056	2 1/4	Cut, ball	262	2	Cast bronze	10.80
2103	1 3/4	Opalescent, round	260	1 3/4	Cast bronze	5.00
2003	2 1/4	Opalescent, round	262	2	Cast bronze	5.00
3003	2 1/4	Opalescent, round	261	2	Wrought bronze	4.80
2223	2	Opal, octagon	262	2	Cast bronze	2.50
3223	2	Opal, octagon	261	2	Wrought bronze	2.30

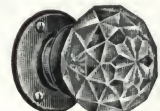
Regular Spindle

2456	1 3/4	Cut, ball	160	1 5/8	Cast bronze	10.80
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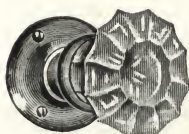
Prices include rose. Escutcheons may be fitted without charge for fitting. May also be furnished without rose with the following deduction in price:

For wrought roses.....\$0.20 each
For cast roses......40 each

Nos. 2214 and 3214



No. 2156



Nos. 2243 and 3243

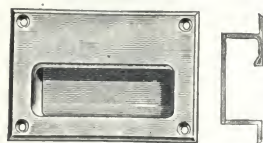


No. 2018

For Key Plates for Use with These Knobs see Page 74
For Description of Model F Adjustable Spindle, see Page 77

SARGENT**Door Pulls for Hospitals and Asylums***For Hospital Lock Sets, see Page 51*

No. 1527

No. 1510
Asylum Door Pulls**Description**

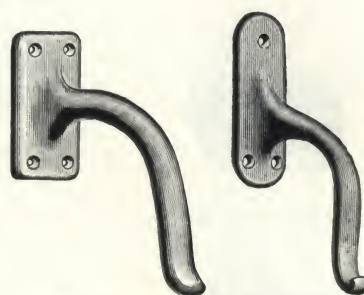
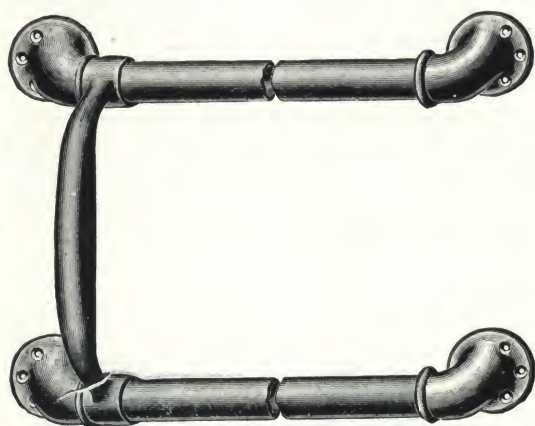
Nos. 1525 and 1526 enable a person carrying a loaded tray to open the door with the arm.

Should be placed at a point 39 in. above the floor and with the points inverted as illustrated.

DOOR PULLS, CAST BRONZE

No.	Size, in.	Each
1527	2 $\frac{3}{8}$ x3 $\frac{1}{2}$	\$1.80*
1510	2 $\frac{3}{4}$ x4	1.65
1525	Base, 3 $\frac{3}{4}$ x1 $\frac{1}{8}$, projection, 2 $\frac{3}{4}$	1.35
1526	Base, 3 $\frac{1}{2}$ x1 $\frac{1}{8}$, projection, 4	1.80

*Packed with machine screws; other numbers with wood screws.

No. 1525 No. 1526
Hospital Door Pulls**Push Bars**

No. 345



No. 334



No. 344



No. 346



No. 332



No. 349

Push Bars Combined with Pulls—No. 345

These Combined Door Pulls and Push Bars can be furnished to order in sets with Push Bars No. 332, described at right, for the inside of the door. The bases of No. 345 are drilled and tapped so that when used in sets they may be fastened with machine screws from the inside. Packed with 4 machine screws and 12 wood screws.

GENERAL CONSTRUCTION

Reversible: Yes.
Bars: Two, 1-in. diam.
Bases: 2 $\frac{1}{8}$ -in. diam.
Grip: 8 in., c. to c.
Projection: Grip, 3 $\frac{1}{2}$ in.; bars, 2 $\frac{3}{4}$ in.
Clearance: Grip, 2 $\frac{1}{2}$ in.; bars, 1 in.
Finish: Bronze.
Price: 26 to 30 in., \$12.30 each. 31 to 36 in., \$13.10 each.

No. 332—Packed with 6 wood screws and 2 machine screws.

No. 334—Packed with machine screws.

No. 344—Packed with machine screws.

No. 346—Packed with 6 wood screws.

No. 349—Packed with wood and machine screws.

PUSH BARS, BRONZE

No.	Diam. of bar, in.	No. of bars	Size of bases, in.	Projection, in.	Clearance, in.	Length, c. to c., in.	Price
334	1	1	2	2 $\frac{5}{8}$	1 $\frac{5}{8}$	26*	\$ 5.30
344	1	1	2	2 $\frac{5}{8}$	1 $\frac{5}{8}$	26*	5.30
346	1 $\frac{1}{8}$	1	2 $\frac{1}{8}$	2 $\frac{1}{8}$	1	26†	6.35
332	1	1	2 $\frac{1}{8}$	2 $\frac{1}{8}$	1	26 to 30	4.75
						31 to 36	5.65
349	1 $\frac{3}{4}$ (max.)	1	large, 2 $\frac{3}{4}$ x1 $\frac{3}{4}$ small, 1 $\frac{3}{4}$ x1 $\frac{3}{4}$	1 $\frac{3}{8}$	$\frac{5}{8}$	25, 26 and 27 31	16.40 19.00

†Additional lengths at \$0.20 per in.

*Additional lengths at \$0.12 per in.

Push and Kick Plates

Description—Kick plates, solid wrought brass or bronze, furnished in 8, 10, 12 and 14-in. widths. Length, 18 to 48 in. Various finishes. Straight or beveled edges.

Packed with wood or machine screws. Prices on request.

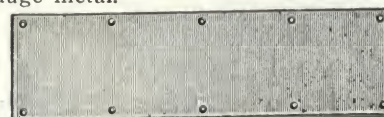
No. 2840—16-gauge metal.

No. 2850—14-gauge metal.

PUSH PLATE NO. 2830, SOLID WROUGHT BRONZE

Size, in.	10 $\frac{1}{2}$ x2 $\frac{1}{2}$	12x3	12x3 $\frac{1}{2}$	15x3 $\frac{1}{2}$	16x4
Per dozen.....	\$10.00	\$10.90	\$11.65	\$13.30	\$19.35

Packed with screws to match.



Nos. 2840 and 2850



No. 2830

SARGENT*Illustrations
One-quarter Size***Door Knockers**

Packed with machine screws and washers to fasten from the back



No. 5

No	Name	Size, in.	Description	Each
5	"Milford".....	8 1/4 x 2 5/8	Cast bronze	\$ 2.75
7	"Nathan Hale".....	7 3/8 x 3 7/8	Cast bronze	3.30
27#	Emblematic.....	7 x 3 1/8	Cast bronze	14.55
28	"Jonathan Trumbull".....	7 3/4 x 2 1/2	Cast bronze	7.10
32*	"Middlesex".....	6 x 4 3/4	Cast bronze	7.75
134†		4 1/4 x 2	Cast bronze	2.30

*With buffer attachment to prevent the knocker rapping when the door is swung.

‡The illustration shows a Masonic Emblem, but we can furnish any Society Emblem for which we have suitable patterns at the same price. Other Emblems can be furnished to order at an additional price.

†Intended particularly for room doors in hotels and apartment houses. Can be furnished with any numbers not exceeding four figures.



No. 7



No. 134



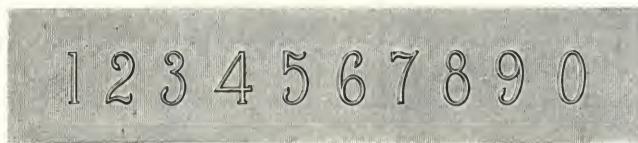
No. 32



No. 27



No. 28

Letters and NumeralsStyle 167
Furnished in all figures, 1 1/8 in. highStyle 285
Furnished in figures and fraction 1/2, 4 in. highStyle 265
Furnished in all figures, 2 3/8 in. highStyle 295
Furnished in all letters, 2 1/2 in. high, character "&" and square period to match**CAST BRONZE**

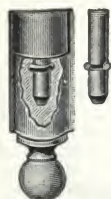
No.	Height, in.	Description	Figures	Per hundred
167	1 1/8	With pins cast in	0 to 9	\$26.00
250	1 1/2	With pins cast in	0 to 9	26.00
255	2 3/8	With pins cast in	0 to 9	26.00
			fraction 1/2	65.00
254	2 3/8	With round head screws	0 to 9	28.00
265	2 3/8	With pins cast in	fraction 1/2	70.00
275	2 1/2	With pins cast in	0 to 9	32.00
			fraction 1/2	32.00
295	3	With round head screws	0 to 9	80.00
			fraction 1/2	20.00
285	4	With pins cast in	0 to 9	50.00
			fraction 1/2	25.00
350*	1 1/2	With pins cast in	letters A to Z	62.00
365**	2 3/8	With pins cast in	letters A to Z	52.00
				64.00

* These letters match Numerals Style 250.

**These letters match Numerals Style 265.

SARGENT**Butts****Cast and Wrought Bronze**

All packed with screws to match

Self-Retaining
Pin for Nos.
1548, 1544
and 1543

Ball Bearing—The patent ball bearings are made of hardened steel, insuring easy working and great durability.

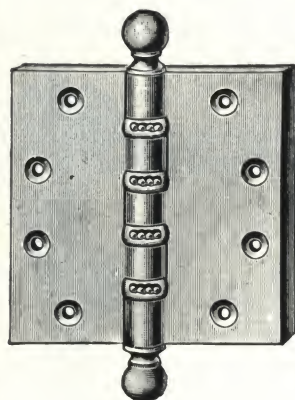
Flat Button Tips—Can be furnished to order at no additional charge. In ordering, add the letters FT, thus: 2538FT. Butts with this tip are so designed that the edge

of a screw driver can be inserted between the leaf and the tip so they may be easily removed without spoiling the finish of the butts.

Self-retaining Pin—Furnished with Nos. 1548, 1544 and 1543. The self-retaining pin cannot work up or out.

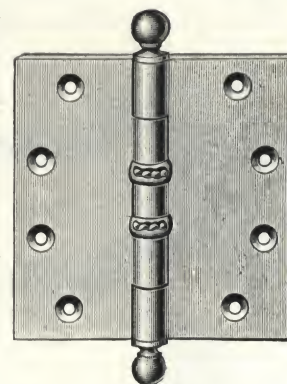
Flat Button
Tip**Cast and Wrought Bronze, Ball Bearing, Loose Pin****CAST AND WROUGHT BRONZE**

Nos. 1548, 1544 and 2538 are made in accordance with U. S. Standard Templates



No. 1548

No.	Size, in.	Description	Per pair	No.	Size, in.	Description	Per pair
Extra Heavy Cast Bronze				Cast Bronze			
Steel Bushed—Self-Retaining Pin				Non-Rising Pin			
1548*†	4 x 4	Cast bronze, steel bushed, ball bearing	\$ 9.00	1541†	3 x 3	Cast bronze, steel bushed†	\$ 3.20
	4½ x 4½		10.20		3½ x 3½		3.60
	5 x 4		11.20		4 x 4		4.20
	5 x 5		11.20		4½ x 4½		5.40
	6 x 4		15.60		5 x 5		6.60
	6 x 5		16.20	Wrought Bronze			
	6 x 6		16.80	Non-Rising Pin			
	6 x 8		18.00	2538†	3 x 3	Wrought bronze, ball bearing	\$ 3.55
	8 x 6		26.00		3½ x 3½		3.80
	8 x 8		28.00		4 x 4		4.40
8 x 10	30.00	4½ x 4½	5.40				
Heavy Cast Bronze					5 x 4		6.55
Steel Bushed—Self-Retaining Pin					5 x 5		6.55
1544*†	4 x 4	Cast bronze, steel bushed, ball bearing	\$ 6.80	6 x 6	12.25		
	4½ x 4½		7.80				
	5 x 4		9.20				
	5 x 5		9.20				
	6 x 6		12.80				
1543*†	3½ x 3½	Self-lubricating joints	\$ 4.00				
	4 x 4		5.00				
	4½ x 4½		6.00				
	5 x 4		7.00				
	5 x 5		7.40				
	6 x 6		11.00				

No. 1544
Style of No. 2538

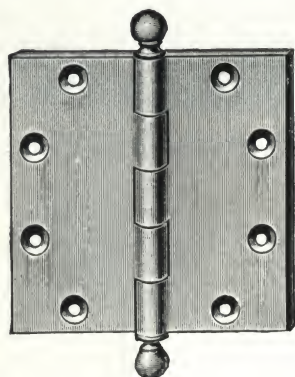
*Sizes 4x4 in. and 4½x4½ in. have two sets of ball bearings. Size 5x5 in. and larger have four sets of ball bearings, one at each knuckle.
†Furnished to order with brass pin at additional charge of \$0.36 per pair.

Cast and Wrought Bronze—Non-Rising Loose Pin**NO. 2541—WROUGHT BRONZE**

Made in accordance with U. S. Standard Template

Size, in.	Description	Per pair
2½ x 2½	Wrought bronze, steel bushed†	\$ 2.50
3 x 2		3.15
3 x 3		3.25
3½ x 3½		3.50
4 x 3½		4.10
4 x 4		4.10
4½ x 4½		5.15
5 x 4		6.25
5 x 5		6.25
6 x 6		11.95

†These butts can be furnished to order with brass pins at additional charge of \$0.36 added to above prices.
All packed with screws to match.
All sizes have five knuckles.

No. 1541
Style of No. 1543 and No. 1443
No. HF1343 style of above
with flat button tips**Heavy Cast Iron**

NO. 1443

Size, in.	Description	Polished, per pair	Finished for painting, per pair
3 x 3	Steel tips, non-rising pin	\$1.70	\$1.55
3½ x 3½		1.90	1.75
4 x 4		2.30	2.10
4½ x 4½		2.50	2.30
5 x 4		2.80	2.60
5 x 5		2.80	2.60

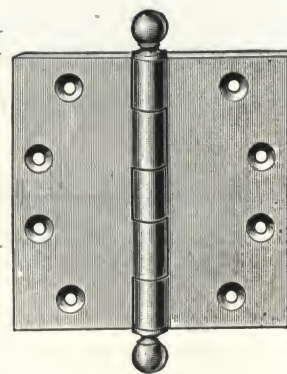
Cast Iron—HF (Hand Forged) Finish

Flat Button Tips

NO. HF1343*

Size, in.	Per pair	Size, in.	Per pair
3 x 3	\$1.10	4 x 4	\$1.50
3½ x 3½	1.20	4½ x 4½	1.80
3½ x 5	1.70		

*For use with CK and BK Designs (pages 25 and 26).

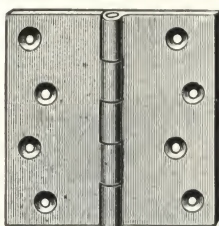


No. 2541

SARGENT

Butts—Cast and Wrought Bronze

Fast Joint Butts and Fast Joint Transom Butts



No. 525

NO. 525—CAST BRONZE—FAST JOINT

Size, in.	Description	Per pair
2 x 2	Cast bronze, with brass pin	\$1.30
2½ x 2		1.60
2½ x 2½		1.80
3 x 2½		2.30
3 x 3		2.35
3½ x 3½		2.75
4 x 4		3.60

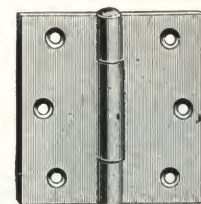
All packed with screws to match.
All sizes have five knuckles.

NO. 2522—WROUGHT BRONZE—FAST JOINT TRANSOM

Made in accordance with U. S. Standard Template

Size, in.	Description	Per pair
2½ x 2½	Wrought bronze, brass pin	\$1.20
3 x 3		1.60
3½ x 3½		2.30

Sizes 2½ x 2½ in. and 3 x 3 in. have three knuckles; size 3½ x 3½ in. has five knuckles.
All packed with screws to match.



No. 2522

Butts—Asylum



No. 2548

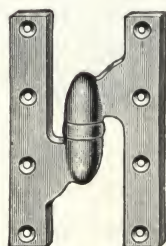
NO. 2548. WROUGHT BRONZE

Made in accordance with U. S. Standard Template

Size, in.	Description	Per pair
3½ x 3½	Wrought bronze, fast pin, ball bearing	\$4.70
4 x 4		5.60
4½ x 4½		6.60
5 x 5		8.00

All sizes have five knuckles. Packed with screws to match.
The ends of the joints are rounded, making it impossible for clothing, ropes, etc., to be attached to the butt.
The patent ball bearings are made of hardened steel, insuring easy working and great durability.

Butts—Olive Knuckle

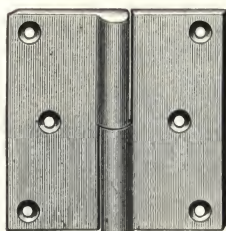
No. 1568
Left-hand Butt**NO. 1568—CAST BRONZE**

Length of leaves, in.	Width of leaves, in.	Width of butt open, in.	Space between leaves, in.	Size of knuckle, in.	Description	Per pair
5	3¼	3¼	1¾	.....	Cast bronze, ball bearing	\$7.95
6	15/16	3¾	2¼	.....		9.50

Specify right or left hand as wanted.
The patent ball bearings are made of hardened steel, insuring easy working and great durability.

Butts—Loose Joint

With clearance to prevent scraping the knuckles
when painted



No. 150 Right-hand

NO. 150—CAST IRON

Made in accordance with U. S. Template

Size, in.	Description	Per pair
3½ x 3½	Plain cast iron, for painting, with steel pin	\$0.54
4 x 4		.72
4½ x 4½		1.00
5 x 5		1.25

Packed with screws.
Specify right or left hand, as wanted.

Butts—For Kalamein Doors

Extra Heavy Cast Iron

NOS. 1447 AND 3447

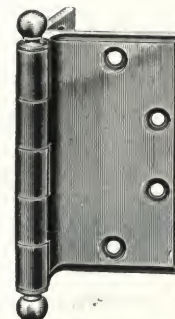
Made in accordance with U. S. Template

No.	Size, in.	Description	Price per pair
1447	5x5	Plain iron, for painting	\$2.65
3447	5x5	Galvanized.....	3.00

Can also be furnished in the plated finishes.

Packed with grommet nut and bolt for the surface flap and screws for the jamb flap. Can be packed to order with machine screws for jamb flap.

Designed for doors 1½ in. thick. Butts for other thicknesses can be furnished to order, without additional charge.

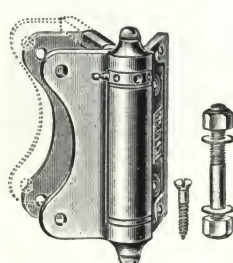
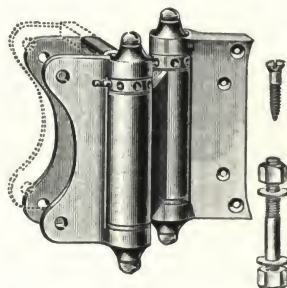
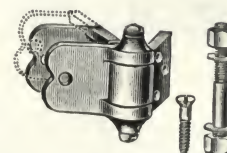


No. 1447

SARGENT**Lavatory Door Hardware***Illustrations
One-quarter Size***Heavy Adjustable Cast Bronze Spring Hinges for Lavatory and Other Doors**

Made with hardened steel swivel ends, spring ends and washers

Packed with screws for one flap and bolts for the other

No. P208
To swing one wayNo. P1208
To swing both ways.**Spring Hinges for Heavy Doors**No. P398
To swing one way
**Spring Hinge for Light
and Narrow Doors****Adjustable Spring Hinges—Cast Bronze**

Clamps are made adjustable for different thicknesses for marble, slate and steel partitions

For Heavy Doors adjustable tension, covered spring				For light and narrow doors self-lubricating joints (without spring) steel bushed			
Single swing to swing one way		Double swing to swing both ways		Single swing A pair consists of one blank hinge and one spring hinge			
Nos.		Height, in.		Nos.		Height, in.	
Regular*	Reverse‡		Per pair	No.	Height, in.	Finish	Per pair
P208	P209	4	\$8.20	P1208	4	Bright	\$13.65
N208	N209	4	8.20	N1208	4	Bright, N. P.	13.65
				Blank hinge			
				P398			\$5.45
				N398			5.45
				Spring hinge			
				P1108	P1109		6.80
				N1108	N1109		6.80

*To close the door.

‡To hold door open.

Finish P is bright bronze. Finish N is bright, nickel plated.

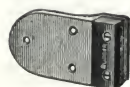
Adjustable for Marble, Etc.

These hinges are made with Adjustable Clamps for different thicknesses of marble, slate or steel partitions as follows:

Nos. 208 and 209* Adjustment, in.	Nos. 398, 1108 and 1109* Adjustment, in.	No. 1208‡ Adjustment, in.
$\frac{7}{8}$ to $1\frac{1}{2}$ $1\frac{1}{2}$ to $2\frac{1}{8}$	$\frac{7}{8}$ to $1\frac{1}{2}$ $1\frac{1}{2}$ to $2\frac{1}{8}$	$\frac{7}{8}$ to $1\frac{1}{4}$ $1\frac{1}{4}$ to $1\frac{1}{2}$ $1\frac{1}{2}$ to $1\frac{3}{4}$ $1\frac{3}{4}$ to $2\frac{1}{8}$

*Unless otherwise specified, we send with $\frac{7}{8}$ to $1\frac{1}{2}$ in. adjustment.

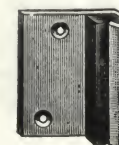
‡In ordering, specify the adjustment wanted.

Cast and Wrought Bronze Lavatory Door Strikes for Wood Partitions

No. P208

Nos.	Description	Each
P208	Cast bronze, bright	\$0.55
N208	Cast bronze, bright, nickel plated	.55
P272	Wrought bronze, bright	.55
N272	Wrought bronze, bright, nickel plated	.55

Packed with screws to match.



No. P272

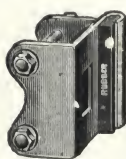
SARGENTIllustrations
One-quarter Size**Lavatory Door Hardware****Wrought Bronze Lavatory Door Strikes for Marble, Slate or Steel Partitions**

Adjustable—All Packed with Bolts for Attaching

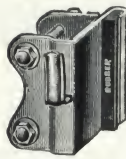
Reversible for doors of either hand



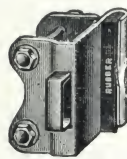
No. 250



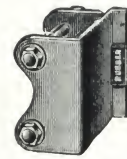
No. 251



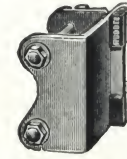
No. 252



No. 255



No. 256



No. 257

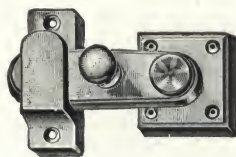
Nos.	For use with bolts, Nos.	Thickness of partitions, in.	For doors		Each	
			Thickness, in.	Opening	P-Finish	N-Finish
250		$\frac{7}{8}$ to 1, $1\frac{1}{8}$ to $1\frac{1}{4}$, $1\frac{3}{8}$ to $1\frac{5}{8}$	$\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$	In or out	\$1.80	\$1.80
251	139, 239, 240, 286, 287, 288, 289	$\frac{7}{8}$ to 1, $1\frac{1}{8}$ to $1\frac{1}{4}$, $1\frac{3}{8}$ to $1\frac{5}{8}$	$\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$	In or out	1.80	1.80
252	107, 108, 120	$\frac{7}{8}$ to 1, $1\frac{1}{8}$ to $1\frac{1}{4}$, $1\frac{3}{8}$ to $1\frac{5}{8}$	$\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$	In	2.00	2.00
255	135, 138, 238	$\frac{7}{8}$ to 1, $1\frac{1}{8}$ to $1\frac{1}{4}$, $1\frac{3}{8}$ to $1\frac{5}{8}$	$\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$	In	2.00	2.00
256	107, 108, 120	$\frac{7}{8}$ to 1, $1\frac{1}{8}$ to $1\frac{1}{4}$, $1\frac{3}{8}$ to $1\frac{5}{8}$	$\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$	Out	2.00	2.00
257	135, 138, 238	$\frac{7}{8}$ to 1, $1\frac{1}{8}$ to $1\frac{1}{4}$, $1\frac{3}{8}$ to $1\frac{5}{8}$	$\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$	Out	2.00	2.00

Specify, when ordering, thickness of marble, slate or steel, the thickness of the door; the number of the bolt with which it is to be used.

Lavatory Latches and Bolts (for Wood Doors)

All packed with screws to match

Doors Opening In and Doors Opening Out

STILES OVER $3\frac{1}{2}$ INCHES WIDE

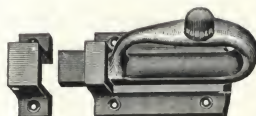
No. P120

Nos.	Dimensions, in.			Description	Each	
	Size of plate	Size of strike	Length of bar		With strike	Without strike
P120	2x2	$2\frac{7}{8}$ x1	4	Cast bronze, bright	\$2.45	\$2.00
N120	2x2	$2\frac{7}{8}$ x1	4	Cast bronze, bright, nickel plated	2.45	2.00

Note: These bolts for doors opening in, can be furnished to order for marble, slate or steel partitions using strikes Nos. 252 and 256. In ordering these bolts with strikes, specify each number separately, and give in connection with the strike the thickness of the marble, slate or steel, and the thickness of the door.

Doors Opening In

WITH RUBBER BUMPER ON HANDLE

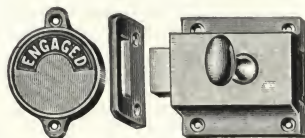


No. P135

Nos.	Dimensions, in.		Description	Each	
	Size without strike	Projection of handle		With strike	Without strike
P135	$1\frac{7}{8}$ x $2\frac{3}{4}$	2	Cast bronze, bright	\$2.30	\$2.20
N135	$1\frac{7}{8}$ x $2\frac{3}{4}$	2	Cast bronze, bright, nickel plated	2.30	2.20

Note: These bolts, for doors opening in, can be furnished for marble, slate or steel partitions using strikes Nos. 255 and 257. In ordering these bolts with strikes, specify each number separately, and give in connection with the strike the thickness of the marble, slate or steel, and the thickness of the door.

WITH INDICATOR FOR OUTSIDE OF DOOR



No. P 238

Nos.	Dimensions, in.			Description	Each	
	Case	Indicator	Door thickness		With strike	Without strike
P238	$2\frac{1}{4}$ x $2\frac{1}{2}$	2	$\frac{7}{8}$ to $1\frac{1}{2}$	Cast bronze, bright	\$2.55	\$2.45
N238	$2\frac{1}{4}$ x $2\frac{1}{2}$	2	$\frac{7}{8}$ to $1\frac{1}{2}$	Cast bronze, bright, nickel plated	2.55	2.45

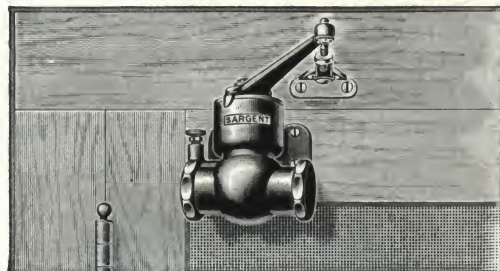
Note: These bolts, for doors opening in, can be furnished for marble, slate or steel partitions using strikes Nos. 255 and 257. In ordering these bolts with strikes, specify each number separately, and give in connection with the strike the thickness of the marble, slate or steel, and the thickness of the door.

SARGENT

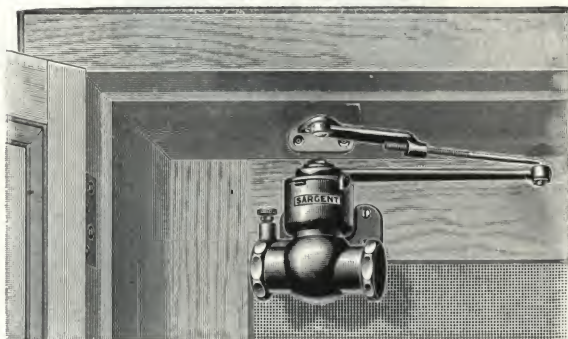
Closes screen doors and light inside doors noiselessly. It is easy to apply and easy to regulate. It works promptly and effectively and prevents the slamming of doors.

Suitable for all Light Doors—No. 520 is suitable for use on many different kinds of doors, such as screen doors, office partition doors, telephone booth doors, coat closet and lavatory doors, coupon booth doors, communicating doors, cashiers' cage doors, kitchen doors, back-stairs doors, basement doors and all light interior doors in residences.

Between Screen Door and Outside Door—No. 520 can be applied between the screen door and the outside door where the space is $3\frac{1}{2}$ in. or more. The Door Closer is applied to the screen door and the foot is attached to the soffit, as illustrated.

Sargent Door Closer No. 520

No. 520 Applied to Screen Door



No. 520 Applied Between Screen Door and Outside Door

Easy to Apply and to Regulate—These Door Closers are easy to apply and are suitable for either right or left hand doors without changing any of the parts. The connecting arm may be adjusted to suit different door frames. The regulating screw regulates the speed of closing of the door and may be adjusted as desired.

Simple, Strong, Durable—No. 520 Door Closers are simple, durable and strong. All working parts are enclosed, so that dirt cannot clog or hinder their operation.

Packed with Templates—Sargent Door Closers No. 520 are packed with directions and a template showing how to apply and giving the proper position of the Door Closer on the door.

Price—Cast iron, dark bronzed, each \$5.00.

Door Closers Nos. 41, etc. Successfully Prevent Doors from Slamming

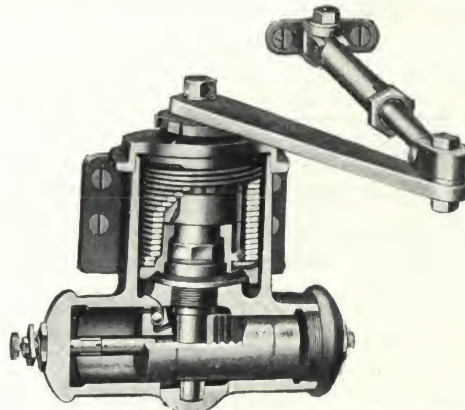
Either right or left hand

Sargent Door Closers have been recognized for many years as standards of quality, dependable in effective operation. To meet the latest requirements of the most progressive architects, engineers, building managers, owners, SARGENT & COMPANY illustrate on these pages a new modern Door Closer.

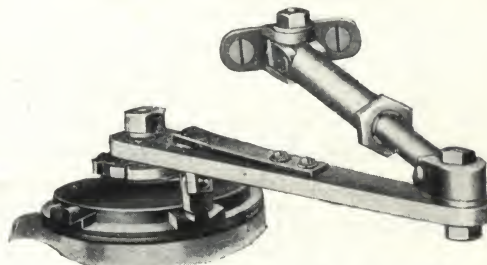
Extensive research and experiment have resulted in the noiseless and complete control of the closing of any swinging door at the desired rate of speed. The new Sargent Door Closer is made in sizes suitable for all doors, from the simple passage dwelling door to the heavy entrance doors of the most modern commercial structures.

The control valve, of dual type, may be set for any one of three control points, 90, 45 or 10 degrees. The speed valve regulates the speed of closing and can be readily adjusted for changing draft conditions. This door closer offers the greatest possibilities of control. In order that the door may not strike against a wall or a piece of furniture, a back-check valve may be provided in order to stop the opening at about 90 degrees.

This door closer is reversible, right or left hand, without changing any of its parts and without affecting any of its other efficient features. Each Sargent Door Closer is packed, one in a strong fiber box without excelsior or other loose packing. To make application and adjustment simple, a template is packed with each closer.



Cut-open View of Closers Nos. 41 to 46



With Hold Open Device Nos. 61 to 66

Construction Details

(1) **Case**—Spring and piston chamber in relative size gives a pleasing, symmetrical appearance. The back plate is cast solid with the case. No screws to work loose. No undue strain on any one part.

(2) **Springs**—Highly tempered manganese carbon steel wire wound in a helical coil. From 130 in. in length for the smallest size to 184 in. for the largest. Greater elasticity with finer graduations of power adjustment are obtained.

(3) **Piston**—Of cast metal of high tensile strength. Of the rack and pinion type, giving a balanced wear and a continuous travel when the door is in motion. The piston is always in constant control. Of large diameter, it is machined with the case to a tolerance of 1/1000 of an inch—smooth and effective operation is guaranteed.

(4) **Arms**—Of cold rolled steel without swivel adjustments. Adjustments can be made without loosening the arm from the Closer or removing the screws from the foot of the arm. Arms are of extra length—to permit Closer to be placed farther from the butts and door, but allowing the door to open the full 180 degrees without strain.

(5) **Hold Open Device**—A door may be held open at 10, 45, 90 or 180 degrees as convenience requires, and without strain on the Closer or butts. The pawl on the arm engages with projections on the cap of the Closer. All unusual requirements are met for hospital, school, booth, office doors.

(6) **Spindle and Packing**—Spindle and pinion are in one piece of hot forged alloy steel. The spindle is strongly seated in a bearing in the bottom of the case and held in alignment at 3 points. The piston chamber has enough overflow space to relieve the spindle packing from excessive strain.

(7) **Liquid**—Piston chambers are filled with a liquid that long experience

has proved most satisfactory.

(8) **Brackets**—When desirable to place the Closer inside where doors open out, the usual soffit, flush and corner, hanging brackets, and also 4 convenient brackets for circular top doors are designed to care for a greater range of varying conditions.

(9) **Finish and Color**—Standard finish is dark, rich bronze to harmonize with various wood finishes. Other finishes can be furnished as desired.

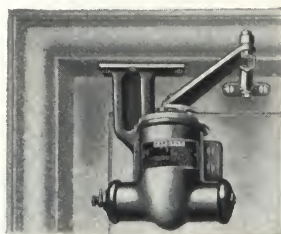
SARGENT**Door Closers****PRICES OF DOOR CLOSERS WITH DARK BRONZE ENAMELED FINISH**

Regular closer		Complete with hold open device		Cast iron Packed with screws
Nos.	Each	Nos.	Each	
41	\$ 8.65	61	\$10.65	For heavy screen doors and light inside doors For light inside doors not exceeding 7 ft. high, 3 ft. wide For medium inside doors and light outside doors, not exceeding 7 ft. high, 3 ft. wide For heavy inside doors and medium outside doors, not exceeding 7 ft. high, 3 ft. wide For heavy outside doors not exceeding 7½ ft. high, 3½ ft. wide For extra heavy and wide outside doors, not exceeding 8½ ft. high, 3½ ft. wide
42	11.00	62	13.00	
43	13.30	63	15.30	
44	16.00	64	18.00	
45	21.30	65	23.30	
46	26.65	66	28.65	

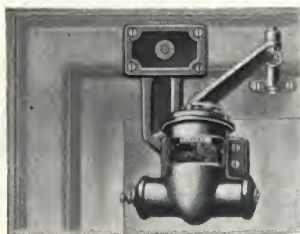
Other Finishes on Door Closers

J—Black Enameled Iron—No extra charge.
 EN—Aluminum Bronze Enameled Iron—No extra charge.
 EOB—Dull Brass Enameled Iron—Add \$0.80 each to above prices.
 ERD—Oxidized Brass Enameled Iron—Add \$0.80 each to above prices.
 EA—Statuary Bronze Enameled Iron—Add \$0.80 each to above prices.
 EOP—Dull Bronze Enameled Iron—No extra charge.

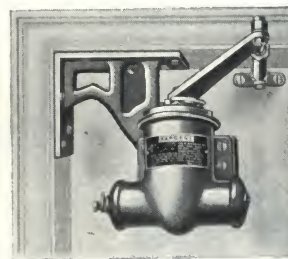
ERP—Oxidized Bronze Enameled Iron—Add \$0.80 each to above prices.
 EVA—Verde Antique Enameled Iron—Add \$0.80 each to above prices.
 E—White Enameled Iron—Add \$0.80 each to above prices.
 HF—Dark Nickel Plated, Imitation, Half Polished Iron—Add \$3.20 each to above prices.
 GB—Gold Bronzed—No extra charge.

Brackets for Sargent Door Closers

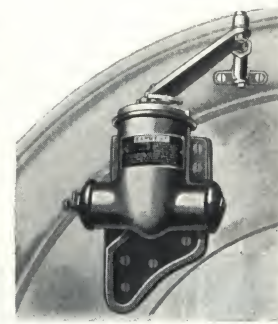
Showing Door Closer Applied with Soffit Bracket No. 51



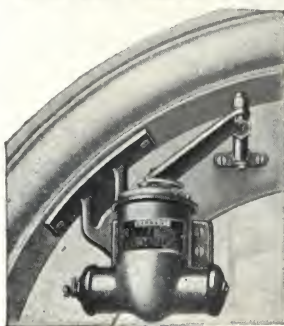
Showing Door Closer Applied with Flush Bracket No. 52



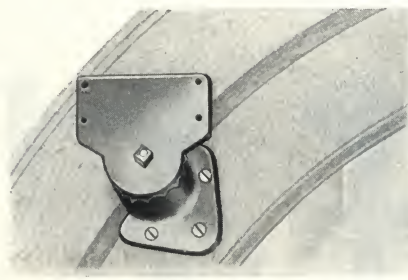
Showing Door Closer Applied with Corner Bracket No. 53



Showing Door Closer Applied to Circular Top Door with Flat Bracket No. 54

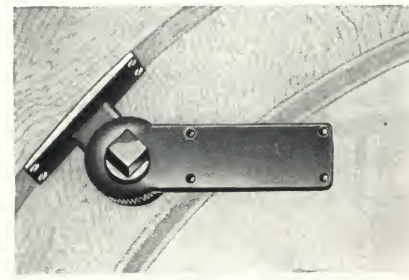


Showing Door Closer Applied to Circular Top Door with Jamb Bracket No. 55



Showing Flat Adjustable Bracket No. 56 Applied to Circular Top Door Opening In

It is suitable also for Oval Top Doors, and can be used on Flush Doors, also those having recess up to 1½ in. It is either right or left hand and is adjustable to any circle



Showing Adjustable Bracket No. 57 Applied to Circular Top Door Opening Out

For use on doors with narrow rail. It is either right or left hand and is adjustable to any circle

PRICES ON BRACKETS FOR SARGENT DOOR CLOSERS

Closer Nos.	Prices of hanging brackets, dark bronze enameled, each						
	No. 51	No. 52	No. 53	No. 54	No. 55	No. 56	No. 57
41-61	\$0.90	\$1.20	\$1.30				
42-62	1.05	1.30	1.70				
43-63	1.20	1.70	2.00				
44-64	1.45	2.00	2.50	\$3.00		\$3.30	\$3.40
45-65	2.00	2.40	3.05	3.60		3.90	3.75
46-66	2.15	2.55	3.20	3.80	Prices on application	4.50	4.00
							4.20

Other Finishes on Brackets

For J, EOP, GB and EN finishes, no extra charge. For EOB, ERD, EA, EHF, EVA and E finishes, add \$0.20 to prices for brackets given above. For HF finish, add \$0.80.

SARGENT

Cast Bronze Door Stops with Rubber Tip

*Illustrations
One-quarter Size*

For Light Doors



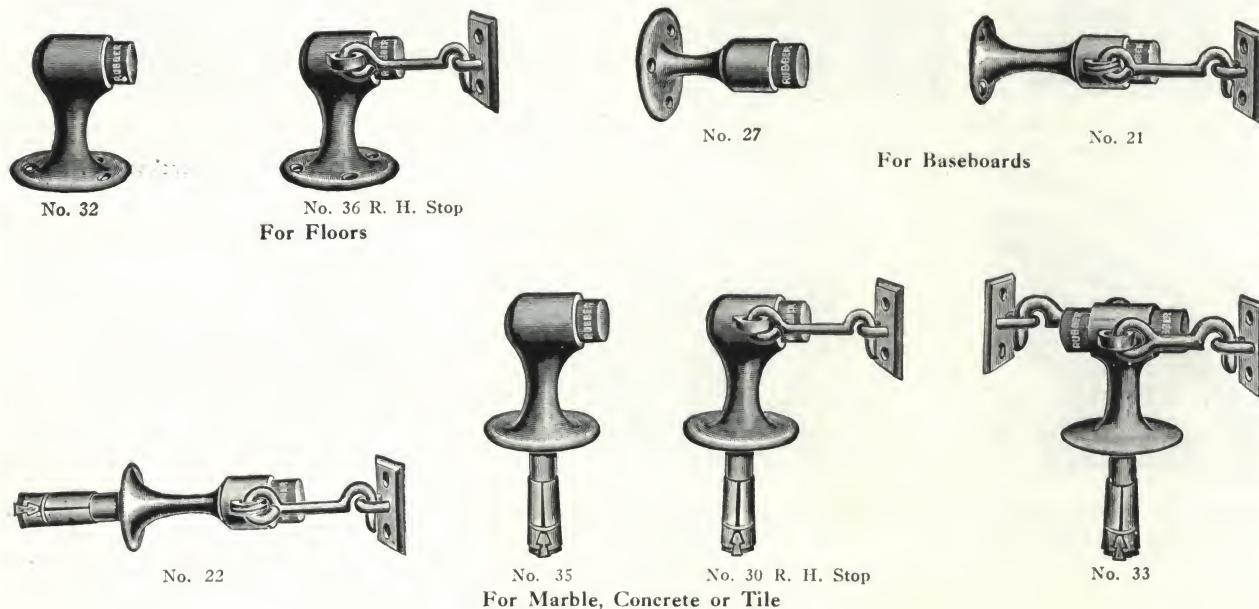
No.	Description	Dimensions, in.		Per doz.
		Projection	Height	
For Floor				
68	With steel screw.....		1 $\frac{3}{4}$	\$5.00
38**	Combination door stop.....		2 $\frac{1}{2}$	9.00
For Baseboard				
218	Heavy.....	3 $\frac{1}{8}$		6.55
238*	With Hook.....	3 $\frac{3}{8}$		13.10
248#*		3 $\frac{3}{8}$		6.60
Combined Door Stop and Coat and Hat Hook				
P338*	Bright finish.....	3 $\frac{3}{4}$		10.80
N338*	Bright finish, nickel plated.....	3 $\frac{3}{4}$		10.80

**Instead of rubber tip, the whole top of this No. 38 is of rubber. Can also be furnished as an "End Bumper" by taking out washer at top.

#Can also be furnished to order, at additional charge, with 4 1/2 and 6-in. projection.

*Packed with screws.

For Heavy Doors



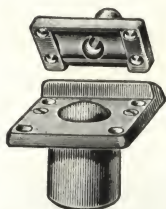
No.	Description	Dimensions, in.		Each
		Projection	Height	
For Wood				
27	Baseboard.....	3¾		\$1.20
21	Baseboard, with hook.....	3¾		2.40
32	Floor.....		3	1.30
36*	Floor, with hook.....		3	2.50
For Marble, Concrete or Tile				
20	Baseboard, with expansion bolts for attaching.....	3¾		1.50
22	Baseboard, with expansion bolts and hook.....	3¾		2.60
35	Floor, with expansion bolts.....		3	1.70
30*	Floor, with expansion bolts and hook.....		3	2.80
33	Floor, with expansion bolts and two hooks (for doors opening back to back).....		3	5.00

*In ordering, specify the hand wanted.

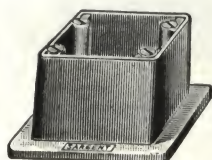
Packed with screws to match.

SARGENT**Door Holders****Door Holders—Ball and Socket**

All packed with screws to match



Nos. 400 and 800



Cast Iron Box

BALL AND SOCKET DOOR HOLDERS

No.	Description	Dimensions, in.			Size of strike	Each
		Top of plate	Diam. of case	Depth of case		
400	Cast iron	2½ x 2½	1½	2½	1½ x 2½	\$1.20
800	Cast bronze	2½ x 2½	1½	2½	1½ x 2½	1.65

CAST IRON BOXES

For use on cement, concrete and tile floors. Depth of box, 2 in.; bottom plate, 3¼ x 3¼ in. Price, \$0.80 each

AUTOMATIC DOOR HOLDER

Heavy Construction—dull black Japanned—for doors opening out

No.	Description	Base, in.	Floor to latch, in.	Strike, in.	Each
300	Base and stand, cast iron; latch and strike, cast bronze	7x6½	9½	4½ x 3½	\$9.00



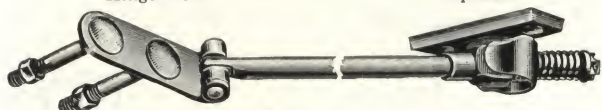
No. 300

Door Stays (for Garage Doors)

To Hold Doors Open at an Angle of 90 Degrees

Hinge Leaf

Top Base



109A

Hinge Leaf is furnished with through bolts and nuts. Top Base is furnished with wood screws



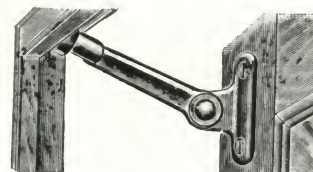
Outline showing application to door

BRONZE, BRIGHT

No.	Suitable for doors, ft.—in.	Length over all, in.	Each
109A	2-5 to 2-10	19½	\$5.00
109B	2-11 to 3-4	22½	5.00
109C	3-5 to 3-10	25½	5.00
109D	3-11 to 4-5	29½	5.00

Coupon Booth Door Holders

(For Coupon Booth Door Lock No. 99, see page 24)



Coupon Booth Door Holder No. 88 Applied

No. 88—Cast iron, dark bronzed enamel. Price, \$1.30 each.

To be attached to top of door as illustrated.

Surface Bolts**For Casements or French Windows**

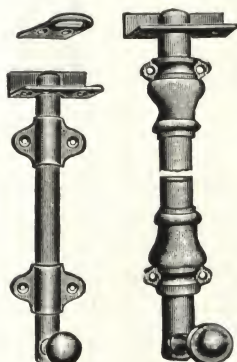
All packed with screws to match

These bolts are so constructed that the rod is raised above the surface of the wood and will not scratch or mar the door when operated.

WROUGHT BRONZE

No.	Description	Dimensions, in.		Sizes and prices					
		Guides	Rod, half round	4-in., dozen	6-in., dozen	8-in., dozen	9-in., dozen	12-in., dozen	18-in., dozen
1155*	With three strikes	1¼ wide	¾	\$5.20	\$6.00	.....	\$7.00	.....	.....
1167*	With three strikes	1½ wide	¾	7.20	7.90	.....	9.90	\$11.50	\$13.50
1178*	With two strikes	1½ wide	¾	.....	.....	\$26.00	.....	30.00	34.00

*Nos. 1155 and 1167 are packed with three strikes—Universal Type, Angle Type and Flat Type.



No. 1167

No. 1178



No. 1155

SARGENT**Flush Bolts—Dutch-Door**

All packed with screws to match.

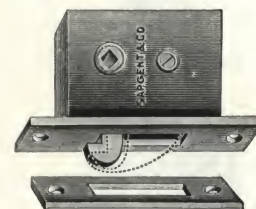
Extra heavy. Not reversible. Specify hand

CAST BRONZE

No.	Dimensions, in.				Each
	Length	Width	Round bolt	Angle	
106	7	1 1/4	3/4	1 3/4	\$4.50

No. 106
Goes on edge
of door**MORTISE BOLTS—DUTCH-DOOR**

No.	Bronze front	Dimensions, in.			Each
		Case	Backset	Front	
4899	Flat	2 1/2 x 3 1/4 x 1 1/16	1 3/8	1 x 5	\$2.70
4899R	Rabbeted	2 7/8 x 3 1/4 x 1 1/16	1 7/8 x 1 3/8	1 x 5	4.00



No. 4899 Mortise Bolt

GENERAL CONSTRUCTION

Case: Japanned.
Hub: Brass, for 1/8-in. spindle.
Front: Bronze.
Bolt: Bronze.

Reversible: Yes.

Any of our Door Knobs with Spindles
30, 30F may be used.

Flush Bolts with and without Extension Flush Lever

All packed with screws to match

CAST BRONZE (OPERATED BY FLUSH LEVER)

No.	Dimensions, in.			Per dozen		
	Width	Round bolt	Angle	Sizes, in.		
				3 1/2	5	10
16	5/8	1/4	1 5/16	\$14.00	\$16.00	\$28.00



No. 1136



No. 16



No. 1157

Nos. 1116 and
1117, style of
above but with
bronze flush lever.

Flush Bolts—Extension

All packed with screws to match

The whole length of rod is furnished (complete in one piece, with bolt-head attached) as per sizes given. The bolt can be used equally well for either top or bottom of door.



†Dustproof
Strike
Furnished to
order at \$1.50
extra

CAST BRONZE BOLTS WITH EXTENSION FLUSH LEVER

No.	Description	Dimensions, in.			Sizes*				30-in., each	36-in., each
		Plate	Guide	Square bolt	9-in., each	12-in., each	18-in., each	24-in., each		
1136	Bronze	5 7/8 x 5/8	5/8 x 2	3/8	\$1.60	\$1.60	\$1.60	\$1.60		
1117†	Extra heavy bronze	7 x 1 1/2	1 1/4 x 2 3/8	3/8	...	2.90	2.90	2.90	\$3.30	\$3.30
1116†	Bronze	6 3/4 x 1 1/4	7/8 x 2 1/8	1/2	1.60	1.60	1.60	1.60		
1157†	Heavy	6 1/2 x 1 5/8	1 3/8 x 2 3/8	1/2	...	2.25	2.25	2.25		

*The sizes given are the lengths from the head of the bolt, when withdrawn, to the center of the operating mechanism.

†Can be furnished to order with round bolt heads.

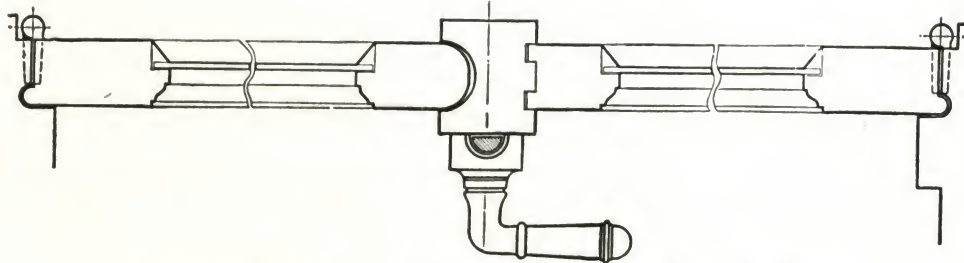
SARGENT

Espagnolette and Cremone Bolts

For Casement Doors and Windows

The espagnolette bolt is used for the same purpose as the cremone, except that, instead of a rod operating up and down through keepers at top and

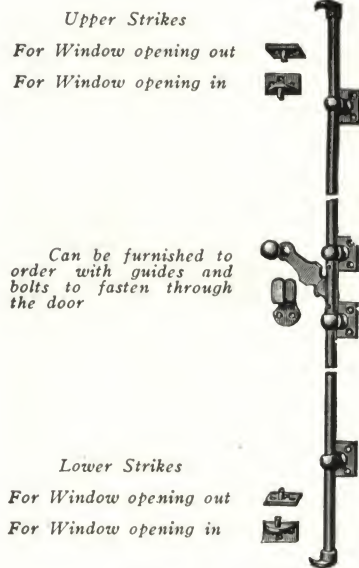
bottom, the espagnolette bolt is turned by a handle and causes a hook to engage a keeper at top and bottom, drawing the door tight against the frame.



Section of Double French Windows Showing Right-Hand Cremone Bolt

The hand of casement sash and French windows is taken from the room side. If the butts are on the right, it is a right hand sash; if on the left, it is a left hand sash. It is necessary to state whether the sash opens in or out

Espagnolette Bolts



No. 4107
For windows opening in or out



No. 4110
For windows opening in

Operation of No. 4110

The lever locks the bolt, closed or open, when hanging in a vertical position; a quarter turn of the lever releases the locking mechanism. The hooks securely fasten the windows and draw them close to the rabbet at top and bottom.

Espagnolette Bolts

For Casement or French Windows

Complete with Guides and Rod; all packed with Screws to match

CAST BRONZE

No.	Description	Lever handle	Dimensions, in.		Projection over all	Each
			Rod, round	For stiles		
4107	Fastened to sash with bolts and nuts; bronze rod.....	2 7/8	3/8	1 1/2 to 2	1 5/8	\$18.00
4110	Fastened to sash with bolts; bolt heads being set and covered with wood.....	5 7/8	3/4	1 1/4 and over	3 1/2	60.00

Note: These bolts are furnished with rods for windows up to 8 ft. high, at prices given above. Bolts with longer rods furnished at additional charge.

Specify When Ordering:

- (1) Height of window and width of stile.
- (2) Distance desired from bottom of window to center of T or Lever Handle. Unless otherwise specified, these bolts will be furnished with the handle 3 ft. 6 in. from floor.
- (3) Specify the hand, whether window opens in or out.

SARGENT

Cremone Bolts

For Casement or French Windows

Complete with Guides and Rod, All Packed with Screws to Match

Operation

For Use on Inside of Door Only—No. 4178—A half turn of the knob locks or releases both bolts.

No. 4178½—A quarter turn of the lever handle locks or releases both bolts.

No. 4158—A half turn of the knob locks or releases both bolts.

No. 4158½—A quarter turn of the lever handle locks or releases both bolts.

Three-Point Bolts—No. 6158½—A three-point Cremone bolt in which a quarter turn of the lever handle locks or releases top and bottom bolts and bolt attached to the handle.

For Use on Inside and Outside of Door—No. 4158¾—A quarter turn of either the knob or lever handle locks or releases both bolts.

No. 4158¾—With handle and knob reversed.

Height of Window

These bolts are furnished with rods for windows up to 8 ft. high, at prices given below. Bolts with longer rods furnished at additional charge.

Windows Opening Out

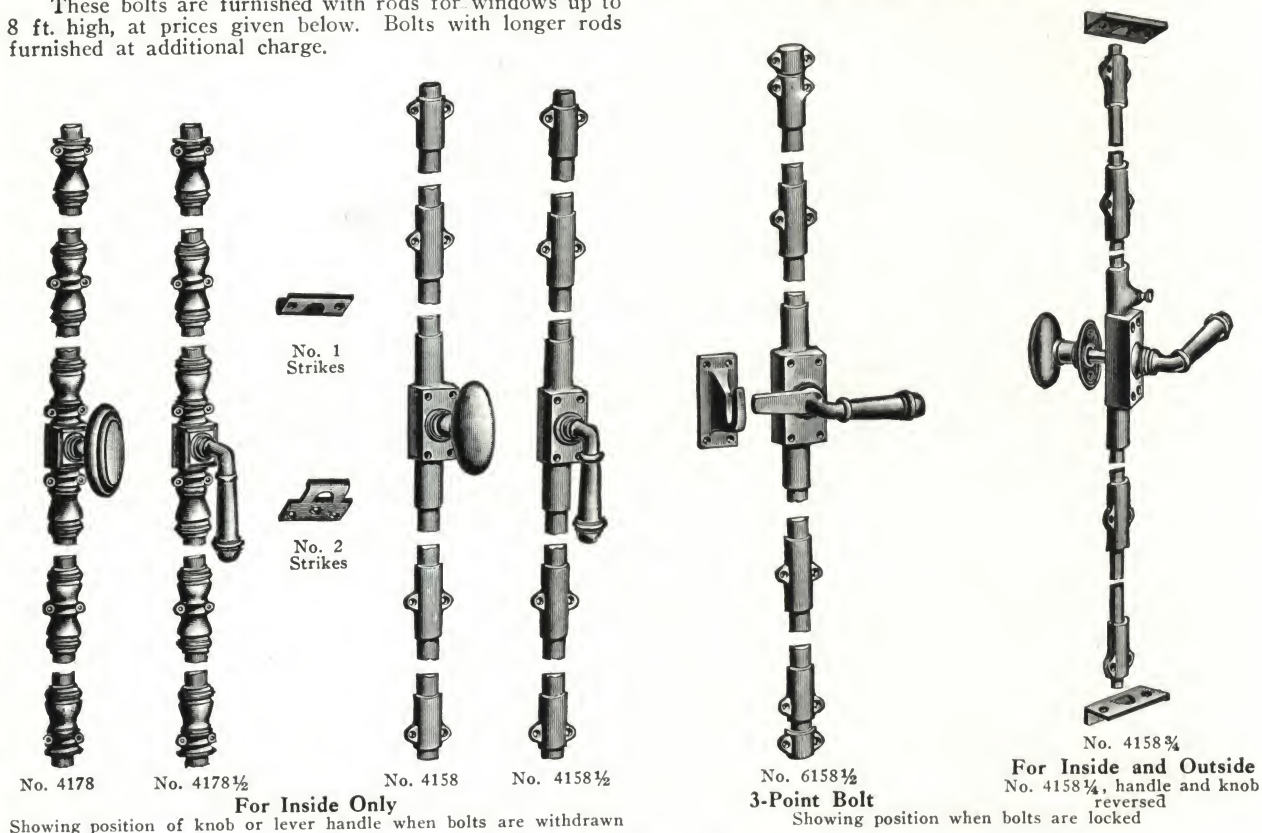
For Windows opening out, the Cremone Bolts with lever handle should be used. Be sure to specify the hand.

Strikes

Nos. 4158, 4158½, 4178 and 4178½ are furnished regularly with two Angle Strikes No. 1, for windows opening out, and two Lip Strikes No. 2, for windows opening in.

Specify When Ordering

- (1) Height of window and width of stile.
- (2) Distance desired from bottom of window to center of knob or lever handle. Unless otherwise specified, these bolts will be furnished with the knob or lever handle 3 ft. 6 in. from floor.
- (3) Whether casement is flush or recessed.
- (4) Whether window opens in or out. If bolt with lever handle is used, the hand must be given.



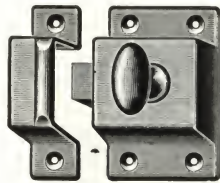
CAST BRONZE CREMONE BOLTS

Nos.	Description	Dimensions, in.								Each
		Handle case	End guides	Knob	Lever handle	Rod, half round	Projection over all		Hook strike	
							Inside	Outside		
4178	With oval knob	6½x1½	2¼x1½	2½		⅝		2⅝		\$26.00
4178½	With lever handle	7½x1½	2¼x1½		3⅝	⅝		2⅝		26.00
4158	With oval knob	6 x1¼	1¾x1½	2½		⅝	2½			10.00
4158½	With lever handle	5¾x1½	1¾x1½	2½	3¾	⅝	2½			10.00
6158½	Locks in three places with lever handle	5¾x1½	1¾x1½		3⅝	⅝		2⅝	3x1¼	19.00
†4158¾	For windows opening out*	6⅝x1½	1¾x1½	2⅝	3½	⅝	2⅝	1¾		18.00

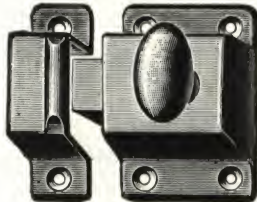
*With lever handle inside and oval knob outside.

†For doors 1¾ to 2¼ in. thick. When other knobs or Lever Handles are used specify thickness of door.

For Diagram Showing Hands of French Doors, see Page 91

SARGENT**Cupboard Hardware**

No. 4815



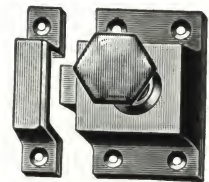
No. 4825

Cupboard Turns

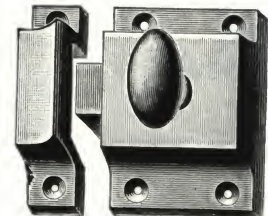
All packed with screws to match

CAST AND WROUGHT BRONZE

No.	Description	Size without strike, in.		Per doz
		Height	Length	
Cast Bronze				
4505	Triangular bolt.....	2 1/4	1 5/8	\$8.00
4855G	Pressed glass knob.....	1 7/8	1 3/16	9.10
Wrought Bronze				
4815	Triangular bolt.....	1 7/8	1 3/16	\$4.20
4825	Triangular bolt.....	2 3/8	1 1/16	4.35



No. 4855 G



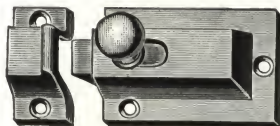
No. 4505

Cupboard Catches

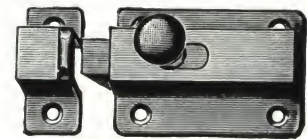
All packed with screws to match

CAST AND WROUGHT BRONZE—TRIANGULAR BOLT

No.	Description	Size without strike, in.	Per gross
802	Cast bronze.....	1 5/16 x 2	\$78.00
2800	Wrought bronze.....	1 3/8 x 1 5/8	27.10



No. 802



No. 2800

Elbow Catches

All packed with screws to match

CAST BRONZE ELBOW CATCHES ON PLATENo. 6502
One-quarter size

No.	Description	Size of plate, in.		Per doz.
		Height	Width	
6502	Cast bronze.....	2 1/8	1	\$7.00

Drawer Pulls

All packed with screws to match

CAST AND WROUGHT BRONZE
Approved by Navy Specification 42PIB

No.	Description	Dimensions, in				Per doz.
		Width	Over all length	C. to C. of bases	Bases	
810	Cast bronze.....	1 3/8	5	.....	1 3/8 high	\$4.10
812	Cast bronze.....	1 1/4	4	.....	1 1/4 high	3.20
1811#	Cast bronze.....	3 3/4	3 1/4	3 1/16	1 5/8 x 1 1/16	4.20
4337	Wrought bronze....	1 1/2	3 3/8	.....	.....	1.50



No. 4337



Nos. 810, 812



No. 1811

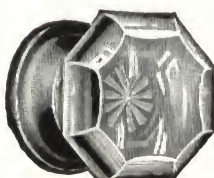
‡The screw holes of No. 1811 are drilled to template so that they will always come exactly uniform. They can be furnished to order with machine screws for use on steel construction.

Drawer Knobs

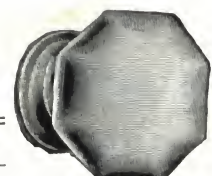
Complete with machine screws to fasten from the inside

GLASS OCTAGON KNOBS WITH BRONZE BASE

No.	Description	Size, in.	Each
533	Pressed glass.....	1 1/4	\$0.65
523	Opal glass.....	1 1/4	.80



No. 533



No. 523

SARGENT**Closet Hardware****Coat and Hat Hooks**

Packed with screws to match

CAST BRONZE

No.	Description	Projection, in.	Per dozen
806	Cast bronze.....	3	\$4.10
802	Cast bronze.....	3	4.40
N812	Bright nickel plated*	3¼	6.55
N812½	Bright nickel plated*	3¼	6.75

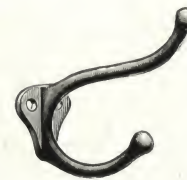
*Packed with bronze hexagon head bolts for attaching to marble 7/8 to 1½ in. thick: No. 812, one bolt for two hooks; No. 812½, one bolt for each hook. Furnished to order with screws for attaching to wood.



No. N812



No. 806



No. 802

Pole Brackets

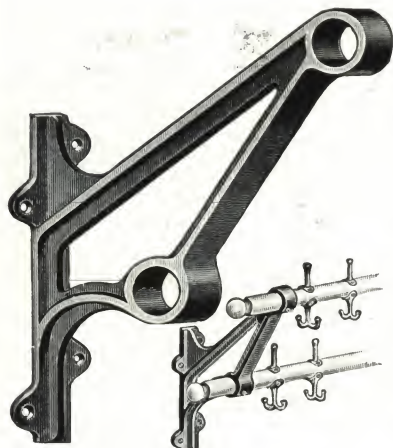
Packed with screws to match

CAST IRON

For 1½-in. Round Bars

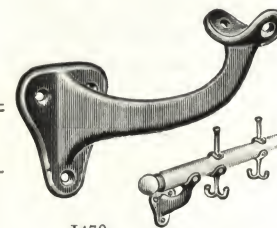
No.	Description	Projection, in.		Per hundred
		Over all	To c. of bar	
J470	Dead black japanned...	5	4½	\$ 80.00
P470	Bright bronze plated....	5	4½	90.00
J480*	Dead black japanned....	11½†	10½, top 5½, bottom	210.00
P480*	Bright bronze plated....	11½†	10½, top 5½, bottom	250.00

*Regularly made with screw holes for attaching pole rigidly to the bracket.
†Center to center of bars, 9½ in.



No. J470

Miniature view showing how the School-House Hooks and Pole Brackets No. J470 are used



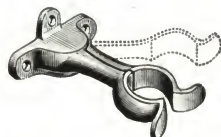
J470

Miniature view showing how the School-House Hooks and Pole Brackets No. J470 are used

Umbrella Holders

Also Used for Billiard Cues, Shaving Brushes, Etc.

All packed with screws to match



J54

CAST IRON AND CAST BRONZE

No.	Description	Projection, in.	Per hundred
J54	Cast iron, dead black japanned.	3½	\$28.00
P54	Cast iron, bright bronze plated.	3½	32.00
P58	Cast bronze, bright.....	3½	80.00

School House Hooks

For Use with 1½-in. Round Bars

Packed with round head screws to match



J474



J471

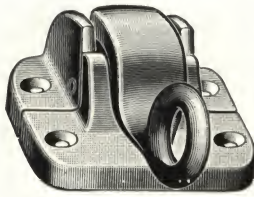
CAST IRON

No.	Description	Projection, in.	Per hundred
J474	Dead black japanned.....	2½	\$11.00
P474	Bright bronze plated.....	2½	12.40
OB474	Dull brass plated.....	2½	12.40
J471	Dead black japanned.....	2	11.00
P471	Bright bronze plated.....	2	12.40
OB471	Dull brass plated.....	2	12.40

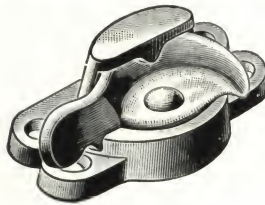
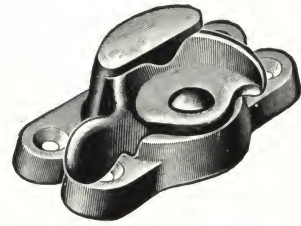
SARGENT

Double Hung Sash Hardware Sash Fasteners

All packed with screws to match



No. 468


 No. 358
 No. 359 is the same with
 Flush Strike

 No. 458
 No. 459 is the same with
 Flush Strike
CAST BRONZE

Nos.	Size of case, in	Size of strike, in.			Suitable for	How operated	Per dozen
		Hook type	Rim type	Flush type			
468	1 x 1½	1x2½			School houses, office and public buildings Residences	Hand or with sash pole and hook	\$11.00
358	1 x 2¾		5/8x2½	1 x 2½		Hand	5.90
359	1 x 2¾				Residences	Hand	5.90
458	1½x3		1½x3			Hand	8.45
459	1½x3			1¼x3		Hand	8.45



No. 830

Sash Lifts—Bar

All packed with screws to match

CAST BRONZE

No. 810

No.	Size with offset, in.	Price	
		Per doz.	Per hundred
830	1½x5	\$7.20	.....
810	1½x5	4.10	.....
814	1 x 4½	.....	\$ 60.00
835PB*	1½x6¾	.....	140.00

*Extra large and heavy.



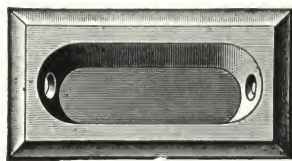
No. 814



No. 835PB

Flush Sash Lifts

Packed with screws



No. 1877



No. 1847

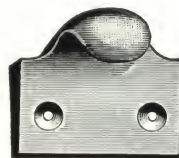
CAST BRONZE

No.	Description	Size, in.	Per hundred
1877	Side screw holes	1¾x3	\$40.00
1847*	Surface screw holes	1¾x2¾	79.00

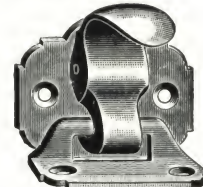
*With projection for finger.

Sash Lifts

Packed with screws



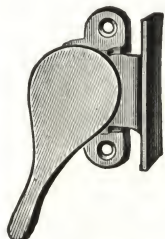
No. 836

No. 860
With Lock**CAST BRONZE**

No.	Description	Size, in.	Per dozen
836	With hook	1½x1¾	\$2.75
860	With lock and hook	1½x1½	9.00

Side Sash Fastener (Rim) "Anti-Rattler"

Packed with screws to match



No. 338

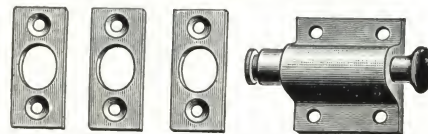
CAST BRONZE

No.	Length of lever, in.	Per dozen
338	2½/16	\$4.80

Sash Bolt

Three Strikes for Each Bolt

Packed with screws to match



No. 77

CAST BRONZE

No.	Size of case, in.	Size of strike, in.	Per dozen
77	1¼x1½	1½x1½	\$6.90

SARGENT

Double Hung Sash Hardware

Sash Pole Hardware

Sash Pull Plates

For Lowering Upper Sashes

All packed with screws to match



No. 800



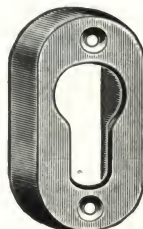
No. 1802

BRONZE

Nos.	Description	Dimensions, in.			Per gross
		Diam.	Height	Length	
800	Wrought bronze	1	.....	.....	\$15.50
1802	Cast bronze	.....	1	2	36.00

Pole Hooks (Sash) and Hangers

All packed with screws to match

No. 158
HangerNo. 198
Hook

CAST BRONZE

No.	Hook dimensions, in.		Hanger dimensions, in.		Per dozen
	Length	Diam. of socket	Length	Width	
198 Hook	4 1/8	7/8	.....	.....	\$6.95
158 Hanger	.....	.....	2 3/4	1 1/4	3.00

Sash Pulleys (Heavy)

Noiseless Turned Wheel

These Sash Pulleys conform to the measurement established by the United States Bureau of Standards



No. P442

Groove suitable
for either Sash Cord
or Sash Chain

No. 342

Steel Axles with Anti-Friction Rollers

Nos.	Face	Dimensions, in.								Wheel	Per dozen			
		Size of face				Length of housing								
		2-in.	2¼-in.	2½-in.	3-in.	2-in.	2¼-in.	2½-in.	3-in.		2-in.	2¼-in.	2½-in.	3-in.
††P442	Bright bronze	5 x 1½	5 x 1½	5 x 1½	.....	3½	3½	3½	.....	Iron	\$5.00	\$5.25	\$5.75	.....
342	Bronze	4¾ x 1½	5½ x 1½	5¾ x 1¼	6 x 1⅜	.....	.....	.....	.....	Iron	.....	6.60	7.25	\$9.10

Regularly furnished with groove suitable for either sash cord or sash chain. Can be furnished with double groove at \$0.45 per dozen above list price.

Can be furnished with gun metal axles at an advance per dozen as follows: No. P442—\$0.65; No. 342—\$0.65. Can also be furnished with Electro-Galvanized Wheel; add \$0.60 per dozen.

††For Steel Bushing add \$1.50 per dozen.

†For Brass Wheel add \$3.25 per dozen.

Stop Bead Screws and Washers

For Windows and Doors



Front View



Side View

No. 16 Adjustable Stop Screw and Washer

BRONZE WASHERS WITH PLATED IRON SCREWS

No.	Description		Per gross
	Screws	Washers	
16	1-in. No. 8, round head	Cup	\$3.00



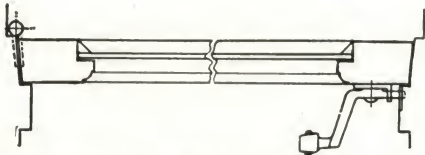
No. 36 Non-Adjustable Stop Screw and Washer

BRONZE

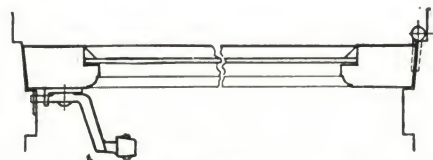
No.	Description		Per gross
	Screws	Washers	
36	1 1/4-in. No. 8, flat head	Rounded	\$2.15

SARGENT

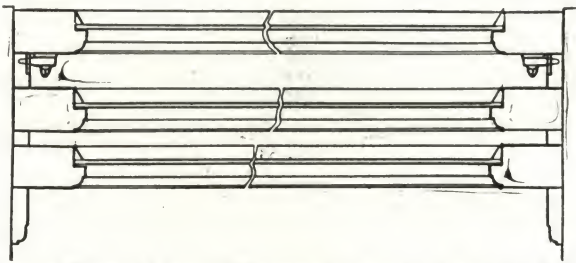
Casement Hardware Hand of Casement Windows



Section of Casement Window Hinged at Left Using
Left Hand Fastener



Section of Casement Window Hinged at Right Using
Right Hand Fastener



Section Showing Storm Windows Attached: Left Hand Fasteners on the Right; Right Hand Fasteners on the Left

Hand of Casement Windows

The hand of Casement Sash is taken from the room side. If the butts are on the right, it is a right hand sash; if on the left, it is a left hand sash. It is necessary to state whether the sash opens in or out.

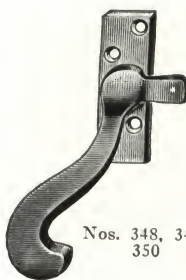
When Casement Fastener No. 18 is used on storm windows:

A Left Hand Fastener is used on the right.

A Right Hand Fastener is used on the left.

Casement Fasteners (Or Storm Window Fasteners)

Packed with screws to match



Nos. 348, 349,
350



Surface
Strike



Rim
Strike

For Nos. 348, 349, 350



Mortise
Strike



Mortise
Strike

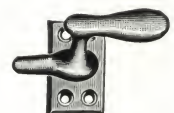


Rim
Strike

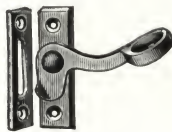
For Nos. 148, 149, 150
Style of Nos. 328, 329, 330



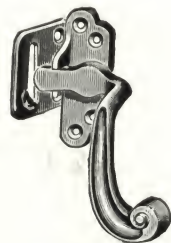
Surface
Strike



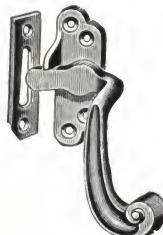
Nos. 148, 149, 150
Handle and Plate



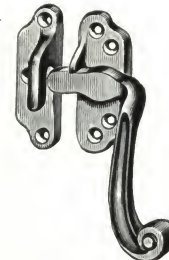
No. 18
Illustration shows
right hand



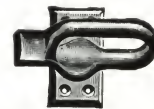
No. 388



No. 389



No. 390



Nos. 328, 329, 330
Handle and Plate

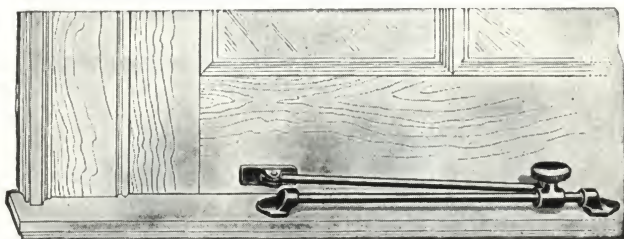
CAST BRONZE

No.	Description	Dimensions, in.				Per dozen
		Without strike		Projection over all	Length of lever Center of pivot to end	
		Length	Width			
Handed, Not Reversible. In ordering, specify the hand wanted						
18	Extra heavy, with mortise strike.....	2 1/2	7/8	1	.....	\$ 6.55
388	With rim strike.....	2 7/8	1	1 3/4	3 1/4	30.00
389	With mortise strike.....	2 7/8	1	1 3/4	3 1/4	30.00
390	With surface strike.....	2 7/8	1	1 3/4	3 1/4	30.00
348	With rim strike.....	5 7/8	3 5/8	1 5/8	4 1/2	31.50
349	With mortise strike.....	5 7/8	3 5/8	1 5/8	4 1/2	31.50
350	With surface strike.....	5 7/8	3 5/8	1 5/8	4 1/2	31.50
Either Right or Left Hand						
148	With rim strike.....	2	1 1/8	1 3/4	.....	7.30
149	With mortise strike.....	2	1 1/8	1 3/4	.....	7.30
150	With surface strike.....	2	1 1/8	1 3/4	.....	7.30
328	With rim strike.....	2	1 1/8	1 5/8	.....	10.45
329	With mortise strike.....	2	1 1/8	1 5/8	.....	10.45
330	With surface strike.....	2	1 1/8	1 5/8	.....	10.45

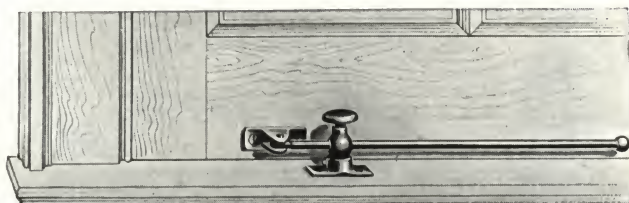
SARGENT

Casement Hardware

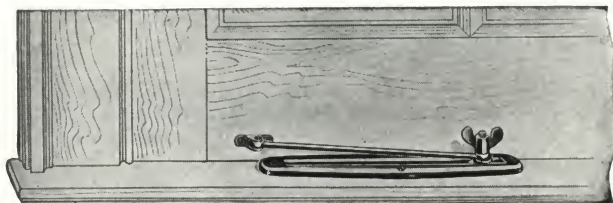
Casement Adjusters
Either Right or Left Hand
Packed with screws to match



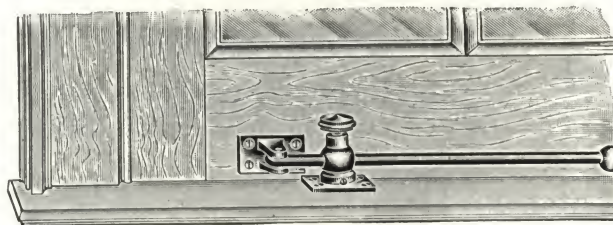
No. 258



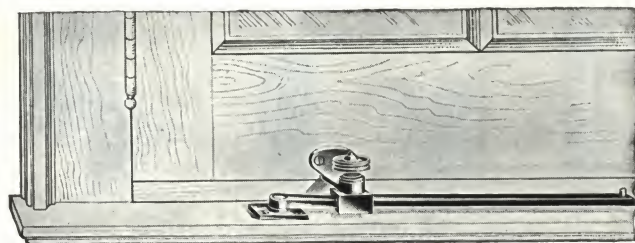
No. 68



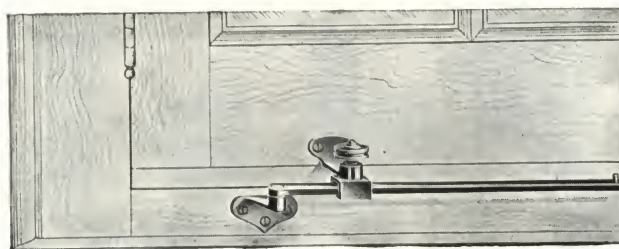
No. 188



No. 268

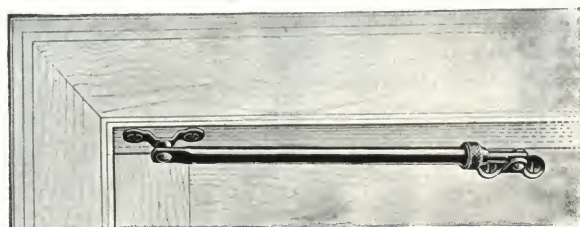


No. 169



No. 179

Casement Friction Adjusters



No. 208

No.	Description	Adjusted by	Dimensions, in.						Pro- jection, in.†	Per dozen						
			Rod		Plate		Length			9-in.	10-in.	11-in.	12-in.	13-in.	15-in.	18-in.
			Arm	Slide	Width	Length	Closed	Open								
*258	Cast bronze	Set screw	3⁄8	7⁄16					1½	\$30.00				\$35.00		
* 68	Cast bronze	Set screw		3⁄8					1½	\$18.55			\$19.65			
*188	Cast bronze	Wing nut		5⁄16x10	1½	10½			1¾	18.55						
*268	Cast bronze	Set screw	½				18		1¾							\$60.00
▲#169	Cast bronze	Set screw	5⁄16	½			12, 15						36.00		\$39.60	
▲#179	Cast bronze	Set screw	5⁄16	½			12						36.00			
††*208	Wrought bronze friction	Adjusting nut					11	18¼	7⁄8			\$16.35				

*For casements opening out.

†For casements opening in.

‡May also be used for casements opening in by applying to the outside.

††Projection from sash.

‡Space between screen and sash.

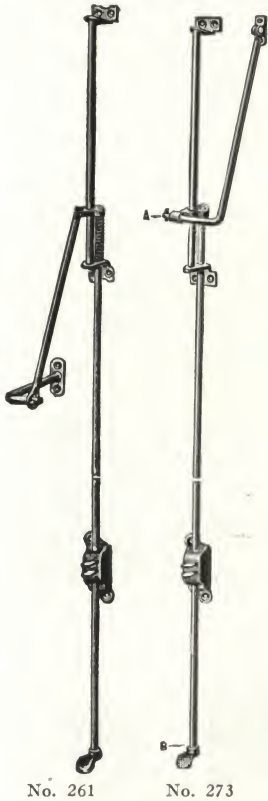
▲In ordering, detail of window should be given.

SARGENT

Transom Hardware

Automatic-Grip Transom Lifters

All packed with screws to match—Either right or left hand



No. 261

No. 273

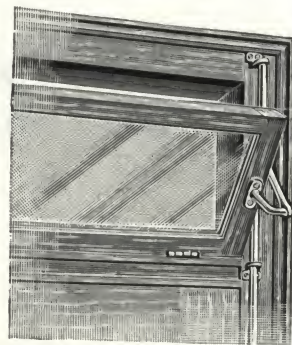
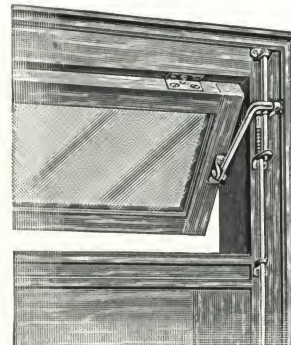
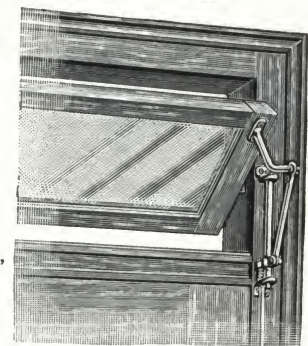
Right:
No. 251

No.	Transom used with	Rod diam., in.	Grip case, width, in.	Guide, width, in.	Per hundred #				
					3 ft.	4 ft.	5 ft.	6 ft.	8 ft.
Steel Rod—Bronze or Brass Plated									
251	Light	$\frac{1}{4}$	$1\frac{1}{4}$	1	\$ 72.00	\$ 76.00			
253	Medium	$\frac{5}{16}$	$1\frac{1}{4}$	1	82.00	93.00	\$108.00	\$126.00	
254	Heavy	$\frac{3}{8}$	$1\frac{1}{4}$	$1\frac{1}{16}$	.....	117.00	130.00	148.00	\$189.00
255	Extra heavy	$\frac{7}{16}$	$1\frac{3}{8}$	$1\frac{1}{16}$	.....		270.00	288.00	334.00
261†	Light	$\frac{1}{4}$	$1\frac{1}{4}$	1	94.00	99.00			
263†	Medium	$\frac{5}{16}$	$1\frac{1}{4}$	1	108.00	112.00	111.95	127.50	
264†	Heavy	$\frac{3}{8}$	$1\frac{1}{4}$	$1\frac{1}{16}$	.....	148.00	171.00	190.00	234.00
265†	Extra heavy	$\frac{7}{16}$	$1\frac{3}{8}$	$1\frac{1}{16}$	.....		306.00	324.00	378.00
273†▲	Medium	$\frac{5}{16}$	$1\frac{1}{4}$	1	180.00	190.00	210.00		
Bronze Rod—Bronze or Brass Plated									
					Each #				
853	Medium	$\frac{5}{16}$	$1\frac{1}{4}$	1	4.70	5.00	5.70	6.60	.....
854	Heavy	$\frac{3}{8}$	$1\frac{1}{4}$	$1\frac{1}{16}$	.....	6.70	7.60	8.70	.....
855	Extra heavy	$\frac{7}{16}$	$1\frac{3}{8}$	$1\frac{1}{16}$	.....		11.60	12.00	15.00
863	Medium	$\frac{5}{16}$	$1\frac{1}{4}$	1	5.60	6.30	7.00	8.30	.....
864	Heavy	$\frac{3}{8}$	$1\frac{1}{4}$	$1\frac{1}{16}$	.....	8.30	9.40	10.50	.....
865	Extra heavy	$\frac{7}{16}$	$1\frac{3}{8}$	$1\frac{1}{16}$	.....		12.20	13.70	16.20

†Equipped with safety spring.

▲All lengths are measurement of main rod between points A and B.

▲In ordering, specify offset and recess of the sash.

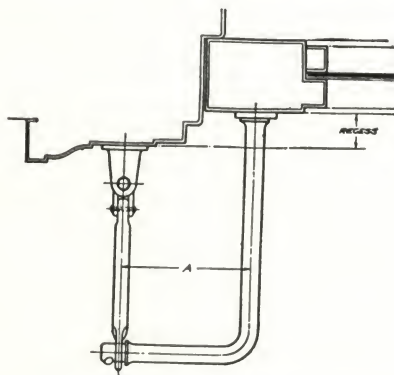
Flush, Hung at Bottom, Opens In,
Pull DownFlush, Hung at Top, Opens Out,
Pull DownLeft:
Flush, Hung at Top, Opens In,
Push UpRight:
Recessed, Pivoted in Center,
Opens Out, Pull Down

Brackets for Transom Lifters

These brackets will operate where casings are flush; they may also be used with recessed transoms as printed above.

Where the recess is greater, brackets having extra length of projection must be used.

In ordering special size brackets, the offset must be given.

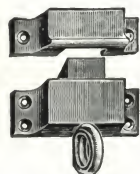


Measurements of regular Brackets sent out with Transom Lifters are given below:

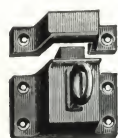
Nos.	251	253, 263
Nos.	261	853, 863
Offset (see "A" on drawing)	1 1/2 in.	2 3/8 in.
Width of bracket base	3/4 in.	3/4 in.
Width of grip case	1 1/8 in.	1 1/8 in.
May be used with recess not exceeding	1 in.	2 in.
Nos.	254, 264	255, 265
Nos.	854, 864	855, 865
Offset (see "A" on drawing)	3 1/2 in.	3 1/2 in.
Width of bracket base	1 1/2 in.	1 1/2 in.
Width of grip case	1 1/8 in.	1 1/8 in.
May be used with recess not exceeding	3 in.	3 in.

SARGENT**Transom Hardware****Catches and Eyes**

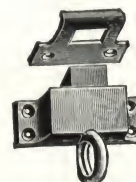
All packed with screws to match



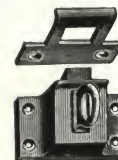
No. 3884



No. 3853



No. 3884 1/2



No. 3853 1/2

CAST BRONZE TRANSOM CATCHES

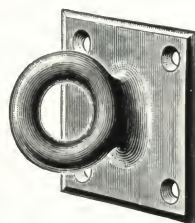
No.	Description	Dimensions, in.			Per doz.
		Size without strike		Lip to center	
		Height	Length		

For Narrow Stiles

3884	With box strike	1 5/16	2 3/4	\$16.80
3884 1/2	With flat strike	1 5/16	2 3/4	16.80

Latch Bolt Independent of Ring Handle

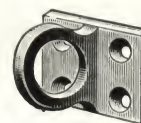
3853	With box strike	1 3/8	2 1/4	14.40
3853 1/2	With flat strike	1 3/8	2 1/4	14.40



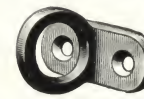
No. 89

CAST BRONZE TRANSOM EYE

No.	Plate, in.	Eyes, dia., in.	Per dozen
85	5/8 x 1 1/2	5/8	\$3.20
87	1 x 1 3/8	5/8	3.60
89	2 x 1 3/4	5/8	6.40



No. 87



No. 85

Transom Chains

All packed with screws to match



No. 8

Bronze

No.	Size of plates, in.	12-in. Chain per dozen	15-in. Chain per dozen
8	1 5/16 x 1 5/16	\$4.30	\$4.60
48	1 11/16 x 1 5/16	6.00	6.50



No. 48

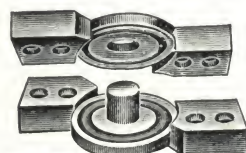
Sash Pivots (for Transom)**Extra Large and Heavy**

Suitable for windows or transoms pivoted at sides or at top and bottom

All packed with screws to match

CAST BRONZE FOR 1/2-INCH RABBET

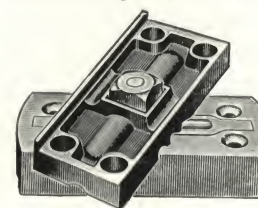
No.	Description	Dimensions, in.			Per set	
		Size	Stem			For sash
			Length	Diam.		
P182½	Bright finish with steel washers	1⅜x3½	9⁄16	3⁄8	\$2.00	
P183		1¾x3½	9⁄16	3⁄8	2.40	
P81*	Bright finish friction pivots	.....	.....	1⅜	3.20
P83*		.....	.....	1¾	3.50
P85*		.....	.....	2¼	4.00



Nos. P182 1/2 and P183 showing half a set

*Will hold the Sash open at any angle.
Friction can be adjusted before applying for varying weights of sash.

The top part is for sash.
The bottom part is for casing



Nos. P81, P83 and P85 showing half a set

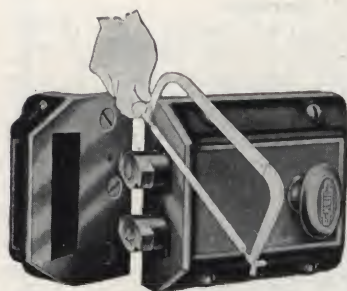
SARGENT

FRANCIS KEIL & SON, INC.

Burglar Jimmy-Saw-Proof Locks, Latches and Hardware Specialties

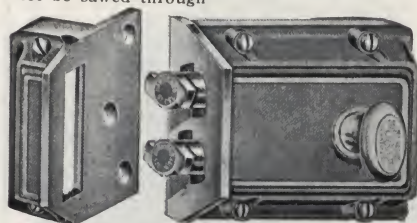
401-425 East 163rd Street
NEW YORK, N. Y.

For "Keilson" Apartment House Mail Boxes, see Manufacturers' Index



The Saw Test

The revolving hardened steel inserts inside the bronze bolts can not be sawed through



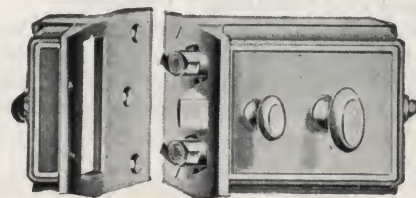
Cylinder Rim Dead Pattern Lock

B51000—Bronze metal throughout. Operated by key outside and knob inside. Case $3\frac{3}{8} \times 4 \times 1\frac{1}{4}$ in. Face to center $2\frac{3}{8}$ in.

Description

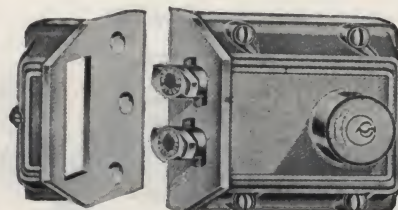
Keil Burglar Jimmy-Saw-Proof Locks cannot be jimmied, sawed or forced. Bolts shoot out perpendicularly and turn and rest horizontally in locked position. They have been tested and approved by the Underwriters' Laboratories, Inc., and are recommended by burglar insurance companies.

Made in rim and mortise, front and store door, cylinder patterns. Master-keyed for all purposes to order and other make cylinders replugged. All latch bolts reversible. Ask for booklet.



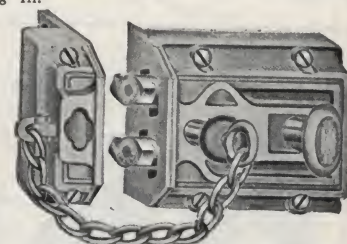
Night Latch Lock, Screwless Case

B51025—Bronze metal throughout. Operated by key outside and knob inside. Latch can be held in by stop, or deadlocked so key will not open from outside. Case $3\frac{3}{8} \times 4\frac{1}{4} \times 1\frac{1}{4}$ in. Face to center of cylinder $2\frac{3}{8}$ in.



Two-cylinder Rim Dead Lock

B51001—Recommended for glass paneled doors. Bronze metal throughout. Operated from both sides by key only. Case $3\frac{3}{8} \times 4 \times 1\frac{1}{4}$ in. Face to center of cylinder $2\frac{3}{8}$ in.



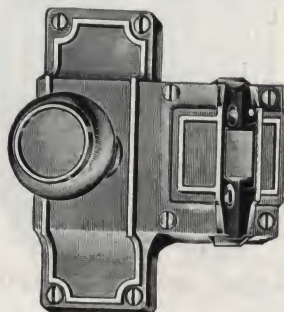
Cylinder Rim Dead Pattern Lock with Guard Chain

B51005—Bronze metal throughout. Chain is locked when door and lock are open. Operated by key outside and knob inside. Case $3\frac{3}{8} \times 4 \times 1\frac{1}{4}$ in. Face to center of cylinder $2\frac{3}{8}$ in.

Locks B51025, B51000, B51005, B51001, B51002 are for doors $1\frac{1}{4}$ to $2\frac{1}{2}$ in. or to order with rosettes for doors 1 to $2\frac{1}{2}$ in. thick



Outside



Inside

Anti-mortise Apartment and Office Entrance Cylinder Door Latch Lock

Set 55100—Cast brass or bronze metal throughout. For either hand door, suitable only for doors that swing in.

One cylinder lock through knob, regular bevel latch bolt; rim nosing; door knobs operate latch from either side; latch can be deadlocked by stop so that knob will not operate from the outside; latch is operated by key from outside at all times.

Lock case and escutcheon combined, $6\frac{1}{2} \times 2\frac{3}{8}$ and 4 in.; outside escutcheon, $6\frac{1}{2} \times 2\frac{3}{8}$ in.; knobs, $2\frac{3}{4}$ in. diam.; special hub and spindle, $\frac{3}{8}$ in.; face to center of cylinder, $2\frac{3}{8}$ in.

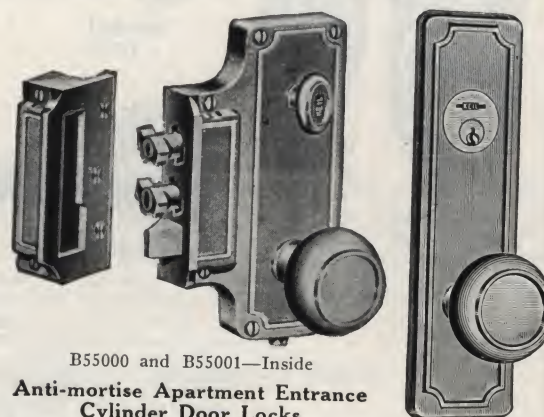
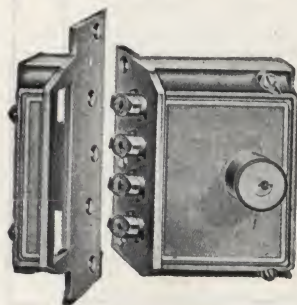


Anti-mortise Apartment and Office Entrance Cylinder Door Latch Lock

Left:

Two-cylinder Rim Dead Lock

B51011—For business entrance doors, especially glass paneled doors. Bronze metal throughout. Operated from both sides by key only. Right or left hand. Case $5\frac{1}{2} \times 4 \times 1\frac{1}{4}$ in. Face to center of cylinders $2\frac{3}{8}$ in. For doors, $1\frac{1}{2} \times 2\frac{1}{2}$ in.



B55000 and B55001—Inside

Anti-mortise Apartment Entrance Cylinder Door Locks

Brass or bronze case, latch, bolts and cylinder. Case, 7×4 in.; swivel hub, $\frac{3}{8}$ in.; face to center of cylinder, $2\frac{3}{8}$ in.; center of cylinder to center of hub, $3\frac{3}{8}$ in.

B55000—One cylinder lock with regular bevel latch bolt, rim nosing for doors opening in. Thumb knob operates bolts from inside. Door knobs operate latch from either side in combination with swivel hub and spindle. Latch can be deadlocked by stop (which is on bottom rim of lock case) so that knob will not operate from the outside. Bolts and latch are operated by key from either side at all times. Practically bronze metal throughout.

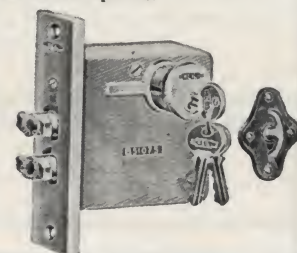
B55001—Same as B55000, with flat strike and reverse bevel latch. For doors opening out.

251—Comprising escutcheon plate, $8\frac{3}{4} \times 2\frac{3}{8}$ in.; one piece $2\frac{1}{4}$ in. knobs, no rose; $\frac{3}{8}$ in. swivel spindle.

Right:

Jimmy-Saw-Proof Dead Lock

B51075—Lock with one cylinder and turn knob. B51076—Lock with two cylinders. Bronze metal throughout. Case $3\frac{3}{4} \times 3\frac{1}{2} \times \frac{3}{8}$ in. Face $5\frac{1}{4} \times 1\frac{1}{8}$ in. Back set $2\frac{1}{2}$ in. Note non-tampering cylinder screw device



READING HARDWARE CORPORATION

Manufacturers of "Reading" Hardware

READING, PA.

BRANCH OFFICES

NEW YORK, N. Y. PHILADELPHIA, PA. BOSTON, MASS. CHICAGO, ILL. SAN FRANCISCO, CAL. DETROIT, MICH.

Quality of "Reading" Products

"Reading" Hardware has no superior. In material, operation and design each piece is correctly produced not only for its individual appearance and mechanism but also to conform in its relation to the finished building.

"Reading" also offers a wide variety of designs for any type or size of construction. You are invited to ask for the new "Reading" 600-page Catalog showing the full line of builders' hardware of the better grade.



"Reading" Service

The plant of the READING HARDWARE CORPORATION, Reading, Pa., comprises a complete unit of factory buildings for the modern manufacture of builders' dependable hardware. Starting 78 years ago in one small building, "Reading" has grown into one of the largest organizations capable of handling volume and maintaining quality with smooth-running efficiency. In these days of speeding up construction and cutting down costs, "Reading" is prepared to give architects and contractors the co-operation they expect and must have.

Cast Bronze

**ODEON
Modernistic**

Symbol OD

No.	Size, in.	Article
003722-AS	†2 1/2 x 1 3/4	Door Knobs, threaded shank, 7/8-in. spindle, 50 3/4
003726-AS	†2 1/2 x 1 3/4	Door Knobs, threaded shank, 3/8-in. spindle, 62
1105	2 1/8 x 1 1/8	Key Plate Escutcheon Bit Key Locks
1241-AR	8 x 2 1/4	Escutcheon for 3 3/4-in. locks
1244-AR	8 x 2 1/4	Escutcheon for 4 1/4-in. locks
*T1241-AR	8 x 2 1/4	Escutcheon for communicating locks, 7/8-in. spindle
*T1244-AR	8 x 2 1/4	Escutcheon for communicating locks, 7/8-in. spindle
1372-AR	9 1/8 x 2 1/2	Escutcheon for cylinder front door locks, outside
1382-AR	9 1/8 x 2 1/2	Escutcheon for cylinder front door locks, outside
1392-AR	9 1/8 x 2 1/2	Escutcheon for cylinder front door locks, outside
*T1373-AR	8 x 2 1/4	Escutcheon for cylinder front door locks, inside
*T1383-AR	8 x 2 1/4	Escutcheon for cylinder front door locks, inside
*T1393-AR	8 x 2 1/4	Escutcheon for cylinder front door locks, inside
1375-AR	8 x 2 1/4	Escutcheon for cylinder vestibule locks
1385-AR	8 x 2 1/4	Escutcheon for cylinder vestibule locks
1395-AR	8 x 2 1/4	Escutcheon for cylinder vestibule locks
1518	5 x 1 3/8	Escutcheon for cabinets
01411	2 1/4 x 2	Push button
319	2 1/4 x 2	Knob Rose for adjustable shank knobs
1460	2 1/4 x 2	Turn Knob, 7/8-in. spindle
1490	2 1/4 x 2	Turn Knob, 7/8-in. spindle
002561	2 1/4	Lever Handle, threaded shank, 7/8-in. spindle, 50
002562	3 1/4	Lever Handle, threaded shank, 7/8-in. spindle, 50
2276	15 x 3 1/2	Push Plate
2277	16 x 4	Push Plate
2165	15 x 3 1/2	Door Pull, grip 7 in.
2175	16 x 4	Door Pull, grip 7 in.
2345	15 x 3 1/2	Store Door Plate and Grip, 7 in.
1735	2 5/8 x 4 1/2	Door Knocker, upper plate 3x2 5/8 in., lower plate 2 1/8 x 2 7/8 in., bale 4 1/2 x 4 3/4 in.

*With turn knob.
†Size of each knob.
For knobs with roses omit "00" in number and specify rose number.
Specify number, design and finish

ODEON

Cast Bronze

Modernistic

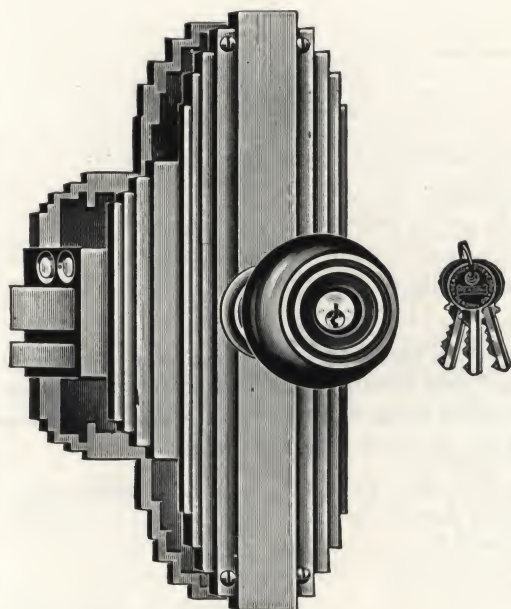
Symbol OD

Unit Locks and Latches

Vertical

Door stiles should be not less than $4\frac{3}{4}$ in. wide. Unit locks and latches are shipped assembled complete with the knobs and escutcheons fastened to the lock case. Each lock is a complete unit

to slip into the cut-away in the door stile. A slight adjustment can be made to take care of any variation in the door thickness. This adjustment is very slight and full thickness of door must be specified.



Set 500

Case—With escutcheons, cast brass or bronze

Bolts—Cast bronze

Front—Cast brass or bronze, beveled $\frac{1}{8}$ in. in 2 in.

Strike—Cast brass or bronze, box protected type

Hand—Not reversible, specify hand and thickness of door

Backset— $2\frac{3}{4}$ in.

**Cylinder*—Six pins, changes unlimited

**Keys*—Three, nickel bronze, class 622

Escutcheons—Cast brass or bronze, $9\frac{1}{8} \times 2\frac{3}{8}$ in. At flange 3 in. high

Knobs— $2\frac{1}{4} \times 2\frac{1}{4}$ in. cast brass or bronze

*For sets 520, 500, 505, 800. Can be master keyed with locks having key class 622.

Cylinder Front Door Locks—Vertical

Set 520 with Dead Bolt, Latch and Stops—

Operation—Latch bolt by knob from either side; outer knob set by stop in face; when outer knob is set by stop, both bolts can be operated with key from outside; dead bolt by key from outside and thumb knob from inside.

Cylinder Office Door Locks—Vertical

Set 500 with Latch, Auxiliary Latch and Stops—

Operation—Latch bolt by knob from either side, except when outside knob is set up by stop in face, then by key from outside. Auxiliary latch automatically locks main latch bolt when door is closed, and prevents forcing back of latch from outside. Auxiliary latch will also lock stops when door is closed and stops set, but does not prevent the use of key to open door from outside.

Set 505 with Latch, Auxiliary Latch and Stops—

Operation—Same as 500 with turn knob inside. The turn knob locks against the key on the outside. Inside knob can be used for exit when turn knob is locked and automatically throws the turn knob off when knob is turned to open door from inside. This avoids the turning of turn knob when leaving room.

Set 800 with Latch, Auxiliary Latch, without Stops—

Operation for Lavatory Doors—By knobs from either side and key at all times from outside. Inside cylinder is set under master or grand master key and outside knob is made stationary with key through inside cylinder. Key outside can be used for entrance and will not disturb the stationary position of outside knob.

Closet Latches—No Key—Vertical

Set 510 with Latch—

Operation—By knob from either side. This latch has no locking features.

Communicating Lock Set—Vertical

Set 705 with Latch, Turn Knob Both Sides—

Operation—Latch bolt by knob from either side. Turn knob locks knobs from either side. When locked from one side with turn knob cannot be opened from opposite side.

Set 705½ with Latch, Turn Knob One Side—

Operation for Private Lavatory Doors—Same as 705 with turn knob inside. When turn knob is thrown from inside cannot be opened from outside.

Unless otherwise ordered, unit sets are supplied suitable for single doors. If for double doors, so specify, giving door detail. Unit sets can be furnished for rabbeted doors or with dummy trim. One set in a box complete with necessary screws.

Specify set number, hand, finish and design.

ODEON

Cast Bronze

Modernistic

Symbol OD

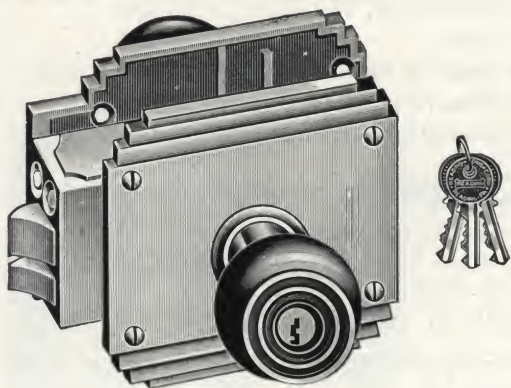
Unit Locks and Latches

Horizontal

Door stiles should be not less than 5 in. wide.

Unit locks and latches are shipped assembled complete with the knobs and escutcheons fastened to the lock case. Each lock is a complete unit

to slip into the cut-away in the door stile. A slight adjustment can be made to take care of any variation in the door thickness. This adjustment is very slight and full thickness of door must be specified.



Set 400

Case—With escutcheons, cast brass or bronze

Bolts—Cast bronze

Front—Cast brass or bronze, beveled $\frac{1}{8}$ in. in 2 in.

Strike—Cast brass or bronze, box protected type

Hand—Not reversible, specify hand and thickness of door

Backset— $2\frac{3}{4}$ in.

**Cylinder*—Six pins, changes unlimited

**Keys*—Three, nickel bronze, class 622

Escutcheons—Cast brass or bronze, $3\frac{3}{4} \times 4\frac{1}{4}$ in.

Knobs— $2\frac{1}{4} \times 2\frac{1}{4}$ in., cast brass or bronze

*For sets 420, 400, 405, 700. Can be master keyed with locks having key class 622.

Cylinder Front Door Locks—Horizontal

Set 420 with Dead Bolt, Latch and Stops—

Operation—Latch bolt by knob from either side; outer knob set by stop in face; when outer knob is set by stop both bolts can be operated with key from outside; dead bolt by key from outside and thumb knob from inside.

Cylinder Office Door Locks—Horizontal

Set 400 with Latch, Auxiliary Latch and Stops—

Operation—Latch bolt by knob from either side except when outer knob is set by stop in face, then by key from outside. Auxiliary latch automatically locks main latch bolt when door is closed, and prevents forcing back of latch from outside. Auxiliary latch will also lock stops when door is closed and stops set, but does not prevent the use of key to open door from outside.

Set 405 with Latch, Auxiliary Latch and Stops—

Operation—Same as 400 with turn knob inside. The turn knob locks against the key on the outside. Inside knob can be used for exit when turn knob is locked and automatically throws the turn knob off when knob is turned to open door from inside. This avoids the turning of turn knob when leaving room.

Set 700 with Latch, Auxiliary Latch, without Stops—

Operation for Lavatory Doors—By knobs from either side and key at all times from outside. Inside cylinder is set under master or grand master key and outside knob is made stationary with key through inside cylinder. Key outside can be used for entrance and will not disturb the stationary position of outside knob.

Closet Latches—No Key—Horizontal

Set 410 with Latch—

Operation—By knob from either side. This latch has no locking features.

Communicating Lock Set—Horizontal

Set 605 with Latch, Turn Knob Both Sides—

Operation—Latch bolt by knob from either side. Turn knob locks knobs from either side. When locked from one side with turn knob cannot be opened from opposite side.

Set 605½ with Latch, Turn Knob One Side—

Operation for Private Lavatory Doors—Same as 605 with turn knob inside. When turn knob is thrown from inside cannot be opened from outside.

Unless otherwise ordered, unit sets are supplied suitable for single doors. If for double doors, so specify, giving door detail. Unit sets can be furnished for rabbeted doors or with dummy trim. One set in a box complete with necessary screws.

Specify set number, hand, finish and design.

DOOR CLOSERS

For Either Right or Left-Hand Doors



Guarantee

The Reading Closer is guaranteed against all imperfections in material or faulty workmanship. Every closer is thoroughly tested on operating doors before being packed. Special care should be used to see that the proper size closer is used for the door, taking into consideration whether there is any unusual draft condition. If the door is subject to any draft conditions, we suggest a size larger closer than listed.

SUGGESTED SIZES

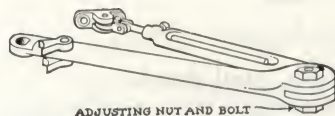
No.	Cast Iron Regular Arm—Arm, Malleable Iron	No.	Solid Bronze Regular Arm
1	For screen or light inside doors.	151	For screen or light inside doors.
2	For inside doors not exceeding 7 ft. high x 2 ft. 8 in. wide.	152	For inside doors not exceeding 7 ft. high x 2 ft. 8 in. wide.
3	For heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide and medium outside doors not exceeding 7 ft. high x 2 ft. 9 in. wide.	153	For heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide and medium outside doors not exceeding 7 ft. high x 2 ft. 9 in. wide.
4	For extra heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide or heavy outside doors not exceeding 7 ft. 6 in. high x 3 ft. 6 in. wide.	154	For extra heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide or heavy outside doors not exceeding 7 ft. 6 in. high x 3 ft. 6 in. wide.
5	For extra heavy outside doors not exceeding 8 ft. high x 4 ft. wide.	155	For extra heavy outside doors not exceeding 8 ft. high x 4 ft. wide.
6	For special conditions of extra heavy doors, or doors subject to unusual draft conditions. We suggest sending us door size and conditions with order.	156	For special conditions of extra heavy doors, or doors subject to unusual draft conditions. We suggest sending us door size and conditions with order.

Above specifications apply to doors operating under normal conditions. If doors are subject to unusual draft, we suggest using size larger closer. Closers finished in gold bronze unless otherwise ordered.

Closers can be painted or plated to match special finishes at slight additional charge. Finish for prime coating, specify finish-PR; for aluminum bronze, specify finish-AL. Specify number and hand. Packed one in a carton.

Closer with Friction Hold-open Arm

(Holder Arm Closer)



This Closer Is Reversible—Its Tightening Nut Holds Door Open at Angle Desired

Advantages of the Hold-open Arm—The friction in the hold-open arm is obtained by loosening or tightening the nut and bolt. This friction can be set to hold the door open in any position up to 90°. If the door is to open 180°, the closer should be ordered with extra long arms. The hold-open arm is positive and avoids the use of all floor stops or hooks to hold the door open. The arm is reversible and can be used on either right or left-hand closers.

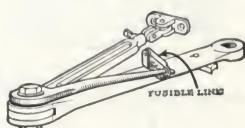
SUGGESTED SIZES WITH HOLD-OPEN ARM

No.		No.	
51	For screen or light inside doors.	54	For extra heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide or heavy outside doors not exceeding 7 ft. 6 in. high x 3 ft. 6 in. wide.
52	For inside doors not exceeding 7 ft. high x 2 ft. 8 in. wide.	55	For extra heavy outside doors not exceeding 8 ft. high x 4 ft. wide.
53	For heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide and medium outside doors not exceeding 7 ft. high x 2 ft. 9 in. wide.	56	For special extra heavy doors, or doors subject to unusual draft conditions.

Closer with Fusible Link for Fire Doors

Not reversible.

Door can be set in open position, and in case of fire, a temperature of 160° F. melts fusible link and door closes, thus protecting room from fire and water. Specify hand.

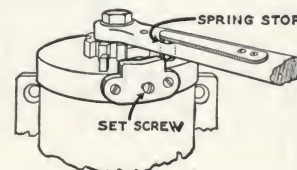


No.	
53-FL	For heavy inside doors not over 7 ft. 6 in. high x 3 ft. wide and medium outside doors not over 7 ft. high x 2 ft. 9 in. wide.
54-FL	For extra heavy inside doors not over 7 ft. 6 in. high x 3 ft. wide or heavy outside doors not over 7 ft. 6 in. high x 3 ft. 6 in. wide.

Closer with Delayed Closing Arm for Hospital Doors

Two-point check feature. Not reversible.

Often preferred in hospitals and sanitariums. Door closes to within few inches and then stops. Can be closed remaining distance, if desired, by slight touch. Aids ventilation and quiet operation. Specify hand.



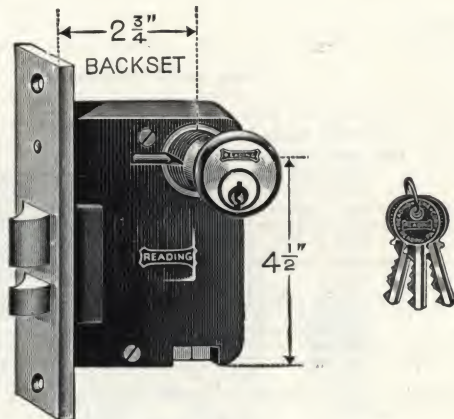
No.	
053	For heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide and medium outside doors not exceeding 7 ft. high x 2 ft. 9 in. wide.
054	For extra heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide or heavy outside doors not exceeding 7 ft. 6 in. high x 3 ft. 6 in. wide.

EXIT DOOR DEVICES

*For Entrance Doors to Schools or Public Buildings***In Sets—Handle and Thumb Piece Outside with Bolts, 11 and 22****Set 1122, Cast Brass for Double Doors**

Butts and door closers not included.

Set 1122 consists of mortise lock 1571, with handle Benton 2444 for outside, and exit bolt 11 for inside of active door. For the inactive door, exit bolt 22. For description of exit bolts 11 and 22, see next page.

**Lock 1571**

Case $5\frac{1}{4} \times 3\frac{3}{4} \times 1$ in.
Backset $2\frac{3}{4}$ in.
Front $1\frac{3}{8} \times 7\frac{1}{4}$ in.
Spacing $4\frac{1}{2}$ in.
With three keys, Class 622

Operation—Key outside through cylinder sets outside thumbpiece. Key through outside cylinder will hold latch bolt back in case. *The inside exit bar can be operated at all times.* Auxiliary latch bolt when door is closed dead locks the main latch, so that it cannot be forced back from the outside when door is locked.

For Flat Front Doors

Cast Brass Handle for Outside of Active Door

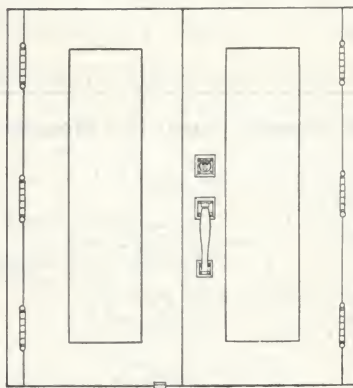
 $2\frac{1}{2} \times 2\frac{1}{2}$ in. $2\frac{1}{2} \times 2\frac{1}{2}$ in.

8 in.

 $1\frac{7}{8} \times 1\frac{7}{8}$ in.**2444. Benton****Set 11122, Malleable Iron, Dull Black**

Bolt for active door, 111. Bolt for inactive door, 122.

This set is same as 1122, except that cases of bolts are malleable iron, the cross bars of heavy steel tubing, and the solid rods of steel. Furnished in dull black finish only. Lock front and outside handle of cast brass.

**Outside**

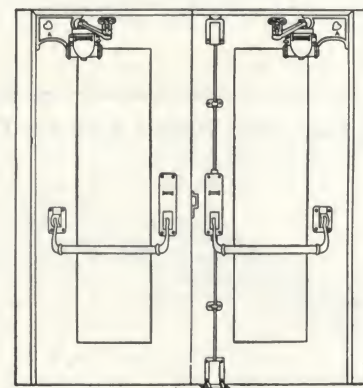
For doors 2 ft. and under—tubing, 1 in.
For doors over 2 ft.—tubing, 1 in., heavy

Information Required

When ordering, give door thickness, width of stiles, hand of doors, height of doors.

Cross Bars

Furnished 36 in. from bottom, unless otherwise ordered.

**Inside**

Cross bars can be locked down in open position if desired

Specify number and finish. See information required.

EXIT DOOR DEVICES

For Exit and Entrance Doors in Schools, Theatres and Public Buildings

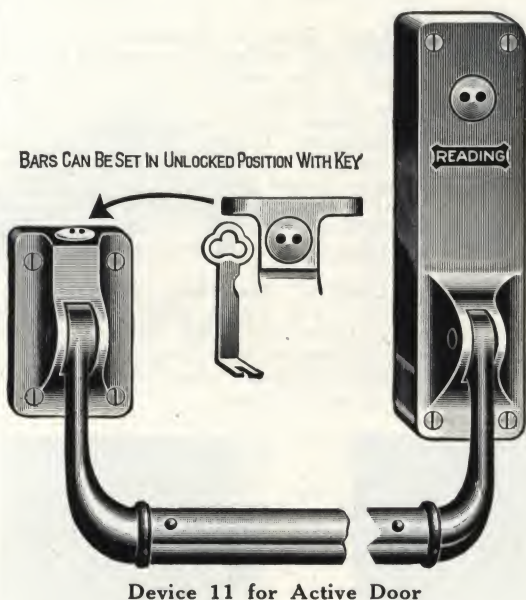
Heavy Wrought 1-in. Tubing

Solid Brass $\frac{3}{8}$ -in. Rods

Cast Bronze

All exposed parts are made of cast bronze with heavy wrought 1-in. tubing for cross bars and solid $\frac{3}{8}$ -in. brass rods. The casting working in connection with the cross bar is made of malleable iron and will withstand the hardest of use. Pressure against the cross bar releases the latch and permits the doors to open. *The latch bolts of Device 22 remain in a retracted position when doors are open, and are not released until the door reaches a closed position.*

Operation—Pressure to any part of cross bar releases latches instantly. Latches operate whether cross bar is pushed up or down.



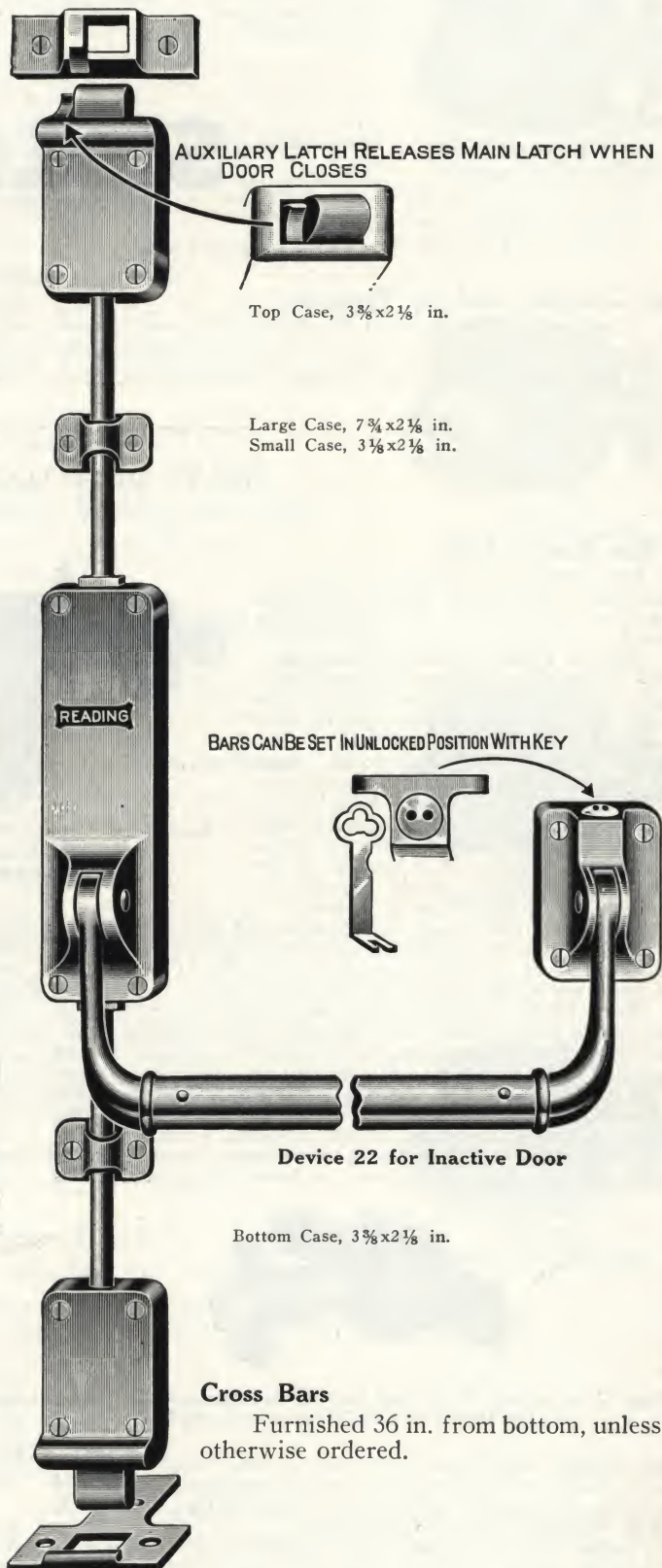
Device 11 for Active Door

For sets with lock and outside trim, see preceding page.

Information Required

Door thickness; width of stiles; hand of door, taken from outside; width of door, taken between stops; height of door, taken between stops.

A complete line of exit devices are shown in our General Catalog No. 21. *Specify number and finish.*



Device 22 for Inactive Door

Bottom Case, $3\frac{3}{8} \times 2\frac{1}{8}$ in.

Cross Bars

Furnished 36 in. from bottom, unless otherwise ordered.

SCHLAGE LOCK COMPANY

Manufacturers of Schlage Locks and Trim

SAN FRANCISCO, CALIFORNIA

BRANCH OFFICES

LOS ANGELES, CAL., 1151 So. Broadway
NEW YORK, N. Y., 71 Murray Street

CHICAGO, ILL., 549 W. Randolph Street
PHILADELPHIA, PA., 2401 Chestnut Street

Products

TYPE A BUTTON LOCKS AND TRIM.

TYPE B AUXILIARY LOCKS.

TYPE C HEAVY DUTY LOCKS.

TYPE E ENTRANCE DOOR LOCKS and TRIM.

SCHLAGE

TRADE-MARK

The Company and Its Products

The SCHLAGE LOCK COMPANY first introduced Schlage Locks eight years ago primarily for residential use. The popularity of the Schlage method of locking,

and unique manner of installation which gives security and privacy by a mere pressure of the button in the knob, has resulted in millions of locks being installed and giving dependable service under all conditions. This rapid growth in popularity has also created a demand from the commercial building field, and the Company's latest product, the Type C Lock, is recognized as a distinctly modern lock for modern commercial buildings. This addition to the line is treated in detail below.

HEAVY DUTY LOCKS—TYPE C

Rigid, Self-contained, Factory Assembled Locks

A New Modern Lock

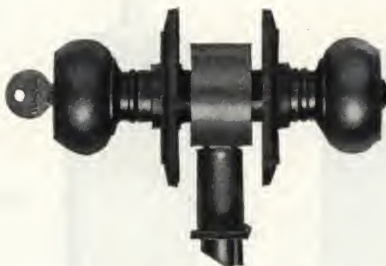
For Modern Hotels, Commercial Buildings, Apartments, Public Buildings, Schools, Institutions, and Fine Residences.

New in Design—New in Principle—100% Reversible—Possesses unusual flexibility. Automatically adjustable from 1½ to 2 in. Unnecessary to specify door thickness. Smooth in operation. Unusually quiet and positive in action. Built for strength and long, uninterrupted service. Compact. Factory-assembled in two interlocking units, a knob unit and a latch unit, which firmly interlock in the exclusive Schlage manner when installed in the door. Knob spindle works directly on latch, without levers, dogs, or cams.

Installed in 2½-in. hole in door stile, and 1-in. hole in door face, in less than ten minutes, greatly reducing labor costs. Requires minimum of cutting, preserving strength of door.

Ideal for either wood or hollow metal doors.

Knob Unit—A husky, rust-proofed, steel hub-frame, containing two heavy tubular steel spindles and a laminated steel, bronze-faced retractor slide, which operates against selected phosphor bronze compression coil springs. Spindles revolve in long bronze bushings, insuring smooth and lasting service. Key and locking mechanism is fully contained within the spindles. Knob unit completely shielded within a snugly fitting bronze cover, or housing. Knobs are seamless brass or bronze castings, although wrought brass or bronze reinforced knobs



Assembled Type C Lock Showing Simple and Rugged Construction

quiet action is immediately appreciated. Regular bevel ¼ to 2 in. Rabbeted if desired.

Lock Control Mechanism—Lock is controlled by Schlage pin tumbler cylinder located in the concave center of the outer knob. Stop-work conveniently located in inner knob safeguards against outside manipulation. Locking mechanism is within the spindles. Pin tumbler cylinders may be masterkeyed or grand masterkeyed as desired. An auxiliary bolt safeguards the latchbolt by automatically deadlocking it, providing positive protection when door is closed.

Quality Materials Throughout—Spindles, hub frame, and retractor slide are of heavy cold-rolled, rust-proofed steel, assuring uniformity, interchangeability and imparting maximum strength. The knobs, escutcheons, latchbolt, and latch face are solid brass or bronze.



Type C Lock with Knob and Escutcheon Removed Showing Latch Unit and Knob Unit Interlocked

and wrought escutcheons and roses are also furnished if desired. Knobs and cylinders are fully interchangeable. Knobs lock onto the spindles with the exclusive Schlage knob catch, which eliminates loose, rattling knobs.

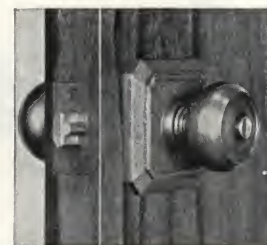
Latch Unit—A sturdy 1-in. tubular bronze housing in which the bronze latchbolt slides, serves as a guide for the latchbolt, insuring perfect alignment of bolt, which is actuated by phosphor bronze compression coil spring. The smooth,

formed in dies, assuring uniformity, interchangeability and imparting maximum strength. The knobs, escutcheons, latchbolt, and latch face are solid brass or bronze.



Door Bored for Type C Lock

Boring two holes preserves door strength



Type C Lock Installed

Held firmly in place by two machine screws

Escutcheons—Escutcheons are either cast or wrought, and are interchangeable. Adjustable on hub-frame, which permits the centering of the lock on the door, irrespective of door thickness. An automatic adjustment and anchor plate bears readings from 1½ to 2 in., permitting instant adjustment to the proper door thickness, and preventing tampering or removal of the outside escutcheon after lock is installed.

Installation—Extremely simple. A 2½-in. hole is bored through the door stile for the knob unit, and a 1-in. hole in the edge of the door, for the latch unit. Schlage patented template insures speedy, accurate installation. Exclusive friction grip prevents lock loosening on door. No adjustments required during, or after, installation.

HEAVY DUTY LOCKS—TYPE C (Continued)

For Hotel Corridor Doors

Type CH—Not illustrated. No button inside. *Operation:* Latchbolt by knob from inside only. Outer knob always rigid. By guest, master and grandmaster, from outside. Auxiliary bolt safeguards the latchbolt, providing proof against end pressure.

Type CHS—Not illustrated. Shut-out button inside. *Operation:* Latchbolt by knob from inside only. Outer knob always rigid. By guest, master, grandmaster, and emergency key from outside. Push-button in inner knob shuts out all except emergency key, providing maximum privacy. Push button automatically released by turning inner knob. Auxiliary bolt safeguards latchbolt, providing proof against end pressure.

Type CHSI—Shut-out button inside. Indicator pin outside. *Operation:* Latchbolt by knob from inside only. Outer knob always rigid. By guest, master, grandmaster, and emergency key from outside. Push button in inner knob shuts out all except emergency key and throws out indicator in outer knob providing maximum privacy. Push button is automatically released by turning inner knob. Auxiliary bolt safeguards latchbolt, providing proof against end pressure.

Type CHSIE—Not illustrated. Shut-out button inside, with emergency key control. Indicator pin outside. *Operation:* Same as Type CHSI, except has emergency key actuated shutout control, which makes all keys except emergency key inoperative when desired.



CHSI 2272
Design 72 Wrought

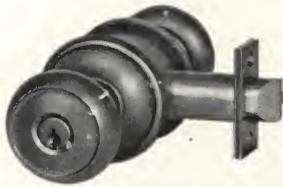


CMT 2174
Design 74 Wrought

For Communicating Doors

Type CMT—*Operation:* Latchbolt by knob from either side. Convenient indicator turn button in either knob locks opposite knob. Auxiliary bolt safeguards the latchbolt, providing proof against end pressure.

Type CMY—*Operation:* Latchbolt by knob from either side. Key in either knob locks opposite knob. Auxiliary bolt safeguards the latchbolt, providing proof against end pressure.



CMY 2272
Design 72 Wrought



CE 2174
Design 74 Wrought

For Bathrooms and Private Toilets

Type CE—*Operation:* Latchbolt by knob from either side. By emergency key, knife blade, or screwdriver in outside knob when outer knob is locked by pressing button in inner knob. Button is automatically released by turning inner knob.

Type CB—Not illustrated. *Operation:* Latchbolt by knob from either side. Outer knob is locked by pressing button in inner knob. Button is automatically released by turning inner knob.



COT 2272
Design 72 Wrought



CK 2174
Design 74 Wrought

For Office and Apartment Corridor Doors and Residence Entrance Doors

Type COT—*Operation:* Latchbolt by knob from either side. By key from outside when outer knob is locked by convenient indicator turn button in inner knob. Auxiliary bolt safeguards the latchbolt, providing proof against end pressure.

For Public Entrances and Public Toilet Doors

Type COY—Not illustrated. *Operation:* Latchbolt by knob from either side. By key from outside when outer knob is locked by key in inner knob. Auxiliary bolt safeguards the latchbolt, providing proof against end pressure.

For Schoolrooms

Type CK—*Operation:* Latchbolt by knob from either side. Locked or unlocked by key in outer knob. Inside knob is free at all times. Auxiliary bolt safeguards the latchbolt, providing proof against end pressure.

For Vestibule Doors

Type CV—Not illustrated. *Operation:* Latchbolt by knob from either side. By key from outside when locked by pressing button in inner knob. Button is automatically released by turning inner knob.

Type CVU—Not illustrated. *Operation:* Latchbolt by knob from either side. By key from outside when outer knob is locked by pressing button in inner knob. Button may be retained in locked position by pressing and turning to right.



CL2272
Design 72 Wrought



CC 2174
Design 74 Wrought

Knob Latch

Type CL—*Operation:* Latchbolt by knob from either side.

For Closet Doors

Type CC—*Operation:* Latchbolt by knob from outside and turn knob from inside.

Type CKC—*Operation:* Latchbolt by knob from outside and turn knob from inside. Locked or unlocked by key in outside knob. Inside turn is free at all times. Auxiliary bolt safeguards the latchbolt, making it proof against end pressure.

General Specifications

Front—Beveled. Regular bevel $\frac{1}{8}$ in 2 in.

Strike—Box type. Brass or bronze.

Knobs—Brass or bronze.

Escutcheons—Brass or bronze.

Reversible—CMT, CE, CB, CL and CC reversible. All others not reversible. Specify hand.

Backset— $2\frac{3}{4}$ in.

Masterkeying—All cylinder locks masterkeyed or grand masterkeyed as desired.

Doors— $1\frac{3}{8}$ to 2 in. thick.

Cylinder—Brass or bronze.

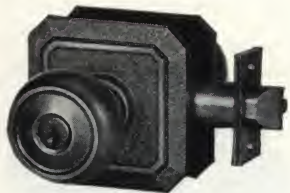
Keys—3 nickel silver.

HEAVY DUTY LOCK DESIGNS—TYPE C

The following designs are furnished when desired.
Special designs to order.



CMT 2273
Design 73 Wrought



COT 3283
Design 83 Cast



CC 3282
Design 82 Cast

	Wrought Designs			
	Design 71	Design 72	Design 73	Design *74
	Knobs 2¼-in. diam.	Knobs 2¼-in. diam.	Knobs 2¼-in. diam.	Knobs 2¼-in. diam.
	Roses 2½-in. diam.	Roses 2½-in. diam.	Roses 2½-in. diam.	Escutcheons 3¼x3¼-in.
Door	Symbol	Symbol	Symbol	Symbol
Hotel corridor	CH 2171	CH 2272	CH 2273	CH 2174
	CHS 2171	CHS 2272	CHS 2273	CHS 2174
	CHSI 2171	CHSI 2272	CHSI 2273	CHSI 2174
	CHSIE 2171	CHSIE 2272	CHSIE 2273	CHSIE 2174
Office or residence entrance	COT 2171	COT 2272	COT 2273	COT 2174
Public entrance	COY 2171	COY 2272	COY 2273	COY 2174
Vestibule	CV 2171	CV 2272	CV 2273	CV 2174
	CVU 2171	CVU 2272	CVU 2273	CVU 2174
Communi- cating	CMT 2171	CMT 2272	CMT 2273	CMT 2174
	CMY 2171	CMY 2272	CMY 2273	CMY 2174
Schoolroom	CK 2171	CK 2272	CK 2273	CK 2174
Bathroom	CE 2171	CE 2272	CE 2273	CE 2174
	CB 2171	CB 2272	CB 2273	CB 2174
Passage	CL 2171	CL 2272	CL 2273	CL 2174
Closet	CC 2171	CC 2272	CC 2273	CC 2174
	CKC 2171	CKC 2272	CKC 2273	CKC 2174

*Same as Design 81, except wrought brass or bronze.



CL 2171
Design 71 Wrought



CHSI 3284
Design 84 Cast

	Cast Designs			
	Design *81	Design 82	Design 83	Design 84
	Knobs 2¼-in. diam.	Knobs 2¼-in. diam.	Knobs 2¼-in. diam.	Knobs 2¼-in. diam.
	Escutcheons 3¼x3¼-in.	Escutcheons 3¼x3¼-in.	Escutcheons 3½x3½-in.	Escutcheons 3½x3½-in.
Door	Symbol	Symbol	Symbol	Symbol
Hotel corridor	CH 3181	CH 3282	CH 3283	CH 3284
	CHS 3181	CHS 3282	CHS 3283	CHS 3284
	CHSI 3181	CHSI 3282	CHSI 3283	CHSI 3284
	CHSIE 3181	CHSIE 3282	CHSIE 3283	CHSIE 3284
Office or residence entrance	COT 3181	COT 3282	COT 3283	COT 3284
Public entrance	COY 3181	COY 3282	COY 3283	COY 3284
Vestibule	CV 3181	CV 3282	CV 3283	CV 3284
	CVU 3181	CVU 3282	CVU 3283	CVU 3284
Communi- cating	CMT 3181	CMT 3282	CMT 3283	CMT 3284
	CMY 3181	CMY 3282	CMY 3283	CMY 3284
Schoolroom	CK 3181	CK 3282	CK 3283	CK 3284
Bathroom	CE 3181	CE 3282	CE 3283	CE 3284
	CB 3181	CB 3282	CB 3283	CB 3284
Passage	CL 3181	CL 3282	CL 3283	CL 3284
Closet	CC 3181	CC 3282	CC 3283	CC 3284
	CKC 3181	CKC 3282	CKC 3283	CKC 3284

*Same as Design 74, except cast brass or bronze.

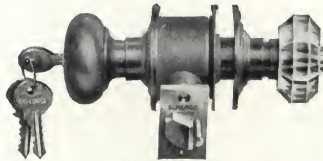


CK 3181
Design 81 Cast

RESIDENCE AND APARTMENT LOCKS—TYPE A

The illustrations and descriptions below present four Type A Locks—a small portion of the line, which includes fourteen distinct varieties of locks for residence and apartment doors. These are described in detail in our general catalogue. Type A Locks comprise the original Schlage line, and have won wide popularity within a relatively short time. Quick installation,

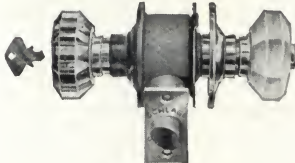
maximum security, smooth operation, exceptional convenience, and great durability combine to make them ideal for residence and apartment work. Backset $2\frac{3}{8}$ in. Self-adjusting to fit doors $1\frac{3}{8}$ to $1\frac{1}{4}$ in. thick. Solid brass and solid bronze trim. Interior working parts cold-rolled, rustproofed steel. All standard finishes. Installation marker packed with each lock.



Type AVU

For Apartment Corridor Doors and Residence Exterior Doors

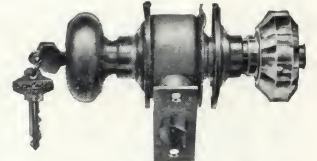
Type AVU—Not reversible. Specify hand. *Operation:* Latchbolt by knob from either side. By key from outside when outer knob is locked by pressing indicator turn button in inner knob. Automatically unlocked by turning inner knob, or by key in outer knob. If indicator turn button is pressed and turned to right it will remain in locked position until purposely turned to left. Auxiliary bolt safeguards the latchbolt, making it proof against end pressure.



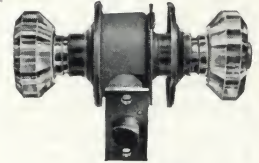
Type AE

Interior and Exterior Locks for Residence and Apartment Doors

Type AK—Reversible. *Operation:* Latchbolt by knob from either side. By key from outside when outer knob is locked by pressing button in inner knob. Automatically unlocked by turning inner knob.



Type AK



Type AB

For Bathroom Doors

Type AE—Reversible. *Operation:* Latchbolt by knob from either side. By emergency key, knife blade, or screw-driver from outside, in case of necessity, when outer knob is locked by pressing button in inner knob. Button is automatically released by turning the inner knob. Automatic feature prevents accidental locking out.

For Bedroom and Other Rooms Where Privacy Is Required

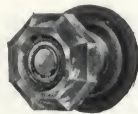
Type AB—Reversible. *Operation:* Latchbolt by knob from either side. Outer knob is locked by pressing button in inner knob. Button is automatically released by turning inner knob. Automatic feature prevents accidental locking out.

KNOBS

For Use with Type A and E Locks



No. 1



Nos. 2, 3, 4



No. 5



Nos. 6, 7, 8



No. 9



No. 10

- (1) Wrought brass or bronze. Smooth. All U. S. Standard finishes.
 *(2) Octagonal clear glass. Etched knob center.
 *(3) Octagonal opal. Same shape as No. 2. Etched knob center.
 *(4) Octagonal colored glass. Same shape as No. 2. Clear amber, green, or rose, opaque light blue, or black. Etched knob center.
 (5) Hand-hammered brass or bronze. All U. S. Standard finishes.

- *(6) Fluted clear glass. Etched knob center.
 *(7) Fluted opal. Same shape as No. 6. Etched knob center.
 *(8) Fluted colored. Same shape as No. 6. Clear amber, green, dark blue, orchid or black. Etched knob center.
 *(9) Gothic cast face. All U. S. Standard Finishes.
 *(10) Colonial cast face. All U. S. Standard finishes.

*Suitable for outer or inner knob of any Schlage Lock except pin tumbler cylinder type where it can be used on inside only.

FOR RESIDENCE AND APARTMENT BUILDING ENTRANCES—TYPE ED



ED 51



ED 52



ED 53



ED 54



ED 55



ED 56



ED 57



ED 58



View of Assembled ED Lock

Type ED Locks combine all the good features of a mortise lock with the convenient Schlage press-the-button method of locking. They are furnished in distinctive grip-handle designs, and are completely equipped with dull brass knobs and escutcheon plates on the inside of the door. Any knob shown above may be furnished if desired at a slight additional charge. The Schlage turn button indicates at a glance whether the door is locked. An exclusive feature prevents forcible removal of the cylinder from the outside of the door. *Operation:* Latchbolt by key from outside. By knob from inside. By thumbpiece from outside when thumbpiece is not locked by indicator turn button in inner knob. Auxiliary bolt safeguards the latchbolt and makes it proof against end pressure.

Specifications—Front
 —Flat. Brass or bronze.
Strikes—Brass or bronze.
Knobs—Brass or bronze.
Escutcheons—Brass or bronze.
Reversible—Not reversible. Specify hand. **Backset**— $2\frac{3}{8}$ in. **Doors**— $1\frac{3}{8}$ to 2 in. Self-adjusting. **Cylinder**—Brass or bronze. Five pin tumblers. **Keys**—Three nickel silver. Changes practically unlimited. **Masterkeying**—May be masterkeyed or grand masterkeyed with all other Schlage pin tumbler locks.

VONNEGUT HARDWARE CO.

Manufacturers of Von Duprin Self-releasing Fire Exit Devices
INDIANAPOLIS, IND.

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AUSTRALIA: UNIVERSAL LOCK AND HARDWARE Co., LTD., Yorkshire House, 16 Spring Street, Sydney, N. S. W.

JAPAN: F. W. HORN COMPANY, 36 Kawaguchicho Nishiku, Osaka

CANADA: SPRINGER LOCK MFG. Co., Belleville, Ont.

HAWAIIAN ISLANDS: LEWERS & COOKE, Honolulu

PORTO RICO: DARIO NUIN, Mayaguez

CHILE: MORRIS ROSEN, P. O. Box 3327, Santiago

UNITED STATES FACTORY, INDIANAPOLIS, IND.
CANADIAN FACTORY, BELLEVILLE, ONT.

UNITED STATES PATENTS

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LOCAL REPRESENTATIVE

Von Duprin

TRADE-MARK
(Registered U. S. Pat. Off.,
No. 85021)

CANADIAN PATENTS

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Other Patents Pending

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245825 Germany, Sept. 13, 1919
51188 Argentine, Mar. 15, 1920
6940 Brazil, Sept. 13, 1920

APPROVAL

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United States Government (Municipal Department), Snowden Ashford, Architect

United States Government (Treasury Department), Bureau of Printing and Engraving Building

Australian Government, Geo. McRea, Government Architect, New South Wales

New York Board of Fire Underwriters, New York, N. Y.

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National Board of Fire Underwriters, SA163—File 100E24, Chicago, Ill.—A. B. K. F. & S. Standard accident

National Board of Fire Underwriters, R592, 218116—3 Pt. Device, Chicago, Ill., Type Q.

National Board of Fire Underwriters, Guide 120-1D16-7—File R2179—B. C. D. E. Locations. Types B. F. K. & S. Standard fire and accident

Members of International Association of Building and Factory Inspectors

Board of Standards of the Fire Department, New York, N. Y.

The best school architects

The best theater architects

VON DUPRIN TYPE "B"

The highest grade, double acting, extra heavy mortise lock type panic device made, embodying all of the refinements known to panic bolt construction. *Listed by the Underwriters' Laboratories SA-163 under Life Hazard and Casualty Department approvals.*

Symmetrically designed, sturdy in construction, built to endure. All interior parts are made of special hard bronze; bars and external members, of brass or bronze only.

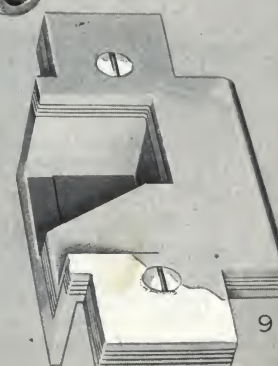
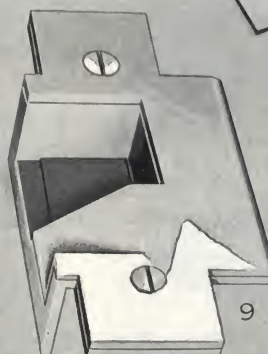
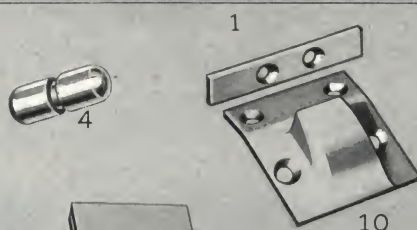
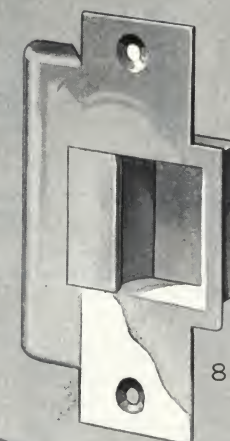
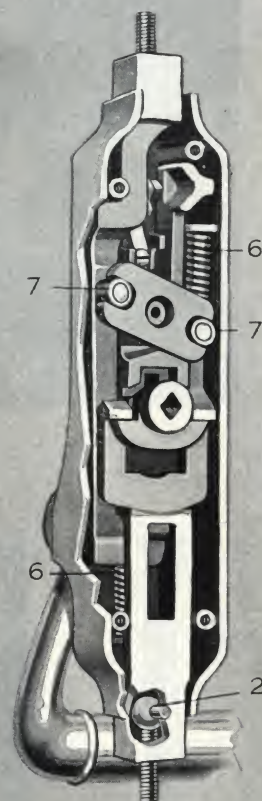
Features

"Featured to unlatch latch bolts from inside by touch against, or pull up on cross bar at any point at all times."

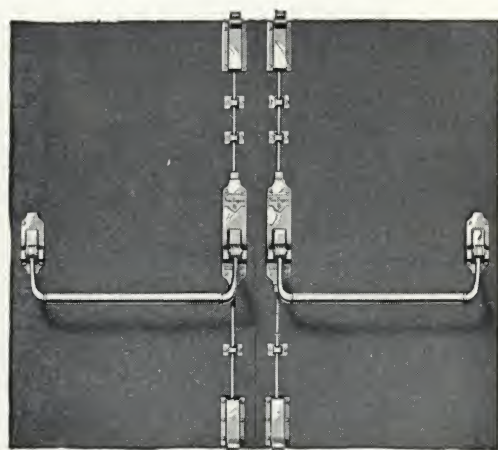
Feature

No.

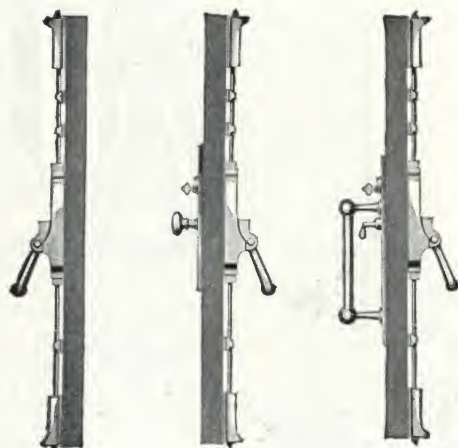
1. Cross bar double acting (to or from the door) full 1 in., 16-gauge seamless brass or bronze tube.
2. Ball compensating vertical rod construction, enabling rods to compensate with the action of winding or warping doors, prevents binding rods.
3. Improved method of dogging the cross bars down—a direct drive into the lever arms controlled by two-point key. The housing is lined with seamless steel sleeve. (See feature 11, a drive fit.) Dogging feature furnished on both ends of the cross bar, insuring absolute rigidity.
4. New axle so constructed that axle can not lose out or be removed by children.
5. Easy spring Pullman type, long-swing, vertical latches subject to normal check operation (entirely independent of each other).
6. Special phosphorus bronze compression springs in main case augmented by special phosphorus bronze compression springs in hinged end case of cross bar.
7. Working parts machined and milled. Stumps receiving unusual shocks and wear are covered with case-hardened steel sleeves, eliminating friction and wear.
8. Collapsible Strike No. 250J for single entrance door cylinder locks, eliminating sticking of latches in terrific jams. Ordinary pressure will draw the bolts to a given point where strike completely collapses, leaving free exit. (See full description and detail.)
9. No. 247J adjustable strike for mortise cylinder lock, to take up the gaps caused by shrinking double doors, and preventing picking. (See full description and detail.)
10. Buffer and plates No. 248 for active door of double doors, preventing crowding of door past the strike engagement plane, which function would release auxiliary bolt and permit picking of main latch bolt.
11. Cross bar lever showing holes drilled for axle and dogging feature; both housings are lined with case-hardened steel sleeve, eliminating all friction and wear.
12. Extra heavy exterior trim.
13. Long-life cylinder locks made especially for panic bolt service. Not reversible.



VON DUPRIN TYPE "B" FIRE EXIT DEVICES FOR DOUBLE ENTRANCE DOORS OPENING OUTWARD

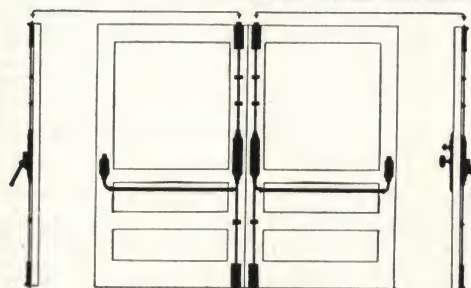


Inactive Door 1127B Active Door 1123B
Inside Elevation

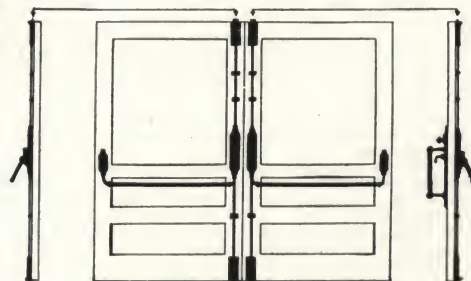


Inactive 1127B Active 1123B 1123Bx2660 Ittner

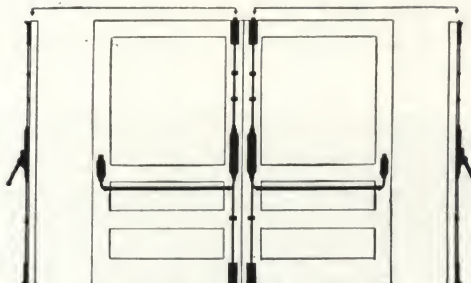
Vertical Rod Combinations



No. 1127B No. 1123B
Combination No. 11B



No. 1127B No. 1123Bx2660 Ittner
Combination No. 011B Ittner



No. 1127B No. 1127B
Combination No. 15B

Combination No. 11B for Main Entrance Doors, Where Threshold Is Used

Inactive door equipped with No. 1127B, Type "B" Von Duprin. Active door equipped with No. 1123B, Type "B" Von Duprin

Combination No. LR11B, Where Threshold Is Not Used

Inactive door equipped with No. 1137B, Type "B" Von Duprin. Active door equipped with No. 1133B, Type "B" Von Duprin

Combination No. 011B Ittner for Main Entrance Doors, Where Threshold Is Used

Inactive door equipped with No. 1127B, Type "B" Von Duprin. Active door equipped with No. 1123Bx2660 Ittner Type "B"

Combination No. LR011B, Where Threshold Is Not Used

Inactive door equipped with No. 1137B, Type "B" Von Duprin. Active door equipped with No. 1133Bx2660 Ittner Type "B"

Combination No. 15B for Double Exit Doors, Where Threshold Is Used

Both doors equipped with No. 1127B, Type "B" Von Duprin

Combination No. LR15B, Where Threshold Is Not Used

Both doors equipped with No. 1137B, Type "B" Von Duprin

VON DUPRIN THRESHOLDS, STRIKE AND BUFFER CAST INTEGRAL

A Suggestion for Architects—Ordinarily you specify brass or bronze thresholds. Added to this is the price of bottom strikes, which generally are omitted by the contractor (because of the tedious work required to apply). *An unsatisfactory installation—and condemnation of panic bolts.*

Specify Von Duprin thresholds and bottom strikes and buffers cast integral. Furnished with 2-in. No. 14 brass screws and expansions complete. Screw holes drilled in center and intermediate locations as indicated, and 3 in. from each end.

Combining Symmetry, Strength and Durability

When ordinary thresholds are furnished by others, the same are not delivered until after panic bolts are applied. Then, in the frenzy to complete the job, thresholds are crammed in any way to get through. If Von Duprin thresholds are furnished with Von Duprin panic bolts, they are delivered in one shipment—resulting in a good installation.

Thresholds shown below properly executed by us cost very little, if any, more, and produce a highly satisfactory installation.



Fig. 2364—Three-way Threshold
(Old 276)

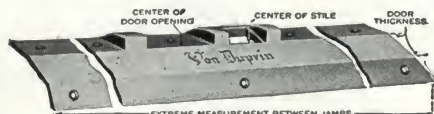


Fig. 2362—Three-way (Old 274)
 $\frac{5}{8}$ in. high; $\frac{1}{8}$ in. thick top; $4\frac{1}{2}$ in. wide for $1\frac{3}{4}$ -in. door; 5 in. wide for $2\frac{1}{4}$ -in. door

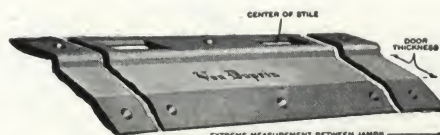


Fig. 2394—Threshold Wind Break and
Water Shed

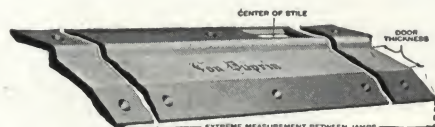
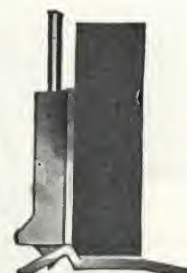


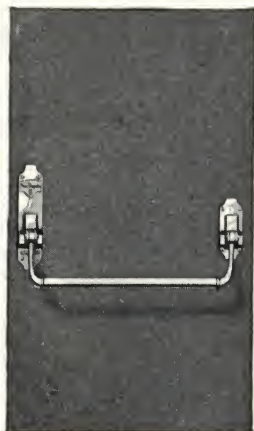
Fig. 2392—Wind Break and Water Shed
Rabbeted three-way thresholds $\frac{5}{8}$ in. high, $\frac{3}{16}$ -in. thick top, $4\frac{1}{2}$ in. for $1\frac{3}{4}$ -in. door, 5 in. for $2\frac{1}{4}$ -in. door



Section Through
Threshold Showing
Latch in
Position

For thresholds
No. 2392, 2393 and
2394

VON DUPRIN TYPE "B" FIRE EXIT DEVICES FOR SINGLE OR DOUBLE DOORS OPENING OUTWARD



Inside Elevation
Not reversible



1124B
Single
1724B
Double



NL1124B
Single
NL1724B
Double



1122B
Single
1722B
Double



NL1141B
Single
NL1741B
Double



K1126B
Single
K1726B
Double



1130B
Single
1730B
Double



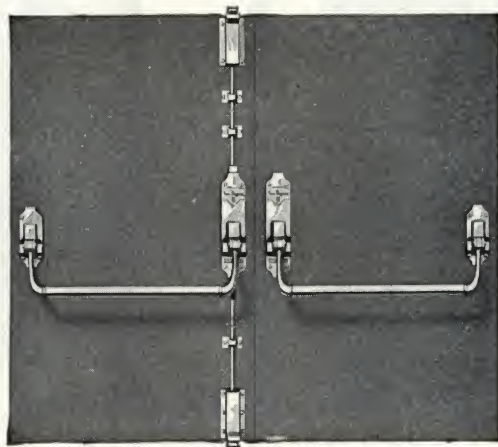
1129 1/2 B
Single



1129B
Single

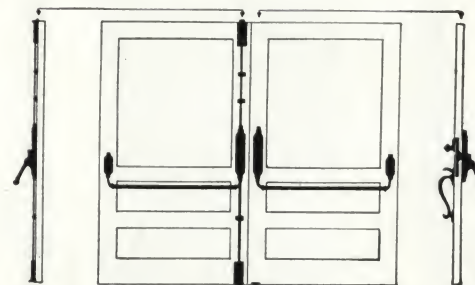


Inactive 1127B



Inactive Door 1127B, Buffer 248, Active Door 1724B
Inside Elevation of All Combinations on This Page

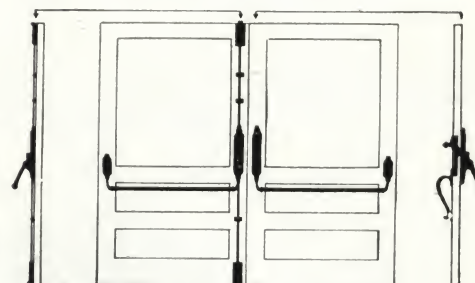
For Double Entrance Doors Opening Outward, Using Threshold



No. 1127B No. 1724B

Combination No. 12B

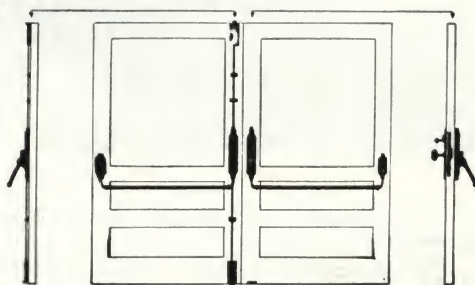
Inactive door equipped with No. 1127, Type "B" Von Duprin. Active door equipped with No. 1724B, Type "B" Von Duprin



No. 1127B No. NL1724B

Combination No. 13B

Inactive door equipped with No. 1127B, Type "B" Von Duprin. Active door equipped with No. NL1724B, Type "B" Von Duprin



No. 1127B No. 1722B

Combination No. 14B

Inactive door equipped with No. 1127B, Type "B" Von Duprin. Active door equipped with No. 1722B, Type "B" Von Duprin

Practical Combinations for Double Main Entrance Doors Where Threshold Is Used

VON DUPRIN AUTOMATIC DOOR HOLDERS

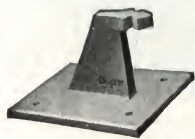
Very extra heavy. Nothing projecting from the door. Packed with 3/8x3 1/2-in. bronze bolts with expansions. Polished brass finish unless otherwise ordered. Also made with malleable iron bases.

Malleable Iron Holder—No. 9240—5, 7 and 10 in. high.

Brass or Bronze Holders—For concrete or stone. Acts as a buffer as well as a door holder.

No. 238—4 3/8, 6 1/2, 9 1/2, 10 3/4 and 12 in. high.

No. 239—For double doors, 4 3/8, 6 1/2, 9 1/2, 10 3/4 and 12 in. high. Width of spreads, 4, 5, 6 1/2 and 7 in.



No. 238 Door
Holder



No. 2240 Door
Holder Cup for
9240 Holder



No. 239 Double
Door Holder

No. 36 Flush Cup
with Door Plate
and Base Engaged
for No. 238 and
No. 239



No. 9240 5-in.
Door Holder

VON DUPRIN TYPE "A" SELF-RELEASING DOOR DEVICES

With heavy rim cylinder lock. For single entrance door, also double entrance door with mullion. For doors opening outward.

Especially built for high-class shop and school entrance door. Featured to eliminate many troubles heretofore had with such door locks. Made with and without outside deadlocking and unlatching feature. Latch bolt extra heavy hinged car door type, extra easy in movement, and impossible to bind. Cross bar can be dogged by special key dogging devices on both ends of cross bar.

Double Cylinder Type—No. 1025A "Bulldog"—At closing time the watchman turns his key in the inside cylinder, locking the door, barring admittance (except by key), yet permitting the door to be opened from the inside by a touch against the cross bar at any point. When door is again closed, the lock automatically locks itself. Outside cylinder has night latch movement. When the lock is unlocked from the outside, it is unnecessary to again lock it from the inside, as it automatically locks itself. Furnished with grip and thumbpiece.

No. NL1025A "Bulldog"—Has night latch action, grip without thumbpiece, latch retracting feature from operation of key through inside cylinder.

Single Cylinder Type—No. 1026A "Bulldog"—The outside cylinder has the feature of deadlocking the thumb latch. Exit is normal from inside by a push on the cross bar. The same is again automatically locked when the door closes. Furnished with grip and thumbpiece on the outside of the door. Case measures 4 in. wide, 7 in. high.

No. NL1026A "Bulldog"—Same as 1026A, omitting thumbpiece—night latch action only.

No. 1028A "Bulldog"—For exit only. No outside unlatching feature.

No. 1225A "Bulldog"—Case measures 4 in. wide, and 6½ in. high. Furnished with 2¼-in. knob and 2½x8-in. escutcheon on outside of door; latch operated from outside in same manner as any ordinary lock and latch device. Featured to unlatch latch bolt from inside by touch against bar at any point, even though deadlocked from outside.

No. NL1225A "Bulldog"—Same as No. 1225A, omitting knob and escutcheon, and has night latch action. When door is closed, it automatically locks—to be unlocked from the outside by a key.

No outside hardware except cylinder.



Fig. 1025A

Inside Elevation
Not reversibleFig. NL1025A
Night Latch
ActionInside Elevation
Not reversible

No. 1026A

No. NL1026A
Night Latch
Action

No. 1028A

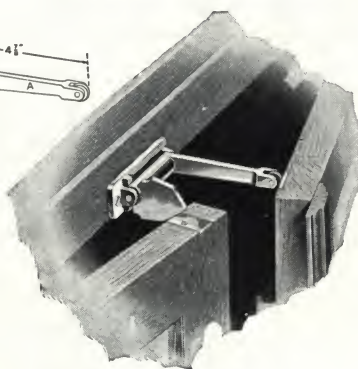
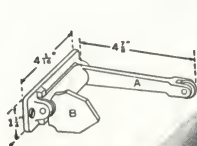
No. 1225A

Double Cylinder Type Rim Door Device

Single Cylinder Type Rim Door Device

VON DUPRIN AUTOMATIC CO-ORDINATING DEVICES

(Patent No. 1699758)



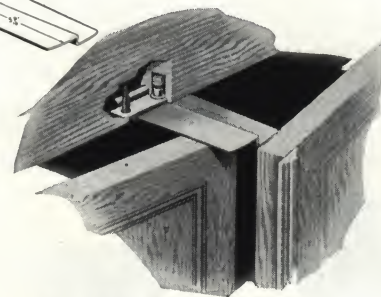
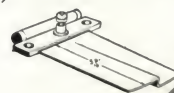
No. 1236 Rim Type

For controlling double doors with overlapping astragal or rabbeted face doors.

Insures the closing of the inactive door before the closing of the active door.

An attempt to close the active door first is frustrated—it is held open by arm A until the inactive door is first closed. Arm A, being in contact with active door, inactive door engaging bracket B at the closing point, raising the arm A and allowing the active door to close *only after* the inactive door has been closed.

Cast brass or cast bronze only.



No. 1242 Flush Type

For use on pairs of doors with overlapping astragal, or on doors having rabbeted faces. Insures the closing of the inactive door before the closing of the active door.

An attempt to close the active door first is frustrated; it is held open by lower half of device until the inactive door is first closed. Lower half being in contact with active door, inactive door engaging upper half at the closing point raises lower half and allows the active door to close *only after* the inactive door has been closed.

Lower half should rest at top of door, as shown in illustration, and can be adjusted to that position through adjusting screw as shown above.

For proper operation lower half of device must drop in place just as inactive door clears astragal. If arm is too long cut off to proper length with hack saw.

EXTENSION GARMENT HANGER COMPANY, INC.

Dallas National Bank Building
DALLAS, TEX.

Product

THE HOOD EXTENSION GARMENT HANGER for clothes closets.

Description

The Hood Extension Garment Hanger is the most practical improvement ever made in clothes closet equipment.

Possessing superior features of strength, appearance, convenience, and affording maximum economy of floor space, it has met with national acceptance by architects. It is equally useful in the largest and smallest homes, hotels, apartments or offices. In hotel and apartment planning, Hood Hangers are particularly worthy of consideration because of the saving of floor space. Closet areas are reduced to about one-third of former size. This saving of floor space alone will more than pay for the cost of installation.

Clothes hang in their natural position. Equal distribution, a Hood feature, prevents wrinkling. A light pull opens it. It closes with equal ease.

Sizes

Hanger is made in three sizes. The Junior model, capacity 12 to 18 garments, extends to 22 in. and collapses to 8 in. Model 12, capacity 12 to 24 garments, extends to

28 in., collapses to 7 in. Model 16, capacity 16 to 32 garments, extends to 36 in., collapses to 8 in.

Construction

Models 12 and 16 are identical in construction. Wall brackets and lazy tongs are made of 1/8-in. cold rolled steel. The Junior model is made of lighter steel. All models are built to carry a load far in excess of necessary requirements; they will not warp or sag.

The swivel attachment, an exclusive Hood feature, permits the hanger to swing freely in an 180° arc.

Finish

Hangers are finished in rust-resisting gunmetal bronze, and satin nickel, to harmonize with the color combination of any room.

Installation

Hood Hangers may be installed on any flat surface, doors or walls. Shelves are not necessary. Installation is simple. For wood surfaces, ordinary wood screws are used. For hollow walls, tile, plaster, etc., toggle bolts are used. For solid walls, rawl plugs are used. Wood screws are furnished with each hanger. Toggle bolts or rawl plugs will be furnished at small additional cost, or may be purchased locally.



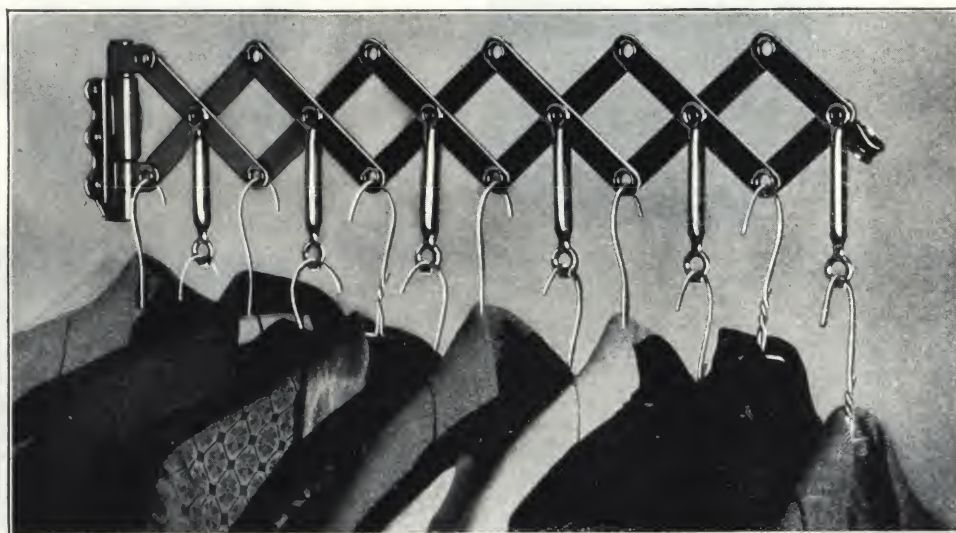
Easy access to shelves and drawers in rear of closets



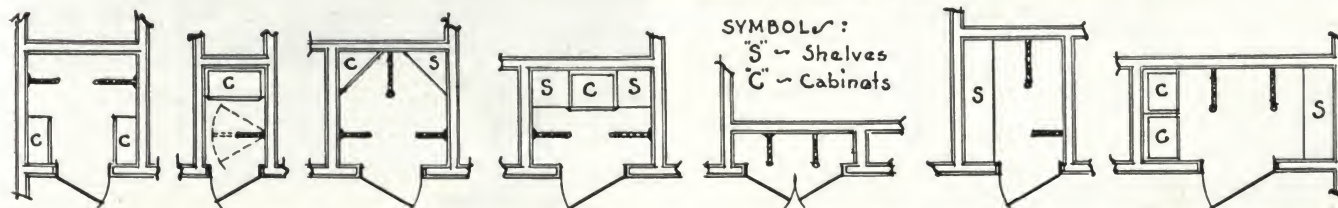
Hanger on the door, doubles closet space



Hanger Collapses Compactly



Showing Hanger Extended



Typical Closet Plans Showing Installation of Hood Extension Garment Hanger

GARDEN CITY PLATING & MFG. CO.

Manufacturers of Adjustable Shelving Devices, Disappearing Door Hardware and Garment Carriers

1430 South Talman Avenue, CHICAGO, ILL.

NEW YORK OFFICE AND WAREHOUSE, 133 Wooster Street
REPRESENTATIVES IN PRINCIPAL CITIES

Products

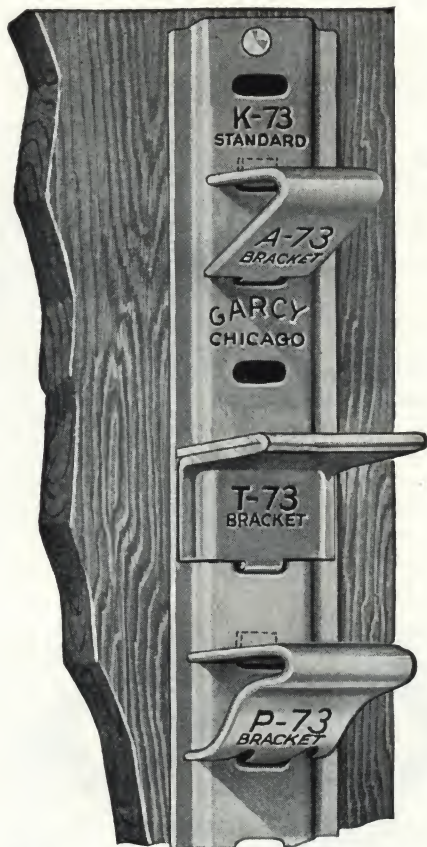
"GARCY" HARDWARE for adjustable shelving.

"GARCY" PULLOUT GARMENT CARRIERS for closets.

Also Keyhole Standards and Brackets for adjustable glass shelves.

GARCY
TRADE MARK REG.

For our pages on Ornamental Metal Work, Display Case Frames, Grilles, Wickets, Bank Counter Screens, Bank Vaults, Cage Metal Work, and Lighting Reflectors, see Manufacturers' Index.



Brackets Removed in an Instant for Adjustment, Yet the Heaviest Load Cannot Budge Them

Illustration actual size

PILASTER STANDARDS

Width.....	$\frac{3}{8}$ in.		$\frac{3}{8}$ in.		$1\frac{1}{8}$ in.	
Spacing of slots....	$\frac{1}{2}$ in.		$\frac{1}{4}$ in.		$\frac{1}{2}$ in.	
Standard lengths...	3, 4, 6, 12 ft.		12 ft.		12 ft.	
Finish	Made of steel, number	Made of brass, number	Made of steel, number	Made of brass, number	Made of steel, number	Made of brass, number
White nickel.....	*K73N	†K73BE	B73N	B73BE	H73N	H73BE
Polished nickel....		†K73E		B73E		H73E
Polished chromium..		†K73CE		B73CE		H73CE
Statuary bronze....	*K73L	†K73S	B73L	B73S	H73L	H73S
Cadmium (rustproof white).....	†K73UG		B73UG		H73UG	
Rustproof black....	†K73G		B73G		H73G	

ADJUSTABLE BRACKETS

Finish	Made of steel, number	Made of brass, number	Made of steel, number	Made of brass, number	Made of steel, number	Made of brass, number
White nickel.....	*A73N	†A73BE	*P73N	P73BE	*T73N	T73BE
Polished nickel....		†A73E		P73E		T73E
Polished chromium..		†A73CE		P73CE		T73CE
Statuary bronze....	*A73L	†A73S	*P73L	P73S	*T73L	T73S
Cadmium (rustproof white).....	†A73UG		†P73UG		†T73UG	
Rustproof black....	†A73G		†P73G		†T73G	

*In stock. †In stock—partly finished.

Other numbers are made to order.

Standards are furnished with nails. Screws furnished if desired.

Hardware for Adjustable Shelving

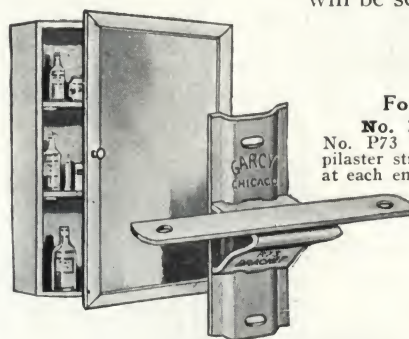
Where Used—Wherever shelving can be used, "Garcy" Pilaster Strips and adjustable brackets provide easy and economical installation, and permit the utilization of space that is ordinarily wasted with stationary shelves.



Easily Adjusted—Always Secure

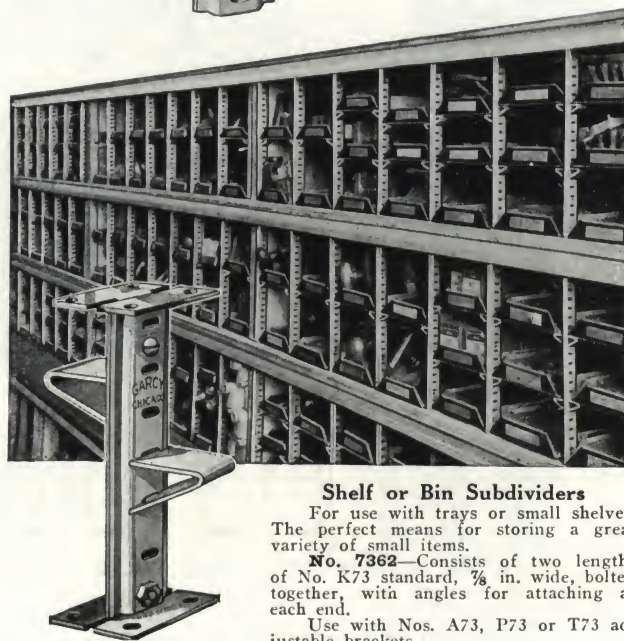
Features—Shelves are easily and quickly moved up or down. Brackets snap in and out easily, yet cannot be budged under a load. They are tested up to 600 lb. The slots in the pilaster strips are numbered, making it easy to line up shelves.

Free Samples—Samples will be sent on request.



For Narrow Shelves

No. R73—Cross arm joined to No. P73 bracket. Requires but one pilaster strip, instead of the usual two, at each end of shelves



Shelf or Bin Subdividers

For use with trays or small shelves. The perfect means for storing a great variety of small items.

No. 7362—Consists of two lengths of No. K73 standard, 3/8 in. wide, bolted together, with angles for attaching at each end.

Use with Nos. A73, P73 or T73 adjustable brackets

"Garcy" Pullout Clothes Closet Garment Carriers

Service—To permit the construction of orderly and space saving wardrobes in homes, apartments, hotels, clubs, etc., instead of inefficient and space wasting square closets.

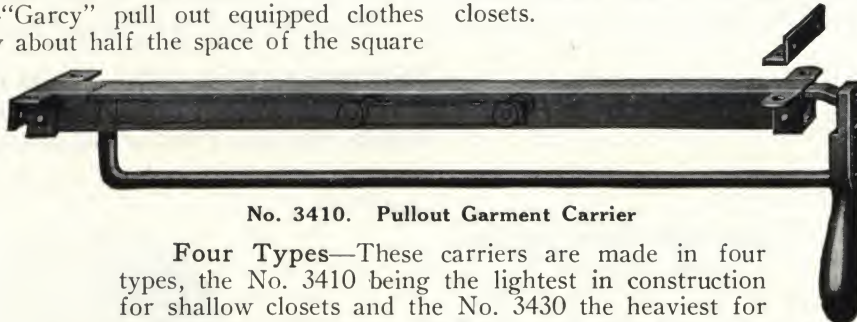
Construction Features—The carriers roll in and out at a touch, smoothly and silently. They fasten with screws, either under the shelf or to the door casing and rear wall.

Finish—Standard finish is statuary bronze. Nickel-plated or other finishes can be furnished.

Advantages—"Garcy" pull out equipped clothes closets require only about half the space of the square

clothes closets, yet provide twice the clothes capacity. This saving in space amounts to as much as 5% of an entire building.

Garments are kept in good condition, are easily accessible and quickly found on their individual hangers, instead of becoming shapeless, torn and buried beneath an accumulation of other garments on wall hooks. Clothes are selected in the light and air of the room. No need of groping for garments in a stuffy, dark clothes closet. Eliminates wiring for lights in closets.



No. 3410. Pullout Garment Carrier

Four Types—These carriers are made in four types, the No. 3410 being the lightest in construction for shallow closets and the No. 3430 the heaviest for deep closets. To be specified by number and sizes as follows:

No.	Sizes closed
3410	15, 16, 18, 20, 22, 24 in.
3402	27, 30 in.
3428	22, 24, 27, 30, 33 in.
3430	30, 32, 36, 42, 48 in.



The Old-fashioned Way

Garments hung any which way—become shapeless, torn, wear out quickly, hard to find, need frequent tailoring and pressing

The Modern Way

A place for everything and everything in its place. Garments hung on hangers—pull out into the light and air for selection. Only half the space but at least double the capacity

**Rollers and Track for Side Disappearing Doors**

Doors equipped with this hardware swing smoothly and silently, with an easy continuous motion into the

interior of the cabinet. As the door is opened, the rear end recedes, until, when fully open, the door has disappeared completely into the cabinet, leaving the front entirely clear and unobstructed.

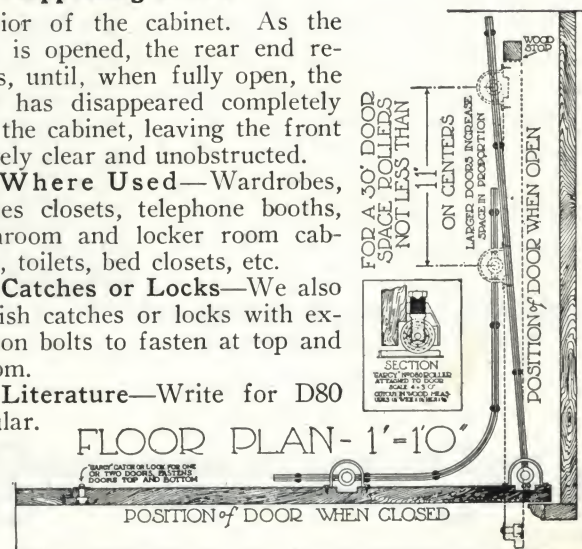
Where Used—Wardrobes, clothes closets, telephone booths, washroom and locker room cabinets, toilets, bed closets, etc.

Catches or Locks—We also furnish catches or locks with extension bolts to fasten at top and bottom.

Literature—Write for D80 circular.



Schoolroom Wardrobe with Side Disappearing Doors



KNAPE & VOGT MFG. CO.

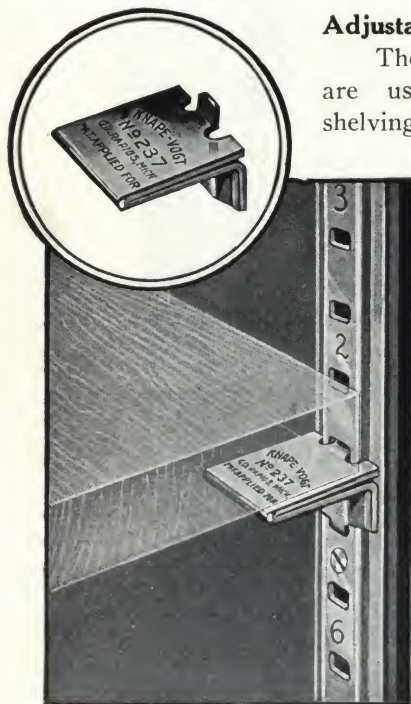
Shelf Supports; Sheaves and Track for Sliding Doors;
Space Saving Clothes Closet Fixtures
GRAND RAPIDS, MICH.

Products

K-V ADJUSTABLE SHELF SUPPORTS.
BALL BEARING SHEAVES and STEEL TRACK for sliding doors.
K-V CLOTHES CLOSET FIXTURES.
K-V GARMENT BRACKETS.
K-V SHOE RACKS.
K-V SLIDING PLUNGER LOCK.

Adjustable Shelf Supports

These patented devices are used for supporting shelving in closets, cabinets, wall cases, etc., without grooving the wood. Slots in the standard (No. 233) permit adjustment of shelving every $\frac{1}{2}$ in. in perfect alignment. The standards are $\frac{13}{16}$ in. wide and are numbered every inch. They are supplied in stock lengths of 24, 30, 36, 48, 60, 72, and up to 144 in., with special screwhead nails for fastening.



No. 233 Standard; No. 237 Support

Made of cold rolled steel, both standards and supports are regularly supplied in nickelplated finish or statuary bronze if desired. Other finishes to order.

No. 237 Support and No. 233 Standard offer the very newest developments in adjustable shelf supports for all shelving requirements. The supports fit perfectly into every slot, and stay "put." An improved feature of No. 237 Support is the construction which allows utilization of all space under the shelf. Each support tested to 700-lb. weight.

Steel Track for Door Sheaves on Light Sliding Doors

No. 458 cold rolled steel track is used in connection with K-V ball bearing sheaves.



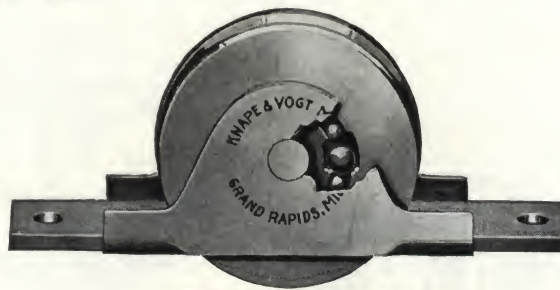
No. 458 Steel Track for Sheaves and Sliding Doors

It is supplied in 8, 10 and 12-ft. lengths, in copper plated finish.

Special nails are furnished for fastening.

Ball Bearing Sheaves for Sliding Doors

These patented sheaves are suitable for use in built-in bookcases, china cabinets, linen cabinets, cupboards, and all sliding doors weighing up to, and including 75 lbs.

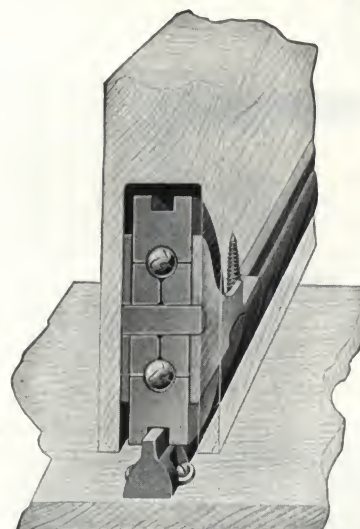


Ball Bearing Sheave

No. 430 for sliding frame doors. Frame, $2\frac{3}{4} \times \frac{9}{16}$ in. Wheel, $1\frac{3}{8}$ in. in diameter.

The construction is simple, yet it is strong and durable. Smooth running, noiseless in operation, easily installed. Stays in place. Doors so equipped always slide easily and without friction.

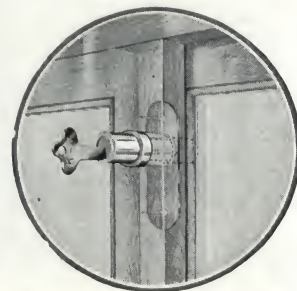
Frames and wheels are made of cold rolled steel, and the hardened steel two-point ball bearings run on machined steel axles.



Section Through Bottom Rail of Door Showing How Sheave Is Installed

Plunger Lock

New sliding plunger lock for sliding frame doors. Instantaneous and positive in operation. Bolt goes into place with a slight push. To unlock, the key is inserted and turned, and the bolt snaps back. Inexpensive mortise operation. Perfect lock for all showcases, cabinets, etc., equipped with sliding doors. Finished in statuary bronze.



No. 980 Lock for Sliding Frame Doors

K-V Clothes Closet Fixtures

Purpose—For the proper care of clothing, clothes closet neatness and continual order, in addition to saving space in homes, apartments, clubs, schools, lodges, offices, factories, stores, cloakrooms and hotels.

Advantages—Saves closet space and reduces building costs of new homes; doubles capacity of small closets; keeps clothing in perfect order; makes selection easy; discourages moths and facilitates cleaning.

Construction—Handsome, full-nickeled steel extension bar and rod, operating on rolled bearings in a stationary steel sleeve (also nickeled), which is attached to the underside of the closet shelf or to the back wall and top of door jamb. Slides easily and noiselessly at a touch of the fingers. Cannot get out of order or fail to operate.

Installed in a moment with a screwdriver.

Sizes—Made in sizes to suit any depth of space. Manufactured and carried in stock in multiples of 2 in. from 12 to 60 in. long, closed.

Special lengths made to order. Send specifications for our quotations.

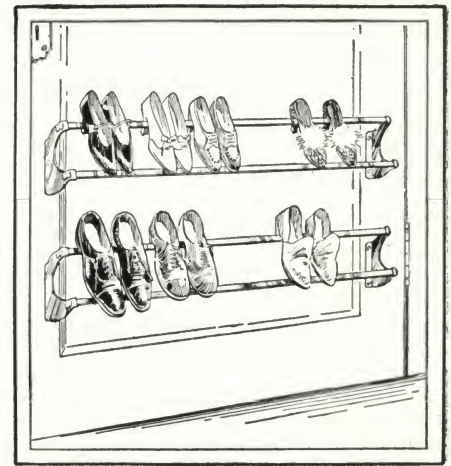
K-V Shoe Racks

Better care of shoes is provided with the K-V Shoe Rack. Instead of a row of shoes on the closet floor or worse, lying around in confusion, the K-V Shoe Rack, easily and quickly attached to the inside of the

closet door or closet wall, provides a means for orderly care, quick selection and convenience.

Made in lengths of 20, 24, 30 and 36 in.

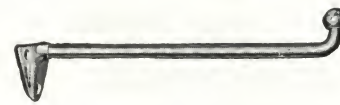
Compare the orderly arrangement shown at right with usual condition of clothes closets.



K-V Shoe Rack on Closet Door

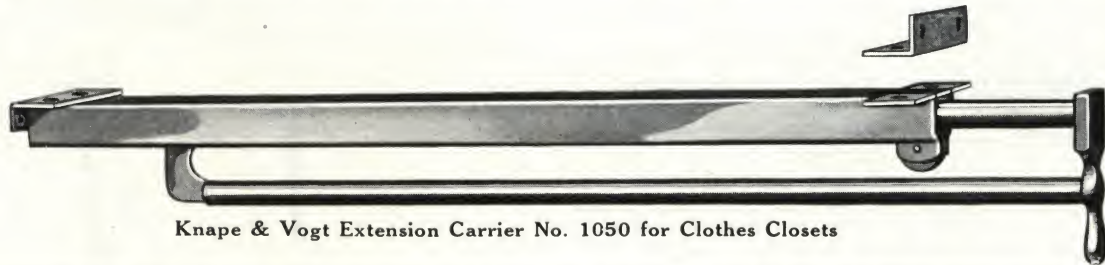
Garment Bracket No. 1136

A convenient garment carrier. Secured to the wall with three screws. Made in 10 and 12-in. lengths. Diameter of rod is $\frac{1}{2}$ in.

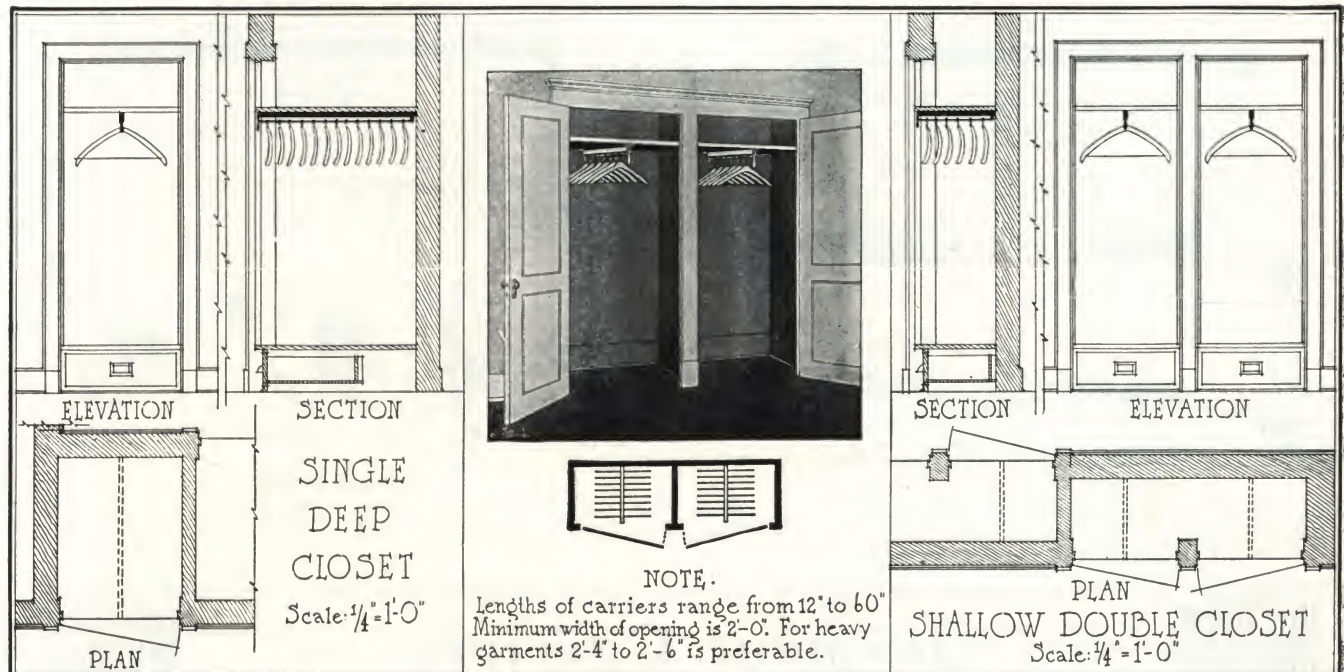


Clothing Rod No. 383 (Adjustable)

A rod that will be found useful in all clothes closets of moderate size. Made of metal, nickel finish, 1 in. in diameter. Extends from 30 to 54 in. in length. Screw holes permit attachment to closet wall, or hook rail.



Knap & Vogt Extension Carrier No. 1050 for Clothes Closets



Typical Details for Installation of Knap & Vogt Clothes Closet Fixtures

HOEGGER, INC.

Manufacturers of Solid Brass Fittings for Clothes Closets

TELEPHONE
PALISADE 6-8100

MAIN OFFICE AND FACTORY
532 Gregory Avenue, WEEHAWKEN, N. J.

NEW YORK, N. Y., ARCHITECTS SAMPLES CORPORATION, 101 Park Avenue

For Hoegger Bathroom Accessories, see Manufacturers' Index

SLIDING GARMENT CARRIERS AND CLOTHES POLES

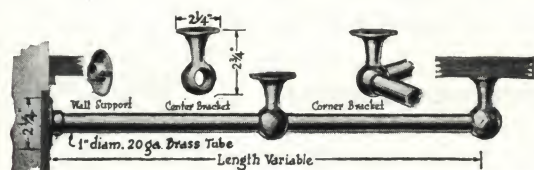
(Patent applied for)

HOEGGER Garment Carriers are made of solid brass, finished in the non-tarnishable Crodon. They are of sturdy construction and exemplify HOEGGER workmanship.

Clothes Poles, Sliding Garment Carriers, Shoe and

Tie Racks are made any desired length to suit the requirements and arrangements of any type closet construction.

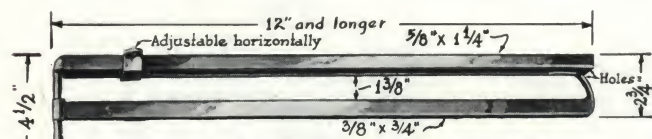
Complete details of these fixtures for any job will be sent on request by our Service Department.



Solid Brass 1-in. Round Clothes Pole and Fittings

1 in. Tubing	{ No. C-366, 20 gauge, per ft.....	\$0.95
	{ No. C-367, 16 gauge, per ft.....	1.10
No. C-364, Wall Supports, per pair.....		1.60
Brackets	{ No. C-368, End, each	2.40
	{ No. C-369, Center, each	2.40
	{ No. C-370, Corner, each	2.50

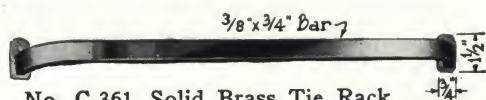
Note: Center brackets are only required for spans over 4 ft.



No. C-360, Solid Brass Sliding Garment Carrier

12 in. long.....	\$6.20	20 in. long.....	\$ 9.40
16 in. long.....	7.80	24 in. long.....	11.00

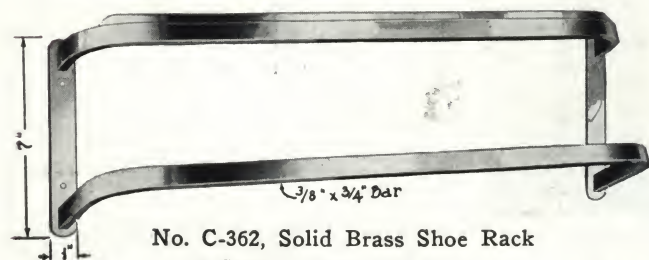
Other lengths furnished on order.



No. C-361, Solid Brass Tie Rack
(20 Gauge)—(Length over all)

16 in. long.....	\$1.90	22 in. long.....	\$2.35
20 in. long.....	2.20	24 in. long.....	2.50

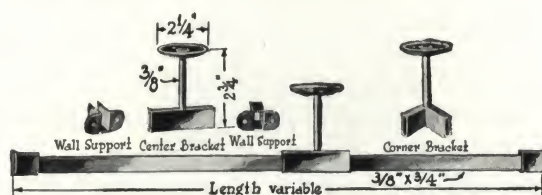
Other lengths furnished on order.



No. C-362, Solid Brass Shoe Rack
(20 Gauge)—(Length over all)

18 in. long.....	\$4.80	24 in. long.....	\$5.70
22 in. long.....	5.40	30 in. long.....	6.60

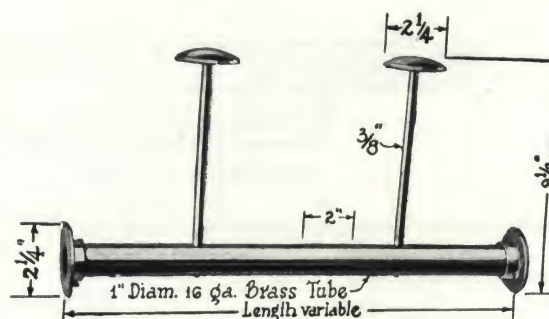
Other lengths furnished on order.



Solid Brass 3/8 x 3/4-in. 20 Gauge Rectangular Clothes Pole and Fittings

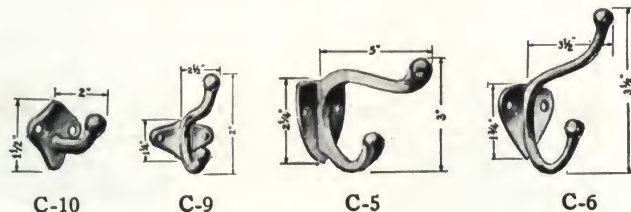
No. C-371, 3/8x3/4-in. Tubing, per ft.....	\$0.95
No. C-372, Wall Supports, per pair.....	.65
Brackets { No. C-373, Center, each	1.60
{ No. C-374, Corner, each	1.90

Note: Center brackets are only required for spans over 4 ft.



1-in. Round Clothes Pole with Hat Holders

No. C-363, 1-in. Tubing, drilled, per ft.....	\$1.90
No. C-364, Wall Supports, per pair.....	1.60
No. C-365, Hat Holder Pins, each.....	2.50



Crodon Hooks

No. C-10	\$0.50	No. C-5	\$1.60
No. C-9 .....	.70	No. C-6 .....	.70



Garment Carriers



LAWSON-MILWAUKEE GARMENT HANGERS

MANUFACTURED BY

MILWAUKEE STAMPING COMPANY

GENERAL SALES OFFICES AND FACTORY

MILWAUKEE, WIS.

TELEPHONE
GREENFIELD 2400

CHICAGO OFFICE AND WAREHOUSE, 230 West Superior Street
Telephone, Superior 8927-8
NEW YORK OFFICE AND WAREHOUSE, 416 Broadway
Telephone, Canal 1131
SEATTLE OFFICE, R. F. BEVERS, 521 Thirtieth Avenue, South
Telephone, Beacon 5187
DENVER OFFICE, PETERSON SALES Co., 1921 Blake Street
Telephone, Tabor 1979
HARRISBURG OFFICE, ARTHUR R. BODMER, 323 Kelso Street
BOSTON OFFICE, C. E. HARRIS, 120 Pearl Street
Telephone, Congress 4384

LOS ANGELES OFFICE AND WAREHOUSE, F. W. JONAS, 320 East
Third Street
Telephone, Faber 0160
DALLAS OFFICE, JOHN H. NORTH, 1002 Woodlawn Avenue
Telephone, 6-6398
NEW ORLEANS OFFICE, FRED J. ALLEN, 202 Balter Building
Telephone, Main 1927
MONTREAL, QUE., C. J. WALKER, LTD., Coristine Building
Telephone, Marquette 1501
TORONTO, ONT., T. MORTIMER & Co., 64 Wellington Street W.
Telephone, Elgin 2789

Products

RITE-WAY GARMENT FIXTURES.

For Lawson-Milwaukee Spring Hinges, Toilet Partitions and Shower Doors, see Manufacturers' Index.

Rite-Way Garment Fixtures

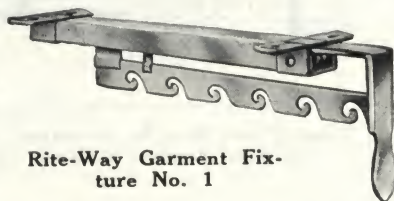
The Rite-Way garment fixture is an ideal device for the purpose of accommodating clothes hangers.

It is constructed with a sliding bar, so as to allow all clothes hangers to be simply drawn forward, permitting the removal or rehangng of garments without disturbing the other garments.

Rite-Way fixtures are made of nickelplated steel and are equipped with fiber rollers, making them noiseless and easy to operate. Furnished with screws. Doubles the closet space and keeps garments in good condition.

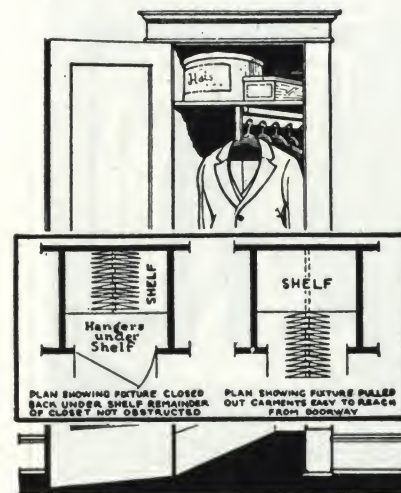
Where there is no shelf and the closet ceiling is too high, it can be attached to a board fastened between rear wall of closet and inside of door frame.

Special Features—An important feature of the Rite-Way garment fixture is the absolute spacing of the hangers which keeps garments from crowding each other. Any one of them can be removed without disturbing the others. Each hanger has its place and the Rite-Way holds it firm.



Rite-Way Garment Fixture No. 1

Length closed.....in.	12	14	16	20	24	28	32	36
Number of hangers.....	6	7	8	10	12	14	16	18

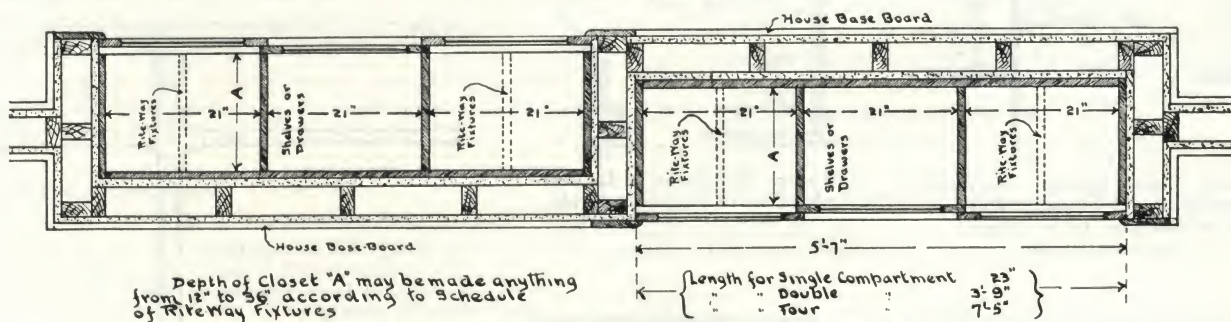


Sketch and Plans of Rite-Way Fixture in Square Closets

Typical Floor Plans

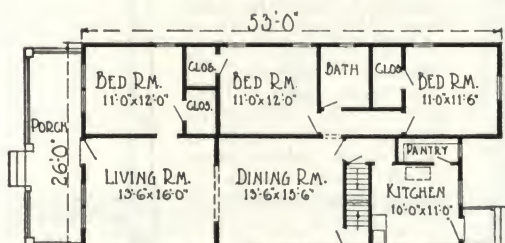
Following are floor plans showing the advantages of adopting the new Rite-Way garment fixture method of saving building space and reducing building cost.

Where a saving in first cost is not so important the actual size of the living rooms can be increased by planning closet space for Rite-Way garment fixtures.

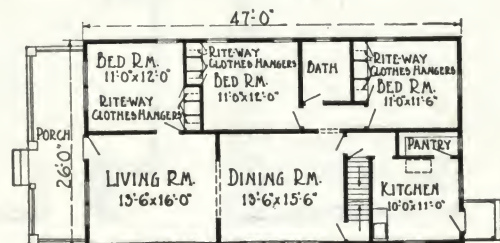


Plan Showing Closet Arrangement for Two Adjoining Bedrooms

With closets built for 16-in. fixtures, the projection of the closets into the room is only 9 1/2 in.



OLD STYLE FLOOR PLAN
Plan with Ordinary Closets

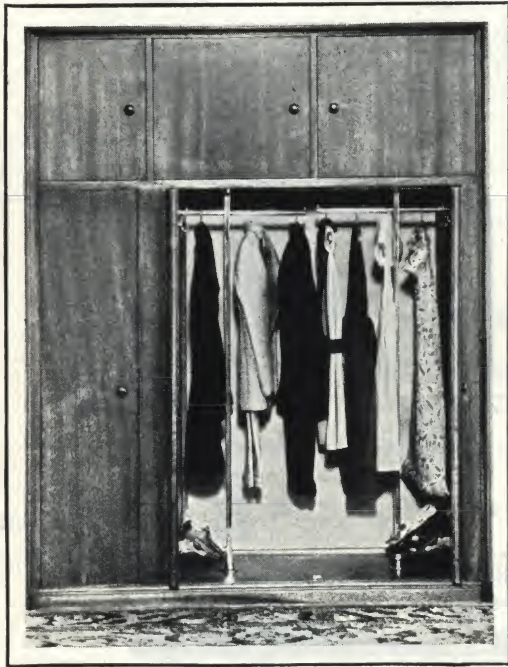


RITE-WAY FLOOR PLAN
Closets Planned for Rite-Way Garment Fixtures
Length of house reduced by 6 ft.

MODERN WARDROBE INC.

Manufacturers of Modern Wardrobe Hardware Equipment

1 Niagara Square
BUFFALO, N. Y.



Patented November 5, 1929

Advantages

Saves floor space. Most convenient arrangement of apparel. Complete utilization of wardrobe space.

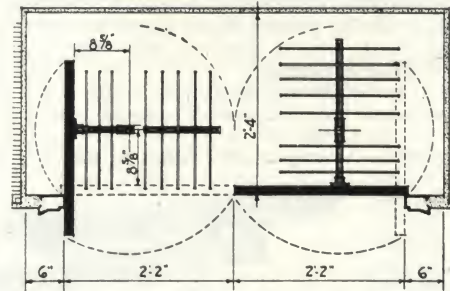
Mechanically and structurally correct, nothing to get out of order.

Lends itself to artistic arrangement and architectural design in the widest variety of applications.

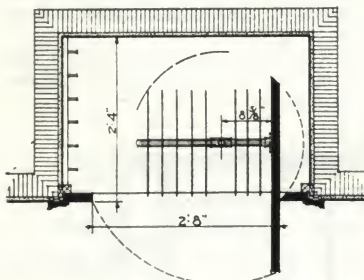
Shop Drawings and Quotations

We are glad to furnish architects with all necessary shop drawings and any additional information which they may require.

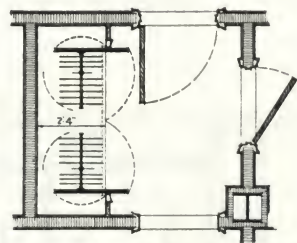
Quotations on Modern Wardrobe hardware on any size installation furnished on request or refer to builders hardware suppliers.



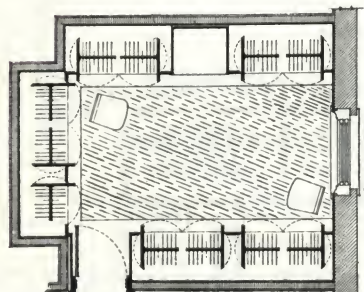
These Doors May Be Arranged in Series Without Mullion Between Doors



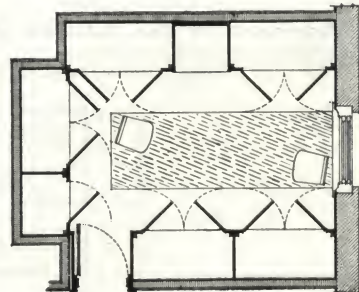
Typical Plan Layout Showing Application of Modern Wardrobe Hanger to a Single Door or Closet



Modern Wardrobe in Its Application to Hotel Vestibule
Showing the non-interference between wardrobe doors and room door when both are open

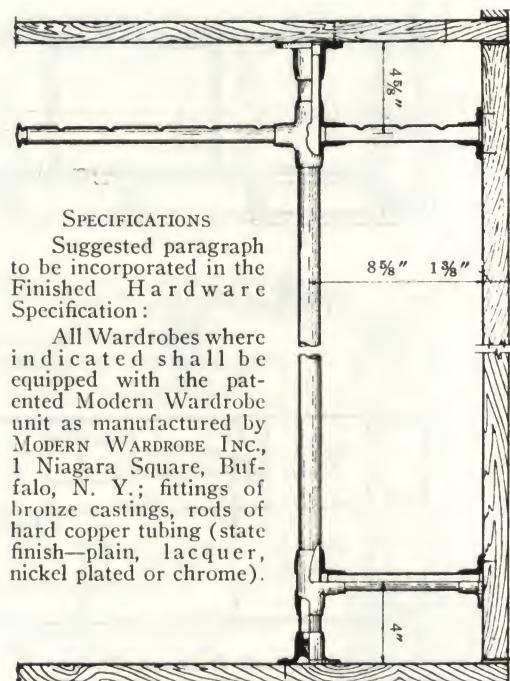


Clear available floor space when doors are opened—the Modern Wardrobe way doubles the usable area



When doors are opened with ordinary swing doors, unobstructed space is greatly reduced

A Comparison



SPECIFICATIONS

Suggested paragraph to be incorporated in the Finished Hardware Specification:

All Wardrobes where indicated shall be equipped with the patented Modern Wardrobe unit as manufactured by MODERN WARDROBE INC., 1 Niagara Square, Buffalo, N. Y.; fittings of bronze castings, rods of hard copper tubing (state finish—plain, lacquer, nickel plated or chrome).

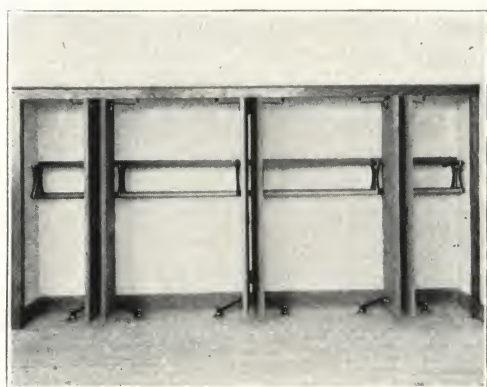
THOMAS MANUFACTURING COMPANY, INC.

School Wardrobe Hardware, Door Hardware
NEWCASTLE, IND.

REPRESENTATIVES

ARKANSAS: FORT SMITH, DYKE BROS., So. 9th St. and D
CALIFORNIA: LOS ANGELES, PACIFIC COAST SALES CORP., 684 I. W.
Hellman Bldg.
GEORGIA: ATLANTA, SOUTHWESTERN BUILDERS' SUPPLY CO., Bona
Allen Bldg., 135 Luckie St., N. W.
ILLINOIS: AURORA, A. J. WINTERINGHAM, 117 No. May St.
INDIANA: EVANSVILLE, OHIO VALLEY HARDWARE & ROOFING CO.
FORT WAYNE, WAYNE HARDWARE CO.
INDIANAPOLIS, PIERSON-LEWIS HARDWARE CO., 115 E.
Vermont St.
LAFAYETTE, FRED REULE, INC.
SOUTH BEND, G. E. MEYERS & SON
KANSAS: SALINA, LEE HARDWARE CO.
KENTUCKY: LOUISVILLE, BELKNAP HARDWARE CO., 111 E. Main St.
OWENSBORO, HAYDEN PLANING MILL CO.
MISSOURI: ST. LOUIS, SHAPLEIGH HARDWARE CO., 4th St. and Wash-
ington Ave.
NEBRASKA: OMAHA, NELSON, JOHNSON & DOUDNA, 1417 Harney St.
SCOTTSBLUFF, COOK LUMBER CO.

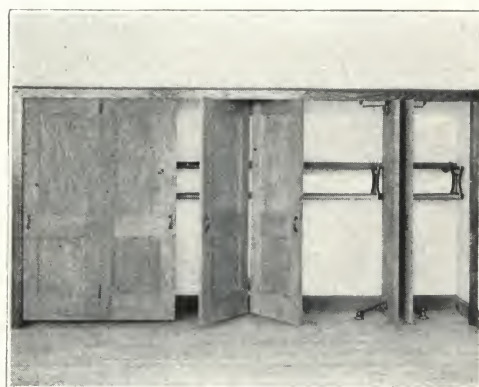
NEW YORK: BUFFALO, R. C. NEAL Co., 76 Pearl St.
NEW YORK, J. RALPH AUSTIN, 416 Broadway
ROCHESTER, R. C. NEAL Co., Inc.
SYRACUSE, R. C. NEAL Co., Inc.
OHIO: CANTON, LEADER TOOL & SUPPLY CO., 118 Columbus Court,
S. E.
COLUMBUS, CARL B. FREY, INC., 209 E. Broad
DAYTON, G. W. TISCHER HARDWARE CO., 23 E. 2nd St.
TOLEDO, STOLLBERG HARDWARE CO., 720 Monroe St.
STRASBURG, GARBER LUMBER CO.
PENNSYLVANIA: ERIE, ERIE HARDWARE CO., 1220 State St.
PHILADELPHIA, H. S. HENDRICKSON, 1015 Chest-
nut St.
TENNESSEE: CHATTANOOGA, CASH MELTON HARDWARE CO., Market
and 2nd St.
KNOXVILLE, COCKRUM LUMBER CO., 9th Ave. and So.
R. R.
WASHINGTON: SEATTLE, ORVILLE EWING, 402 Mutual Life Bldg.



Products

THOMAS SWING-IN
HARDWARE for School
Wardrobes; THOMAS
WARDROBES.

Also Hardware for
Garage Doors, Fire Doors,
(Underwriters' Ap-
proved), Folding Doors,
Folding Partitions, Barn
Doors and Overhead Con-
veying Systems.



Thomas Swing-in Hardware

Thomas Swing-in Hardware for School Wardrobes is adaptable to any depth, height, or width of opening and any size door can be handled with the same hardware. Doors operate in pairs or singly, on heavily constructed drop forged steel arms, with full ball-bearing mountings and with a minimum of friction and noise. Pair operation eliminates partitions and mullions.

Thomas Swing-in Hardware permits building wardrobes to meet any condition of ventilation, whether through top, rear, sides, or through grille in doors, if required.

Hardware Separately

Thomas Swing-in Hardware for School Wardrobes is furnished separately to be installed by the con-

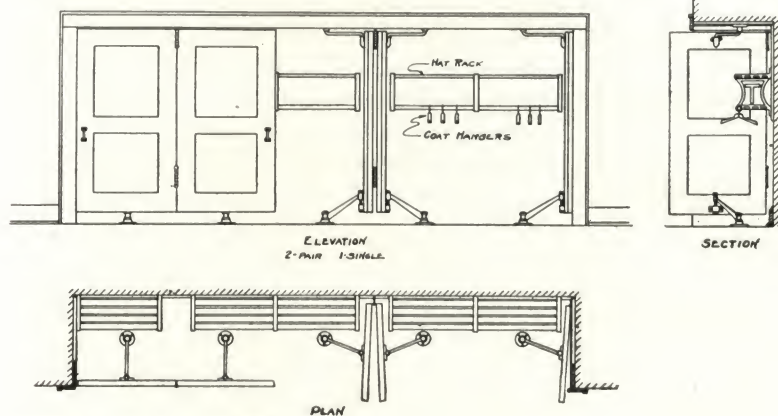
tractor. Doors and millwork supplied by the millwork contractor.

Hardware and Woodwork Knocked Down

Thomas Wardrobes may be furnished with hardware and woodwork knocked down, in the white or finished, to be installed by the contractor. Thomas Wardrobes are manufactured for recessed openings with plaster or wood backs, ends and ceilings, or for case type wardrobes which project into the room.

Complete Wardrobe Installation

Thomas Wardrobes are also furnished complete, and installed by the manufacturer. This type installation includes multiple operation, one door operating a series and with multiple locking device. Write the factory for information on installation of this kind.



Catalogues and Prices

Write for A.I.A. file size folder showing full description of Thomas Swing-in Hardware and showing its application.

A.I.A. file catalogue showing Thomas Aurora Line of door hangers, fire door equipment, and garage hardware will be sent on request.

Prices will be quoted by any representative or from the factory.



GLASS AND GLAZING CONSTRUCTION

Adamston Flat Glass Co.....	C3917
American 3 Way-Luxfer Prism Co.—	
Obscuring Glass	C3942-3943
Transom Lights	C3976-3977
American Window Glass Co.....	C3918-3921
Armstrong Co.	C3909
Bache, Semon, & Co.....	C3934
Blue Ridge Glass Corp.....	C3944-3949
Brasco Mfg. Co.....	C3978-3981
Davis Extruded Sash Co.....	C3982-3983
Detroit Show Case Co.....	C3971-3975
Ev-air-Tight Calking Co.....	C3910
Henderson Bros.	C3938-3939
Highland-Western Glass Co.....	C3950-3951
Himmel Brothers Co.....	C3984-3995
Kawneer Co.	C3997-4001
King, E. & F., & Co., Inc.....	C3912-3913
Kuhls, H. B. Fred.....	C3911
Lastik Products Corp.....	C3914
Libbey-Owens-Ford Glass Co.....	C3922-3923
Lyons, Nathan, Inc.....	C3935
Manufacturers Glass Co.....	C3952-3953
Michaels Art Bronze Co., Inc.....	C3996
Mississippi Glass Co.....	C3955-3970
Modern Bronze Store Front Co.....	C4002-4005
National Lead Co.....	C3937
Newman Mfg. Co.....	C4006-4025
Pittsburgh Plate Glass Co.—	
Mirrors	C3936
Plate Glass	C3932-3933
Sheet Glass	C3924-3925
Store Front Construction.....	C4026-4028
Ultra-violet Ray Glass.....	C3926
Plastic Products Co.....	C3915
Plate Glass Mfrs. of America.....	C3930-3931
Pressed Prism Plate Glass Co.....	C3954
Ravenna Mosaics, Inc.....	C3940
Richards, J. Merrill.....	C3942-3943
Safetee Glass Co.....	C3928-3929
Spiers, Richard N., & Sons.....	C3941
Standard Store Front Construction Co.....	C4029
Tremco Mfg. Co.....	C3916
Vitaglass Corp.	C3927
Zouri Co.	C4030-4031

THE ARMSTRONG COMPANY

Manufacturers of Plastic Cements, Putties and Specialties

241 Post Avenue
DETROIT, MICH.

THE ARMSTRONG COMPANY

4065-4101 S. LaSalle Street
CHICAGO, ILL.

THE ARMSTRONG CO. OF TENNESSEE

East Heistan Place and Wilson Street
MEMPHIS, TENN.

Products

ARMSTRONG'S "VERY BEST" STEEL SASH PUTTY.

"THARCO" STEEL SASH PUTTY.

ARMSTRONG'S SPECIAL CASEMENT PUTTY.

ARMSTRONG'S SPECIAL LINSEED OIL PUTTY.

ARMSTRONG'S ELASTIC CAULKING COMPOUND.

ARMSTRONG'S MASTIC CAULKING CEMENT.

ARMSTRONG'S SPECIAL MASTIC CEMENT.

Also Armstrong's Glaziers' Putty; Armstrong's White Lead Putty.



Armstrong's Elastic Caulking Compound

Armstrong's Elastic Caulking Compound is a plastic material which sets up with a tough skin on the surface, but remains pliable underneath and never cracks or dries out. It is applied with a caulking tool. It is furnished in colors of natural and gray.

Armstrong's Mastic Caulking Cement

Armstrong's Mastic Caulking Cement is designed for all caulking purposes by gun application. Upon exposure to air a tough elastic skin forms on the outside which serves to retain the oil underneath and keeps the material permanently plastic. It will not run or curl, is not affected by temperatures after application; will not stain stone or brick, attaches itself readily to any building material and works easily through a caulking gun. It is an excellent material for glazing by gun application where conditions want a non-setting material.

Armstrong's Special Mastic Cement

Armstrong's Special Mastic Cement is manufactured for the bedding of residential casement sash. It adheres firmly to brick, stone or wood, will not dry out or soak in, and remains permanently elastic. It can be used with a knife or through a gun. It is recommended for caulking around window frames.

The stock colors are natural, brick red, brown and dark slate.

This material is put up in cans of 1, 2, 5 and 10 lb., and in drums of 25, 50 and 100 lb.

Specifications

For regular steel sash, specify "'Tharco' Standard Steel Sash Putty."

For special glazing work, specify "Armstrong's 'Very Best' Steel Sash Putty."

For casement sash, specify "Armstrong's Special Casement Putty."

For wood sash, specify "Armstrong's Pure Linseed Oil Putty."

Armstrong's "Very Best" Steel Sash Putty

Armstrong's "Very Best" Steel Sash Putty is made from finely ground imported whiting and linseed oil combined with driers to our own formula. It is especially adapted for glazing where the putty will be subjected to severe or unusual conditions, such as in bleacheries, rayon, acid or powder plants, etc.

For monitor and top hung sash glazing, we believe that Armstrong's "Very Best" Steel Sash Putty has no equal. It works easily under the knife, does not wrinkle or sag, and sets up slowly but firmly.

"Tharco" Steel Sash Putty

"Tharco" Standard Steel Sash Putty is adapted for general steel sash glazing. It has just the proper length, does not run or wrinkle and has dependable, lasting qualities.

Armstrong's Special Casement Putty

Armstrong's Special Casement Putty is designed for residential casement type of metal sash. It sets up rapidly, which provides against wrinkling or sagging from the disturbance of the sash. Casement putty should be specified for this type of sash instead of regular steel sash putty.

Armstrong's Special Linseed Oil Putty

Armstrong's Special Linseed Oil Putty is made from imported chalk whiting and pure linseed oil, and should be used for glazing of primed wood sash.

EV-AIR-TIGHT CALKING COMPANY

Owners of the Ev-air-Tight Pneumatic Method of Installation

1516 Summer Street
PHILADELPHIA, PA.

NEW YORK, N. Y.

BRANCH OFFICES
BALTIMORE, MD.

CHARLOTTE, N. C.

Products and Services

WEATHERPROOFING in general, and particularly the combination of several of the following services into a single operation:

Calked joints between window frames and surrounding masonry and between door frames and surrounding masonry.

Calked joints in projecting courses or otherwise exposed masonry, such as copings, steps, terraces, columns, fountains, and monuments.

Calked expansion joints in concrete.

WEATHERSTRIPPING for windows and doors.

MOISTUREPROOFING for exterior walls.

TEMPERATURE INSULATING for exterior walls, interior walls, floors, and ceilings.

SOUNDPROOFING for exterior walls, interior walls, floors, and ceilings.

ACOUSTICAL TREATMENT of interiors.

General Purpose

The various services of the EV-AIR-TIGHT CALKING COMPANY may be said to work toward one common purpose; namely, to effect a more perfect and complete separation between building interiors and the outside world. Any difficulty in excluding moisture, wind, dust, and hot or cold air; any effort to reduce the consumption of fuel; any attempt to prevent damage to decorations and finish from weather or dust or smoke; any need for action to prevent deterioration of masonry—these are problems that call for Ev-air-Tight service. Figures on the infiltration of air around doors and window sash, around their frames, and through actual wall and roof materials, all bear out the necessity for careful treatment of buildings to prevent losses through waste and deterioration.

Material

For calking work, we use exclusively Pecora Calking Compound. This material is a plastic substance that can be forced by our methods into small deep spaces. When exposed to the air, it forms a tough but flexible and elastic skin, under which the compound remains unchanged. It adheres firmly to stone, concrete, terra cotta, metal, glass, brickwork, wood, and all building materials. It is available specially colored to match materials, such as marble, and has no staining effect.

For our weatherstripping work we use only the products of the Monarch Weatherstrip Co., a notably high-grade and efficient strip. This weatherstripping material is offered in forms that meet all problems arising out of the leakage of air between windows and doors and their frames.

For moistureproofing exterior walls we use only Pecora Waterproofing, a deeply penetrating, non-staining, long-lasting material brushed on by hand.

For our temperature insulating work, for soundproofing, and for acoustical treatment of interiors, we use a cellular substance that is previously fireproofed and verminproofed chemically, and that is applied by

the spray method with a powerful binding agent that fastens it permanently and with any desired bulk to any surface. It has fire-resisting qualities and by virtue of its resistance to air pressure it is also useful as a dustproofing barrier.

Equipment

We invented and control a special calking gun from which calking compound is forced under approximately 130 lb. air pressure, generated by portable motor-driven compressor outfits, specially designed by us for this work.

This pneumatic method accomplishes the penetration of sufficient material to fill every bit of space to the exclusion of air and moisture, thus insuring permanent elasticity of the compound.

The forcing pressure is uniform and the delivery outlet of the calking gun is gauged to deliver material into the joint only. Neither frames nor masonry can be smeared or stained, and the exposed finished surface of the joint is clean-cut and smooth. It surpasses previous methods of pointing in every way.

We use for weatherstripping work the equipment devised by the Monarch Weatherstrip Co. out of their long experience in such work.

For moistureproofing we use the brushing method, taking advantage of access and preparation of surfaces involved in our other types of work.

For the application of cellular material used for temperature insulation, soundproofing, and acoustical effects we use spraying under pneumatic pressure.

Labor

Our labor is specially trained to the use of our particular materials and equipment. Our men are competent to handle intelligently the various conditions (ordinary or otherwise) that may present themselves.

Method

Any one of our services is available separately, but we prefer whenever possible to submit estimates based on the handling of a weatherproofing operation as such, to include everything a structure may require for its self-protection as well as the protection of its occupants and contents. The economy of preliminary work and the consequent saving in contract prices to the building owner are obvious.

Specification Data

Specification forms have been compiled from various specifications as developed by certain prominent architects, and will be sent on request.

Further Information

Upon receipt of request, on stationery containing their printed letterhead and address, we will send to those interested lists of installations and other data covering the subject generally.

Information requested on any specific detail, or out-of-the-ordinary problem in connection with weatherproofing in general and calking in particular, will be furnished without obligation.

ESTABLISHED 1889

H. B. FRED KUHL'S

Manufacturer of Kuhls' Elastic Glazing and Caulking Compositions

OFFICE AND FACTORY

6411-6423 Third Avenue, BROOKLYN, N. Y.

Products

ELASTIC GLAZING COMPOSITION—For glazing skylights, conservatories, bedding and glazing of glass in steel or sheet metal frames and all other glass construction work.

ELASTIC CAULKING COMPOSITION—For caulking between masonry of window and door frames of wood or steel.

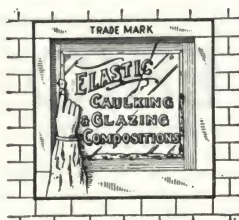
For Kuhls' Elastic Waterproofing Composition, See Manufacturers' Index. On the same pages will be found a list of agents carrying stocks, and also architects who have specified Kuhls' Elastic Products.

Kuhls' Elastic Glazing and Caulking Compositions

They yield slightly to atmospheric conditions, yet always make a tight joint, and are not affected by vibration, heat, cold or moisture. Will not crack, peel or chip. Adhere strongly to wood, metal, glass, etc., bedding perfectly, and always making a tight joint.

The stock color of Kuhls' Elastic Glazing and Caulking Compositions is light gray. Any desired dark shade or color can be furnished at the same price as the stock color.

Kuhls' Elastic Glazing and Caulking Compositions



are of such consistency as to be easily applied with a trowel, knife or gun.

Put up in cans of 1, 2 and 5 lb.; in drums of 12½, 25, 50 and 100 lb.; in half-barrels of 100 to 500 lb.; and in barrels of 700 and 800 lb.

In the service of H. B. FRED KUHL'S is a corps of experienced men, each trained in his respective line to co-operate in the fullest measure with architects, engineers and contractors. This efficient service in the use of Kuhls' Elastic Glazing Composition is without obligation.

Architects on the Pacific Coast are referred to the California Minwax Corporation, 1322 So. Los Angeles Street, Los Angeles, Cal., who have a staff of trained waterproofing engineers. They will gladly furnish information and samples gratis.

Glazing Composition—Kuhls' Elastic Glazing Composition for bedding and glazing sash, skylights, conservatories and glass construction in general is an ideal material. It is elastic and retains its elasticity indefinitely because it never sets hard or becomes brittle. This saves breakage of glass—especially important in the case of wire glass.

Its use is economical, as it is double the bulk of white lead putty, and retains its essential qualities indefinitely.

Specifications for Kuhls' Elastic Glazing Composition

For Bedding and Setting Glass in Sash, Doors, Skylights, Conservatories, Marquises, etc.—Kuhls' Elastic Glazing Composition shall be used in the same way as ordinary putty in bedding and putting glass. For wood sash and doors the wood shall first be primed; or, on old work, the wood sash and doors shall be scraped and painted before setting the glass. For metal or metal covered sash and doors, the glass shall be bedded in the glazing composition and then secured in place with metal clamps, sprigs or mouldings, or the composition smoothed off, depending on the construction.

General Specification (Under Glazing)—All glass, unless otherwise specified, required for sash and doors of metal, metal covered or wood, shall be bedded and set or puttied with Kuhls' Elastic Glazing Composition (manufactured by H. B. FRED KUHL'S, Third Avenue and 65th Street, Brooklyn, N. Y.). It shall be secured either by clamps or metal or wood mouldings, sprigs, supplied by other contractors, or puttied as required.

The Elastic Glazing Composition shall be delivered at the job or factory, where glazing is to be done, and is not to be opened until after the inspection and approval of the architect.

Specifications for Kuhls' Elastic Caulking Composition

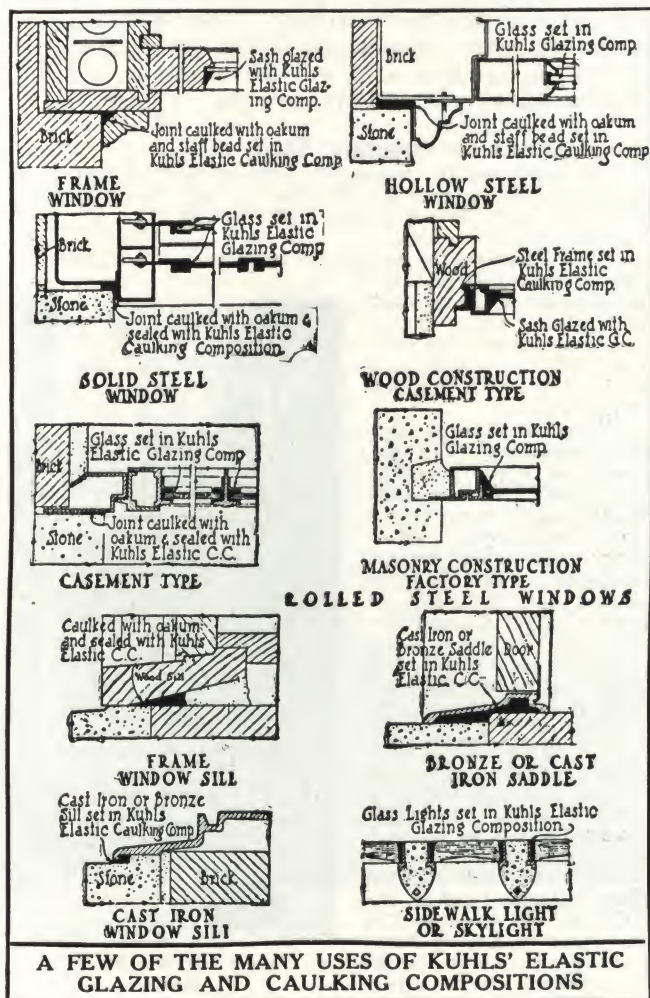
Caulking Exterior Wood Window and Door Frames—

For new or old frames, the staff bead shall be removed and the joint between the frame and the masonry on all sides, jamb, head and sill, shall be completely filled with Kuhls' Elastic Caulking Composition so that it will project out beyond the masonry. The staff bead, when placed in position, shall be pressed into the Elastic Caulking Composition.

If the joints are wide and deep on old work, they shall be caulked with oakum to within ¼ in. of the surface; then the remainder of the joints shall be filled with Kuhls' Elastic Caulking Composition as for new work.

Caulking Steel or Metal Frames—When metal frames are set in masonry after opening has been built, the inside edge of the masonry opening or the frame shall be buttered with Kuhls' Elastic Caulking Composition and the frame pressed into place and secured.

Where frames are already set, Kuhls' Elastic Caulking Composition shall be used to thoroughly caulk between the frame and the masonry, at head, jamb and sill.



A FEW OF THE MANY USES OF KUHL'S ELASTIC GLAZING AND CAULKING COMPOSITIONS

ESTABLISHED 1834

E. & F. KING & CO., INC.

Manufacturers of Putty and Paints

TELEPHONE
HANCOCK 8930

399-409 Atlantic Avenue
BOSTON, MASS.

Products

"BREER'S" METAL SASH PUTTY;
"EFKO" WOOD SASH PUTTY; TRIPLE
LEADKOTE PAINT; "BREER'S" METAL
COATINGS; INTERIOR WALL PAINTS;
LIQUID COLORS; BRICK and CEMENT
COATINGS.

Putty Should Be Specified

The failure of putty, due to cracking, wrinkling, sagging, and breaking away can be avoided by specifying putty made to a definite formula by a special process and properly aged. The importance of putty specifications, from an architectural and engineering viewpoint, cannot be overstressed.

Breer's Metal Sash Putty

Proved by ten years of service and recognized by engineers as most durable. Manufactured for special use on steel factory and case-metal sash, marquises, etc. Our own special process of manufacture and aging produces a putty which works very freely under the knife, sets sufficiently on surface for painting within a week, and does not wrinkle, sag or form oil pockets. Perfect condition guaranteed for two years. Will last indefinitely if properly painted.

"EFKO" Wood Sash Putty

Widely known and used by large sash manufacturers and glaziers for bedding and setting glass in sash, doors, skylights, conservatories, etc. Guaranteed pure English chalk whiting and linseed oil, free from adulterants.



United Shoe Machinery Corporation
Building, Boston

"EFKO"
PRODUCTS



Manufactured and aged by our own special process and produces most satisfactory results.

Specifications for Glazing

Metal Sash—

All glass shall be thoroughly bedded and glazed with Breer's Metal Sash Putty, as manufactured by E. & F. KING & Co., INC., Boston, Mass.

Wood Sash—

All glass shall be thoroughly bedded and glazed with "EFKO" Wood Sash Putty, as manufactured by E. & F. KING & Co., INC., Boston, Mass.

Triple Leadkote, a Primer for Standpipes, Gasholders, and Transmission Towers

This paint is designed as a primer for every class of steel construction where absolute protection from corrosion is required. It is composed of all pure lead pigments, which give the maximum adhesion, cohesion, and inhibition when properly incorporated with our specially processed oil vehicle. These pigments are of a compound nature which prevents the formation of corrosion couples when aluminum or elementary pigment paints are used as finishing coats.

Breer's Metal Coatings for Structural Steel and All Metals

Designed and proven to give the best steel protection, they stand the highest test when used over Triple Leadkote. Especially used for painting of bridges, towers, steel sash, structural steel, etc.

Ten years of thoroughly satisfactory service on specified work have established irrefutably the excellent quality and entire dependability of Breer's Metal Coatings. They withstand exposure to every climatic condition, are waterproof, insoluble in common acid and salt solutions, and also impermeable to stray electric currents.

Specifications for Painting Steel

All steel shall be thoroughly cleansed and scraped of all metal scale, rust, grease and any other foreign substance at the shop, and shall be given one full priming coat of Triple Leadkote before erection.

After erection, the complete structure shall have two full coats of Breer's Metal Coating of colors to be selected. All surfaces which cannot be second-coated after erection shall have a field coat of Breer's Metal Coating before erection.

Specifications for Structural Steel—(1) Encased in Concrete—The steel shall be thoroughly cleaned and scraped, removing all loose metal scale or grease and other foreign substances, and shall be painted one shop coat of Breer's Metal Coating No. 202 Dark Gray. Any places where the paint film is ruptured or torn, shall be touched up after erection with No. 202 Dark Gray.

(2) Steel Encased in Brick, Terra Cotta, and Limestone—Structural steel shall be thoroughly cleaned of all metal scale and grease and shall then receive one full coat of Breer's Metal Coating No. 202 Dark Gray, followed by two coats of Breer's Metal Coating, color to be selected by architect after erection.



Public Utilities Building,
Boston

Breer's Wall Finish

Breer's Wall Finish is a paint of unusual durability and offers a wide range of delicate shades which may be easily and frequently cleaned. It can be washed indefinitely, and so non-porous and impervious is its surface that ordinary dyes, such as ink or even blood stains do not penetrate but remain on the surface so that it is very easy to remove them.

This paint is offered in two finishes, a flat and a delicate eggshell, both of which are non-porous, easily washable films.

Breer's Wall Finish produces very clean, sharp, and distinct tints, and by using Breer's Liquid Colors it is possible to obtain any delicate shade that might be desired. Its opacity is so great that even with these delicate tints it is possible to obtain a solid job in two coats, and the covering capacity will compare favorably with any flat in the market.

In application it brushes very freely, much better than the average flat, and does not cause the shiners which result with some flat finishes when the application is necessarily slow and where laps are likely to result from peculiar painting conditions. Being a very heavy-bodied paint, it stays in the brush, so that when painting ceilings there is no tendency for it to run down the handle and cause difficulty in application. This quality also enables the painter to speed up his job, since the paint stays where applied, and makes it possible for him to bring the work to a sharp finish—as, for instance, at the meeting of the chair rail and the wall surface.

Breer's Wall Finish exhibits no tendency towards sagging. Another feature is that this paint does not settle, but remains a very soft, fluffy paste which can be easily stirred to the proper consistency for application.

Owing to the remarkable opacity and covering ability of this finish, the cost of the final job is not great. The experience of our larger customers, on both new and old work, shows an average saving of 25% in labor cost because of the ease with which this paint can be applied.

Note: In washing this paint, simply use a mild soap solution, and wash with a sponge. It is preferable to sprinkle a slight amount of pumice powder on the sponge in order to remove the stain more rapidly.

Specifications for Wall Finish

New Walls—Apply a priming coat of about equal parts of Breer's Wall Size and Breer's Wall Finish. If the surface is very porous, increase the proportion of the size. Allow 48 hours to dry, and apply one or more coats of Breer's Wall Finish at 48-hour intervals.

Old Walls—All dust and dirt of a greasy nature should be removed by washing with gasoline or a solution of $\frac{1}{2}$ lb. oxalic acid in 1 gal. of water. Walls should then be cleaned with soap and water before the paint is applied. If painted walls are in good condition only one coat will be required, unless a light color is to be used over a dark color.

Note: If an eggshell gloss is desired, thin the paint with about 1 pt. of Breer's Varnish Liquid to 1 gal. of paint.

Breer's Liquid Colors

With these new colors it is easy to obtain the more delicate wall paint tints exactly as desired.

Mill White

Vivax—An interior paint especially designed to retain its whiteness over an indefinite period. For use in industrial buildings where maximum light reflection is desired. Furnished in flat, eggshell, or gloss finishes.

Vivax Fume Proof—To be used where acid or alkali fumes are present. Will not discolor under these conditions as the ordinary mill whites do.

Brick and Cement Coatings

Ceralith—A pigmented primer for use on brick, cement, and plaster. Has an alkaliproof vehicle which is not easily affected by free lime or "hot spots" in plaster or cement. Usually used as a priming coat under Vivax.

Outside Cement Coater No. 108—Designed for exterior priming of concrete surfaces.

Finishing Coat No. 109—An outside cement finishing coat which provides the necessary elasticity and toughness to withstand severe exposure and service.

Specifications for Mill White Work

Apply one coat of Ceralith, thinned if necessary with Ceralith Thinner only, according to manufacturer's directions, and one or two finishing coats of Vivax, with flat, eggshell or gloss finish.

Specifications for Concrete, Brick, Terra-Cotta, etc. (Exterior)

These surfaces shall be properly dampproofed and thoroughly dry. Then apply one full coat of No. 108 Outside Cement Coater, followed by two full coats of No. 109 Cement Finishing Coat.

Forty-eight hours shall be allowed for drying between coats.

Literature

Circulars, color cards, and complete specification books ready for filing, sent on request.



Cushing Hall, Vassar College

LASTIK PRODUCTS CORPORATION

Caulking and Glazing Compounds, Pointing Cements, Roof Plastics
and Waterproofings

FACTORY
WAMPUM, PA.

GENERAL OFFICES
826 Oliver Building, PITTSBURGH, PA.

WAREHOUSES
LINCOLN, N. J. BIRMINGHAM, ALA.

Lastikalk Caulking and Glazing Compound

A waterproof plastic that is weatherproof, being unaffected by changes in temperature or chemical gases. It will surface-dry for painting overnight, yet permanently remains pliable underneath, never cracking or drying out. It will adhere to any surface—wood, metal, masonry or glass. It expands and contracts with the surface to which it is applied under any and all conditions. It can be applied in any weather; heat, cold or moisture will not affect it. Stocked only in gray. Any shade matched from color chip.

For Caulking (Three Consistencies)—Knife Grade—To be applied with a caulking tool.

Gun Grade—To be applied with a hand-caulking gun.

Pneumatic Pressure Grade—To be applied with pneumatic pressure gun at 100 lb. pressure or more.

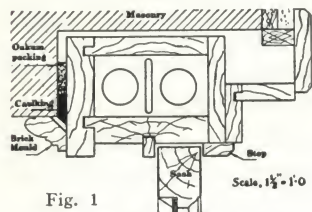


Fig. 1

**Lastikalk Compound with
Oakum Behind the
Staff Bead**

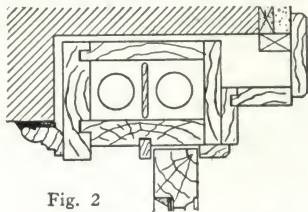


Fig. 2

**Lastikalk Compound Be-
tween Staff Bead and
Masonry**

For Glazing—For all types of construction that are subjected to unusually severe conditions: i. e., gas and acid fumes, excessive vibration, variations in temperature, etc., Lastikalk Compound should be used for bedding and glazing all glass. Its elasticity prevents breakage of glass. It goes much farther than putty.

Packing—Lastikalk is packed in metal containers from 1 to 600 lb.

General Specifications—All joints around outside windows and door frames shall be caulked with Lastikalk Compound, applied in accordance with the specific specifications.

Specific Specifications—Wood Window and Door Frames—(1) *For caulking behind staff bead (Fig. 1).*

(a) The general contractor shall provide for removing temporarily set staff beads previous to the caulking of joints around window and door frames; and after caulking is completed, inspected and approved, he shall reset same permanently in place.

(b) Where joints between frame and surrounding masonry are wider than $\frac{1}{4}$ in. and deeper than $\frac{3}{4}$ in., these joints shall be packed to within $\frac{1}{2}$ in. of frame surface with dry jute or oakum, solidly tamped. The remaining space shall be filled with Lastikalk Compound.

(2) *For caulking between staff beads and masonry or where there is no staff bead (Fig. 2).*

(a) Thoroughly caulk all joints around all window and door frames with Lastikalk Compound, forcing compound into the space between staff beads and masonry [between frames and masonry], around jambs, heads and sills.

(b) Where joints between the staff bead and surrounding masonry [between frames and surrounding masonry] are wider than $\frac{1}{4}$ in. and deeper than $\frac{3}{4}$ in., these joints shall be packed to within $\frac{1}{2}$ in. of frame surface with dry jute or oakum, solidly tamped. The remaining space shall be filled with Lastikalk Compound.

Lastik Pointing Cement

For pointing up masonry and stonework. This product has been developed to meet the specific needs of this particular kind of work. Its high elasticity of body combined with its cementlike appearance and tenacity of "staying put," make it invaluable in exterior pointing of exposed joints. It is used extensively on tile, limestone and terra cotta construction. *It is absolutely stainless.*

Specifications—(1) New Work—The stone mason contractor will rake back all joints from $\frac{1}{2}$ to $\frac{3}{4}$ in. before the cement hardens, and fill in with Lastik Pointing Cement.

(2) *Old Work—*The contractor will clean out all old cement and loose dirt and fill all crevices with Lastik Pointing Cement. This insures a positive seal against weather, and is permanently waterproof.

Lastik Liquid Roof Paint and Lastik Asbestos Roof Cement

These products are made from long fibre asbestos combined with asphalt and non-drying oils. They are waterproof, heat resisting, unaffected by gases or acids of all descriptions and remain pliable and plastic for years. They will expand and contract with the surface to which applied. *They contain no coal tar whatever.* A permanent guarantee of waterproofing and weatherproofing to the surface to which applied. Made in red, gray, green and black at trowel consistency.

Lastik Wampum Brand Furnace Cement

A soft gray paste which hardens under extreme temperatures—will not run, crack, crumble or peel even under heat pressure of 2500° F. Easily applied with a trowel and ideal for castings, joints or openings of any description on any warm air furnace either gas or oil burning.

Waterproofings

Made to meet the United States Government Specifications under all conditions. Write for more complete data.

Representative Companies Whose Buildings Are Protected with Lastik Products

American Cement Tile Mfg. Company
American Steel Foundries
Atlantic Refining Company
Boston & Albany R. R. Co.
Baltimore & Ohio R. R. Co.
Chesapeake & Ohio Ry. Co.
Cleveland Railways Co.
Carnegie Steel Company
Central Railroad of New Jersey
Dodge Bros., Inc.
Delaware, Lackawanna & Western R. R. Co.
Erie Railroad Company
Federal Cement Tile Company
Fisher Auto Body Company
Ford Motor Company
General Electric Company
General Chemical Company
Georgia Railway, Light & Power Co.
Goodyear Tire & Rubber Co.

Great Atlantic & Pacific Tea Co.
Hammermill Paper Company
M. A. Hanna Company
Hazel Atlas Glass Company
Iroquois Gas Company
Ingersoll-Rand Company
International Harvester Company
Jordan Motor Car Company
Keystone Coal & Coke Co.
Lehigh Valley Railroad Co.
Lackawanna Bridge Company
Lehn & Fink
McClintic-Marshall Construction Co.
Nashville Gas & Heating Company
National Aniline Chemical Co.
National Carbon Company
Otis Elevator Company
Ohio Salt Company
Pittsburgh Railways Company
Pennsylvania Glass Sand Company

Pennsylvania R. R. Co.
Quaker City Iron Works
Quakertown Trust Company
Remington Arms Co., Inc.
Republic Iron & Steel Co.
Solvay Process Company
Southern Power Company
Southern Railway Company
Standard Oil Company
Tidewater Pipe Co., Ltd.
Tennessee Coal, Iron & R. R. Co.
U. S. Government
Union Switch & Signal Co.
Vacuum Oil Company
Vulcan Iron Works
Watertown Arsenal
Washington Steel & Ordnance Co.
Youngstown Iron & Steel Co.
Youngstown Steel Car Co.

ESTABLISHED 1922

PLASTIC PRODUCTS COMPANY

Manufacturers of Putty Exclusively

6475 Georgia Avenue, DETROIT, MICH.

BRANCH FACTORIES

CHICAGO, ILL., 3100 West 51st Street

JERSEY CITY, N. J., 42 Halladay Street

Products

PLASTOID STEEL SASH PUTTY.
PLASTOID METAL CASEMENT PUTTY.
PLASTOID PURE LINSEED OIL PUTTY.
PLASTOID ACID RESISTING PUTTY.
PLASTOID CAULKING COMPOUND.

Plastoid Putties

Plastoid Putties are formulated from blends of high grade whittings, driers and oils that experience has shown will produce the dependable and lasting qualities necessary for satisfactory glazing. The imported, soft, amorphous chalk whiting used absorbs oil readily and permanently. This produces a velvety texture and a smooth, easily painted surface.

Specifications

Plastoid Steel Sash Putty—For regular steel sash with interior glazing.

(1) Putty used shall be Plastoid Steel Sash Putty, manufactured by the PLASTIC PRODUCTS COMPANY.

(2) Putty shall not be applied if sash are damp, iced, frosted or dirty. Dirty or rusted sash shall be cleaned with a wire brush before applying putty.

(3) **Bedding**—Glass shall be bedded with thin putty and putty may be cut with a minimum amount of high test gasoline for this purpose.

(4) **Setting Glass**—When bedding is applied, glass shall be set and secured with full number of clips for which sash is designed.

(5) **Facing**—Facing shall be done if possible without cutting the putty. In cold weather putty shall be stored in warm place until needed. If putty has become settled out, whole container shall be emptied and thoroughly mixed before use. Occasionally in extreme weather it may be necessary to thin putty slightly for facing. Only a small amount of high test gasoline shall be used, as more than a small amount will be harmful. Facing putty shall be smooth and regular and, after facing, any bedding putty which may have oozed out shall be trimmed off.

(6) **Painting**—After putty has set, or in about a month, putty shall be well painted with one coat of good paint.

Plastoid Metal Casement Putty—For casement type sash with exterior glazing.

(1) Putty shall be Plastoid Metal Casement Putty, manufactured by the PLASTIC PRODUCTS COMPANY.

(2) Putty shall not be applied if sash are damp, iced, frosted or dirty. Dirty or rusted sash shall be cleaned with a wire brush before applying putty.

(3) **Bedding**—Glass shall be bedded with thin putty and putty may be cut with a minimum amount of high test gasoline for this purpose.

(4) **Setting Glass**—When bedding is applied, glass shall be set and secured with full number of clips for which sash is designed.

(5) **Facing**—Facing shall be done if possible without cutting the putty. In cold weather putty shall be stored in warm place until needed. If putty has become settled out, whole container shall be emptied and thoroughly mixed before use. Occasionally in

Plastoid
(REGISTERED)

extreme weather it may be necessary to thin putty slightly for facing. Only a small amount of high test gasoline shall be used, as more than a small amount will be harmful. Facing putty shall be smooth and regular and, after facing, any bedding putty which may have oozed out shall be trimmed off.

(6) **Painting**—After putty has set, or in about a week, putty shall be well painted with one coat of good paint.

Plastoid Pure Linseed Oil Putty—For glazing wood sash.

(1) Putty used shall be Plastoid Pure Linseed Oil Putty, manufactured by the PLASTIC PRODUCTS COMPANY.

(2) **Priming**—The thoroughly dried sash shall be dipped in linseed oil and then allowed to drain and dry.

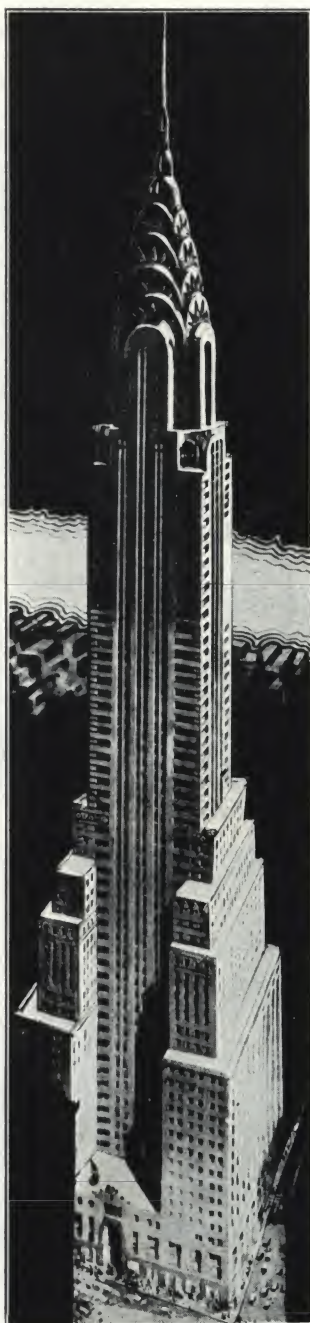
(3) **Bedding**—Putty may be heated or cut with pure linseed oil if thinning is required for thorough bedding.

(4) **Facing**—Facing shall be smooth and regular. No ingredients shall be added to the putty other than pure linseed oil. When finished, sash shall be carefully stored away, and under no circumstances shall be jarred or handled until putty is firmly set.

(5) **Painting**—After sash are erected, putty shall receive at least two good coats of reliable paint.

Representative Jobs Where Plastoid Putties Have Been Used

Allegheny Steel Co., Brackenridge, Pa.
Architectural Building, University of Michigan, Ann Arbor, Mich.
Bemberg Corp., Elizabethtown, Tenn.
Bendix Brake Corp., South Bend, Ind.
Bethlehem Steel Co., Lackawanna, N. Y.
Buick Motor Co., Flint, Mich.
Campbell's Soup Co., Chicago, Ill.
Celanese Corp. of America, Amcelle, Md.
Chance-Vought Corp., East Hartford, Conn.
Chevrolet Motor Co., Detroit and Flint, Mich.
Chicago, Burlington & Quincy R. R., Aurora, Ill.
Chicago Stadium, Chicago, Ill.
Chicago Civic Opera, Chicago, Ill.
Chrysler Building, New York, N. Y.
Chrysler Corp, Detroit, Mich., and Evansville, Ind.
Commerce Building, Washington, D. C.
E. I. du Pont de Nemours, Inc., Nashville, Tenn.
Fisher Body Corp., Detroit and Flint, Mich.
Ford Motor Co., Fordson, Mich.
Goodyear Tire & Rubber Co., Akron, Ohio.
Internal Revenue Building, Washington, D. C.
International Harvester Co., Fort Wayne, Ind.
Libby-Owens Sheet Glass Co., Toledo, Ohio
Merchandise Mart, Chicago, Ill.
Ohio Bell Telephone Co., Cleveland, Ohio
Owens Bottle Co., Huntington, W. Va.
Palmolive-Peet Company, Chicago, Ill.
Pittsburgh Plate Glass Co., Ford City, Pa.
Pratt & Whitney Aircraft Co., East Hartford, Conn.
Union Pacific Headquarters, Omaha, Neb.
Union Station, Cleveland, Ohio
U. S. Engineering Shops, Vicksburg, Miss.
United States Gypsum Co., Plasterco, Va.
United States Radiator Corp., Dunkirk, N. Y.
Westinghouse Electric & Mfg. Co., Trafford City, Pa.
Willys-Overland Co., Toledo, Ohio



Chrysler Building,
New York, N. Y.

THE TREMCO MANUFACTURING CO.

Caulking, Pointing and Glazing Compounds, Waterproofings and Paints

393 East 131st Street
CLEVELAND, OHIO

CANADA: THE TREMCO MANUFACTURING CO. (CANADA) LIMITED, TORONTO, ONT.

Tremco Glazing Compound

A cushionlike, non-hardening, tenacious material easily handled by professional glaziers, weatherproof and waterproof, takes up expansion and contraction, absorbs vibration, unaffected by moisture, gases, acids, etc., made in 6 colors, for wood or steel sash.

Glazing Specifications—Write for detailed specifications.

Wood Sash—Bed all glass in Tremco Glazing Compound as manufactured by THE TREMCO MANUFACTURING CO., and delivered on the job in the original sealed containers. Set all glass with glazier's points and bed and face putty with Tremco Glazing Compound.

Metal Sash—All glass in metal sash shall be bedded, held in place with spring glazing clips and face glazed with Tremco Glazing Compound, special consistency for steel sash glazing, as manufactured by THE TREMCO MANUFACTURING CO.

Tremco Caulking and Pointing Compound

A non-staining plastic compound which will never become brittle or crack. Adheres tightly to wood, metal or masonry, forming a weatherproof, waterproof joint. Stock colors are gray, chocolate brown, stone, red and green. Two consistencies—one for use with a caulking gun and the other for application with a caulking or pointing tool. Approved Caulking Contractors are located in the principal cities of the United States and Canada.

Caulking Specifications—Write for detailed specifications.

Preparation—All cleaning or pointing of the building exterior shall be completed, and interior window and door trim shall be set, before caulking is begun.

Application—All caulking, including caulking of the sills, shall be done on the exterior side of the building wall.

All joints around all window and door frames shall be caulked in such a manner as will make them airtight and watertight, with Tremco Caulking and Pointing Compound as manufactured by THE TREMCO MANUFACTURING CO.

The spaces between the masonry, and the outside of frames, around jambs, head and sill shall be filled completely with Tremco Caulking compound, forcing the compound into the opening with the Tremco Hand Caulking Gun, and making a neat, smooth bead, one edge flush with the frame, the other edge flush against the masonry, and not extending more than $\frac{1}{4}$ in. out beyond the face of the frame.

Note: Approved Caulking Contractors are located in principal cities of the United States and Canada.

Pointing Specifications—Write for detailed specifications.

The mason contractor will rake out joints to a depth of $\frac{3}{4}$ in. and width of $\frac{1}{2}$ in. in all features. Before applying Tremco Pointing Compound clean joints thoroughly, then fill these joints with Tremco Pointing Compound manufactured by THE TREMCO MANUFACTURING CO. Force as much Tremco Pointing Compound as possible into spaces in such a manner as will make them weathertight, and finish off neatly and smoothly flush with the masonry.



Tremco Transparent Dampproofing

A positive dampproofing for exposed masonry surfaces above grade, which will not materially change the color or texture of the surface treated.

Transparent Dampproofing Specifications—Write for detailed specifications.

Preparation—Surface shall be clean and absolutely dry. Application should not be made at temperatures below 45° F.

Application—Surfaces to be treated shall be thoroughly pointed before application of Tremco Transparent Dampproofing. All loose mortar joints shall be removed and repointed; all holes and cracks filled; all coping joints pointed; and all window and door frames caulked with Tremco Caulking and Pointing Compound. Tremco Transparent Dampproofing may then be applied in two heavy coats with a brush or spray, allowing the first coat to dry before applying the final coat.

Aquanox 101 Plastic Waterproofing

Specifications for Bedding and Pointing of Stone Copings and Sills—Tops of all parapet walls under stone copings shall be leveled off and smoothed with brick mortar, and when dry shall be given a trowel coat of stone color Aquanox 101 Dampproofing as manufactured by THE TREMCO MANUFACTURING CO. This coat shall be applied at the rate of approximately 1 gal. per 35 sq. ft. so as to entirely cover and seal the tops of the parapet. Coping stones shall be bedded into the compound before same begins to harden, in such a manner that the compound will adhere to the entire bottom surface of the stone.

Stone with exposed top surfaces shall be set with vertical joints dry, caulking face joints with best dry picked oakum and grouting to within $\frac{3}{4}$ in. of the top with equal parts white cement and fine white sand, mixed in small quantities and as thick as can be poured. Joints in top surfaces shall then be pointed with stone color Tremco Pointing Compound.

Tremco Architectural Catalogue

We will be pleased to furnish upon request, the Tremco Architectural Catalogue, containing complete specifications for the proper application of all types of waterproofings and paints, among which are:

Tremco Caulking and Pointing Compound—Non-staining, long lived.

Tremco Glazing Compound—Non-hardening, shock absorbing, made in six colors, ready for use on steel or wood sash.

Tremco Transparent Dampproofing—For building exteriors.

Aquanox 101—For bedding stone sills and coping stones.

Aquanox 202—The positive plaster bond for smooth concrete ceilings.

Cretemix A—Concrete accelerator and anti-freeze.

Cretemix B—Integral waterproofing paste.

Dryfix Foundation Coating—For exterior walls below grade.

Dryfix Plaster Bond Dampproofing—For interior of all exterior walls prior to plastering.

Floral—A preservative and decorative coating that stands heavy foot traffic. For wood, concrete or linoleum floors.

Kemi-Kote—Chemical floor hardener.

Mulsomatic—Heavy duty flooring, light in weight, waterproof, dustproof, resilient, withstands heavy trucking.



New England Telegraph
& Telephone Co.,
Bangor, Me.

Tremco Spandrel Beam and Foundation Waterproofing; Cretemix B Integral Waterproofing; Tremco Caulking Compound



Lakeside Hospital Unit, University Hospital Group,
Cleveland, Ohio

Caulked with Tremco Caulking Compound



Ohio Bell Telephone Co.,
Akron, Ohio

Sills and copings bedded in Aquanox 101, caulked with Tremco Caulking Compound

ADAMSTON FLAT GLASS COMPANY

Manufacturers of Flat Drawn Sheet Glass

CLARKSBURG, W. VA.

EASTERN SALES OFFICE, 1 Madison Avenue, NEW YORK, N. Y.
WESTERN SALES OFFICE, 11 So. La Salle Street, CHICAGO, ILL.
JOBBER IN PRINCIPAL CITIES EAST OF THE MISSISSIPPI

Product

FLAT DRAWN SHEET GLASS, made in any thickness up to $\frac{1}{4}$ inch.



The Company and Its Facilities

The organization, plant and facilities of the ADAMSTON FLAT GLASS COMPANY inspire the confidence and friendship of every customer. Its sales are largely repeat orders from satisfied customers.

The plant is modern in every respect, equipped with two units, having a capacity of over 1,000,000 boxes per year, which insures prompt and dependable service. It has every facility for the most efficient and economical manufacture of a dependable and uniform product.

Adamston Flat Glass

Adamston Flat Glass is vertically drawn in perfectly flat sheets. There is no curvature whatsoever. It is the same on both sides—no right and wrong side to look for when glazing, and glazing is done at much less expense.

The distinct features of Adamston Glass are:

- (1) Perfectly flat.
- (2) Uniform in thickness and quality.
- (3) Natural fire polish of great lustre.
- (4) The same on both sides.
- (5) Great tensile strength.
- (6) Minimum of breakage.
- (7) Paper packed to prevent scratching.
- (8) Every light of A quality labeled.

"A Brand You
Can Depend On"

(9) Graded according to highest standards.

(10) Sold by representative jobbers in all principal centers.

Uses

For all purposes where perfectly flat glass is required. Not only for the lighting of homes and buildings, but for furniture, display cases, etc.

Grading

Adamston Flat Glass is graded according to the highest standards adopted by flat glass manufacturers of America, and these standards of grading are strictly adhered to.

ADAMSTON FLAT GLASS

All grades	Lights per inch		Av. wt. persq.ft., oz.	Largest size sheet, in.
	Min.	Max.		
Single.....	10	11	20	40 x 50
Double.....	7 $\frac{1}{2}$	8 $\frac{1}{2}$	25	62 x 84
29 oz.....	6 $\frac{1}{2}$	7 $\frac{1}{4}$	29	62 x 96
34 oz.....	5 $\frac{1}{2}$	6 $\frac{1}{4}$	34	62 x 96
39 oz.....	4 $\frac{3}{4}$	5 $\frac{1}{4}$	39	62 x 96
$\frac{1}{4}$ in.....	3 $\frac{3}{4}$	4 $\frac{1}{4}$	52	62 x 96

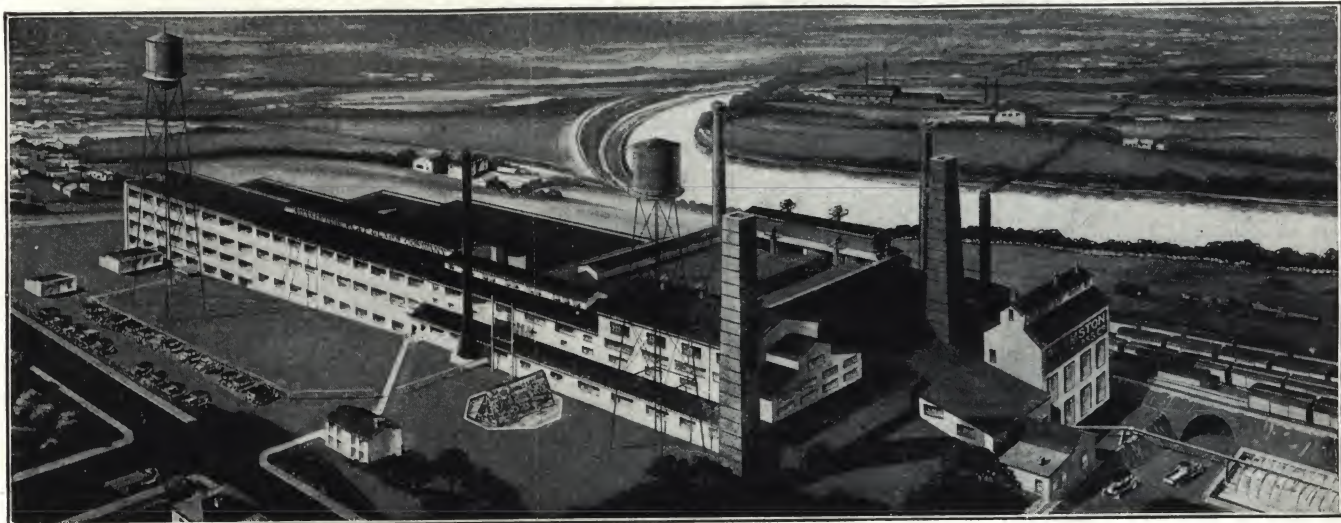
Service and Distribution

Adamston Flat Glass is generally obtainable from the leading jobbers in the principal cities east of the Mississippi. If the jobber is unable to supply you, write direct to ADAMSTON FLAT GLASS COMPANY, Clarksburg, W. Va.

The company is prepared to furnish any information or offer recommendations to cover any requirements that may be submitted.



Vertically Drawn and Perfectly Flat



Plant at Clarksburg, W. Va.

AMERICAN WINDOW GLASS COMPANY

GENERAL OFFICES

Farmers Bank Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES

NEW YORK, N. Y.
BOSTON, MASS.

CHICAGO, ILL.
ST. LOUIS, MO.
LOS ANGELES, CAL.

ATLANTA, GA.
SAN FRANCISCO, CAL.
PORTLAND, ORE.

NEW ORLEANS, LA.
MEMPHIS, TENN.
SEATTLE, WASH.

EXPORT OFFICES

SAN JUAN, PORTO RICO

HAVANA, CUBA

FACTORIES

JEANNETTE, PA.

KANE, PA.
BELLE VERNON, PA.

ARNOLD, PA.

MONONGAHELA CITY, PA.
HARTFORD CITY, IND.

Products

LUSTRAGLASS FLAT DRAWN, CLEAR SHEET WINDOW GLASS, ARMOR-LITE SCATTER-PROOF and BULLET-PROOF GLASS, 16-oz. PICTURE GLASS, PHOTOGRAPHIC DRY PLATE GLASS, $\frac{3}{16}$ " and $\frac{7}{32}$ " CRYSTAL SHEET, GROUND and CHIPPED GLASS, TINTAGLASS, IMPROVED QUARTZ-LITE, and BULB EDGE GLASS in double and single strength, as well as $\frac{3}{16}$ " and $\frac{7}{32}$ " CRYSTAL SHEET.

Process and Production

The new flat drawn clear sheet window glass now manufactured by this company is trade named Lustraglass. In our standard single strength thickness it transmits 15% to 20% of the ultra-violet rays of sunlight at 313 mu. (see table below), a better, flatter, clearer, more lustrous glass at no greater cost than ordinary window glass. The greenish cast characteristic of window glass has been almost entirely eliminated. This "whiteness," this absence of color alone, makes Lustraglass a more beautiful, and more desirable glass for windows. Lustraglass is produced by an improved vertical drawn machine process assuring absolute flatness, uniform thickness and quality.

TRANSMISSION IN THE ULTRA-VIOLET SPECTRUM OF LUSTRAGLASS

Determined Radiometrically by Using a Quartz Mercury Arc Lamp, a Quartz Spectrometer and a Vacuum Thermopile

Wave-length	16 oz. (.077 in.)	Thickness (Note A)	
		Single strength (.090 in.)	Double strength (.120 in.)
302 mu.	3.2%	2.3%	.4%
305 mu.	7.5%	5.5%	2.0%
310 mu. (Note B)	16.0%	12.0%	5.5%
313 mu.	22.0%	18.0%	9.0%
315 mu.	26.0%	21.0%	12.0%
334 mu.	73.0%	71.0%	63.0%

Note A: Approximately 75% of all window glass used is in single strength thickness.

16-oz. Superfine and Selected Qualities may be used for small lights and regular window sizes up to 24x30 in. 16-oz. Lustraglass is slightly higher in price.

Percentages given are average for thickness indicated.

Note B: Ordinary window glass is almost entirely opaque at this point of measurement.

"Flatness" (U. S. Government Specifications)

"All clear window glass shall be relatively flat. Slight curvature, provided it is regular, will be allowed,

but the maximum deformation or bow shall not make an arc higher than 0.5% of the length of the sheet. Reverse curve or crooked glass is not allowable."

Flatness (American Window Glass Co. Specifications)

The flat drawn sheet glass produced by the AMERICAN WINDOW GLASS COMPANY's vertical drawn process is positively flat without curvature, bow, reverse curve or deforming roll marks.

Glazing

Lustraglass can be glazed with either side out, with the assurance that the appearance and clear visibility will be of the same high standard whether viewed from the inside or outside of a building.

Chemical and Physical Properties

The chemical properties of Lustraglass assure maximum resistance to discoloration, fade or rust. Tests of the physical properties of this glass demonstrate great tensile strength and a high modulus of rupture enabling it to withstand maximum wind pressures.

Identification Labels

Every genuine light of the new Lustraglass is labeled to identify its genuineness. This is for the protection of the purchaser. In the case of "A" and "AA" quality glass the label bears the letters indicating the quality. In the case of selected and superfine quality 16-oz. picture glass of the AMERICAN WINDOW GLASS COMPANY's manufacture the quality label appears upon the paper between the lights.



Packing

All genuine Lustraglass is packed with paper between the lights to prevent marring and scratching of the surface.

"Specifications for Clear Window Glass for Glazing" (U. S. Government Specifications)

"Clear window glass for glazing is made in several different qualities and in varying thicknesses shown in Table 1.

"Single strength and double strength window glass is regularly supplied in two standard qualities, known as 'A' quality and 'B' quality. A limited amount of glass, known as 'AA' quality, which is especially free from defects, is sometimes selected for special purposes and may be specified if desired. It must be borne in mind, however, that the total amount of 'AA' glass produced by the manufacturers does not exceed 3% of the total amount of window glass produced.

"Window glass is also produced in thicknesses heavier than double strength, and according to its thickness it is classified as (1) 26 oz. glass; (2) 29 oz. glass; (3) 34 oz. glass; (4) 39 oz. or $\frac{3}{16}$ in. glass." Also 45 oz. or $\frac{7}{32}$ in. glass.

"26 oz. and 29 oz. glass is produced only in 'A' and 'B' qualities.

"34 oz. and 39 oz. or $\frac{3}{16}$ in. glass is produced in glazing and auto qualities." This also applies to 45 oz. or $\frac{7}{32}$ in. glass. Note: This Company has discontinued the production of 34 oz. glass."

Grades and Qualities

"AA" Quality (American Window Glass Co. Specifications)—

Because of the very high standard of grading adopted by this company, it is impossible to supply "AA" quality in sufficient quantities to enable us to fill orders for it quickly. Buyers who insist upon having this quality must expect some delay in the shipment of their orders.

"A" Quality" (U. S. Government Specifications)—

"The defects permitted in this quality are faint strings or lines, slight burn, small seeds, small blisters, and light scratches.

"No light shall contain all of these defects, and those present may not be grouped when in the central area of the sheet.

"Strings, lines, or burn specks shall not be of such

intensity that they are visible when observing the sheet at an angle greater than 30 degrees between the line of sight and the glass.

"Waves shall not be visible at an angle greater than 20 degrees with the glass.

"Blisters shall not exceed $\frac{1}{4}$ in. in length unless they occur near the edge of the sheet.

"In general, the central area of the light shall be practically free from defects, and the appearance of the light as a whole shall be such that there is no perceptible interference with the vision as long as one is not looking through the glass at an acute angle."

"A" Quality (American Window Glass Co. Flat Drawn Sheet Glass)—

The improved vertical drawn process developed by this company produces a glass entirely free from many of the defects mentioned in the Government Specifications. This product is also free from deforming roller marks so evident in flat drawn glass produced by other processes, and is relatively free from strings and lines. Lustraglass is a perfectly flat, white, high lustre product of uniform thickness and appearance and will greatly enhance the appearance of any building in which it is used.

"B" Quality" (U. S. Government Specifications)—

"In general, this quality has the same character of defects as 'A' quality, but they may be more numerous and heavier. They should not, however, be so numerous as to prevent a considerable portion of each light from being reasonably free from such defects."

"General Principles Involved in Grading Glass" (U. S. Government Specifications)

"All flat glass contains some imperfections and the principle employed in grading is to exclude all defects that would be objectionable in a given grade. This is difficult to do since there are no sharp lines of demarcation between grades, and experienced inspectors will differ in judgment as the quality of the glass approaches the limits of the grades. Small lights must be quite free from imperfections as compared with larger ones, and the center of any sheet should be clear, whereas the edges may contain more pronounced defects."



Life Science Building, University of California

Glazed with D. S. "A" quality flat drawn sheet glass manufactured by AMERICAN WINDOW GLASS COMPANY
GEORGE W. KELHAM, Architect

Defects Prohibited in All Grades (American Window Glass Co. Specifications)

Defects that mar the general appearance of the glass (considering the quality specified) or cause excessive breakage are prohibited in all grades of window glass manufactured by this company.

"Tolerances in Thickness" (U. S. Government Specifications)

"Thickness of individual sheets shall not vary more than one-half of the total variation allowed for that particular strength of glass as shown in Table 1 for sizes up to 50 united inches. For larger sizes variations in thickness may be equal to the tolerance allowed for that class."

"TABLE 1—TOLERANCES IN THICKNESS AND AVERAGE WEIGHT OF CLEAR WINDOW GLASS"
(U. S. Government Specifications)

	Thickness in in.		Number of lights per in.		Average weight in oz. per sq. ft.
	Min.	Max.	Min.	Max.	
Single strength . . .	.080	.100	10.5	12.0	18.5
Double strength . . .	.111	.125	8.0	9.0	24.5
26 oz. glass . . . . .	.125	.135	7.5	8.0	26.0
29 oz. glass . . . . .	.135	.148	6.5	7.0	29.0
34 oz. heavy glass . . .	.150	.175	6.0	6.5	34.0
39 oz. heavy glass . . .	.176	.205	5.0	5.5	39.0

Tolerances in Thickness (American Window Glass Company Specifications)

The new flat drawn process developed and employed by this company enables us to produce a glass that shows little or no variation in thickness—a uniformity which it has been difficult to attain with any other method of manufacture.

"Sizes Obtainable" (U. S. Government Specifications)

The maximum dimensions recommended are:

	Width, in inches	Length, in inches
For Single Strength	40	50
For Double Strength	60	80
For Heavy Sheet	78	120

Note: Single strength glass is made up to 60 inches in length, but we do not take orders for sizes in this thickness larger than 84 united inches.

"Dimensions" (U. S. Government Specifications)

"Glass must be cut to dimensions ordered with an allowable tolerance of $\frac{1}{32}$ in. per $\frac{1}{8}$ in. thickness."

"Heavy Sheet Window Glass, Glazing and Auto Quality" (U. S. Government Specifications)

"The same specifications provided for selecting 'A' quality Single Strength and Double Strength shall apply."

Crystal Sheet Window Glass

All 26, 29 and 39-oz. or $\frac{3}{16}$ -in. as well as 45-oz. or $\frac{7}{32}$ -in. glass produced by this company is known to the trade and sold as Crystal Sheet.

Advantages—Crystal Sheet Glass possesses a brilliant surface, uniform thickness and is one of the flat-test and whitest window glasses produced by any

process. It is an acceptable substitute for plate glass for many uses and is lower in price than polished plate.

Armor-Lite Bullet-proof Glass for Bank Protection

Armor-Lite Bullet-proof provides positive protection against gun fire. It is a beautifully clear, flat glass of brilliant lustre and excellent visibility, designed especially for banks and other places where money is handled.

When ordering Bullet-proof glass be sure to specify Armor-Lite, 1 in. thick, weighing 13 lbs. to the sq. ft. The word Armor-Lite is etched in the corner of all genuine Armor-Lite Bullet-proof Glass.

Armor-Lite Scatter-proof Glass

For automobiles, airplanes, locomotive cabs, busses, street cars, railway coaches, institutes, asylums, skylights, display cases, shelving, table tops and dressers, and industrial buildings.

Armor-Lite Scatter-proof Glass is available in a wide range of sizes, weights, and thicknesses. This is a product of exceptionally high quality.

SPECIFICATIONS OF ARMOR-LITE

Armor-lite	Average thickness, in.	Average weight per sq. ft.
Featherweight (3-ply) . . . . .	.120-.130	24-oz.
5-ply . . . . .	.170-.180	33-oz.
Sheet drawn single and photo (3-ply) . . . . .	.167-.177	32-oz.
Plate and photo (3-ply) . . . . .	.192-.202	38-oz.
Sheet drawn single (3-ply) . . . . .	.200-.210	40-oz.
Sheet drawn single and plate (3-ply) . . . . .	.220-.230	44-oz.
Sheet drawn double and single (3-ply) . . . . .	.230-.240	46-oz.
Plate (3-ply) . . . . .	.245-.255	50-oz.
Sheet drawn double (3-ply) . . . . .	.265-.275	56-oz.
Bullet-proof (3-nly)	1.020-1.030	13-lbs.

Note: The foregoing specifications apply only to the finished product.

Armor-Lite—5-Ply

This, a new development in scatter-proof safety glass, is made of three thicknesses of very thin glass and two of celluloid. This special combination, developed and manufactured only by the AMERICAN WINDOW GLASS COMPANY, provides a clear glass, free from distortion, measuring just a fraction over $\frac{1}{16}$ in. over all, weighing 5 to 10 oz. per sq. ft. less than 3-ply sheet drawn or polished plate. Armor-Lite 5-ply provides a great measure of protection without added weight or thickness.

Tintaglass

A laminated glass product furnished in a variety of beautiful colors for decorative purposes—wall tile—table and dresser tops—shelving, display cases, etc.

Suggested Specifications

All window glass used in this building shall be Lustraglass, a product of AMERICAN WINDOW GLASS COMPANY, and shall be (here specify the thickness and quality of glass desired). The Lustraglass label must appear on each light. All "AA" and "A" quality Lustraglass will be identified as such on the label.

Note: If the AMERICAN WINDOW GLASS COMPANY's glass is specified, this company upon request will inspect the installation and without expense report whether the glass furnished is the kind, quality, and thickness specified.



Roosevelt Junior High School, Hamilton, Ohio

F. G. MUELLER and WALTER R. HAIR, Associate Architects
Glazed with D. S. "A" quality flat drawn sheet glass manufactured by AMERICAN WINDOW GLASS COMPANY

Manufacturing

The usual ingredients in the manufacture of window glass, i.e., sand, ground limestone, soda ash, salt cake, and a certain amount of cullet or broken glass, are scientifically and mechanically mixed and fed into the furnace in such proportions as will guarantee in the finished product the utmost strength, durability and freedom from defects, particularly that of stain or fade.

These raw materials, after being melted at a temperature of 2600 degrees, in furnaces containing about 2400 tons of molten glass, pass into the refining zone in the form of molten metal and thence into the drawing canals.

The machines are so located on these canals that the operation of any one machine cannot impair the quality or affect the production of glass on any other machine. This arrangement of the machines, by which the glass for each machine is maintained at the same temperature, is one of the outstanding developments of the A. W. G. Co.'s process, and one which assures uniformity of quality and thickness.

Drawing the Sheet—To begin this operation the machine is reversed and a metallic bait is lowered and immersed in the molten glass for a few seconds until the glass has adhered thereto. The machine is then placed in upward motion and the bait, with glass adhering to it, is drawn upward through successive pairs or gear driven rolls, the speed of draw determining the thickness of glass desired.

These cylindrical rolls, which provide traction power when once the bait is removed, are made of the finest quality of specially treated asbestos, so that at no time do they mar the surface or spoil the high lustre of the glass acquired during the first few feet of draw. Roll marks and impressions are absolutely eliminated in this process.

This process, perfected by the AMERICAN WINDOW GLASS COMPANY, produces a glass that is perfectly annealed and is uniformly satisfactory as to finish and cutting properties.

At the top of the drawing machines the glass is cut off the upward moving sheet in the desired lengths and laid on a felt-covered table where the bulbed edges are stripped off. In this operation the glass is handled only once from the time it leaves the tank as molten glass until it is laid on the cutting table, also felt-covered, thus eliminating any chance of marring or scratching the surface.

Inspection—The glass, after being cut and inspected by experienced cutters, is re-inspected by men especially trained for that work. The quality is again checked by the chief inspector.

Specialties (Manufactured by the American Window Glass Company)

Armor-Lite Bullet-proof Glass for bank protection.
Armor-Lite Scatter-proof Glass for automobiles and airplanes.

Photo Glass for camera use, lantern slides, and diagnostic X-ray plates.

Tintaglass. Send for special circular.

$\frac{3}{16}$ in. and $\frac{7}{32}$ in. Crystal Sheet. An economical substitute for plate glass.

Bulb Edge Glass. For shelving, window ventilators, counter partitions and wherever glass is used without a frame.

Improved Quartz-Lite, Ultra-Violet Ray Glass for windows.

Picture Glass, 16 oz., in superfine and selected qualities.

Ground Glass, double strength. Produced by sand-blasting or grinding one surface of the sheet.

Process Chipped Glass No. 1 and No. 2. Chipped glass is produced by processing the surface so that a chipped appearance is produced. No. 1 process chipped glass indicates that one process of chipping is applied to one surface. No. 2 process chipped glass indicates that one surface is chipped twice.

The reverse side of both ground and chipped glass is smooth. Glazed with the smooth side out.

LIBBEY•OWENS•FORD GLASS COMPANY

Manufacturers of Flat Drawn Clear Sheet Glass for Windows
Polished Plate Glass, Shatter-proof Safety Glass
Bullet-proof Glass and Colored Laminated Glass

GENERAL OFFICES
TOLEDO, OHIO

BRANCH SALES OFFICES

NEW YORK
BOSTON
ATLANTA
MINNEAPOLIS

CLEVELAND
CHICAGO
ST. LOUIS
DALLAS

RICHMOND
CHARLESTON
PHILADELPHIA
KANSAS CITY

DETROIT
SHREVEPORT
BUFFALO
SAN FRANCISCO

SEATTLE
LOS ANGELES
CINCINNATI
NEW ORLEANS

Libbey-Owens-Ford Flat Drawn Clear Sheet Glass

Libbey-Owens-Ford Flat Drawn Clear Sheet Glass for windows is made by an exclusive process—absolutely without bow, uniform in thickness and strength—with a fire finish of brilliant, sparkling lustre. Because of unusual care in annealing, this glass can be cut, handled and glazed with a minimum breakage; because it is truly flat, it can be glazed either side out.

Qualities and Grades

— Libbey - Owens - Ford manufactures flat drawn clear sheet glass in several different qualities and varying thicknesses. Single strength and double strength sheet glass is regularly supplied in two standard qualities, known as "A" quality and "B" quality. Libbey-Owens-Ford does not recommend the lower qualities of glass, although they can be furnished in limited quantities when desired.

Thicknesses—Libbey-Owens-Ford produces three strengths or thicknesses of sheet glass—single strength or 19 oz., double strength or 26 oz., and heavy sheet or $\frac{3}{16}$ in. weighing 39 oz. per square foot.

Tolerance in Thickness—All Libbey-Owens-Ford glass is produced by an exclusive continuous-drawing process. This results in Libbey-Owens-Ford glass being much more uniform in thickness.



Flatness—Libbey-Owens-Ford sheet glass is naturally flat. The process of manufacture draws the glass into a flat sheet directly from the molten state.

Glazing—Government specifications state that window glass shall be glazed with the convex side out. Libbey-Owens-Ford glass can be glazed with *either* side out as it is truly flat—there is no convex side. This saves considerable time and minimizes breakage.

Cutting—Libbey-Owens-Ford sheet glass is easy to cut. This means that breakage is reduced to a minimum.

Inspection—Careful inspection insures the uniform high quality of Libbey-Owens-Ford sheet glass. All "A" quality glass is inspected and then re-inspected to insure its measuring up to the exacting requirements set by Libbey-Owens-Ford.



W. W. Porch Residence, Houston, Tex.
CHARLES W. OLIVER, Architect
Glazed with Libbey-Owens-Ford Sheet Glass

Labels—Libbey-Owens-Ford originated the practice of labeling glass. Each light of "A" quality double-strength Libbey-Owens-Ford glass bears the L-O-F blue label. Each light of "A" quality single-strength Libbey-Owens-Ford glass bears the L-O-F red label.

Packing—Libbey-Owens-Ford glass is packed with straw in boxes, each containing 50 sq. ft. of glass regardless of the size of the sheets. All "A" quality Libbey-Owens-Ford glass is packed with sheets of paper between the lights to protect its brilliant lustre.

How to Specify Libbey-Owens-Ford Sheet Glass—All sheet glass, unless otherwise noted, shall be Libbey-Owens-Ford "A" Quality DS/SS. Each light shall bear the Libbey-Owens-Ford label.

	Thickness, in.		Number of lights per in.		Average weight per sq. ft., oz.
	Min.	Max.	Min.	Max.	
Single strength.....	0.085	0.100	10.5	11.0	19.0
Double strength.....	.120	.133	7.5	8.0	26.0
39-oz. heavy sheet.....	.176	.205	5.0	5.5	39.0



Empire State Building, New York, N. Y.
SHREVE, LAMB & HARMON, Architects
Glazed with Libbey-Owens-Ford Polished Plate Glass

Libbey-Owens-Ford Polished Plate Glass

Libbey-Owens-Ford Polished Plate Glass is manufactured in four qualities—first silvering quality, second silvering quality, mirror glazing quality, and glazing quality.

It is available in both $\frac{1}{8}$, $\frac{3}{16}$, and $\frac{1}{4}$ -in. thicknesses. It is supplied in all sizes for building purposes.

How to Specify Libbey-Owens-Ford Polished Plate Glass—All polished plate glass shall be glazing quality as manufactured by the LIBBEY-OWENS-FORD GLASS COMPANY in accordance with the U. S. Government specifications.

Libbey-Owens-Ford Shatter-Proof Safety Glass

While Libbey-Owens-Ford Safety Glass was primarily developed for automotive use, architects throughout the country are daily discovering new uses for it in connection with various building projects. It consists of two sheets of high quality glass with a sheet of trans-

parent clear vision plastic bonded between them. In case of an impact it will not fly into fragments. In locations where a severe wind storm or hail storm might break ordinary glass, making replacement necessary immediately, Libbey-Owens-Ford Shatter-Proof Safety Glass remains intact.

It is available as safety plate glass or safety sheet glass. Sizes for various building uses are cut to specifications.

Libbey-Owens-Ford Bullet-Proof Glass

The use of bullet-proof glass is becoming increasingly important in connection with bank counters, vaults, etc. For this purpose Libbey-Owens-Ford is manufacturing a special bullet-proof glass, available in sizes and thicknesses appropriate for this work.

Libbey-Owens-Ford Colored Laminated Glass

Libbey-Owens-Ford manufactures a colored laminated glass for decorative purposes. This decorated laminated glass is available in a wide variety of color effects and is particularly suited to furniture tops, shelving, bathroom decoration, etc.

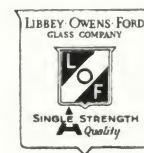


The Waldorf-Astoria, New York, N. Y.
SCHULTZE & WEAVER, Architects
Glazed with Libbey-Owens-Ford Polished Plate Glass

LABELS



Libbey-Owens-Ford Blue Label
Appears on each light of "A" quality double strength Libbey-Owens-Ford Glass



Libbey-Owens-Ford Red Label
Appears on each light of "A" quality single strength Libbey-Owens-Ford Glass

PITTSBURGH PLATE GLASS COMPANY

Pennvernion Flat Drawn Window Glass

PITTSBURGH, PA.

For Warehouses and Branch Offices, see our pages on Vista Plate Glass
For our Other Products, see Manufacturers' Index

Development

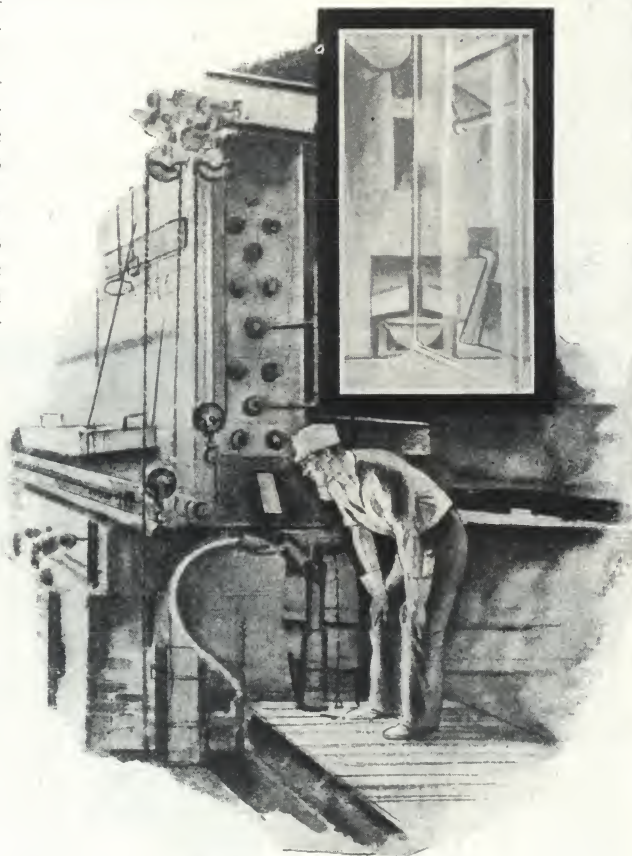
The PITTSBURGH PLATE GLASS COMPANY, which has long been known as one of the world's largest plate glass manufacturers, recently turned its attention to the manufacture of window glass. The tremendous resources of this company were employed in the development of a sheet glass which embodies all of the improvements made in window glass manufacturing methods during the last few years. The company went farther than this by instituting other improvements, which have caused architect after architect to state that this new flat drawn sheet glass is the finest, the most brilliant, and the most consistent in quality of any window glass he has ever seen.

Manufacture

Due to its method of manufacture by a new patented process, Pennvernion Window Glass is absolutely flat. It cannot be otherwise, for at no time from when the white molten sheet leaves the tank until it emerges from the vertical annealing oven does it depart from the perpendicular. It is born flat and kept flat. No more blowing of cylinders, no more splitting, reheating, flattening and finally cooling of the glass; for now the sheet moves steadily, drawn directly upward between ever moving rollers, as though gripped by an invisible hand. Upward the sheet rises, hour after hour, day after day, the same even thickness, the same brilliant lustre. Gone are the old bowed surfaces, the surface burns, the uneven thickness, the "strings," the extreme waviness, so long identified with window glass. In their place is a flatness and brilliancy never before believed possible in a fire-finished glass. The manufacturing is supervised by the same organization which has made other products of the PITTSBURGH PLATE GLASS COMPANY standard throughout the country.

The results of this new process are plainly evident in the appearance of the glass itself. Pennvernion Window Glass has a new uniformity of quality—an unusual flatness of surface, clear transparency, and even thickness. Even more striking is the high lustre, the brilliant

PENNVERNION FLAT DRAWN WINDOW GLASS



The Window Glass Machine

fire polish on both sides. There is no wrong side. Special methods of treating this product prevent staining and loss of lustre. Due to the perfect flatness of this window glass, it is easier to cut, either side may be glazed outward, breakage is reduced to a minimum and time is saved in the glazing operation. The surface undimmed by bending or refractories, Pennvernion Window Glass, we believe, embodies the last word in modern methods of window glass manufacture.

Thickness

Tolerances in thickness of Single and Double will be as per the U. S. Government Standards: 10.5 to 12 lights to the inch for Single and 8 to 9 lights to the inch for Double.

Qualities

U. S. Government Standards apply throughout.

A.A.—The best quality obtainable in window glass. Higher than a commercial necessity.

A.—The highest grade for special commercial uses. Contains no defects to perceptibly interfere with straight vision.

B.—Glass free from glaring defects, but containing such imperfections as prevent its being graded as "AA" quality or "A" quality.

Fourth Quality—Containing such defects as eliminate it from "B" quality standard, but too good to be branded "C."

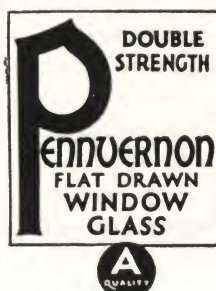
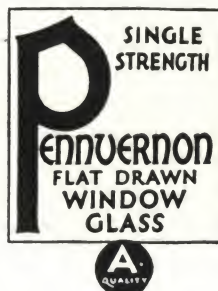
C.—Glass of inferior quality but not containing stones, heavy cords, or other imperfections serious enough to cause breakage in shipment.

Steel Sash—Specially selected for the requirements of this class of work. Defects so located as not to obstruct light transmission.

Greenhouse—A special quality selected with reference to the elimination of defects injurious to growing plants.

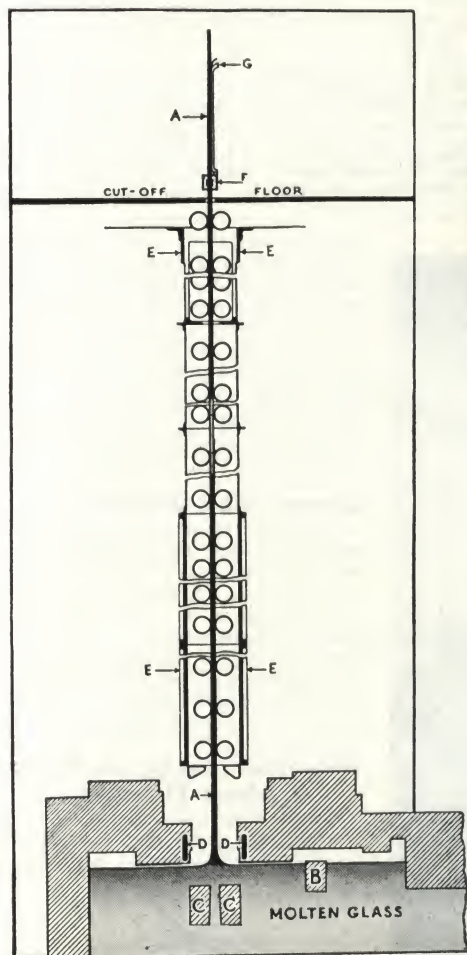
Labels

The Pennvernion label (red on single strength, green on double strength) identifies a superior product. These labels are used on all "A" and "AA" quality glass and should be left on until inspected by your superintendent, for they are your guarantee of quality.



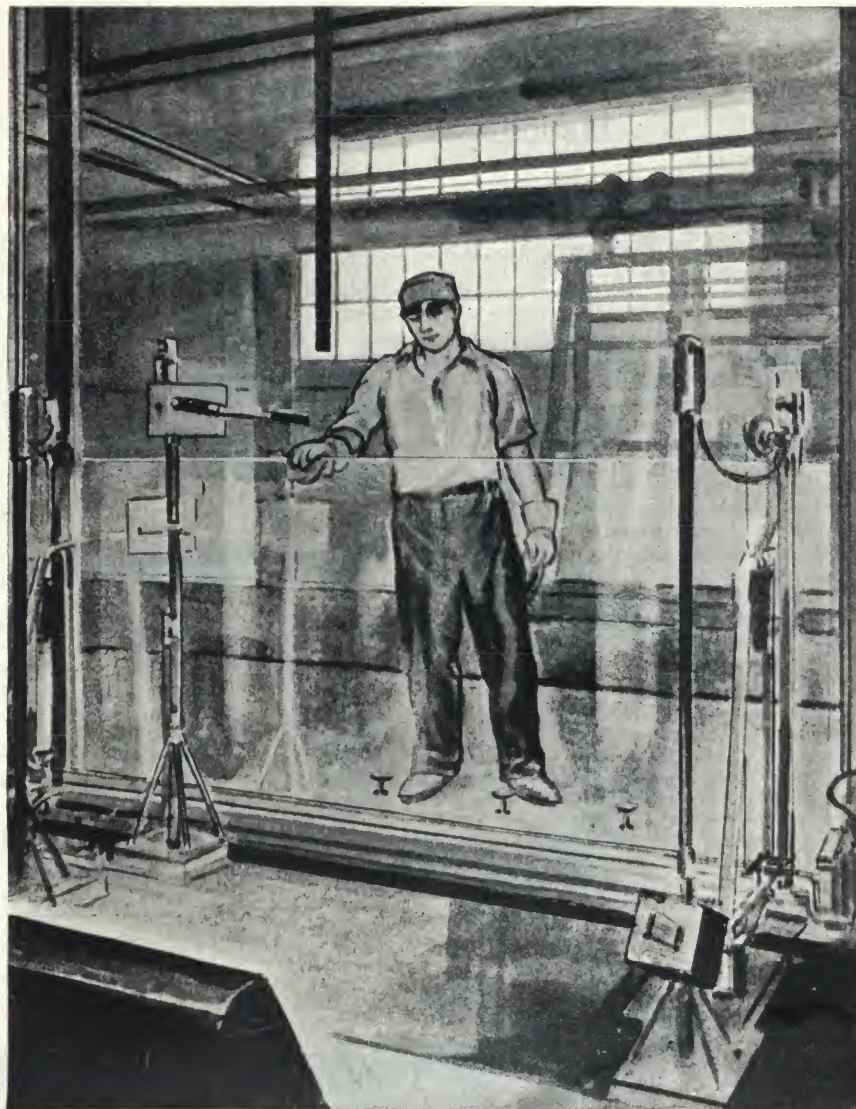
Packing

All "A" and "AA" quality glass is paper packed to insure retaining its brilliant lustre. Glass is shipped in boxes of 50 sq. ft. in sizes up to 100 united inches and 100 sq. ft. in larger sizes, with the name Pennvernon, quality, thickness and size clearly stenciled on one end of the box. Boxes are constructed of the best commercially dry lumber with heavy bottoms on larger sizes and cleats on smaller sizes which insure strength with light weight. Glass is embedded in clean rye straw completely protecting it against careless handling.



Cross Section of Glass Machine Showing the Sheet of Glass Being Drawn

A-A—The sheet of glass. B—Skim bar. C-C—Draw bar. D-D—Water coolers to chill the sheet. E-E—Machine case. F—Cut-off wire. G—Edge cut-off. O-O—Asbestos-covered rolls.



At the Top of the Machine Pennvernon Window Glass Emerging as a Finished Sheet

Specifications

When specifying window glass, use the following paragraph to insure the highest grade:

Except where otherwise specified, all openings shall be glazed with Pennvernon Window Glass, flat drawn. Quality and thickness to be as specified in detail on plans. Where "A" quality is specified, all glass shall bear the Pennvernon label until approved by the architect. Where other qualities are used, glass shall be delivered to the job in original packages with Pennvernon and quality of glass stenciled thereon. All glass shall be properly set, well sprigged, puttied and back puttied with the best oil putty. When metal sash is used, glaze with best Steel Sash Putty.

Additional Information

Immediate deliveries are obtainable on large as well as small orders through the company's numerous warehouses located in leading industrial centers throughout the country.

Additional literature and information on Pennvernon Window Glass may be secured from our warehouse serving your territory. Send for attractive new book describing the manufacture of this new Window Glass.

PITTSBURGH PLATE GLASS COMPANY

Helioglass—An Ultra-Violet Ray Window Glass

PITTSBURGH, PA.

For Warehouses and Branch Offices, see our pages on Vista Plate Glass

For our Other Products, see Manufacturers' Index

Helioglass — An Ultra-Violet Ray Window Glass

Helioglass is a nationally advertised ultra-violet ray transmitting glass, which is being recommended by leading physicians throughout the country because of its ability to transmit a large percentage of the ultra-violet rays which are shut out by ordinary window and plate glass. These vital rays are present in varying degrees in the sun's atmosphere at all times during the year, and are valuable in the proper physical development of children, as an adjunct to the recovery of the sick, and to promote well being in the average adult.

A Modern Necessity

Helioglass is a sheet glass, similar in appearance to any other handblown window glass (except that it is slightly more transparent than the ordinary product), but it is permeable by the lower ultra-violet rays. It is this special property which makes Helioglass an important item in the planning of hospitals, schools, homes, greenhouses and offices. Any of the above buildings, without some or all of the windows glazed with Helioglass, are not up-to-date. Your client may not be informed as to the value of Helioglass, but you will be doing him a favor by insisting that Helioglass be used in a portion of his building.

Proper Use of Helioglass

We do not recommend that Helioglass be used indiscriminately, but that it be used in windows where there is an open exposure to the sky, and in windows of rooms where the occupants spend a large portion of their time.

While it is not necessary to have a southern exposure, this feature is desirable, inasmuch as it has been computed that the ultra-violet radiation from a northern exposure is approximately 60% as great as from a southern exposure. By all means use the southern exposure when and where possible, but do not disregard the benefits to be derived from a northern exposure.

Therapeutic Value

The fact that light transmitted through Helioglass is more beneficial to living organisms than the same light filtered through ordinary glass has been definitely proven by physiological tests.

Dr. W. H. Eddy, Professor of Physiological Chemistry at Columbia University, New York City, recently conducted a series of experiments which showed conclusively that light transmitted through Helioglass completely protected rats from harmful effects while fed on a rickets producing diet, whereas rats fed on the same diet and kept under ordinary window glass readily succumbed to the effects of the lack of the valuable vitamin "D."

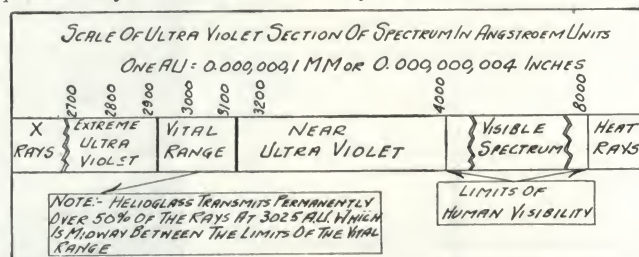


Similar tests conducted by the Food Research Laboratories, Inc., of New York City, had the same results and pointed to the further conclusion that Helioglass had marked therapeutic value even during the winter months in New York City, when the intensity of ultra-violet light is notoriously low.

The complete reports of both these tests are embodied in an interesting new booklet which will be sent on request.

Efficiency of Helioglass

A series of spectrum analysis tests conducted by Dr. D. C. Stockbarger of the Massachusetts Institute of Technology prove conclusively that although Helioglass loses some of its transmission properties with age, it continues to transmit permanently over 50% of the rays at 3025 AU. after com-



Helioglass Was Installed in Hahnemann Hospital, Philadelphia, Pa.

PETTIT & FERRIS, Architects
H. HALL MARSHALL, Consulting Engineer
IRWIN & LEIGHTON, Contractors

plete solarization. The reduction of the percentage of transmission is due to a chemical change which takes place in the composition of the glass caused by the action of the actinic rays of the sun. However, once the change has taken place, continued exposure has no further effect on the glass and the rate of transmission remains constant.

General Characteristics

Helioglass does not discolor with age, nor is it affected by washing any more than is ordinary glass. While the surface of Helioglass is not equal to that of plate glass, it is quite satisfactory for ordinary glazing. The tensile strength of Helioglass is approximately that of window glass of the same thickness.

Important Facts to Know About Helioglass

Sizes up to 40x60 in.
Thickness 2.3 mm. (average).
Every light etched with this symbol.



Symbol

May be secured through any
PITTSBURGH PLATE GLASS COMPANY'S WAREHOUSE.

VITA* GLASS

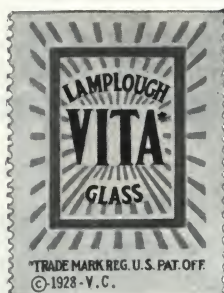
VITAGLASS CORPORATION

TELEPHONE
ASHLAND 7082

100 East 42nd Street
NEW YORK, N. Y.

Vita Glass

A number of years ago science discovered that ordinary window glass sapped the health-giving and vital part of light—the short ultra-violet rays. This fact attracted the attention of scientific minds the world over . . . The problem was to make a glass which would *permanently* let through an effective quantity and quality of this health-giving part of natural sunlight and which had all the physical characteristics—strong wearing quality and appearance of ordinary glass of fine quality. Vita glass, developed in 1924, met this need.



Original Ultra-violet Ray Transmitting Glass

Vita glass was perfected in 1924 by Professor F. E. Lamplough, M. A., Trinity College, Cambridge, England, only after prolonged experimentation. He called it "Vita glass" because of the characteristic of passing the *vital* rays of sunlight.

It is manufactured in the usual forms—*clear, cathedral, plate and wire*. Cathedral Vita glass gives slight diffusion and indirectness of vision and is used where obscure or translucent glass is desirable. Its transmission of light and of ultra-violet rays is the same as clear Vita glass.

Vita Glass Labels

Each light of genuine Vita glass bears red, blue and black labels in the design above.

Uses

Wherever people spend their daylight hours indoors, as in homes, offices, apartments, hotels, schools, factories, hospitals, sanitariums and sanatoria. Its properties make it equally valuable to plant and animal life so that its use can be advantageously extended to zoos, stables, greenhouses and particularly chicken-houses.

Price

The price of Vita glass is not subject to the fluctuation of the general glass market. All Vita glass is sold on a square foot basis, the price varying according to the size of the light and the quantity. Quotations may be obtained on request.

For Conservatory and Solarium Glazing

Certain prominent designers and builders of conservatories and solariums are featuring Vita glass in special cases, using their standard forms of construction, but glazing with Cathedral Vita glass on the roof and clear Vita glass on the sides.

Any existing conservatory or solarium can be converted into a real health solarium by replacing the ordinary glass with Vita glass. Complete information on manufacturers employing Vita glass for this purpose will be given on request.

Transmission Qualities Are Permanent

After it is installed, Vita glass goes through a short period of "seasoning"—a chemical action. This "seasoning" takes place during the first two or three weeks after installation. Thereafter its transmission of an effective quantity and quality of ultra-violet rays is permanent and fixed. This fact is substantiated by the U. S. Bureau of Standards, Prof. Stockbarger of Massachusetts Institute of Technology and other leading physicists here and in England and is guaranteed by the VITAGLASS CORPORATION. The effectiveness of Vita glass after its "seasoning" period has been proved by thousands of users and by a conclusive number of authoritative controlled biological tests over the

past six years.

Thickness, Weight and Sizes

Clear Vita glass has a nominal thickness of 1/9 in., weighs approximately 21 oz. per sq. ft. and can be supplied in sheets up to 40x60 in., although its use in lights of this size is not recommended. For small lights the privilege is reserved of supplying clear Vita glass weighing 16 to 19 oz. per sq. ft. In weight, strength and appearance clear Vita glass is like ordinary window glass of corresponding thickness and can be glazed in the same sizes and in the same manner.

Cathedral Vita glass can be supplied in 1/8 and 1/4 in. thicknesses and in sizes up to 40x96 in.

Vita plate glass is 3/8 in. thick and can be supplied in lights up to 25 sq. ft. in area—larger sizes ordered specially.

Georgian Mesh Vita wire glass is 3/8 in. thick and can be supplied in sizes up to 40x90 in. This glass has 1/2 in. square mesh—attractive appearance.

Adequate stocks of Vita glass are now carried in this country by the corporation and its distributors.

Specifications

Ultra-violet transmission glass, where noted on plans, shall be clear, colorless Vita glass as distributed by the VITAGLASS CORPORATION, New York City. For identification, each light shall bear at least one red, blue and black Vita glass label, or shall be etched Vita. Vita glass to be glazed with the labels on the inside, and at least one label to remain on each light for the inspection of the architect. Such small bubbles and other slight imperfections as cannot be avoided in the manufacture of this glass shall not prevent its acceptance.

Where a polished plate Vita glass, or Vita glass with cathedral finish, is specified, it must meet the usual quality requirements for such glass.

*VITA is the trade-mark (Reg. U.S. Pat. Off.) of and indicates glass and glassware manufactured for and sold by VITAGLASS CORPORATION, New York, N. Y.

A Few Vita Glass Installations

Hospitals and Institutions

Bellevue Hospital, New York, N. Y.
Doctors' Hospital, New York, N. Y.
Fifth Avenue Hospital, New York, N. Y.
Montefiore Hospital, New York, N. Y.
New York Post Graduate Hospital, New York, N. Y.
Presbyterian Hospital, New York, N. Y.
St. Luke's Hospital, New York, N. Y.
Manhattan Eye, Ear and Throat Hospital, New York, N. Y.
Children's Hospital, Detroit, Mich.
Methodist Hospital, Philadelphia, Pa.
N. J. Orthopaedic Hospital, East Orange, N. J.
St. Joseph's Hospital, Providence, R. I.
St. Luke's Hospital, San Francisco, Calif.
St. Mary's Hospital, Grand Rapids, Mich.
Shriners Hospital for Crippled Children, Oak Park, Ill.
U. S. Marine Hospital, Cleveland, Ohio
Walter Reed Hospital, Washington, D. C.
Waterbury Hospital, Waterbury, Conn.

Schools, Colleges, etc.

Miss Chapin's School, New York, N. Y.
Chicago Latin School, Chicago, Ill.
Episcopal Academy, Overbrook, Pa.
Hathaway Brown School, Cleveland, Ohio
Jesse Spaulding School for Crippled Children, Chicago, Ill.
St. Marks School, Southboro, Mass.
University of Wisconsin, Madison, Wis.
Western Reserve University, Cleveland, Ohio

Hotels, Apartment Houses, Office Buildings, etc.

Bon-Air Vanderbilt Hotel, Augusta, Ga.
Brown's Physical Training Farm, Garrison, N. Y.
Chalfonte-Haddon Hall, Atlantic City, N. J.
Equitable Trust Company, New York, N. Y.
Hotel Ambassador, East Chicago, Ill.
Medical Arts Building, New York, N. Y.
Pilot Life Insurance Co., Greensboro, N. C.
United Shoe Machinery Building, Boston, Mass.
Vincent Astor Apartments, New York, N. Y.
Canadian Pacific R. R., Observation Cars

BULLET-PROOF GLASS

MANUFACTURED BY
SAFETEE GLASS COMPANY

Broad Street and Poplar, PHILADELPHIA, PA.

Product

SAFETEE BULLET-PROOF GLASS for Bank Enclosures and other places subject to the sudden attacks of robbers.

Holdup Men Get \$28,000

A familiar enough headline and one that statistics show will be repeated with variations, within the next and succeeding hours.

To prevent this enormous loss of property, new and more efficient methods of protection are necessary—methods that will eliminate the factor chiefly responsible for the success of most holdups—intimidation.

This requires that the employee be placed beyond the reach of the bandit's bullet. Safetee Bullet-proof Glass does just this, while at the same time it interferes in no way with the employee's ordinary duties.

Advantages of Safetee Bullet-Proof Glass

When used in bank partitions, tellers' windows, etc., separating the public space from the working space, Safetee Bullet-proof Glass provides absolute protection to moneys, securities, etc., and to personnel, in the event of an attempted holdup.

Safetee Bullet-proof Glass will stop a .45 calibre metal jacketed pistol bullet fired

Safetee Glass
WON'T SHATTER OR FLY
TRADE-MARK



Four Shots Shown on Glass
Test Pistols of the Highest Calibre
Have Proved Ineffective in Penetrating Safetee Bullet-proof Glass

Illustration is from a photograph, unretouched, showing the effect of test guns with high calibre bullets fired at close range. None of them went through the glass.

at close range from an automatic pistol. This has been well proven in numerous tests.

A sample of this glass, size 12x20 in., stopped three of these bullets at 3-ft. distance. This sample is still intact, notwithstanding the fact that test was made five years ago. The integrity of Safetee Glass is not impaired when cracked.

Bandits depend largely upon intimidation to help them in making a "haul." When an employee stands behind Safetee Bullet-proof Glass he is out of harm's way and therefore can not be intimidated. If he can not be intimidated, the holdup can not be successful.

Banks and cars protected by Safetee Bullet-proof Glass are left alone by bandits—they pick easier prey.

For all practical purposes Safetee Glass is as fully transparent as the best quality polished plate glass. It is not wire inserted.

And no less important than the practical advantages above listed is the fact that Safetee Glass does not detract in the slightest from the artistic effect demanded in bank fixtures.

Service

We will be glad to co-operate with the architect in furnishing suggestive designs for any desired installation, together with detailed drawings and estimates.

Construction Features

Safetee Bullet-proof Glass is made up of 5 layers of material, consisting of 3 pieces of polished plate glass and 2 binding layers, the whole welded together under high temperature and tremendous pressure.

The resulting product is a perfectly solid sheet of glass possessing great strength and resiliency.

When struck a sharp, heavy blow the cushioning effect, resulting from the laminated construction, prevents the glass from shattering and the missile from penetrating.

As shown in tests and in actual use strong impacts cause a multiple of hairlike cracks, but no breaks or splinters.

Safetee Bullet-proof Glass can be furnished in sizes up to 34x62 in. The thickness is 1 in. Allowance should be made for a variation of $\frac{1}{8}$ in. plus or minus in thickness.

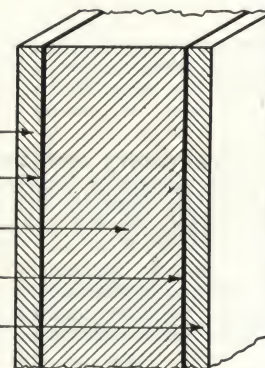
Polished Plate Glass.

Binding Material.

Polished Plate Glass.

Binding Material.

Polished Plate Glass.



Partial List of Users of Safetee Bullet-proof Glass

Detroit Savings Bank, Detroit, Mich. (27 Branches)
Windsor Savings Bank, Windsor, Vt.
Franklin Trust Co., Philadelphia, Pa.
Farmers National Bank of Freeport, Freeport, Pa.
State Bank of Salem, Salem, Ind.
New York Life Insurance & Trust Co., New York, N. Y.
Federal Reserve Bank, New York, N. Y.
East Cambridge Trust Co., East Cambridge, Mass.
Bushwick Savings Bank, Brooklyn, N. Y.
First National Bank, Bakertown, Pa.
Haddon Heights National Bank, Haddon Heights, N. J.
Standard Oil Co. of New York, New York, N. Y.
State Bank of Flat Rock, Flat Rock, Mich.
First National Bank, Lockport, Ill.
Farmers & Merchants Bank, Fenton, Mo.
Hanna City State Bank, Hanna City, Ill.
State Bank of Niantic, Niantic, Ill.
State Bank of New Athens, New Athens, Ill.
Ford Motor Company, Detroit, Mich.

U. S. Post Office Department
Brinks Express Co.
Farmers State Bank, Darien, Wis.
Swift & Co., Chicago, Ill.
Lincoln National Bank, Hamlin, W. Va.
State Bank of Rockwood, Rockwood, Mich.
First National Bank, West Allis, Wis.
Florida National Bank, Florida, N. Y.
Caldwell State Bank, Cathan, Ill.
Bank of Detroit, Detroit, Mich.
John Hancock Life Insurance Co., Boston, Mass.
National Shawmut Bank of Boston, Boston, Mass. (Branches)
Peninsular State Bank, Detroit, Mich. (Branches)
American State Bank, Detroit, Mich. (Branches)
Fletcher Savings & Trust Co., Indianapolis, Ind. (8 Branches)
Murphy-Wall State Bank & Trust Co., Pinckneyville, Ill.
Norristown-Penn Trust Co., Norristown, Pa.
Trenton State Bank, Trenton, Mich.
Lyons State Bank, Lyons, Ill.



Outside of Cage



Inside of Cage

**Safetee Bullet-proof Glass Installation in the Kenmore-Governor Square Branch,
National Shawmut Bank, Boston, Mass.**

The views above show Safetee Bullet-proof Glass installed in the front and roof of the teller's cage, including conversation hole with baffle plate attached, hinged door for passing large packages, sunken deal plate and roof protection extending 40 in. back from line of partition

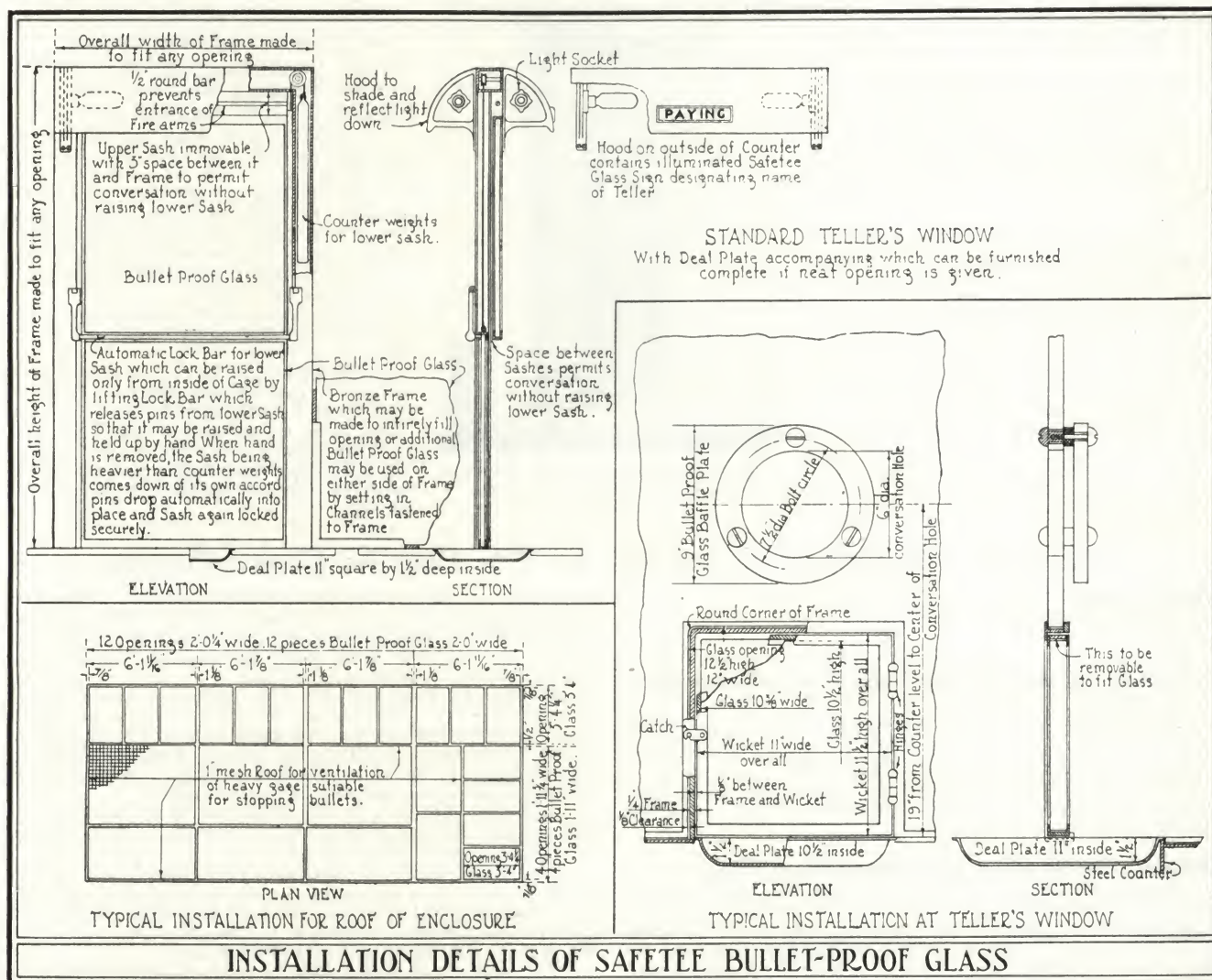


PLATE GLASS MANUFACTURERS OF AMERICA

First National Bank Building
PITTSBURGH, PA.

Why Plate Glass for Windows

The primary purpose of glass in windows is to admit light, to afford protection from the elements and to allow a clear vision. The most suitable glass is that which will transmit the greatest amount of light and afford the clearest view.

Plate Glass is not merely a good quality glass. It is a unique product: a glass *ground and polished* to a truly flat surface and lustrous finish.

Plate glass does not distort objects viewed through it at any angle.

In addition to practical advantages, plate glass has another advantage which is receiving more and more consideration from architects, that is, advantage of beauty. This quality of beauty is due to the clean-cut and distinct reflection free from distortion.

Plate glass increases the value of a building or a residence far more than the additional cost of the plate glass. A building glazed with plate glass is more easily rented or sold.

Economies of Plate Glass

Breakage—Because of its higher strength and its resistance to blows, plate glass does not break easily.

Cleaning—Its highly polished surface allows cleaning with less labor.

Quiet—Its extra thickness keeps out more noise and insures quieter rooms.

Heating—Since plate glass is ordinarily thicker, it reduces heat losses.

Beauty—Crystal clear—no distortion of objects viewed through it. Looking through plate glass is like looking through the open air itself—the eye is not conscious of its presence.

Cost—Total cost of glazing is only about one per cent of the total cost of the building. The additional cost for plate glass is a negligible proportion of the total cost.



Construction Details for Plate Glass

When making designs calling for the use of plate glass, several items of construction details must be considered.

(1) Supporting structure must be sufficiently strong and rigid to withstand any wind pressures, vibrations and other strains that might exist.

(2) Provision must be made for expansion and contraction, particularly in large sheets.

(3) Provision must be made for easy replacement in case of breakage.

(4) Do not locate a large sheet where it will be difficult to set.

(5) Provide ventilation on both sides of glass. This ordinarily does not require consideration, but in wainscoting and with mirrors, ventilation on the back is important—do not set glass or mirrors in a surface to surface construction.

(6) Provide accessibility for cleaning.

Care of Plate Glass Before Setting

In writing his specifications, the architect should provide not only that plate glass is to be used but that proper care should be exercised that it shall not be damaged before setting. The following items should be covered:

(1) Plate glass shall not be laid flat but shall be stood on edge with paper between sheets.

(2) Glass shall not be laid flat (for cutting or other purposes) upon a table or other object that has not been previously covered with a clean, soft protection of some sort.

(3) No dust or dirt shall be allowed to accumulate upon glass.

(4) Plates shall be handled one at a time and surfaces shall never be allowed in contact.

(5) Glass shall be unpacked as soon as delivered, cleaned and dried if necessary, and stored on edge in a dry place. This to avoid what is known as "stain."

(6) Alkalis attack the polished surface of plate glass and should not be allowed near it—especially is this true of ammonia fumes.



Reflections of Lights and Shadows
on Polished Surfaces of Plate
Glass

United States Government Specification for Plate Glass for Glazing Purposes

Classification

Polished Plate Glass: second silvering quality, glazing quality.

Definitions of the General Classes of Polished Plate Glass

Plate Glass. Transparent, flat, relatively thin glass having plane polished surfaces and showing no distortion of vision when viewing objects through it at any angle.

Plate Glass is made at present by casting and rolling large sheets periodically or by rolling a continuous sheet. The sheets are then ground and polished.

Detailed Specifications of Polished Plate Glass

General Principles Involved in Grading Glass—All flat glass contains some imperfections and the principle employed in grading is to exclude all defects that would be objectionable in a given grade. This is difficult to do since there are no sharp lines of demarcation between grades, and experienced

inspectors will differ in judgment as the quality of the glass approaches the limits of the grades. Small lights must be quite free from imperfections as compared with larger ones, and the center of any sheet should be clear, whereas the edges may contain more pronounced defects.

Method of Examination—The method of examination is described in these specifications in order to make the results more uniform, and defines the condition under which glass should be examined because the distance from the glass, the angle between the glass and the line of sight, and the intensity of light all affect the visibility of imperfections.

These specifications should be interpreted by examining the glass in the following manner, with reference to the definitions of defects listed in the glossary:

The glass should be examined when placed in a position similar to that of a glazed light with the observer's eye on a level with the center of the sheet, and looking through the glass from a distance of about 36 in. into the light from a clear sky without any sun or any close background.

The visibility of waves, lines or cords depends chiefly upon

the angle of observation, and the intensity of these defects can be classified on this basis. The values given for angles are the angles the line of sight makes with the sheet of glass when in a vertical position. Slight movement of the head horizontally through an angle of two or three degrees will make waves or lines more perceptible.

Acceptance or Rejection—Acceptance or rejection of a shipment or delivery shall be based on an examination of the following quantities:

For orders of 100 lights or less, all shall be examined; for orders of 101 to 500 lights, at least 50% shall be examined, for orders of 501 or more lights, at least 25% shall be examined. Boxes shall be selected from the shipment at random.

If not more than 10% of the lights examined are below quality, the shipment shall be accepted provided the lights below the specified grade are not distinctly below the upper limit of the next lower grade.

If, however, an entire shipment of 500 lights or more is examined, not more than 5% may be below quality.

Specifications for Polished Plate Glass

Sizes and Thickness—The standard of thicknesses of plate glass shall be $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$ and $1\frac{1}{2}$ in. Sheets are available $\frac{1}{4}$ in. thick in sizes having a maximum area of 250 sq. ft. Glass of $\frac{1}{4}$ -in. thickness may be furnished having almost any desired dimension under the following maximums: 120x280 in., 144x260 in., 160x240 in.

The standard stock thickness for glazing purposes is $\frac{1}{4}$ in., but this may vary between $\frac{3}{8}$ and $\frac{5}{8}$ in.

Tolerance in Thickness—When a certain thickness is specified for a specific purpose, the tolerance in thickness shall be half the difference allowed on standard thickness, although $\frac{1}{4}$ -in. glass for glazing purposes is accepted within the latitude of $\frac{3}{8}$ to $\frac{5}{8}$ in. The general variation in thickness should not be more than $\frac{1}{8}$ in. for individual lights under 10 sq. ft., in thickness up to $\frac{1}{4}$ in. The variation in lights over $\frac{1}{4}$ in. in thickness should not exceed one-half the total tolerance for that thickness.

Polished plate glass $\frac{1}{8}$ and $\frac{1}{4}$ in. thick is carried in stock in the larger cities.

Tolerances in Dimensions—Variation from dimensions ordered shall not be more than $\frac{1}{8}$ in. per $\frac{1}{8}$ -in. thickness.

Grades—Plate glass shall be furnished for glazing purposes in one of two grades as specified. These grades will be known as second silvering and glazing qualities.

Second silvering quality is invariably used where the highest standard of glazing is required and imperfections are discoverable only on close inspection. This quality is rarely sold for glazing purposes in sizes over 20 sq. ft. Glazing quality represents the usual selection of plate glass supplied when quality is not otherwise definitely specified.

As allowable tolerances in quality must vary considerably with size of sheet required, different specifications will apply in each of the following four divisions according to size:

Division I. Sheets up to and including 10 sq. ft. in area.

Division II. Sheets having an area greater than 10 sq. ft. but not greater than 25 sq. ft.

Division III. Sheets having an area greater than 25 sq. ft., but not greater than 75 sq. ft.

Division IV. Sheets having an area greater than 75 sq. ft.

Division I. (Sizes Up to and Including 10 Sq. Ft.)—Second Silvering Quality—This glass shall not contain any major defects. The central area of this glass may contain only well scattered seeds. Ream, skim, short finish, and scratches which can not be removed by buffing, are not permissible. The edges may contain coarse seeds, but none shall be larger than $\frac{1}{8}$ in. in diameter.

Glazing Quality—The central area of this quality may contain numerous scattered seed, including an occasional coarse seed, but no heavy seed. Small bubbles may occur on the edge. Stones, large bubbles, skim, ream, or long or heavy scratches are not permissible. Faint strings in the corners or upper edge of the light are permissible. The polish shall not show areas of short finish.

Division II. (Sizes from 10 Sq. Ft. to 25 Sq. Ft., Inclusive)—Second Silvering Quality—The central area of this quality may contain more numerous fine seed than the small sizes and an occasional coarse seed. The edges may contain occasional small bubbles and fine strings. No heavy defects or scratches which can not be removed by buffing are permissible. The polish must be good and free from visible short finish.

Glazing Quality—The central area may contain small bubbles and fine strings or ream which do not give visible distortion when looking straight through the glass, but no long or heavy scratches. The edges may contain bubbles over $\frac{1}{8}$ in., visible scratches shorter than 10 in., small areas of ream, strings,

and small stones not larger than $\frac{1}{8}$ in., but these defects should not be grouped nor interfere with the vision. The polish over the central area should be good, but patches of light short finish may be present about the edges.

General—None of the above grades or sizes may contain any heavy or long lines, streaks of ream, any bubbles larger than $\frac{1}{8}$ in., visible poor polish, open bubbles, areas of skim, or stones over $\frac{1}{8}$ in. in diameter.

Division III (Sizes from 25 Sq. Ft. to 75 Sq. Ft.)—Glazing Quality—Lights of this size may contain numerous visible and larger imperfections not allowed in the smaller lights. But these must not be grouped or so prominent that they noticeably interfere with the vision. The central area of the plate shall be free from these larger defects.

The sheets may contain seed of any size, but not heavy seed except in relatively small patches on the outer border of the sheet, occasional bubbles up to $\frac{1}{8}$ in. in the center and up to $\frac{1}{4}$ in. on the borders, strings, ream and skim in very limited areas if not causing a deformation of objects viewed through the plate, occasional scratches and small stones under $\frac{1}{8}$ in.

Heavy ream, heavy cords, bubbles larger than $\frac{1}{8}$ in. in diameter, stones larger than $\frac{1}{8}$ in. in diameter, large fire cracks, areas of unpolished glass, easily visible poor polish, large open bubbles, or sand holes, are not permitted. The large defects should be confined to the upper edge and upper corners of the sheet, the lower and central areas to be relatively free from major defects.

Division IV. (Sizes Greater than 75 Sq. Ft.)—Sheets larger than 75 sq. ft. may contain defects of almost any kind except that they must not show large areas of heavy seed or bubbles, nor have any defects which will cause spontaneous breakage, such as skim or large stones ($\frac{1}{8}$ in. in diameter) or show any areas of unpolished glass.

Glossary of Terms Used in These Specifications

The following terms shall be used in specifications:

Plate Glass—Seeds, short finish, skim, strings, scratches, bubbles, open bubbles, ream, stones, fire cracks, sand holes.

Bubbles—Gas inclusions in any rolled glass. These inclusions are practically always spherical and brilliant in appearance. The term applies to all such inclusions larger than $\frac{1}{8}$ in. in diameter. The term small bubbles (commonly known as boil) refers to sizes between $\frac{1}{8}$ in. and $\frac{3}{8}$ in.

Seeds—Minute bubbles less than $\frac{1}{8}$ in. in diameter. Fine seeds are visible only on close inspection, usually appearing as small specks and are an inherent defect in the best quality of plate glass. Seed about $\frac{1}{8}$ in. to $\frac{3}{8}$ in. in diameter are usually considered as coarse seed.

Open Bubbles—Bubbles which have been broken into by grinding, leaving a hemispherical hole in the glass surface.

Skim—Streaks of dense seed with accompanying small bubbles.

Strings—Wavy, transparent lines appearing as though a thread of glass had been incorporated into the sheet.

Cords—Heavy strings incorporated in the sheet, occurring without any regularity of direction, and appearing to be of considerable thickness rather than on the surface.

Ream—An area of unhomogeneous glass incorporated in the sheet producing a wavy appearance.

Scratches—Any marking or tearing of the surface appearing as though it had been done by either a sharp or rough instrument. Scratches occur on sheet glass in all degrees from various accidental causes.

Short Finish—Insufficient polish or lack of brilliancy; improperly finished surface which has the appearance of being slightly pitted and wavy when the surface is viewed in reflected light. These indentations, which are slight, have a polished rather than a ground surface, but the general effect is a slight dulling of the surface. Poor polish is usually caused by improper grinding.

Stones—Any opaque or partially melted particle of rock, clay or batch ingredient imbedded in the glass.

Fire Cracks—Small cracks penetrating the surface of the sheet. Usually in the shape of short-hooked crescents. Caused by sudden heating or chilling of the surface.

Sand Holes—Rough spots on the polished surface produced during coarse grinding which fine grinding did not later remove; due, to some extent, to coarse grains of grinding sand becoming mixed with finer grades.

Central Area of Sheet—This term is used with slightly different interpretation with reference to plate or window glass. In plate glass the central area is considered to form an oval or circle centered on the sheet whose axes or diameters do not exceed 80% of the over-all dimension. This allows a fairly large area at the corners, which may have imperfections not allowed in the central area.

PITTSBURGH PLATE GLASS COMPANY

Vista Plate Glass and Tapestry Glass

PITTSBURGH, PA.

DISTRIBUTING WAREHOUSES AND BRANCH OFFICES

AKRON, OHIO	CLEVELAND, OHIO	INDIANAPOLIS, IND.	NEW ORLEANS, LA.	SHREVEPORT, LA.
ALBANY, N. Y.	COLUMBUS, OHIO	JACKSONVILLE, FLA.	OKLAHOMA CITY, OKLA.	SOUTH BEND, IND.
ALLENTOWN, PA.	DALLAS, TEX.	KANSAS CITY, MO.	OMAHA, NEB.	SPRINGFIELD, MASS.
AMARILLO, TEX.	DAVENPORT, IOWA	LONG ISLAND CITY, N. Y.	PEORIA, ILL.	ST. LOUIS, MO.
ATLANTA, GA.	DENVER, COLO.	LOUISVILLE, KY.	PHILADELPHIA, PA.	ST. PAUL, MINN.
BALTIMORE, MD.	DES MOINES, IOWA	MEMPHIS, TENN.	PITTSBURGH, PA.	SYRACUSE, N. Y.
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BOSTON, MASS.	FORT WORTH, TEX.	MINNEAPOLIS, MINN.	ROCHESTER, N. Y.	TOLEDO, OHIO
BROOKLYN, N. Y.	GRAND RAPIDS, MICH.	MOUNT VERNON, N. Y.	SAGINAW, MICH.	TULSA, OKLA.
BUFFALO, N. Y.	HARRISBURG, PA.	NASHVILLE, TENN.	SAN ANTONIO, TEX.	UTICA, N. Y.
CHARLOTTE, N. C.	HIGH POINT, N. C.	NEWARK, N. J.	SAVANNAH, GA.	WASHINGTON, D. C.
CHICAGO, ILL.	HOUSTON, TEX.	NEW HAVEN, CONN.	SCRANTON, PA.	WILKESBARRE, PA.
CINCINNATI, OHIO				YOUNGSTOWN, OHIO

Products

VISTA PLATE ($\frac{1}{8}$ -in. Polished Plate Glass).

TAPESTRY GLASS.

For Pennvernon Window Glass, Helioglass (an

Ultra-violet Ray Window Glass), Carrara (Structural Glass), Copper Back Mirrors, standard Mirrors and standard weight Plate Glass, Store Fronts, Paints and Varnish, see Manufacturers' Index.

Vista Plate, the One-eighth Inch Polished Plate Glass

It has long been realized that the public would be more generally able to enjoy the benefits of plate glass if this product were manufactured commercially in the same thickness as ordinary window glass. For many years, the thinnest plate on the market was $\frac{3}{16}$ in. in thickness, and any buildings glazed with plate glass required sash larger than the standard $1\frac{3}{8}$ in., together with heavier window weights, to provide for the additional thickness and weight of plate glass over window glass.

Vista Plate is a true polished plate glass of the same thickness as double strength window glass, namely one-eighth of an inch in thickness. Vista Plate immediately eliminates the largest obstacle confronting architects when wishing to specify plate glass, for it allows the use of standard $1\frac{3}{8}$ -in. sash and ordinary window weights. Now the perfect vision, the polished surface and perfect reflection of plate glass may be had at only a slightly higher cost than ordinary window glass.

Equal in Quality to the Heavier Product—After experimenting for a number of years, and spending millions of dollars in plant equipment, the PITTSBURGH PLATE GLASS COMPANY developed a method for producing a true polished plate glass only $\frac{1}{8}$ in. in thickness, at a cost approximating that of the $\frac{1}{4}$ -in. product. The appropriate name of "Vista Plate" was given to this product. The quality of Vista Plate is equal in every respect to that of heavier plate glass, having two perfectly plane surfaces, highly polished, and free from waves and other defects present in common window glass. With the exception of weight, the same arguments can be advanced for the use of the $\frac{1}{8}$ -in. product as for the regular thickness, including true and perfect vision as contrasted with the distortion caused by sheet glass.



Vista Label
Appears on every light of genuine Vista Plate

A Boon to Builders—The use of Vista Plate in modern homes, schools, apartments, hotels, hospitals and office buildings, in fact, in all places where the openings are not of extreme dimensions, is not only very desirable, but almost essential if the exterior appearance and comfort of the tenants is taken into consideration. It is hardly consistent to specify with care and precision, various other building materials, and at the same time to permit the use of a glass which does not give the maximum of efficiency and beauty. The difference between the cost of glazing a building with Vista Plate and that of glazing it with common window glass is surprisingly small, the extra charges incidental to the use of plate having, as shown above, now been eliminated. All of the company's warehouses are prepared to submit alternate figures on any operations on which ordinary window glass is specified.

Slight Additional Cost Over Window Glass—Unless comparative bids are taken on Vista Plate against common window glass, the small additional cost of plate glass beauty cannot be realized. Plate glass immediately puts a building on a plane by itself for its superiority is so apparent. First appearances have great influence on prospective tenants and their natural reaction to a building glazed with Vista Plate is such as to justify its use. Plate glass beauty is appreciated and can be had at a nominal cost. Samples and further information will be furnished promptly upon request.

Facts to Remember About Vista Plate Glass—

Thickness: $\frac{1}{8}$ in. (glazed in standard $1\frac{3}{8}$ -in. sash).

Weight: 26 oz. per sq. ft.

Sizes: up to 68x130 in.

Quality: true, lustrous surface, equal in every respect to $\frac{1}{4}$ or $\frac{3}{16}$ -in. product, thickness excepted.

Source: full stocks carried at sixty-two distributing warehouses. (See above list.)

Tapestry Glass, a New Art Material

Tapestry Glass is unique. There is no other type of glass with the same qualities or advantages. To the building professions and trades, it opens up new possibilities for decorative and utilitarian treatment with glass. By a quirk of chance the new method of making plate glass revealed the art of making Tapestry Glass. Its beauty of texture and finish, the many

ways in which it can be treated decoratively, and the advantages of its use in place of plate glass or plain window glass, are so many, that Tapestry Glass almost immediately created a sensation among architects, owners, and building contractors.

Two Qualities, Plain and Polished—Tapestry Glass is furnished in two types, plain and polished. The natural surface

of Tapestry Glass is not ground and polished as in plate glass, but has a silvery, satinlike finish and a depth that, together with the ease with which it can be decorated, merits the name of Tapestry Glass.

Plain Tapestry Glass has both surfaces in the natural finish and is the one most generally used.

Polished Tapestry Glass has one surface in the natural finish and one surface polished. This is desirable when Tapestry Glass is used together with plate glass so as to present a uniform outward appearance, and also in hall doors and windows where obscurity is needed together with polished plate beauty of reflection.

Both types of Tapestry Glass have the same degree of light diffusion and obscurity and can be ornamented equally well. They give much greater light diffusion than ordinary factory ribbed, sheet prism, or other kinds of obscure glass. At a distance of a few feet, Tapestry Glass shuts out the view, yet objects placed close to its further surface are clearly discernible. Its depth and finish, unlike plate glass, obstruct and obscure vision, while admitting the maximum amount of light in a softly diffused manner.

Tapestry Glass can be had in innumerable designs: sandblasted, chipped, or mitered on the plain surface of the glass. Rich and very beautiful colored designs are easily achieved by a special method of artistic painting developed in our laboratories.

Varied Uses—Tapestry Glass has an almost unlimited field of uses, and new uses for it are being discovered almost daily. The following are a few of the many places where Tapestry Glass can be used to good advantage:

(1) For office doors and partitions. Tapestry Glass obscures the view yet lets in all the light, diffusing the rays softly and pleasingly, in a manner restful to the eye.

(2) For store transoms, side lights, etc., Tapestry Glass is preferable to tile prism, sheet prism, and other obscure glass.

(3) In steel sash for factory buildings where maximum light is needed but cleaning costs must be kept to a minimum.

(4) For ceiling lights, corridor partitions, and doors in public buildings, offices, hotels, institutions, and apartments. Tapestry Glass provides the desired privacy without losing any of the light.

(5) In the home, for bathroom windows, hall windows, front doors, and sidelights, bookcase and cupboard doors, etc.

(6) In churches, fraternal buildings, etc., Tapestry Glass, particularly when plain or colored designs are used, is ideal.

Very rich and beautiful effects can be achieved at a fraction of the cost of stained glass.

(7) In advertising signs on windows, doors, shop fronts, etc., the wording or design left clear and the background etched, or in the reverse treatment; color effects are particularly good for this work, and illumination from within adds to the power of the display. Tapestry Glass, colored or plain, is also used for electric display signs.

Summary of Advantages—(1) *Economic Value*—Tapestry Glass provides a service and satisfaction far greater than its slight additional cost over ordinary glass.

(2) *Individuality*—Tapestry Glass is different. There is no real substitute for it, either in its plain form or in the many ornamental effects which can be obtained.

(3) *Light Diffusion*—A tiny fraction of an inch below the surface, Tapestry Glass is perfectly clear, with all the excellence of fine plate glass. Through its satinlike, silvery surface, a brilliant flood of light is softly diffused, yet at a distance of a few feet, Tapestry Glass has all the advantages of opaque glass.

(4) *Durability and Strength*—Equal to plate glass of corresponding thickness.

(5) *Economy in Maintenance*—Tapestry Glass has no projecting pattern to catch and retain dust and dirt. Its unpolished surface does not show finger prints and other soiling marks. It is exceptionally easy to clean.

Sizes—Tapestry Glass is furnished in two thicknesses: $\frac{3}{8}$ and $\frac{1}{2}$ in., and in sizes up to 70x150 in.; and with same edge work as on polished plate glass—i.e., beveled, ground, and polished.

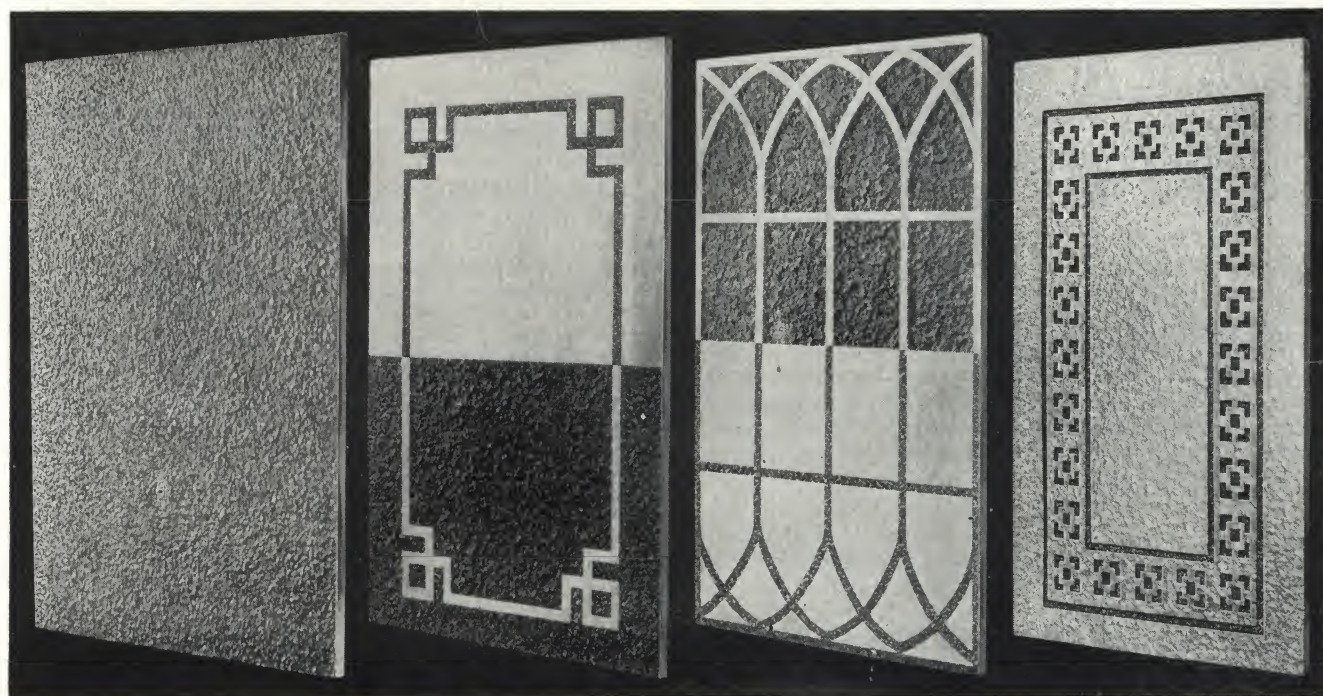
Decoration—Tapestry Glass can be sandblasted over the entire surface (effecting a soft, beautiful white light), with clear line borders, to include lettering, geometric designs, etc.

It can be single or double process chipped over the entire surface or to a sandblasted line in the design; or mitered satin finish for use instead of leaded art glass.

It can also be mitered in panels, squares, or special designs, in plain, sandblasted, or chipped surfaces.

Color effects can be used with any of these treatments.

Samples, Information, etc.—Samples and full information as to the many uses of Tapestry Glass (manufactured and sold exclusively by the PITTSBURGH PLATE GLASS COMPANY) will be furnished upon request, by any of our warehouses. Send for new booklet showing the extraordinary possibilities of this unusual glass.



Plain Tapestry Glass

Plain Tapestry Glass has a silvery, satinlike quality with a depth somewhat like old tapestries. Admits all the light but is opaque to vision a few feet away. Tapestry Glass does not reflect glare or images, but diffuses light softly.

Border Design Tapestry Glass

Plain Tapestry Glass with sandblasted border design in lower half; upper half has background sandblasted and plain border design. Similar effects can be had by single or double chipping or mitering. Many prefer it to leaded glass windows.

Geometric Art Patterns on Tapestry Glass

Upper half has background sandblasted; lower half is reverse treatment. The variety of designs and effects is almost limitless. Names of firms, etc., can be treated similarly.

Color in Geometric Art Designs on Tapestry Glass

Used either plain or in any of the many chipped, sandblasted, or mitered effects, this treatment assures a rich and beautiful result. Either background or designs can be colored, as the sample indicates.

SEMON BACHE & COMPANY

"Dependable Glass Products Since 1847"

Greenwich and Morton Streets, NEW YORK, N. Y.

Products

MIRRORS: "EVALAST"—permanently bright; Silvered, Gold, Gunmetal, Colored, Ornamented.

PLATE GLASS: Clear and Colored.

"SUNLIT" ULTRA VIOLET HEALTH GLASS.

"MALTESE" X-RAY LEAD GLASS.



Service

In addition to our domestic production, we are in collaboration with European producers of technical, art and structural glasses.

Submit your glass problems to us. We place at your disposal over 80 years' experience and the glass resources of both continents.

Plate Glass

We carry in stock high grade imported plate glass in all sizes, qualities and thicknesses.

Mirrors

French Plate Mirrors—For over 80 years we have specialized in mirror manufacture. Our mirrors are made of high quality French plate glass, polished to brilliant finish and processed with double coat silvering. These mirrors are produced in all sizes and thicknesses, finished in silver, gold or gunmetal, or in combination of these finishes—plain beveled, etched, V-cut, or otherwise ornamented.

"Evalast" Mirrors—Permanently brilliant reflection, not affected by moisture.

No discoloring—No clouding—No streaking.

Made by our exclusive process, resulting in permanent brilliance of reflection. Guaranteed to withstand climatic and atmospheric moisture and even direct contact with water.

GUARANTEED
EVALAST
Registered Trade-Mark
MIRRORS
SILVER WILL NOT SPOIL

The use of "Evalast" mirrors avoids the unsightliness of dull, discolored, streaked plates and the annoyance of dismantling, resilvering and reinstalling, the expense of which in most instances is greater than the original cost of installation.

"Evalast" mirrors are particularly adapted for seashore hotels and residences, bathrooms, lavatories, washrooms, beauty parlors, barber shops, store fixtures and wherever intermittent condensation ordinarily ruins standard mirrors. Invaluable in damp tropical climates and for marine work.

Made in all sizes from smallest bathroom mirror to largest sizes required for store fixtures. Moderate in cost—comparable with ordinary non-permanent mirrors. Samples and detail information on request.

Colored Plate Glass and Colored Plate Glass Mirrors

The growth of contemporary art brings with it a demand for color in art and decoration. Our line comprises the following colors in plate glass and plate glass mirrors:

Chrome green	Amethyst	Violet
Amber	Signal green	Light green
Light blue	Chartreuse green	Blue
Olive green	Neutralite (smoke gray)	Rose

Samples and information regarding any of our products furnished on request

"Sunlit" Ultra Violet Health Glass

A superior ultra violet ray transmission medium, thoroughly tested by technical and scientific laboratories both in the United States and Europe.

Medical authorities and scientists generally have endorsed this new type glass which permits passage into the interior of buildings of the health building ultra violet rays excluded by ordinary window glass.

The health value of ultra violet ray glass for hospitals, schools and other installations, houses, factories, offices, etc., has been widely recognized.

Permanence—The essential features of an ultra violet glass is permanence of transmission. As such glass is intended for years of service a high degree of efficiency during only the comparatively short duration of the solarization period is of little value.

U. S. Bureau of Standards tests accord "Sunlit" Ultra Violet Glass transmission efficiency, after solarization, at 302 m.u. averaging:

52.75%

(U. S. Bureau of Standards Report 62010, dated Sept. 4, 1930)

This is a higher after solarization efficiency than the Bureau of Standards rates any other glass commercially on the market.

The American Medical Association has issued a statement as follows:

"It is true that the biological value of an ultra violet transmitting glass is in exact proportion to its efficiency in transmitting the ultra violet rays that have biological value."

This indicates conclusively that glass of the highest transmission in ray lengths of greatest biological value, i.e., 290 to 310 m.u., is the most effective in actual use.

Price—Despite the superiority shown by the above, "Sunlit" glass sells at prices competitive with glasses of inferior transmission.

Identification—Each light bears our label and is etched with the trade-name "Sunlit."

VARIETIES OF "SUNLIT" HEALTH GLASS

Type	Thickness		Av. wt. per sq. ft., oz.	Max. size. in.
	Milli-meters	Approx. in.		
Clear sheet (window) glass . . .	1.8 to 2.5	$\frac{5}{16}$	18	42 x 54
Clear sheet (window) glass . . .	2.5 to 3.2	$\frac{1}{8}$	24	38 x 54
Clear sheet (window) glass . . .	3.5 to 4.2	$\frac{5}{32}$	32	36 x 45
Plate glass (clear vision)	2.5 to 3	$\frac{1}{8}$	24	25 x 50
Plate glass (clear vision)	4 to 6	$\frac{1}{16}$ - $\frac{1}{4}$	36	25 x 50
Wired glass (clear polished or rough wired)	6 to 8	$\frac{1}{4}$	50	
Cathedral glass (rough-translucent)	3.5 to 4.5	$\frac{3}{16}$	32	32 x 52

"Maltese" X-Ray Lead Glass

For protection screens in X-ray rooms. Highest lead content of any glass commercially on the market. Approved by American Medical Association.

Clear vision—high quality. Indispensable for hospitals, X-ray apparatus, windows and doors in X-ray rooms, screens, etc.

Is standard brand used all over the world for maximum protection against X-rays. Coefficient of protection is 0.28 to 0.29.

NATHAN LYONS, INC.

Fabricators of Mirrors and Decorative Glass

508-514 West 34th Street, NEW YORK, N. Y.

Products

SILVER, GOLD and GUNMETAL (LYCO) MIRRORS.
COLORED GLASS in all thicknesses.
PLATE GLASS.

Scope of Work

We are skilled artisans in every use and treatment of glass. In keeping with the modern architectural trend, our craftsmen are creators of beautiful effects, whether in the field of mirrors, colored structural glass or of etching and engraving.

The scope of work often includes contact with the architect in the creation of new decorative ideas as well as the careful carrying out of the original plans. The work then proceeds to the fabrication of the glass required and the actual installing, even to applying the necessary studding for permanent attachment to walls.

Mirrors

Quality mirrors are made for clubs, hotels, bathrooms, powder rooms, ballrooms, fine residences, department stores, etc.

The modern use of mirrors gravitates more and more to futuristic designs with two or three color schemes on one mirror. The various colors used beside the silver (a deposit of silver nitrate) are: *gold*—a deposit of gold chloride; "*Lyco*" (patented) *gunmetal color*—a deposit of lead; and *dark*—a dull silvered mirror. These different deposits of metal can be used on one mirror in different fields to show beautiful decorative effects in conjunction with various etching on the glass.

With colored mirrors splendid effects are obtained for interiors, valences, walls, and for caps of columns and pilasters, special border lines around silvered mirrors and other decorative purposes.

The "*Lyco*" gunmetal mirror reflects about 35% of daylight. In contrast to the ordinary silvered mirror there is absolutely no glare and it will give a perfect and true reflection.

Dusky mirrors adapt themselves ideally for decorative effects on walls and ceilings, reflecting with a satin, silver finish.

Permanence—Where there are damp walls, weather conditions or other factors which are apt to be detrimental, we recommend the addition of our special tar back to the mirrors. This new process, tar back, guarantees absolute permanence and protection against dampness.

"Marblelike" Colored Glass

"Marblelike" is widely and advantageously used as a substitute for marble. It is a non-transparent plate glass used for interiors and exteriors, walls,

columns, decorative panels, etc., and for counter and table tops, window sills, toilet partitions, urinals, etc.

"Marblelike" can be obtained in the following forms:

- (1) With one side polished and one side rough.
- (2) With one side polished and one side smooth.
- (3) With one side smooth and one side rough.
- (4) With both sides smooth.
- (5) With both sides polished.

Since "Marblelike" can be obtained with two sides polished it is ideal for such purposes as toilet partitions. It is no longer necessary to buy two pieces of material in order to have both sides of the partition polished. The risks of breakage are greatly reduced because the usual eight holes do not have to be drilled, nor the two pieces plastered together.

Objects appear straight when reflected on a wall paneled with "Marblelike," which is a ground and polished glass. Unlike other glass with wavy surfaces it can be used in unusually large pieces.

For artistic work in interior decoration the polished surface is often carved—the engravings having harmonizing colors of gold, silver, etc. Fireplaces can be built with

"Marblelike" glass in any color, decorated in the most exquisite fashion. Such carving, easily obtainable on glass, is much more permanent than marble which deteriorates with the carbonic acid in the air near a fire.

Hole drilling, edge grinding, polishing, etc., is just as easy with "Marblelike" as with marble and setting is equally easy. It can be set with plastic cement directly on the wall, or mounted with metal bars screwed on the walls.

Colors and Thicknesses—It is made in nineteen different colors:

Black	Medium green	Light mauve
White	Dark green	Dark blue
Light red	Onyx green	Light cream
Medium red	Light blue	Medium cream
Dark red	Dark mauve	Dark cream
Ivory	Medium mauve	Pearl gray
Light green		

Black and white are manufactured in thicknesses of from $\frac{1}{4}$ to $1\frac{1}{4}$ in. Other colors from $\frac{1}{4}$ to $\frac{3}{8}$ in. However, for special work, colored glass up to $1\frac{1}{2}$ in. in thickness can be obtained. Furnished in any size or shape up to 100 sq. ft. and in bent plates.

Plate Glass

We specialize in all branches of cabinet and high class interior glazing. Plate, window and roof glass are installed for entire buildings. Interior and exterior glass for banks is fabricated for check desk tops, coupon booth tops, counter screens, deal plates and black glass counter tops, shipped and set for any part of the United States. Felt and cement showcases and other types of showcases are manufactured to any specification.

The Lyons plant is fully equipped for all kinds of engraving, etching, embossing, sandblasting, mitre cutting, polishing and beveling of glass.



PITTSBURGH PLATE GLASS COMPANY

Copper Back Mirrors

PITTSBURGH, PA.

For Warehouses and Branch Offices, see our pages on Vista Plate Glass
For our Other Products, see Manufacturers' Index

Copper Back Mirrors Are Lifetime Mirrors

Mirrors are now obtainable, manufactured by the PITTSBURGH PLATE GLASS COMPANY, that are guaranteed by them for a lifetime against deterioration from climatic or atmospheric conditions and defective workmanship. These are copper back mirrors, and in case of deterioration they will be resilvered free of charge.

Pittsburgh Copper Back Mirrors will remain permanently as beautiful, as clear, and as efficient in reflecting properties as the day they were made. This has been made possible by protecting the silvering of ordinary mirrors with a coating of solid copper, thus making them absolutely moistureproof and airtight, something that is not possible with ordinary patent back mirrors.

Uses

Pittsburgh Copper Back Mirrors are recommended as permanent, decorative and practical installations for lobbies, interior doors and theatres, stores, barber shops, beauty parlors, etc., as well as for doors, furniture and wall mirrors in private residences. They are especially recommended for bathroom mirrors in private residences and hotels. The steam and sudden changes of temperature occurring in bathrooms, which ruin ordinary mirrors, leave copper back mirrors untouched.

Copper back mirrors are also particularly adapted for use in resort piers, and river, lake and ocean going vessels, where dampness and salt air are unusually destructive to ordinary silvered mirrors. Wherever an installation of lasting beauty is desired, Pittsburgh Copper Back Mirrors are advised.

Method of Manufacture

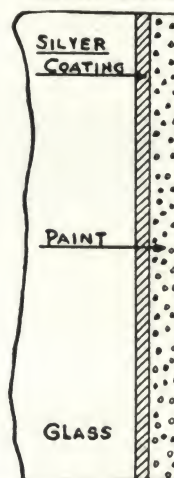
Pittsburgh Copper Back Mirror consists of a silvered sheet of polished plate glass as does any fine mirror. However, in addition, a layer of solid copper is deposited on the silver coating by an electrolytic process. This provides an impervious insulation, protecting the sensitive silvering against dampness and chemical reaction, and making the backing of the mirror more resistant against handling abuse. The delicate film of silver is perfectly protected by a sheathing of copper.

As a consequence, discoloring, cloudiness and de-

terioration are prevented and the original beauty and utility of the mirrors are maintained permanently.

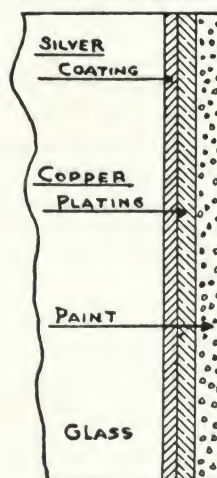
Compare the magnified cross sections below of the copper back mirror with the old type of silvered mirror, and note the insulating metal between the porous coating of paint and the sensitive silver.

ORDINARY MIRROR



Magnified Cross Section
Showing silver protected only by a relatively soft porous coating of paint

COPPER BACK MIRROR



Magnified Cross Section
Showing solid copper strip between silver and paint

Specification

To insure obtaining mirrors which will be permanently of the highest quality, the following specification should be used:

Wherever marked on the drawings copper back mirrors, manufactured by the PITTSBURGH PLATE GLASS COMPANY, are to be furnished. Mirrors to be of best quality and to bear the manufacturer's label until approved and accepted by the architect.

General Information

Pittsburgh Copper Back Mirrors are now obtainable in any size up to 72x144 in.

The cost of these copper back mirrors is only slightly greater than that of the ordinary mirror. The difference is a small premium for insurance against future resilvering and reinstalling of these mirrors for the life of the building. They are real economy and should be insisted upon by both the architect and the builder.

Identification

Look for the label shown below, on all Pittsburgh Copper Back Mirrors. It is assurance that you are installing a mirror that will outlast the other fixtures.



Copper Back Mirrors in Sport Shop, Famous-Barr Co.
Department Store, St. Louis, Mo.

NATIONAL LEAD COMPANY

Old Style Lead Cames, Templeads and Steelhearts

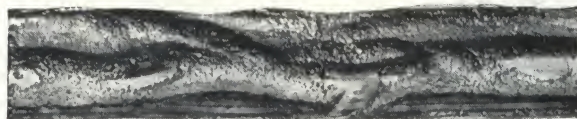
ATLANTIC BRANCH
NEW YORK, N. Y.

NORTHWESTERN WORKS
ST. PAUL, MINN.

For Hardlead Sheets, Gutters, etc., and Paint, see Manufacturers' Index

Old Style Lead Cames

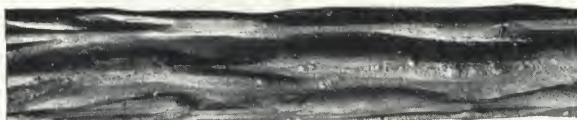
Old Style Lead Cames, by their irregularity of outline and surface, bring an appearance of hand-wrought leading to windows of even the most simple design. In addition these comes make it possible to have a lead in harmony with the particular type of architecture employed. There are five designs from which to choose—Rustic, Rough Cast, Antique, Hammered and Frosted—as well as smooth finish comes with irregular edges.



Rustic



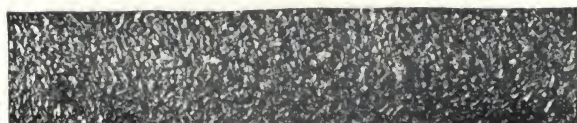
Rough Cast
(Patent No. 71132)



Antique



Hammered



Frosted



Smooth Surface—Irregular Edges

Furnished in following dimensions:

	Width of face, in.	Width of glass channel, in.
Rustic	$\frac{3}{8}$ to 1	$\frac{1}{8}$ and $\frac{3}{8}$
Rough Cast.....	$\frac{3}{8}$ to $\frac{3}{4}$	$\frac{1}{8}$ to $\frac{3}{8}$
Antique	$\frac{1}{4}$ to 1	$\frac{1}{8}$ and $\frac{3}{8}$
Hammered	$\frac{1}{4}$ to 1	$\frac{1}{8}$ to $\frac{3}{8}$
Frosted	$\frac{1}{4}$ to 1	$\frac{1}{8}$ to $\frac{3}{8}$
Smooth (irregular edges).....	$\frac{3}{8}$ to 1	$\frac{1}{8}$ to $\frac{3}{8}$

Templeads

These are Old Style Lead Cames made of tempered lead. Especially recommended for small windows where greater rigidity is required than soft lead gives and where steel reinforcement is either difficult or unnecessary. Supplied in all five designs illustrated above.

Reinforced Cames—All Old Style Cames, in face widths of $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1 in., can be furnished reinforced with a tempered steel bar of such width as to give the greatest possible reinforcing strength.



Reinforced Cames

Steelheart Old Style Lead Cames

For very large windows, doors and skylights, where the ordinary steel reinforcement is not sufficient, our Steelhearts are available. These are something entirely new in leaded glass reinforcement and come not only in the Rough Cast, Hammered and Frosted designs, but also in smooth finish comes with irregular edges and in a smooth finish, straightedged came. Supplied in four widths: $\frac{1}{2}$, $\frac{3}{8}$, $\frac{3}{4}$ and 1 in. with glass channels ranging from $\frac{1}{8}$ to $\frac{3}{8}$ in. and with tempered steel bars varying in sizes from $\frac{3}{8} \times \frac{1}{8}$ to $\frac{3}{8} \times \frac{1}{4}$ in., buried in the came as shown below.



Standard
Steelheart
Section



STEELHEART
(TRADE MARK)



Colonial Steelheart
Section

Steelhearts may be used throughout, or the Steelhearts may be used for all or any part of the cross members, and lead of the same design, without reinforcement but with the same channel, may be used for the remainder of the work. In either case, saddle bars are eliminated while strength and rigidity are assured.

When Specifying

When specifying our Old Style designs, please mention the design by name, whether soft comes or templeads are desired, width of face, width of channel and whether reinforcement should be used.

When specifying our Steelhearts, please mention whether they should have Rough Cast, Hammered, Frosted design or smooth face, width of face and width of glass channel.

Suggested Specifications

Old Style Lead Cames shall be of the surface design [Rustic] [Rough Cast] [Antique] [Hammered] [Frosted] and width of face specified by the architect, and of NATIONAL LEAD COMPANY manufacture.

Where Old Style Smooth Cames are specified, they shall have the irregular edges, as in the comes manufactured by NATIONAL LEAD COMPANY.

Where it is necessary to reinforce the lead comes, the reinforcement shall consist of a tempered steel bar not less than $\frac{1}{8}$ in. thick, and of suitable width for each channel width, buried in the came by the manufacturer of the lead in the process of manufacture. Where steel reinforcement of $\frac{3}{8}$, $\frac{1}{2}$ in. or wider is specified, the Steelhearts manufactured by NATIONAL LEAD COMPANY shall be used. All Steelhearts and other reinforced comes, where shown or indicated, shall run through under both stops to the bottom of the rabbet, the other comes being fitted into the reinforced members.

The channel of the comes shall be sufficiently wide to receive the glass and to allow, in addition, ample room for enough putty to insure a perfectly watertight job.

The cement shall be made of high grade materials and be of such composition as will preclude the possibility of its becoming brittle with age. All cement shall be thoroughly worked into the channel, and the edges of the lead came pressed down firmly upon it.

Lead comes shall be soldered with high grade solder on both sides of the glass in such a way as to make a firm, rigid and workmanlike job. All soldered joints shall be so finished as to meet the approval of the architect.

Catalogue and Samples

Catalogue and samples sent to architects on request.

If you do not find exactly what you want mentioned on this page or in our catalogue, please write us, as we are continually making something new and different.

HENDERSON BROS.

Designers and Craftsmen in Leaded and Stained Glass

OFFICES AND STUDIOS

693 Third Avenue, NEW YORK, N. Y.

Henderson's Antique Leading

Adaptable to Early English and Tudor leaded glass. Henderson's Antique Leading is made to resemble the old hand wrought lead which was used during the best periods of old leaded glass. It gives a touch of distinction and individuality to leaded

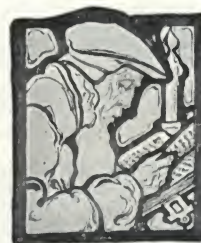
glass that is both charming and characteristic of the best in old glass.

The comes are of widths varying from $\frac{1}{8}$ to 1 in., with or without center reinforcing.

Special designs of Period or modern glass executed for the architect.



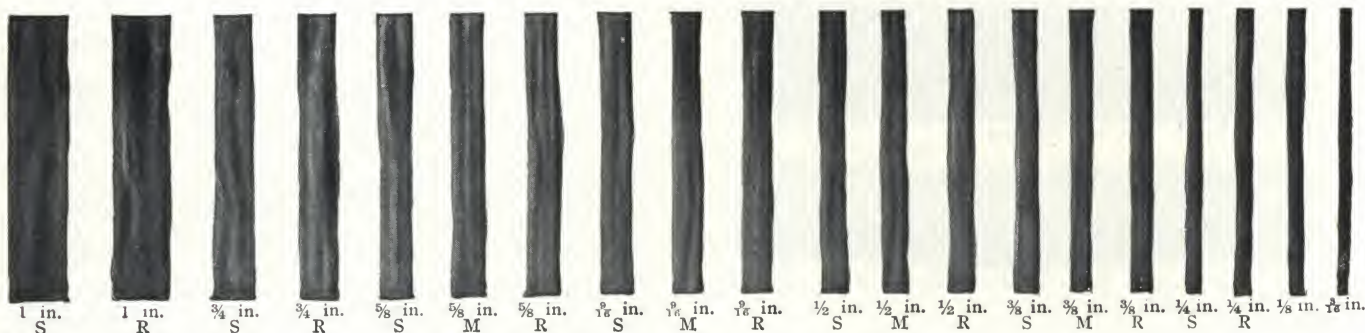
Antique Leaded Medallion



Antique Stain Glass Medallions

Right: Example of Tudor Cathedral Glass used in the Cathedral of St. John the Divine, New York, N. Y.

Applications of Henderson's Antique Leading



Henderson Antique Leading (Patent Pending)



Medallion Painted, Kiln Fired

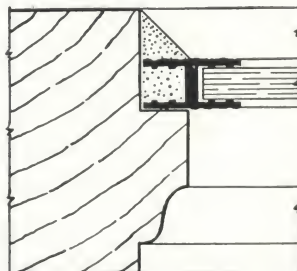


PLAIN

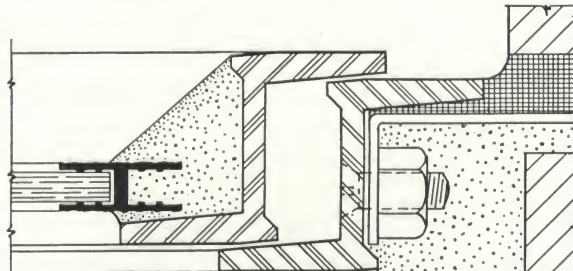


REINFORCED

F-S-SECTIONS



WOOD SASH



STEEL SASH

FULL SIZE DETAILS OF TYPICAL METHODS OF GLAZING

Henderson's "Easy Fix" Metallic Leading

Revival of Georgian Period Leadings

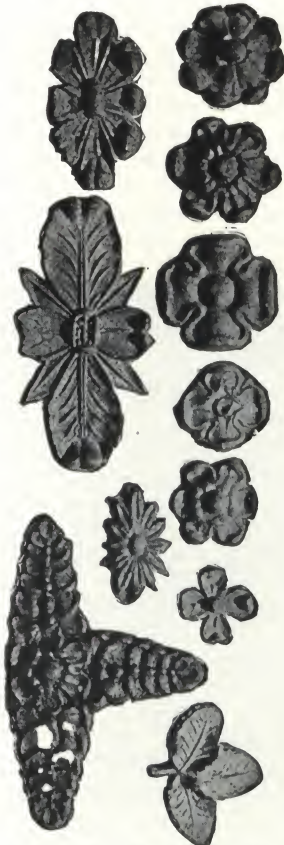
The attention of the architects and builders is called to our "Easy Fix" Metallic Leading which makes possible the type of leading used during the Georgian Period, long since abandoned, but still to be seen in old doorways, ceilings, lights, etc.

By using modern materials, methods and our continuous clip (see drawings) which runs parallel and continuous with the glass and holds both glass and putty se-

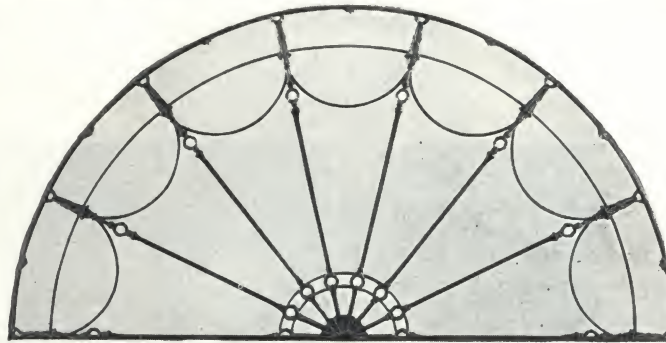
curely in place, a leaded sash having the exact appearance of the old work can be economically furnished. The clip can be readily turned up to allow of inexpensive repairing by an ordinary mechanic and left in its original condition, making a substantial and weather-tight job.

"Easy Fix" Metallic Leading can be constructed of brass, copper, zinc or sheet metal and lead coated.

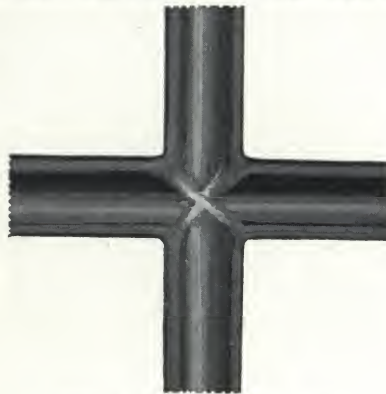
Lead ornaments of which we have a large assortment can be readily applied to Henderson's "Easy Fix" Metallic Leading.



Examples of Ornaments



PLAIN

REINFORCED
Flat Bead
Expanded
Leading

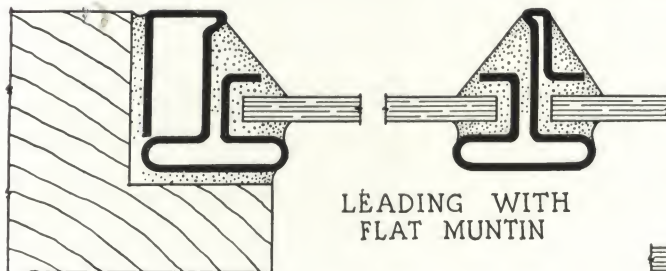
Special Leaded Miter Joint



PLAIN

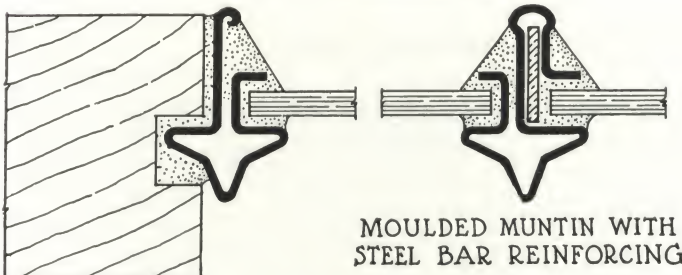
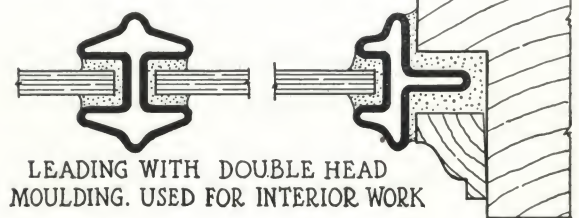
REINFORCED
Round Bead
Expanded
Leading

Leaded Panel

LEADING WITH
FLAT MUNTIN

SCALE: FULL SIZE

Note:- Sizes from $\frac{1}{4}$ " to 1"
Steel reinforcing bar $\frac{1}{16}$ " thick furnished
when greater strength is required.
Flexible Clip-easily raised for reglazing.

LEADING WITH
MOULDED MUNTINMOULDED MUNTIN WITH
STEEL BAR REINFORCINGLEADING WITH DOUBLE HEAD
MOULDING. USED FOR INTERIOR WORK

HENDERSON'S "EASY FIX" METALLIC LEADING - METHOD OF INSTALLATION

RAVENNA MOSAICS, INC.

Glass and Enamel Mosaics—Marble and Slate Mosaic Floors

Architects Building, 101 Park Avenue
NEW YORK, N. Y.

Ravenna Mosaics

Studios here and abroad and connections with the best known mural painters and designers in America and Europe, enable this company to design and execute any mosaic work required by the architects.

Extensive study of the technique of the mosaics of the early Christian period, a staff of artisans—many of whom have been with this concern over thirty years; the execution of mosaics in different countries and styles and after designs of many artists are the basis on which Ravenna Mosaics has been developed.

RAVENNA MOSAICS, INC. manufactures all its own enamels. This material has been successfully used in the restoration of many of the Early Italian mosaics.

Specifications for Glass and Enamel Mosaics

Materials—The mosaic tesserae used shall be the so-called Venetian Mosaic Glass (Ravenna Mosaic Glass) known as smalti or enamel mosaics, of solid color, water and acid proof, and broken by hand with hammer and chisel, the fractured surface of the tesserae to form the surface of the finished mosaic unless otherwise provided for. The gold and silver mosaic material shall have the metal leaf fused in between two layers of glass.

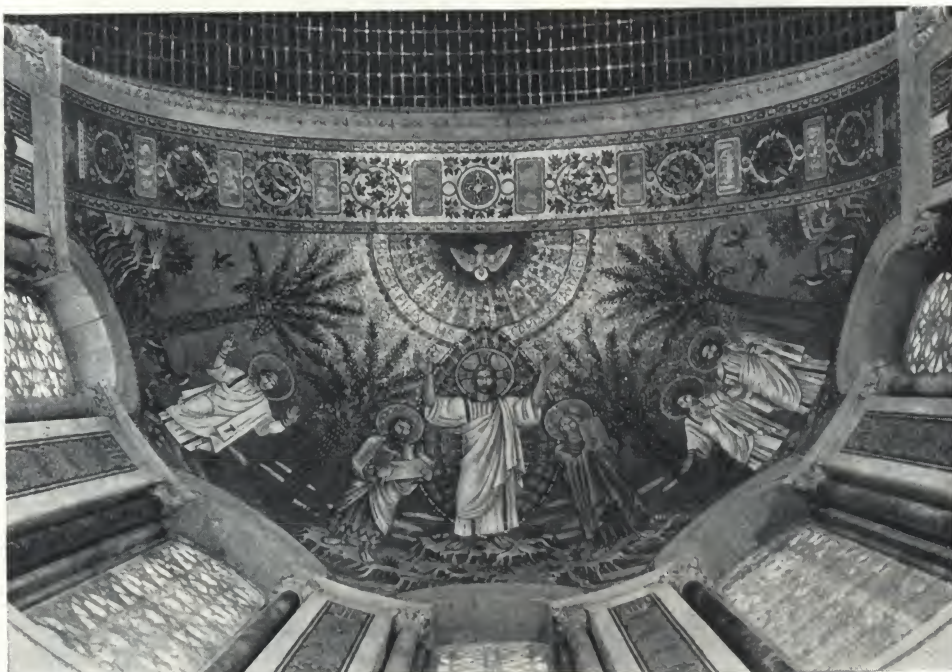
Craftsmanship—All work shall be executed in strict accordance with the approved designs and samples.

The technique of the mosaics shall be of the same quality as that used in the early Ravenna and Roman Mosaics (examples at the Metropolitan Museum of Art).

Ample space shall be left between the single tesserae to allow the cement mortar to hold the mosaic cubes in place and all tesserae, especially the gold and silver, shall be tilted at different angles to give the

surface an uneven and interesting texture and sparkle.

Delivery and Installation—The mosaics shall be delivered at the building set on paper and shall be mounted on a scratch and float coat provided by the plasterer under the direction of this contractor, no gypsum to be used in mortar. The structural base for the mosaics may be either metal lath, concrete or brick work, as provided for in another section of the general specifications. Such sub-construction shall be brought to within 1/2 in.



Saint Bartholomew's Church, Park Avenue, New York, N. Y.

B. G. GOODHUE ASSOCIATES, Architects

HILDRETH MEIERE, Mural Painter

of the finished surface and finished to proper lines for a uniform bed to receive the mosaics. The mosaic contractor shall only furnish the final coat of cement mortar in which the mosaics are embedded.

Sufficient scaffolding for the erection of the mosaics, water, heat and light, shall be provided to the mosaic contractor.

Estimates

Estimates and suggestions submitted on request.

A Few of Our Recent Installations Are in the Following Buildings

New York, N. Y.—St. Bartholomew's Church, Mayers, Murray & Phillip, Architects; Irving Trust Company Building, No. One Wall Street, Voorhees, Gmelin & Walker, Architects; Temple Emanu-El, Kohn, Butler & Stein, Architects; the Williamsburgh Savings Bank (Brooklyn), Halsey, McCormack & Helmer, Inc., Architects; International T. & T. Building, Louis S. Weeks, Architect; Film Center Building, Ely Jacques Kahn, Architect; Rumpelmayer Café, Winold Reiss, Architect.

St. Louis, Mo.—St. Louis Cathedral, George Barnett, Architect.

Detroit, Mich.—St. Aloysius Church, Donaldson & Meier, Architects; Maccabees Building, Albert Kahn, Inc., Architects; Fisher Building, Albert Kahn, Inc., Architects; Union Trust Building, Smith, Hinchman & Grylls, Architects; Holy Redeemer Chapel, Donaldson & Meier, Architects.

Ottawa, Canada—Metropolitan Life Insurance Co. Building, D. Everett Waid, Architect.

Rochester, N. Y.—Rochester Savings Bank, McKim, Mead & White, Architects.

Washington, D. C.—National Shrine (Catholic University) and Trinity Chapel, Maginnis & Walsh, Architects.

Seattle, Wash.—St. Joseph's Church, A. H. Albertson & Associates, Architects.

Los Angeles, Calif.—Subway Terminal Building, Schultze & Weaver, Architects; St. Vincent's Church; Mission Dolores Church.

Waterbury, Conn.—Immaculate Conception Church, Maginnis & Walsh, Architects.

Chicago, Ill.—St. Clements Church; Oriental Theater, Rapp & Rapp, Architects; Chicago Lying-In Hospital, Schmidt, Garden & Erikson, Architects.

Suresnes, France—War Memorial, Charles A. Platt, Architect.

Thiaucourt, France—War Memorial, T. H. Ellett, Architect.

Steamships—The rich mosaic decorations in the new steamers—S.S. Bremen and S.S. Europa—were also executed in our studios.

ESTABLISHED 1889

RICHARD N. SPIERS & SONS

Works of Art in Stained and Leaded Glass
Spiers Studio Building, 50 West 15th Street
NEW YORK, N. Y.

TELEPHONE
CHELSEA 2928, 5285

Products

MEMORIAL WINDOWS for CHURCH
and MAUSOLEUM.
PAINTED and FIRED MEDALLIONS
and HERALDIC MOTIFS.
LEADED CASEMENT WINDOWS.
STEEL CASEMENT FRAMES.
ANTIQUÉ LEADINGS.
HAND WROUGHT LEAD MOTIFS.

Experience and Service

We place at the disposal of architects the knowledge gained in 41 years of building stained and leaded glass windows and glass mosaics for every known type of architecture. Combined with this is our unusual staff of brilliant artists and skilled craftsmen available to offer suggestions and execute your requirements in an artistic manner.

Special water color sketches and details of setting with suggestions and estimates will be sent upon request.



Interior Casement Window in
Private Apartment



Medallion Window,
15th Century



Hand Wrought Lead Motif in
 $\frac{1}{2}$ -in. Bold Relief for Antique
Silhouette and Surface
Effects

Suggested Specifications

General—All leaded glass shall be executed to conform with patterns shown on drawings or special design submitted and approved by architect.

(The width of lead, plain, irregular or antique and the type of glass, imported or domestic antique, cathedral or opalescent should be specified.)

Leading shall be soldered thoroughly on both sides and all flanges filled with a cement containing 50% pure white lead putty, 30% whitening, 10% litharge and 10% red lead mixed with pure linseed oil so as to make glass perfectly watertight.

Reinforcing and Setting—For setting in wood sash, use a pure white lead putty after sash has been primed, for bedding and beading.

Reinforcing to be formed of galvanized steel bars inside the leads, or, soldered to face of lead as determined by the width and design of the lights. The maximum width for inside reinforcement to be 24 in.

For steel sash setting, use an approved steel sash putty. Reinforcing as noted above to apply here also.

(Sash should be furnished with mouldings for most substantial construction.)

Where glass is set in stone reglet, it shall be leaded thoroughly in cement with a margin of lead showing evenly around edge of opening. It shall be reinforced by means of galvanized iron bars sunk deeply into the stone groove and tied to glass with a sufficient number of copper wires.

State if general scaffolding may be used, if cost of cleaning glass and repairs should be added to estimate.



Window, One of a Series in Private
Shakespearean Library

Below:

First Three Days of Creation
Portions of Windows, Temple Emanu-el, Paterson, N. J.



MAGNALITE"—OBSCURING-DIFFUSING GLASS

(REGISTERED U. S. PATENT OFFICE)

EASTERN DISTRIBUTOR
J. Merrill Richards
 119 West First Street
 BOSTON, MASS.

WESTERN DISTRIBUTOR
American 3 Way-Luxfer Prism Co.
 1301-1305 South 55th Court, CICERO, ILL.
 55 West 42nd Street, NEW YORK, N. Y.

SOLD BY LEADING GLASS DEALERS EVERYWHERE

Product

"MAGNALITE" a New Process Obscuring-Diffusing Glass manufactured by the Mississippi Glass Co. Types A, A Wired and B.

For our pages on Skylights, Transoms, Ventilators, and Roofing, see Manufacturers' Index.



Electric light spots are eliminated.

For Skylights—Magnalite will reduce interior glare and illuminate a larger floor area. The underside corrugations serve as condensation leads.

For New Art Constructions—The design of Magnalite lends itself well to this type of construction in store fronts and interior decorations.

Description

Magnalite is a clear sheet glass with both surfaces smooth and crossed by scientifically designed cylindrical lenses at right angles to each other on either surface. Type A Magnalite is manufactured with lenses approximately $\frac{1}{2}$ in. on centers and Type B $\frac{1}{4}$ in.

Purpose

Magnalite is the result of scientific experiments to produce a glass to accomplish four definite results:

(1) Containing no pockets in which dirt can collect, Magnalite is very *easily cleaned*.

(2) The cylindrical lenses on either surface at right angles to each other make it *obscure* in the true sense of the word.

(3) The scientific construction of the lenses produces uniform *diffusion* of light.

(4) The lenses are designed to minimize back refraction of light to allow the *maximum* of light *transmission*.

New Process Quality

The scientific transverse lens design of this glass together with the fire polished surfaces gives to it a brilliancy unequalled by almost any other type of glass. It is obscure but at the same time rates high in light transmission with a maximum diffusion and consequently a minimum of glare. Both types of Magnalite in plain sheets are manufactured by a *new continuous process* which produces perfect cylindrical lenses and a finish on both sides of brilliant lustre.

Adaptability

For Partitions—Magnalite is so obscure that absolute privacy is assured.

For Windows—Magnalite will collect light at acute angles, diffuse sunlight to produce an even work light and redirect light to dark corners.

For Ceiling Lights—Magnalite forms a perfect screen and hides all steel and floodlight equipment, thoroughly diffusing the light from illuminating units as well as daylight.

Type A for

Ceiling lights
 Windows
 Partitions
 Skylights
 Auditoriums
 Art galleries
 Railroad terminals
 Hospitals
 New art store fronts
 Public buildings

Type B for

Partitions
 Windows
 Doors
 For general use as an
 obscuring glass
 Office buildings
 Schools and colleges
 Apartments and hotels
 Hospitals
 Residences



Reproduction of a Sheet of Magnalite—Type A

Magnalite Type A

This type is designed principally for use in large openings and in locations distant from vision. It has been used extensively in ceiling lights, large partitions and windows, to produce well lighted interiors.

Wired sheets of Type A are adaptable for skylights and locations where a wire glass is required.

**Magnalite Type A Wired****Magnalite Type B**

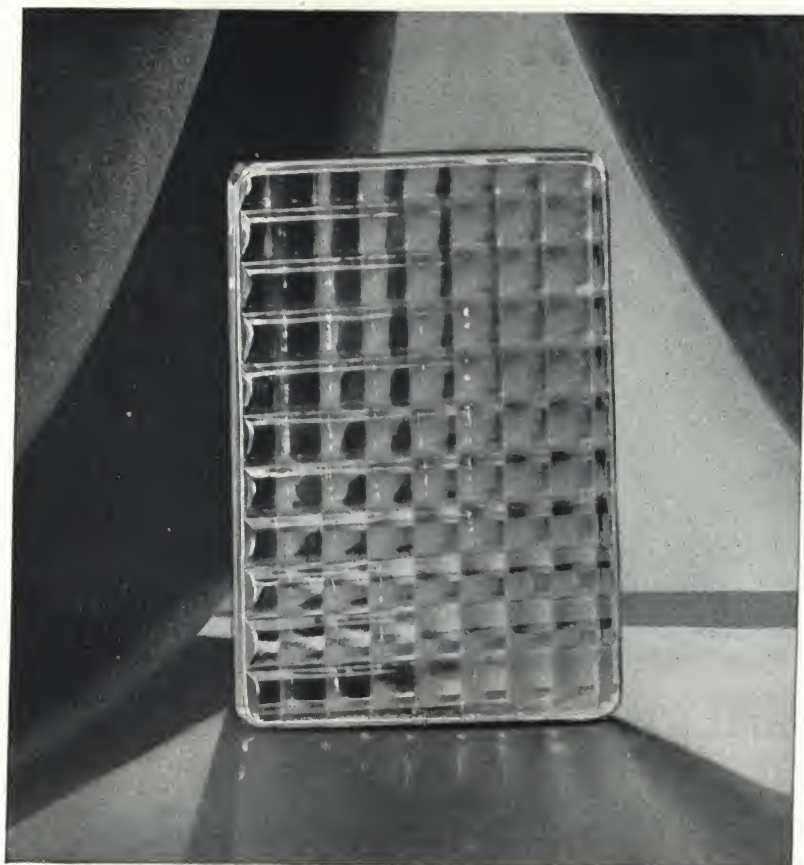
Type B is designed for general use, where a smaller design than Type A is more architecturally correct and in locations close to vision. It has all the meritorious properties of Magnalite design.

DIMENSIONS AND WEIGHTS OF "MAGNALITE" GLASS

Type	Approximate thickness, in.	Maximum size sheets, in.		Approximate weight per sq. ft., lb.
		Wide	Long	
A Plain Wired	$\frac{1}{4}$	58	132	2 $\frac{3}{4}$
	$\frac{3}{8}$	48	132	4 $\frac{1}{2}$
B Plain	$\frac{3}{8}$	58	132	2 $\frac{3}{4}$

Specifications

All partitions and doors, windows, ceiling lights and skylights where shown on plans shall be glazed with Magnalite glass (specify Type A or B or Type A wired)

**Reproduction of a Sheet of Magnalite—Type B**

as furnished by J. MERRILL RICHARDS, 119 West First Street, Boston, or AMERICAN 3 WAY-LUXFER PRISM COMPANY, Cicero, Ill., and New York, N. Y.

Distribution

Magnalite glass is handled by all leading glass dealers. If your local glass contractor is unable to supply your needs, write us.

Samples

Magnalite is on exhibition at the Architects' Samples Corporation Rooms, 101 Park Avenue, New York, N. Y.

Some Prominent Magnalite Installations

Art Museum, Rhode Island School of Design, Providence, R. I.

DeYoung Museum, Golden Gate Park, San Francisco, Calif.

Chrysler Building, New York City, N. Y.

American Numismatic Society, New York City, N. Y.

Harvard University Buildings, Cambridge, Mass.

Buffalo, N. Y., Schools

Denver, Colo., Schools

Boston, Mass., Schools

Cambridge, Mass., Schools

Salem, Mass., Schools

Quincy, Mass., Schools

Lockport, N. Y., Schools

Pittsfield, Mass., Schools

Mount Berry Schools, Mount Berry, Ga.

International Trust Company, Denver, Colo.

Libby, McNeil & Libby Factory, Bellona, N. Y.

Gillette Safety Razor Company Building, Boston, Mass.

New York Central Station, Buffalo, N. Y.

New York Central Station, Springfield, Mass.

Back Bay Station, N. Y., N. H. & H. R. R., Boston, Mass.

North Station, B. & M. R. R., Boston, Mass.

Pittsburgh Press Building, Pittsburgh, Pa.

Los Angeles Stock Exchange, Los Angeles, Calif.

Canal National Bank, Portland, Me.

Physical Education Building, Rochester University, Rochester, N. Y.

Max Convention Hall, Asbury Park, N. J.

Worcester City Hospital, Worcester, Mass.

Second National Bank, Elmira, N. Y.

Rhode Island State College

Post Office, Chase City, Va.

Berkshire Life Insurance Company Building, Pittsfield, Mass.

Great Northern Building, Chicago, Ill.

Harvard Medical School Dormitory, Boston, Mass.

Mountain States Telephone Company Building, Pueblo, Colo.

Earlham College, Richmond, Va.

Lynn Gas and Electric Company Building, Lynn, Mass.

Massachusetts State Hospitals

National Lock Washer Co., Newark, N. J.

BLUE RIDGE GLASS CORPORATION

KINGSPORT, TENN.

SALES OFFICES

NEW YORK, N. Y., Metropolitan Tower, 1 Madison Avenue

CHICAGO, ILL., Pittsfield Building, 55 E. Washington Street

PACIFIC COAST SALES AGENTS, GOODMAN & PAIGE, 1490-1494 Mission Street, SAN FRANCISCO, CALIF.

Products and General Uses

Manufacturers of PLAIN and WIRED FIGURED ROLLED GLASS and POLISHED WIRE GLASS for partitions, doors, transoms, windows and skylights of industrial and commercial buildings.

Patterns

Diffusex, Luminex—the "Smooth" Glass, Velvex, Industrex and Transex are recently developed patterns manufactured exclusively by the BLUE RIDGE GLASS CORPORATION. They afford the architect new opportunities to express his own taste in attaining beauty and harmony by the use of glass of unexcelled quality and mechanical efficiency.

Hammered, Ribbed, Florex, Mazex, Pebblex and Sheet Prism are older patterns made under the Blue Ridge policy of a uniform standard of quality for all products.

Distinguishing Characteristics

As the volume of light transmitted by glass is in direct proportion to the purity of its composition, architects and illuminating engineers stress the importance of quality when specifying a particular brand of glass. They realize that surface patterns or ornamentations only direct or diffuse the light passing through the glass and that dirt diminishes the volume available for distribution. Furthermore, glass of high quality has more luster than glass made from inferior materials.



All Blue Ridge products from plain ribbed to polished wire are made under one standard formula and uniform melting condition. This gives each pattern a brilliant luster and an unusually high volume of light transmission. In general, diffusion is accomplished by means of small convex lenses and shallow patterns to reduce the collection of dirt to a minimum. By avoiding sharp corners and deep markings these new patterns can be cleaned without using a brush.

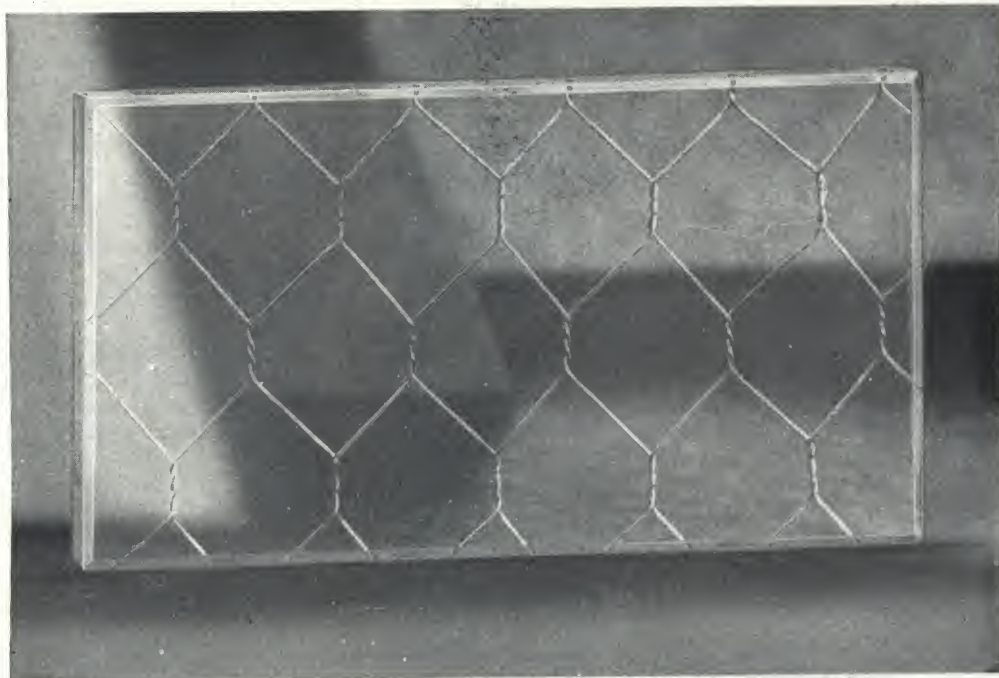
Wire Glass

Wire glass can be furnished in all patterns except Luminex—the "Smooth" Glass, Transex and Sheet Prism. As our Rough Wire is smooth on both surfaces it is used extensively in conjunction with plain Luminex—the "Smooth" Glass.

Our manufacturing process prevents the formation of bubbles around the wire and insures location of the wire mesh midway between the two surfaces of the glass. Listed by Underwriters' Laboratories, Inc., as Fire Retardant R-2129.

Where to Obtain Blue Ridge Products

Leading glass jobbers and glaziers throughout the United States carry Blue Ridge glass in stock or can order it for direct shipment from our factory, thus insuring prompt service at all times.



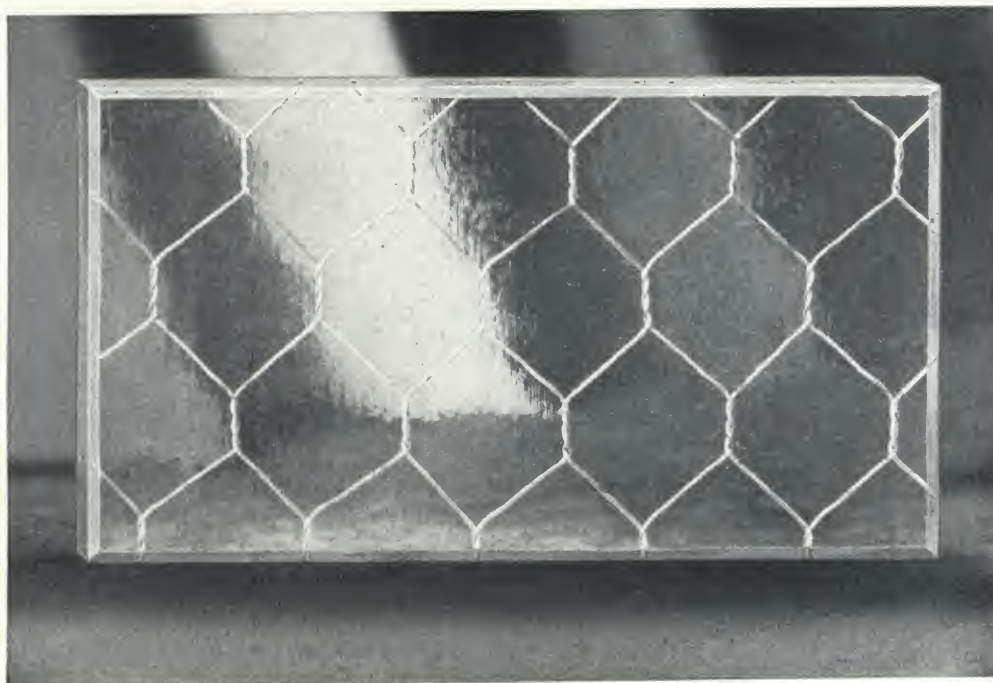
POLISHED WIRE GLASS

Thickness $\frac{1}{4}$ Inch

Architects who have objected to the usual disfigurement of polished wire glass by clusters of bubbles on the wire mesh will appreciate the superb quality of this Blue Ridge product.

The bright steel wire is completely free from grouped bubbles and discoloration. It is firmly embedded

in the genuine plate glass midway between the two brilliantly polished surfaces. The beauty of polished plate glass will not be sacrificed for fire protection if your specification reads, "All Polished Wire Glass to be free from bubble clusters on the wire, as manufactured by the BLUE RIDGE GLASS CORPORATION."



ROUGH WIRE GLASS

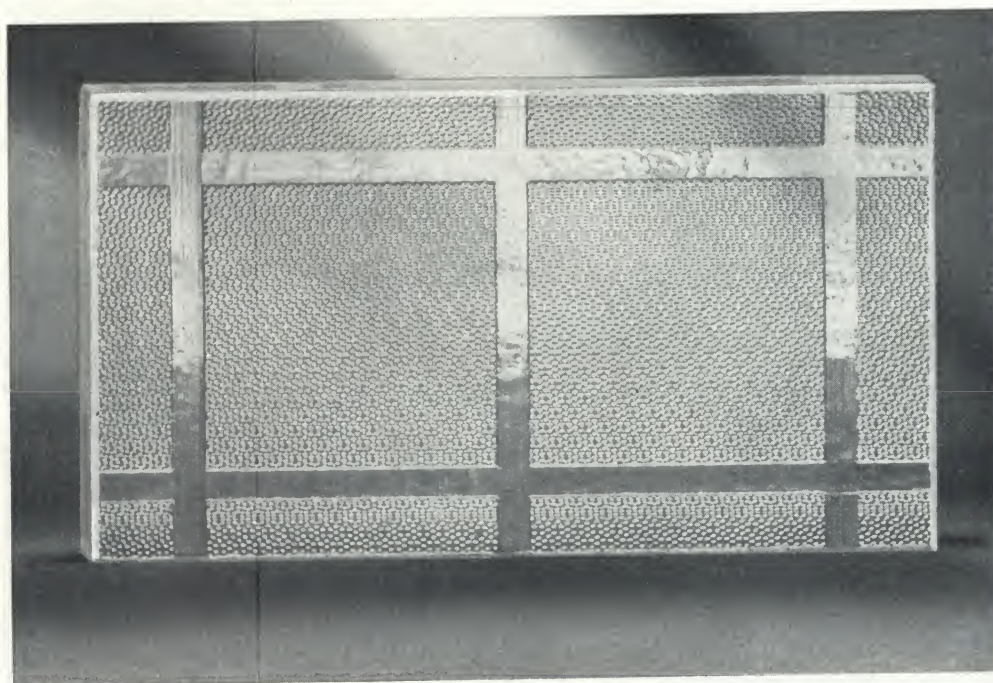
Thickness $\frac{1}{4}$ Inch—Maximum Width 48 Inches

There is no similar product on the market. Because of its partial transparency it is ideal for use in openings not requiring the unobstructed vision afforded by polished wire glass.

There is practically no pattern to diffuse the light

but the volume transmitted is high because the metal is of such good quality. Its smooth surfaces make it comparable with clear glass in cleanliness.

Especially recommended for windows and skylights of factories and other industrial buildings.



TRANSEX

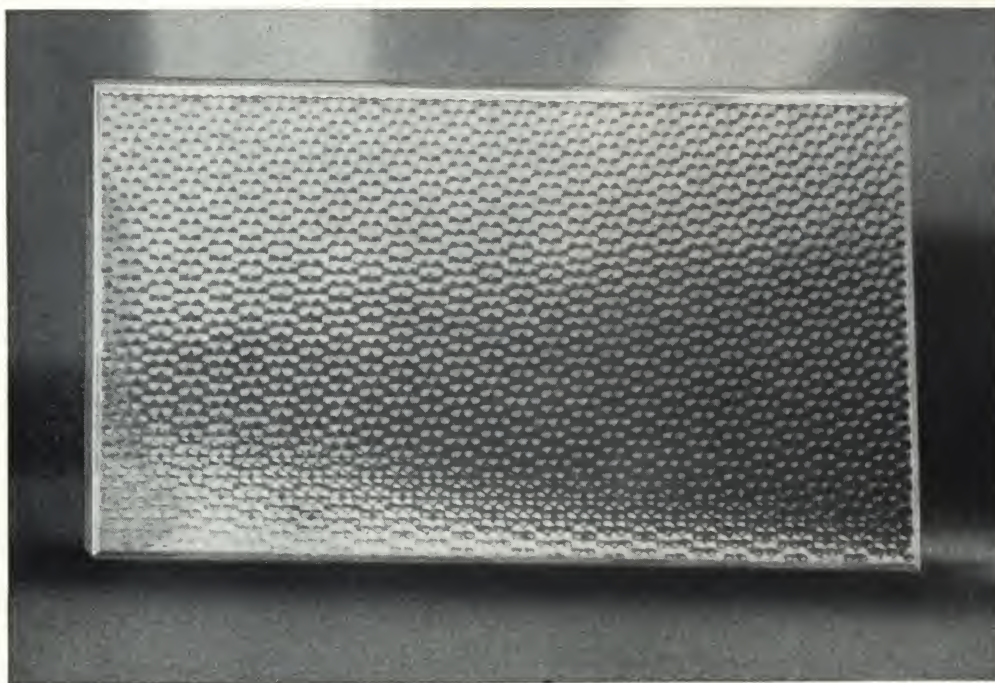
Thickness $\frac{3}{8}$ Inch—Maximum Width 48 Inches

The superior glass for store front transoms. Transex is a solid sheet of glass made to resemble separate tiles set in metal. The $3\frac{1}{4}$ -inch squares are the Diffusex pattern and the $\frac{3}{8}$ -inch lines are plain, a combination of pleasing appearance and practical value.

It is weatherproof because there are no cemented joints to weaken under the vibration of wind and rain storms and the division lines are not elevated above

the Diffusex background. A firm and leakageproof contact is thus insured between sash and glass at all points.

There are no pits, grooves or sharp angles in the pattern. It will remain clean under extreme conditions and distribute light efficiently long after dirt collections have destroyed the effectiveness of ordinary tiled transoms.



DIFFUSEX

Thicknesses $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ Inch—Maximum Width 48 Inches

A new design of modest beauty and highest quality. Transmits a soft light uniformly by means of tiny lenses which do not collect dirt rapidly. The lenses are but slightly elevated and there are no angular lines to make cleaning difficult. A damp cloth will suffice. Primarily for interior partitions, doors and transoms, but equally effective

in any location where adequate light diffusion is desired.

Polished Diffusex

Thickness $\frac{3}{8}$ inch, maximum width 48 inches. An added touch of refinement is given to rolled Diffusex by grinding and polishing the smooth surface. Polished Diffusex is recommended for the most costly buildings.

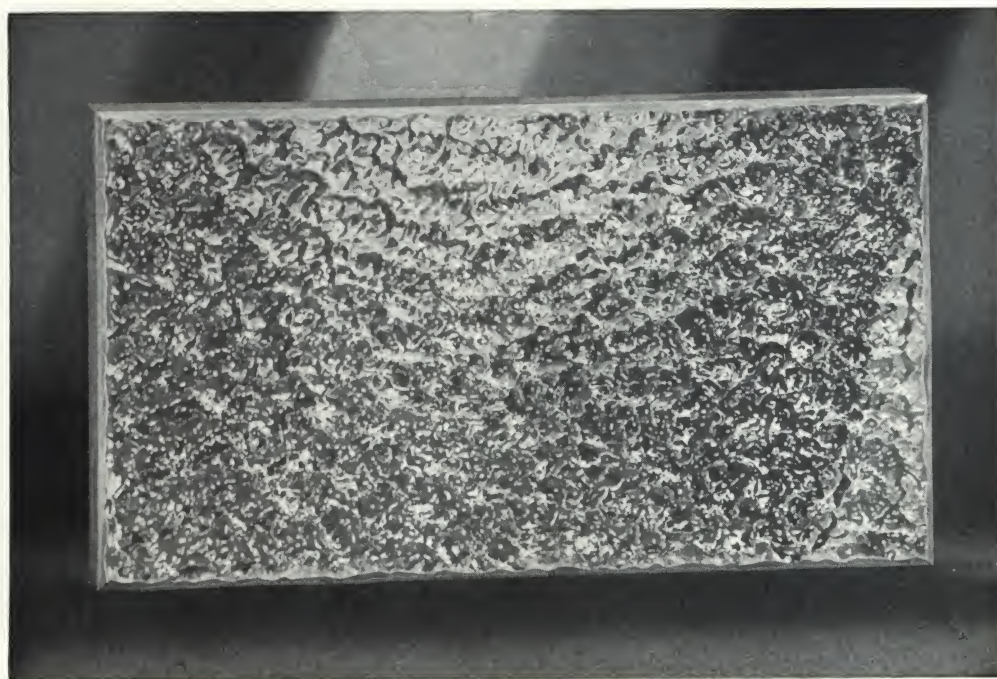


VELVEX

Thicknesses $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ Inch—Maximum Width 48 Inches

This unique pattern, although extremely shallow, is so designed that the play of light rays through the glass creates an illusion of depth and the lustrous beauty of brocaded velvet. Plate glass quality insures adequate light transmission which will not be materially reduced by exposure in dusty areas. There are no grooves or crevices

to collect dirt and make cleaning difficult. Velvex gives a pleasing effect in office partitions, doors and transoms and it is equally suitable for skylights, factory walls and monitors. While it is sufficiently obscure for ordinary commercial buildings we do not recommend Velvex for installations requiring complete privacy.



PEBBLEX

Thicknesses $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ Inch—Maximum Width 48 Inches

A figured rolled glass of unusual brilliance and beauty. It is popular for office partitions because of its effective diffusion of light while insuring privacy. The pattern is comparatively shallow and dustproof.

Polished Pebblex

By grinding and polishing the smooth surface of rolled Pebblex, a beautiful ornamental polished plate glass is obtained.



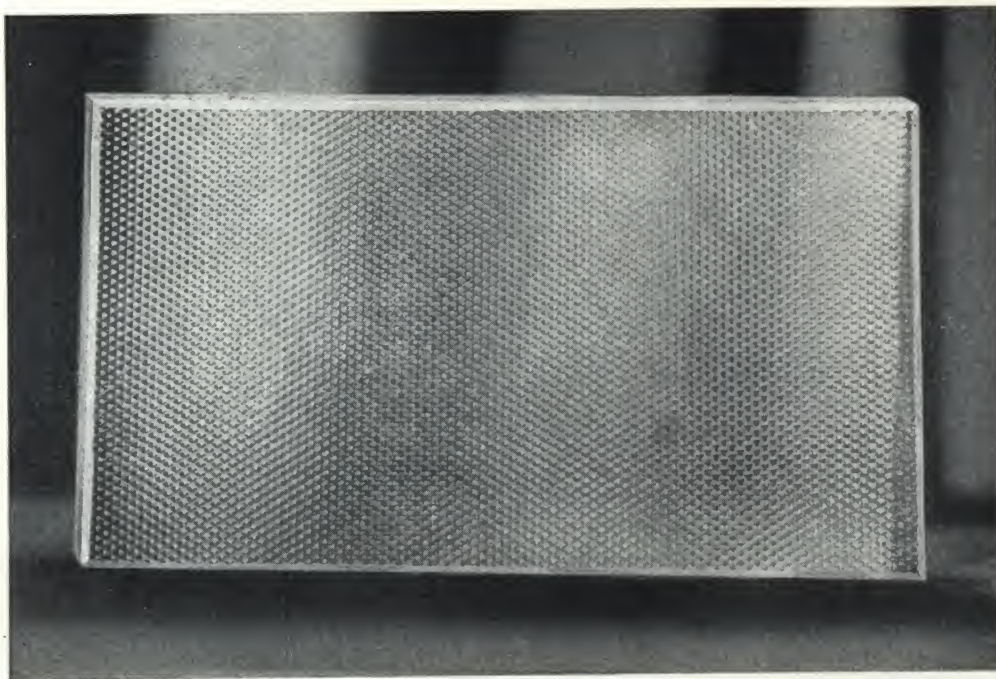
LUMINEX—the "Smooth" Glass

Thicknesses $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ Inch—Maximum Width 48 Inches

Luminex—the "Smooth" glass—is especially recommended for industrial glazing when the cost of keeping glass clean is an important factor and only medium distribution of light is essential. It is almost transparent and as the pattern is of extremely fine texture it can be glazed and cleaned like clear glass.

Photometric measurements made by a nationally recognized laboratory in November, 1927, showed that a

greater volume of light passed through Luminex—the "Smooth" glass—than through a leading brand of clear glass of corresponding thickness. This mechanical efficiency has influenced numerous engineers and architects to specify it for windows, monitor skylights and partitions in industrial buildings. Store front transoms, furniture tops and storm shields for costly leaded windows are other popular uses.



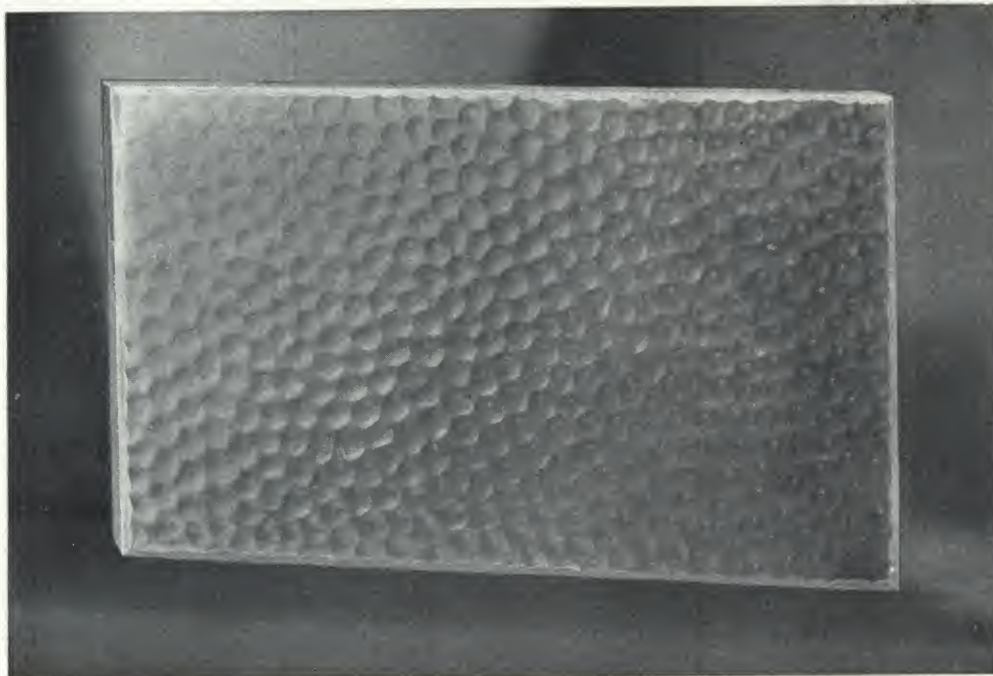
INDUSTREX

Thicknesses $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ Inch—Maximum Width 48 Inches

A highly practical light diffusing glass for industrial buildings. The small lens-shaped figures are compactly arranged to provide uniform refraction and overcome glare. As the glass quality is identical in all Blue Ridge products the light volume available for distribution is assuredly high.

Since light rays travel in a direct line unless deflected from their course, a simple demonstration of diffusion can be made by examining Industrex with an unshaded electric lamp as the light source.

The spread of the deflected rays will be plainly evident.



HAMMERED

Thicknesses $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ Inch—Maximum Width 48 Inches

The advantage of maintaining one uniform quality, regardless of the purpose for which the product is intended, is readily apparent in Blue Ridge Hammered glass. It differs from all other patterns of the same name both in appearance and scope of usefulness.

The contiguous lenses forming the pattern distribute

the light passing through the glass and accentuate the luster of the metal. Consequently, this Hammered glass offers beauty and cleanliness in addition to mechanical efficiency.

It is used for general industrial glazing in either exterior or interior locations.



FLOREX

Thicknesses $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ Inch
Maximum Width 48 Inches

This pattern is popular for interior glazing because of its beauty and effective distribution of light. Its brilliance is largely due to the quality of the glass, as the imprinting is based on the Blue Ridge principle of avoiding sharp grooves and corners as far as possible.



MAZEX

Thicknesses $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ Inch
Maximum Width 48 Inches

Mazex is a favorite of many architects. Its brilliance lends beauty and dignity to building interiors and it distributes light remarkably well. The surface is thoroughly covered by the design which gives total obscurity.



RIBBED

Thicknesses $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ Inch
Maximum Width 48 Inches

Ribbed glass is for industrial glazing only. It diffuses light satisfactorily but when exposed in areas where dirt and grease are prevalent its cleanliness is rather difficult to maintain. Unless special conditions warrant its use we suggest Industrex, Luminex—the "Smooth" glass—or Hammered as preferable patterns for factory windows, skylights and partitions. The metal of Blue Ridge Ribbed Glass is of the same quality as the higher priced designs, thus insuring light transmission unsurpassed by any other ribbed glass made.



PRISM

Thicknesses $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ Inch
Maximum Width 48 Inches

Prism glass offers maximum efficiency in light diffusion. However, the deep pattern which achieves this result also sacrifices ease of cleaning to a considerable extent.

Where collection of dust is no objection, Prism will prove entirely satisfactory.

Store front transoms are the most popular use of prism but it deflects direct light rays so well that wherever it is necessary to throw light to the ceiling of a room prism is an efficient upper sash glass.

HIGHLAND-WESTERN GLASS COMPANY

WASHINGTON, PA.

SALES OFFICES

NEW YORK, N. Y., 1182 Broadway

CHICAGO, ILL., 111 W. Washington Street

FACTORIES: WASHINGTON, PA.; STREATOR, ILL.; FULLERTON, CALIF.

Products

ROLLED FIGURED GLASS; WIRE GLASS; POLISHED WIRE GLASS; POLISHED FIGURED GLASS; and CATHEDRAL GLASS in plain and mixed colors.

Patterns

Hammered
Ribbed
Smooth Rough
Solite
Raylite
Florentine

Moss
Silverglass
Mystic
Carnation
Pyramid
Prism

Tilite
Superlite
Colonial
Holly
Artex
Polished Wire

Patterns are scientifically designed to give proper diffusion and obscurity for the locations for which they are intended.

Quality raw materials, and modern manufacturing methods make Highland-Western Glass unexcelled in brilliance, clarity and light transmission values.

Some of the most popular patterns are illustrated herewith over headings indicating their usual uses. Samples of all patterns manufactured sent on request from our offices.

Uses

Industrial Buildings—Sidewall sash; monitors and skylights.

Commercial and Institutional Buildings—Partition, transom and door lights; elevator shafts; skylights and area-ways.

General—Any location requiring daylight with privacy, or where the direct rays of the sun must be diffused or re-directed.

Fire Protection

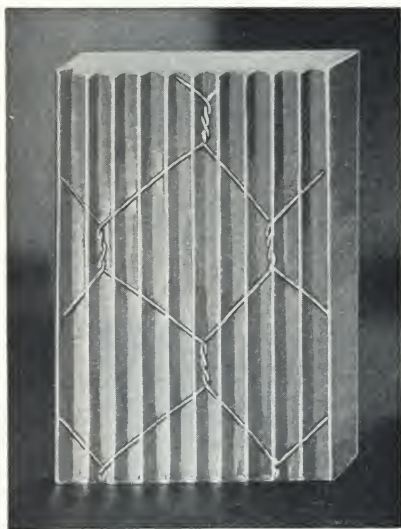
Fire protection is afforded by the use of Highland-Western Glass, which is tested in the laboratories of the National Board of Fire Underwriters and is officially listed by them as "Fire Retardant No. 295." Most of the patterns listed above can be furnished in Wire Glass.

Distribution

Large stocks carried by leading jobbers throughout the country, and our nation-wide chain of three modern plants assure a dependable supply of glass and prompt delivery on the job.

Sizes

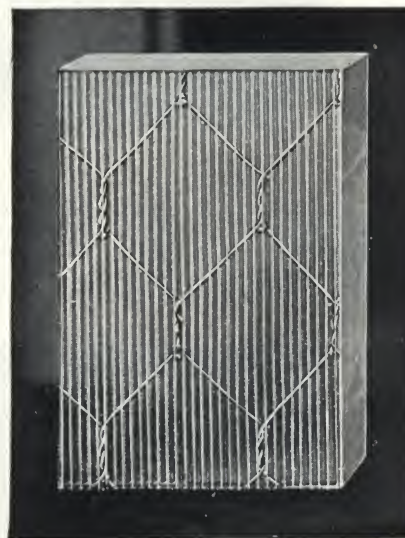
Specify in the order given:
Thickness— $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$ and $\frac{3}{8}$ in.
Widths—Up to 48 in.
Lengths (Height)—Up to 144 in.
Weight—Figure 2 lb. per $\frac{1}{8}$ in. of thickness.



Raylite Wire

For use up to 15 ft. from floor

Industrial—Skylights



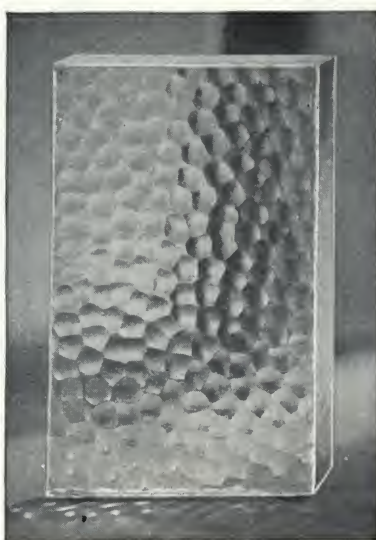
Ribbed Wire

For use over 15 ft. from floor

Industrial—Skylights



Rough

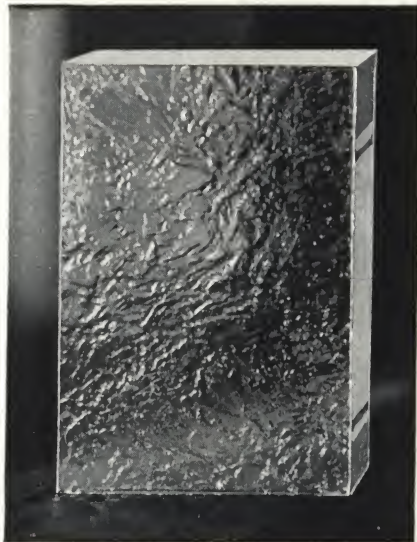


Hammered

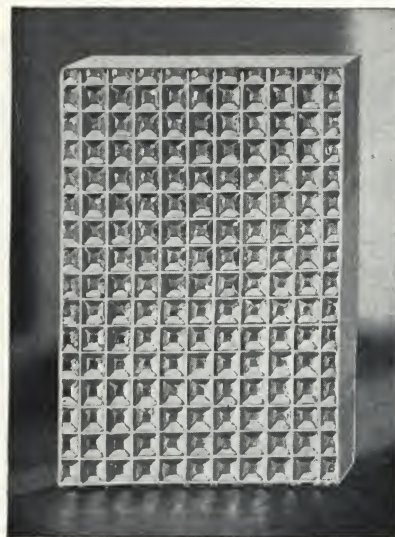


Solite

Industrial—Sidewall Sash



Carnation



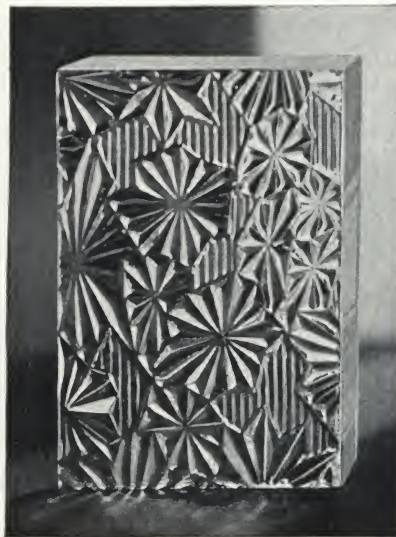
Pyramid



Artex



Moss



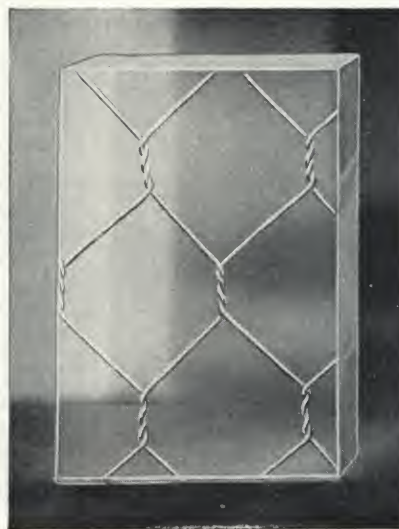
Florentine



Mystic



Silverglass



Polished Wire



Prism

Commercial and Institutional—Partitions and Similar Uses

MANUFACTURERS GLASS COMPANY

Manufacturers of Pressed Lens Glass
A Diffusing Glass for Daylight Illumination
38 South Dearborn Street, CHICAGO, ILL.

NEW YORK OFFICE, 551 Fifth Avenue
SUPPLIED BY LEADING GLASS JOBBERS EVERYWHERE

Products

PRESSED LENSIB GLASS, with and without wire, for skylights and ceilings. **LENS SHEETS**, with and without wire. **PRESSED LENS**, Hexagonal and 4x4 Tiles for Schools and Partitions.

Pressed Lensrib Wire

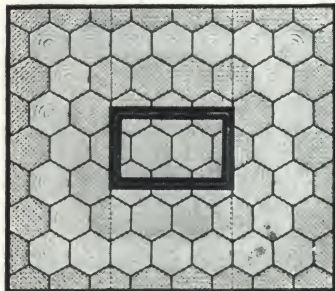
Lensrib, with or without wire, especially adapted for glazing skylights, ceilings, side walls, etc., increases daylight illumination 50% or more and has perfect cleanability. Transmits the vertical light and gives a shadowless light without glare. No loss from reflected light.

The extraordinary volume of daylight illumination (shadowless light) is unusual and the glass may be used in all classrooms, laboratories and science buildings, even those more modest in design.

One of the advantages of high levels of illumination is the enhanced production attained from the greater ease, accuracy and safety with which the student or workman can perform his operations, whether laboratory, machine shop, printing plant or laundry.

It is quite possible to increase the daylight illumination from skylights, ceilings and other sash, 50 to 100 per cent as measured in foot candles by using the Lensrib pattern. A shadowless light even is possible by the use of sufficient glass area. Such calculations are based upon the following factors from 1 to 10, inclusive.

1. No loss from reflected light.
2. Gets the vertical light.
3. Highest possible transmission.
4. Maximum diffusion or re-directed light passing through.
5. No glare.
6. Self-cleaning surface, perfect cleanability.
7. Heat dispersion.
8. Fracture resistance.
9. Conceals the light spots from reflectors.
10. More light on dark days.

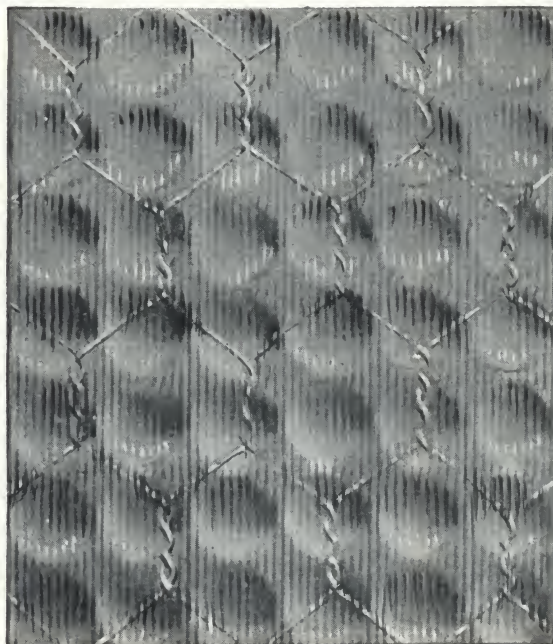


Hexagonal Tile

Same superficial area as 4x4 in. This clever new design gets away from straight lines, is unique and snappy, glazed in copper plated bars to fit any openings



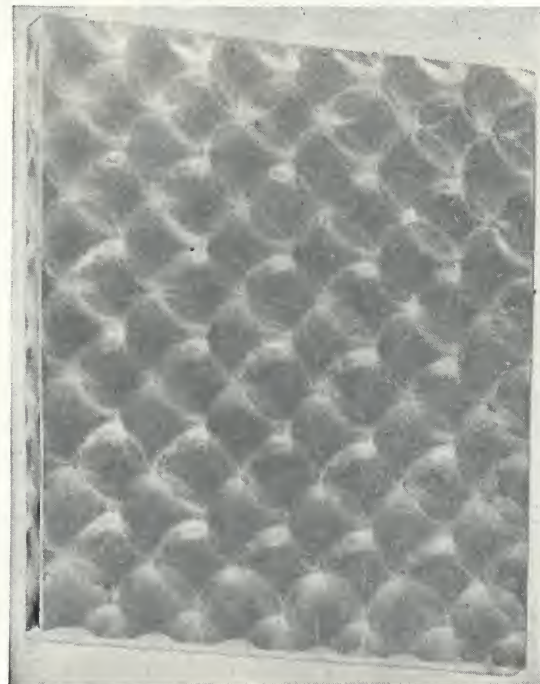
Pressed Lens 4x4 Tile Frames to Fit Any Opening



Pressed Lensrib Wire Glass

Specify $\frac{1}{4}$ -in. Lensrib Glass, plain and wired

*There Is No
Substitute
for Vision*



Pressed Lens Wire Glass

Specify $\frac{1}{8}$ -in. Pressed Lens Glass, plain and wired

Rates Highest Classification for: Light Transmission (95%); Redirected Light; Perfect Cleanability; Crystal White Color; Diffused Light; Attractive Appearance; Non-Corrosion; Moderate Cost.

We claim no other glass excels for so many uses:
Office partitions
Doors
Bank screens
College libraries' ceilings
Chemical laboratories
University centers
High school gymnasiums' ceilings
Hospitals
All skylights (everywhere)
Solariums (for sanitary reasons)
Art gallery ceilings
Assembly Hall ceilings
Transoms (over plate glass windows)

Perfect Light Distribution

Schools everywhere now deficient in natural daylight may be perfectly lighted by the use of Pressed Lens Glass in the exterior upper sash in about two-fifths the glass area. The U. S. Department of Health, Washington, Bulletin No. 159, reported on test of typical school study room "From the desks in the row farthest from the windows the illumination was below the accepted standard of 5-ft. candles much too frequently."

We can guarantee the use of Pressed Lens Glass in the exterior upper sash to increase the illumination at the desk height and above in the fourth row and beyond 100 per cent, probably more.

Interior office planning finds Pressed Lens Glass valuable for the effectual screening of divided rooms. In obtaining this high degree of obscurity we have not sacrificed the lighting possibilities. Pressed Lens Glass is more striking in appearance than ordinary kinds of figured glasses and serves all of the purposes of an ideal partition glass at a minimum cost. 70,000 ft. used on this job.



**Buhl Building, 29 Stories,
Detroit, Mich.**

Pressed Lensrib (Wire) Glass

A Diffusing (Wire) Glass for Skylights, Ceilings and Side Walls, Giving 50 to 100 per Cent Increased Light—Gets the Primary Light

For acceleration of physiological and process requirements everywhere:

Gymnasiums
Natoriums
Solariums
Hospitals
Utility Power
Printing
Machines
Laundries
Garage Plants

Especially designed for daylight illumination of:

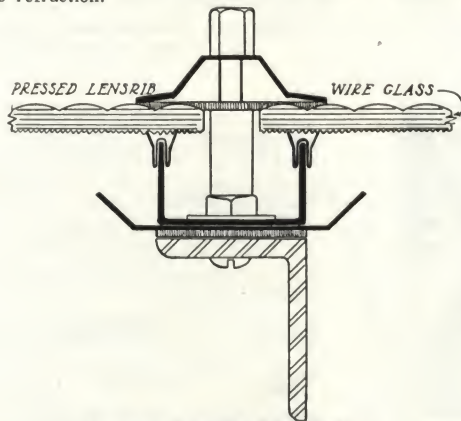
Art Galleries
Museums
Biological
Chemical
Engineering
Photo-Chemical
Laboratories
Libraries
Auditoriums

Description—Underwriters' standard $\frac{1}{8}$ -in. wire glass, Lensrib surface formation consisting of circular lenses $\frac{1}{2}$ in. in diameter, 4 to the square inch, on one surface, overlapped on the opposite side by parallel lenticular ribs 22 to the inch. Should be glazed with lenses outside and ribs running vertically on the inside.

Characteristics—In this new product the illuminating engineer has linked together the angles of refraction in such fashion as to invent something very new in glass. Multiple refraction, also called diffusion, a spreading of the light flux without glare by which vision indoors more nearly approximates natural outdoor environment, has been achieved with such specific results that the increase in foot candles as read by a photometer may be 50% to 100%, and under some conditions 200% to 300%. A knowledge of physiological and process requirements proves that nerve wracking glares, sunspots, shadows and under-illumination generally, may be almost if not entirely cured by the use of a moderate area of Pressed Lensrib Glass.

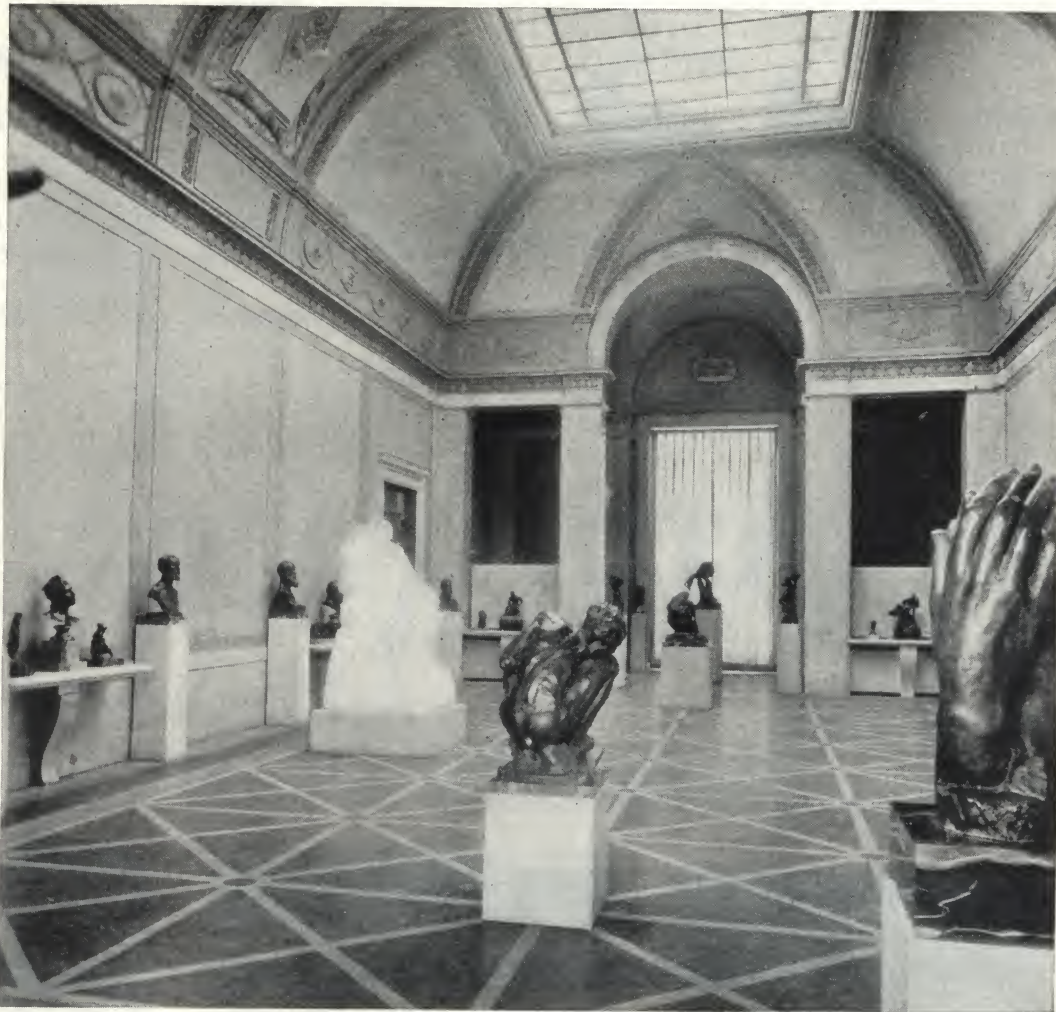
Photometric Illumination Chart D-93 on this page, definitely and specifically charts the lines of multiple refraction as compared with other glass, and shows a spread of nearly 50° in redirected light, from which it is a simple calculation to predict in advance where dimensions are known, the necessary glass area and the location of openings, orientation, etc., necessary to correct most of the existing evils of defective daylight illumination.

Glass with a flat surface loses 50% or more light from reflection (see Higbee & Randall's Symposium on Illumination) while Pressed Lensrib takes the vertical light at any angle and redirects it widely by a process of multiple refraction.

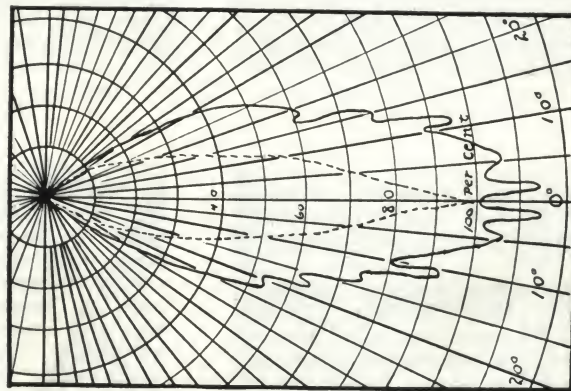


Pressed Lensrib Wire Glass

Shows perfect waterproof glazing in most approved standard type puttyless construction. Details upon request



How to Specify—All skylights, sidewalls, ceilings, and other openings, are to be glazed with Lensrib Wire Glass as shown on plans and specifications, which product is made by the MANUFACTURERS GLASS COMPANY, First National Bank Building, Chicago, Ill.; this glass shall be glazed with lenses on the exterior and ribs underneath, so that any condensation may be drained by the rib channels.



Distribution of Light Through Pressed Lensrib Glass as Compared with Ordinary Ribbed Glass, etc.

Continuous lines show Pressed Lensrib Glass to have a 50° spread, or angle of light diffusion.

Dotted lines show ribbed glass typical of similar factory glass to have little value for diffused light.

Test No. 46329 by Electrical Testing Laboratories, New York, March 5th, 1928

PRESSED PRISM PLATE GLASS COMPANY

Manufacturers of Ornamental Polished Plate Glass Products

27 North Dearborn Street
CHICAGO

551 Fifth Avenue
NEW YORK

Products

"IMPERIAL" ORNAMENTAL PLATE GLASS in five styles; "IMPERIAL" PRISM-PLATE GLASS in large plates; "IMPERIAL" PRISM SKYLIGHT GLASS (unit plates 18x60 in.).



thickness, namely, $\frac{1}{4}$ to $\frac{5}{16}$ in. Maximum size of all patterns 72x84 in.

The plate prism glass for store front transoms and upper sashes of exterior windows is $\frac{3}{8}$ to $\frac{7}{8}$ in. thick. Maximum size of prism glass, 84 in. wide (horizontal dimension) by 72 in. high.

Distinguishing Characteristics

All the products illustrated are ground and polished plate glass with clean-cut prismatic figures die pressed on one side.

They may be readily distinguished from all other figured glasses by their uniformity of pattern and absence of disfiguring waves or roller marks on either smooth surface or figured surface.

They are strong, durable and easily cleaned. The patterns harmonize with any style of finish and a wide range of modern architecture.

Being polished plate glass they blend as no other figured glass can with the plain polished plate glass windows which characterize modern building elevations and interiors.

Quality and Dimensions

The products are made in one standard polished plate glass quality and the ornamental patterns, Style O-1, O-2, O-3, O-4 and O-5, in standard plate glass

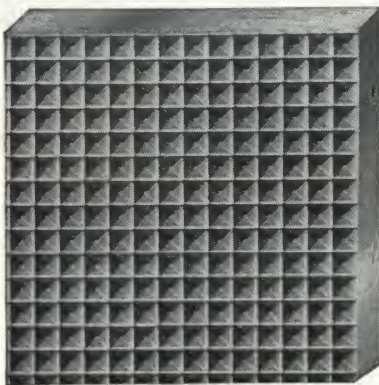
Suggested Specifications

All sash doors, transoms and other openings in corridor partitions and all interior communicating sash doors and partition openings, shown or indicated as containing glass, from the to the floors, inclusive, except (Note 1), shall be glazed with "Imperial" Ornamental Plate Glass, Style (Note 2) as manufactured by PRESSED PRISM PLATE GLASS CO.

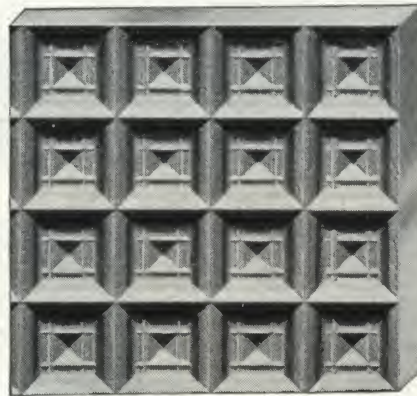
All exterior toilet room windows, the ceiling sash under skylights in the, casement doors and sash partitions on mezzanine and, and all other openings not otherwise mentioned which are shown or indicated as containing obscure glass or marked O-1, O-2, O-4, etc., shall be glazed with "Imperial" Ornamental Plate Glass of the style indicated, as manufactured by the PRESSED PRISM PLATE GLASS CO.

(Note 1) except (here may be mentioned fire exit doors, hose cabinet doors, elevator enclosures or other incidental openings which need to be of a clear plate glass or polished wire glass, etc.)

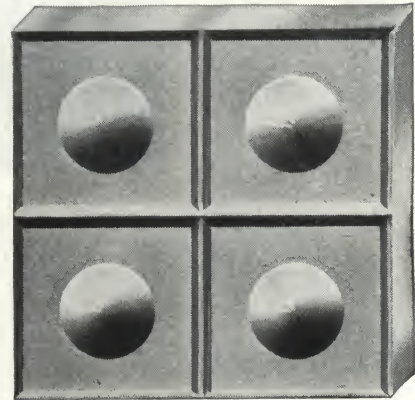
(Note 2) Style—(Insert here O-1, O-2, O-3, O-4 or O-5. Selection of a definite style prior to asking for bids minimizes the possibility of substitution or misunderstanding.)



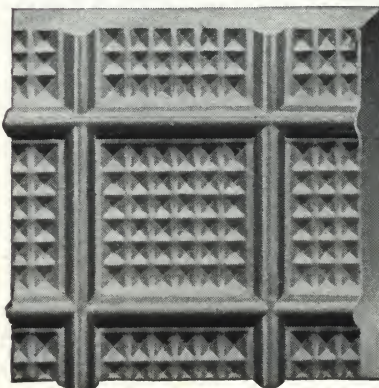
"Imperial" Ornamental Plate,
Style O-1



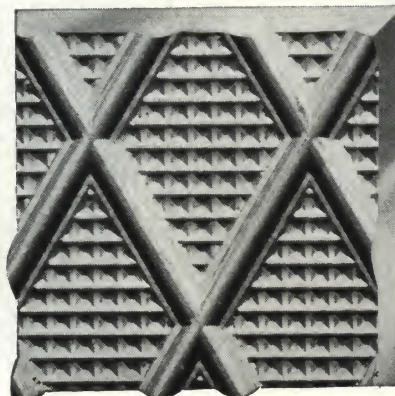
"Imperial" Ornamental Plate,
Style O-2



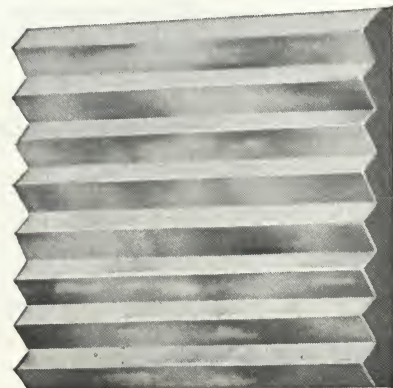
"Imperial" Ornamental Plate, Style
O-3 (Semi-transparent)



"Imperial" Ornamental Plate,
Style O-4



"Imperial" Ornamental Plate,
Style O-5



"Imperial" Prism-Plate Glass

Glass

by Mississippi

Polished Wire Glass

Polished Figured Wire Glass

Plain Figured Wire Glass

Plain Figured Glass

Polished Figured Glass

*The Right Glass
for the
Particular
Purpose*

MISSISSIPPI STYLES

Thousands of Square Feet of MISSISSIPPI GLASS



Southwestern Bell Telephone Co. Building, St. Louis, Mo.

MAURAN, RUSSELL & CROWELL, Architects,
St. Louis, Mo.

All Windows of Polished Wire Glass

MISSISSIPPI GLASS COMPANY
MISSISSIPPI WIRE GLASS COMPANY

CHICAGO

220 FIFTH AVENUE
NEW YORK

ST. LOUIS

MISSISSIPPI GLASS

A Standard for Every Architectural Daylighting Requirement

Products

PLAIN and POLISHED FIGURED GLASS, POLISHED WIRE GLASS, PORT LIGHTS, DECK, VAULT or FLOOR LIGHTS.

Mississippi Glass

The various patterns of Mississippi Figured Glass make it possible to choose styles that will be in keeping with the architecture of a building, as well as to obtain the maximum possible advantage from daylight illumination.

Brilliancy, strength, true cutting surface, uniformity of color and excellence of quality in Mississippi patterns combine with moderate cost to make Mississippi Glass the choice of thousands of architects, engineers and builders.

Mississippi Wire Glass

The MISSISSIPPI WIRE GLASS COMPANY is the original manufacturer of Solid Wire Glass, and its product is universally recognized as the standard wire glass, being the product upon which the Underwriters' standard was based in 1899.

By our process of manufacture, Standard Wire Glass is cast solid, and is superior in quality to any similar product on the market.

Wire Glass is rolled plate glass having a wire netting embedded equidistant from either surface. This process is automatically effected while the glass is in a molten state and, therefore, insures homogeneous and solid wire glass.

Adaptability of Wire Glass

The object of Wire Glass is to afford perfect and constant fire protection at a minimum cost, at the same time admitting and diffusing the light. It is particularly suitable for use in windows, doors, transoms, skylights, and all places where fire or breakage protection is required.

Advantages of Wire Glass

When employed as above mentioned, Wire Glass may be fractured by severe heat or sudden shock, but the wire mesh will hold the shattered pieces in place, preventing their falling and causing serious injury or loss of life. It will also prevent draft and hold a fire within the bounds of its origin.



Identification Label
on Mississippi Wire Glass

Underwriters' Requirements, Extract from Rules—1906

"(2) Size of Glass—(a) The unsupported surface of the glass allowed shall be governed by the severity of exposure and be determined in each case by the underwriters having jurisdiction, but in no case shall it be more than 48 in. in either dimension or exceed 720 sq. in. (b) The glass to be of such dimensions, after selvage is removed, that the bearing in the groove or rabbet is not to exceed $\frac{1}{8}$ in. less than the full depth called for in rules 7 and 8. (c) The glass to be retained by the structural part

of the frame or sash independently of the material which may be used for weatherproof purposes. Only non-inflammable material to be used in setting glass in the sash."

Ordering

Glass being one of the last materials to go into a building, it is often not ordered far enough ahead to give the manufacturer time to cut the glass to sizes and make shipment in time to enclose the building by the date desired. It is, therefore, advisable to give this point consideration in due time, as the tremendous demand for figured glass and figured wire glass necessitates orders taking their turn as they are received.

In ordering always specify width first. In wire glass, the twist of the wire runs with the length of the sheet. When giving sizes remember that the first dimension is understood to be the width.

How to Specify Wire Glass

Wire Glass shall be installed in (specify location) and in all places marked "W.G." on plans and elevations.

The Wire Glass to have a thickness of at least $\frac{1}{4}$ in. at thinnest point. Wire mesh to be not larger than $\frac{7}{8}$ in., and no wire used for such mesh to be smaller than No. 24 B&S gauge. Plane of the wire mesh to be practically midway between the two surfaces of the glass.

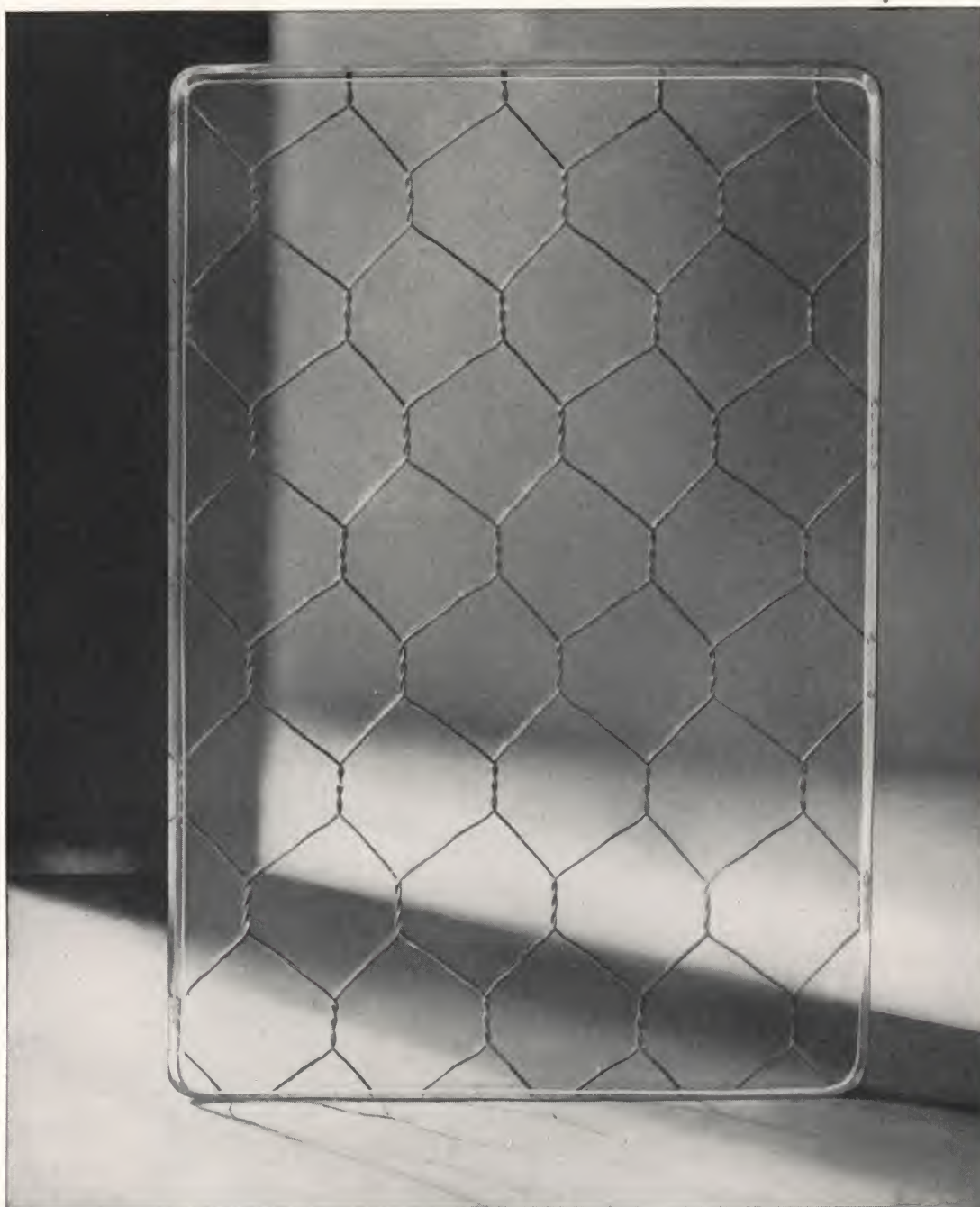
Selvage shall be removed from glass before framing.

(State here type or types of glass to be used and where.)



Identification Label
on Mississippi Glass

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Wire Actual Size

Mississippi Polished Wire Glass

The Standard

In 1893 the Mississippi Company began the manufacture of wire glass. It was a rather crude-looking material in comparison with the present perfected product, but it served the purpose for which it was intended—a material which would permit light and vision and act as a fire retardant.

Many practical demonstrations soon convinced engineers, architects and the general public that it was possible to protect a building from fire by a material that would not keep the interior in utter darkness.

A circular sent out by the Mississippi Company on August 24, 1899, stated that "The Solid Wire Glass manufactured by the Mississippi Glass Company is the only make of Wire Glass which has been officially approved, after tests, by the Boards of Fire Insurance Underwriters of the principal cities of the

United States, and acceptable for its superior manufacture and fire retardant quality, subject to their rules."

The present Underwriters' Laboratories, organized in 1901, following the earlier approval of underwriters throughout the United States, recognized the solid wire glass manufactured by the Mississippi Company as the Standard, and gave it the title of "FIRE RETARDANT No. 32."

Naturally, processes of manufacture have been vastly improved, and are constantly being improved by the Company's engineers. Mississippi Wire Glass is cast solid and is made from specially refined glass metal. It has received universal recognition because of its superior quality and finish. Mississippi Polished Wire Glass is sold by glass distributors everywhere. See table of sizes and thicknesses on page 12.

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Pattern Actual Size

FACTROLITE GLASS

Scientifically designed to obtain maximum daylight illumination in modern factories.

This pattern is the product of extensive research by Mississippi Engineers in the efficient use of daylight in modern factories, and is the last word in the scientific daylighting of such buildings. It will give the most uniform distribution of light in all directions that it is possible to obtain, and will increase the illumination in a building from 38% to 72% as compared with plain glass.



Factrolite is manufactured in three thicknesses in plain glass and in two thicknesses in wire glass. See table of sizes and thicknesses on page 12.

Factrolite as an Aid to Industry

This pattern has been scientifically designed to accomplish definite results.



(1) The elimination of glare so far as possible by the complete breaking up of the direct rays of the sun and the uniform diffusion of sunlight so that strong contrasts are eliminated and the illumination is softened, thus approaching that of north sky light.

Illumination in a room twenty-five feet or more deep may be increased from 38% to 72% by using Factrolite instead of plain glass. The improved illumination through Factrolite materially relieves eye fatigue and automatically increases quantity and quality of production.

(2) Factrolite may be easily cleaned as all depressed surfaces are straight lines and there are no

pockets in which dirt becomes embedded so that it can not be dislodged with a stiff brush.

Factrolite has been used in hundreds of the most efficient industrial plants in America, including such famous names in industry as Western Electric Company, Ford Motor Company, New York Edison Company, Dunlop Tire & Rubber Co., Pacific Mills, American Thread Co., Jenkins Bros., Inc., and the United States Government.

The list of satisfied users is constantly growing because no factory can be considered truly efficient that does not make the proper use of daylight—and no product equals Factrolite for efficient daylight illumination.

(See Chart page 10 and Graph page 11.)

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12

*Pattern Actual Size*

Aurora Glass

The ideal glass for partitions. The pattern is cut at an angle which gives the highest transmission of light, and at the same time deflects it to where it is wanted. It combines high quality, pleasant appearance and efficient light distribution.



AURORA is manufactured in two qualities, plain and polished. See table of sizes and thicknesses on page 12.



Specify
"Mississippi"

Ribbed Glass

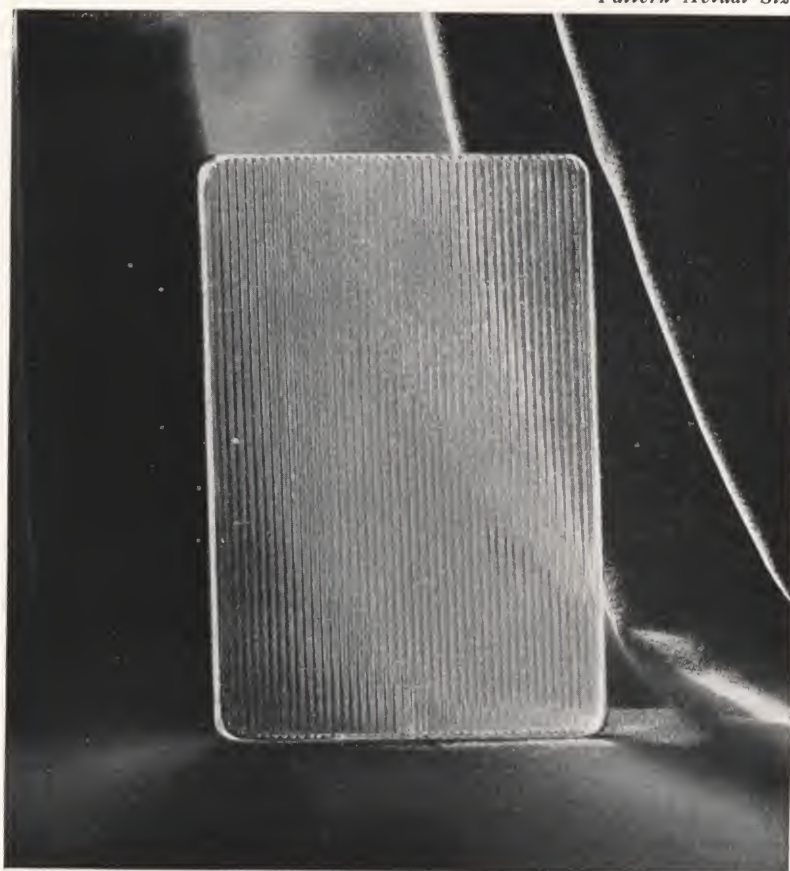
A ribbed glass supreme in the quality of its material and in its cutting surface. It is a simple design which affords excellent light diffusion and is extensively used for skylights and windows in factories, power plants, and other industrial buildings.



This pattern is also manufactured in Wire Glass.



Leading distributors everywhere can supply this and other Mississippi products. Samples gladly sent upon request.

*Pattern Actual Size*

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12

*Pattern Actual Size*

Pentecor Glass

A glass specially made for use in skylights, with ribs cut at an angle to collect and transmit the maximum amount of light without loss from total reflection. The light is deflected at right angles to the ribs, and will increase the light in a building, at a point fifty feet from the light source 130% as compared with plain glass. When installed in skylights set at the proper angle, Pentecor will conduct condensation and prevent dripping.

(See Chart page 10 and Graph page 11.)



Pentecor is also made in Wire Glass. See table of sizes and thicknesses on page 12.



Specify
"Mississippi"

Hammered Rough Glass

This is an example of superior Mississippi quality—the best plain Hammered Rough Glass that is produced.

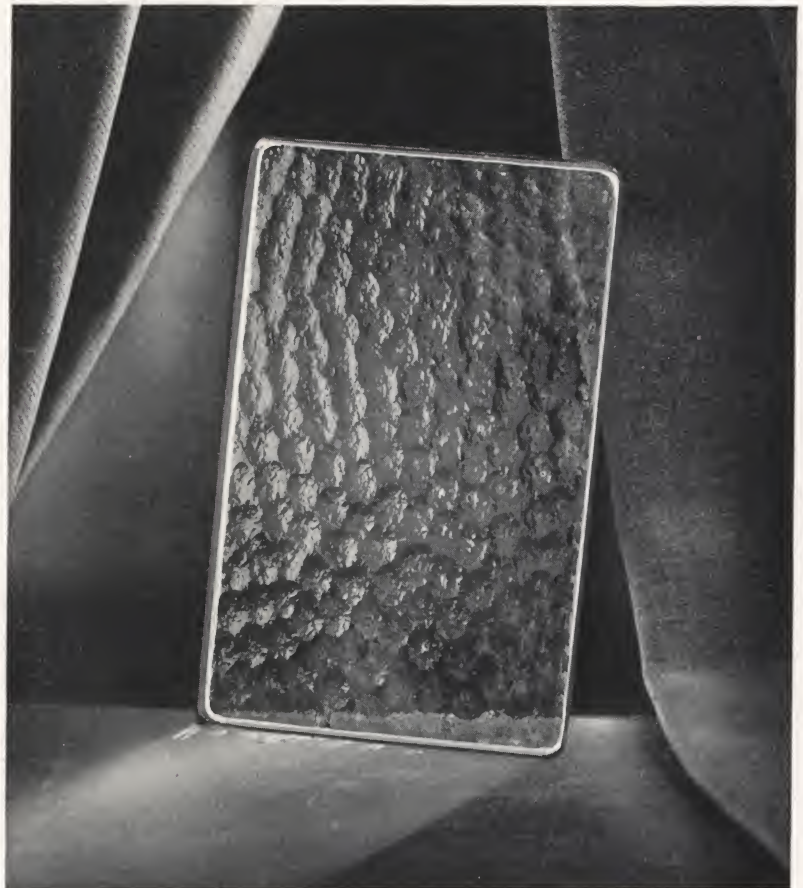
It is most appropriate for use in skylights and industrial buildings where distribution of working light is not an important consideration. Its design and fine qualities also make it popular to harmonize with certain styles of architecture.



Hammered Rough Glass is also manufactured in Wire Glass.



Leading distributors everywhere can supply this and other Mississippi styles. Samples gladly sent upon request.

*Pattern Actual Size*

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Pattern Actual Size

Syenite Glass

A figured glass which, because of its irregular pattern, is suitable for many styles of architecture. It obstructs the vision and provides ample diffusion of light.



Syenite is also made in polished glass, and in Wire Glass both plain and polished. Consult the tables on page 12 for the various styles and thicknesses of this effective pattern.



Specify
"Mississippi"

Ondoyant Glass

This is the oldest pattern of figured glass produced by Mississippi, and one that has retained its popularity since its introduction. It obstructs the vision while affording a liberal distribution of light. It is widely used for transom and ceiling lights, and is predominant in leaded work because of the pleasing light effects produced by its light-retaining, rippled surface corrugations. Its casual pattern harmonizes with nearly all decorations.



Ondoyant Glass and other Mississippi patterns are sold by leading distributors everywhere.



To make certain of obtaining the best quality be sure to specify "Mississippi."



Pattern Actual Size

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12

*Pattern Actual Size*

Maze Glass

A figured glass with a brilliant pattern formed by a succession of prismatic figures filled with smaller prisms which, by nature of the angles at which they are cut, diffuse and distribute the light in all directions.



The Maze pattern is also manufactured in Wire Glass. See table of sizes and thicknesses on page 12.



Specify
"Mississippi"

Florentine Glass

This is one of the earliest styles of figured glass produced. It is still used in large quantities because of the efficient manner in which its attractive prismatic design diffuses light while obstructing the vision. Because of these qualities Florentine Glass is very effective for doors, transoms and partitions. Its rich design makes it adaptable for many styles of architecture.



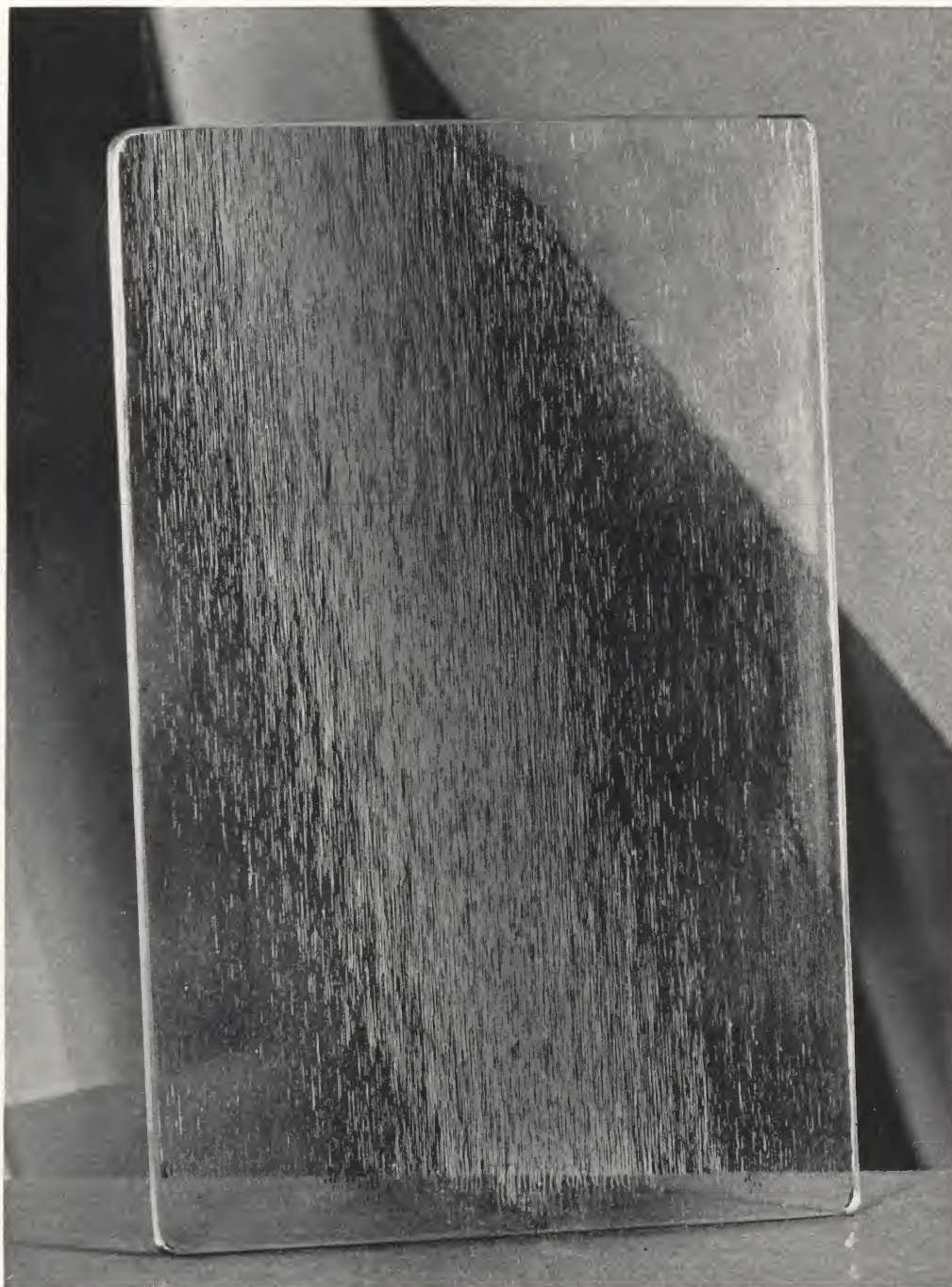
Florentine Glass and other Mississippi patterns can be obtained from leading glass distributors everywhere. Samples will be gladly sent upon request.



To make certain of obtaining the best quality be sure to specify "Mississippi."

*Pattern Actual Size*

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Pattern Actual Size

Hylite Glass

In Hylite, Mississippi presents an exceptional pattern which will be found most effective for a variety of uses where ordinary transparent glass is not quite desirable. Its pattern, composed of minute "etching point" depressions, obstructs vision sufficiently to permit a reasonable amount of privacy, although the glass appears to have perfect transparency at first sight.

Because of the character of its pattern, Hylite is

easier to clean than any other obscure or semi-obscure glass.

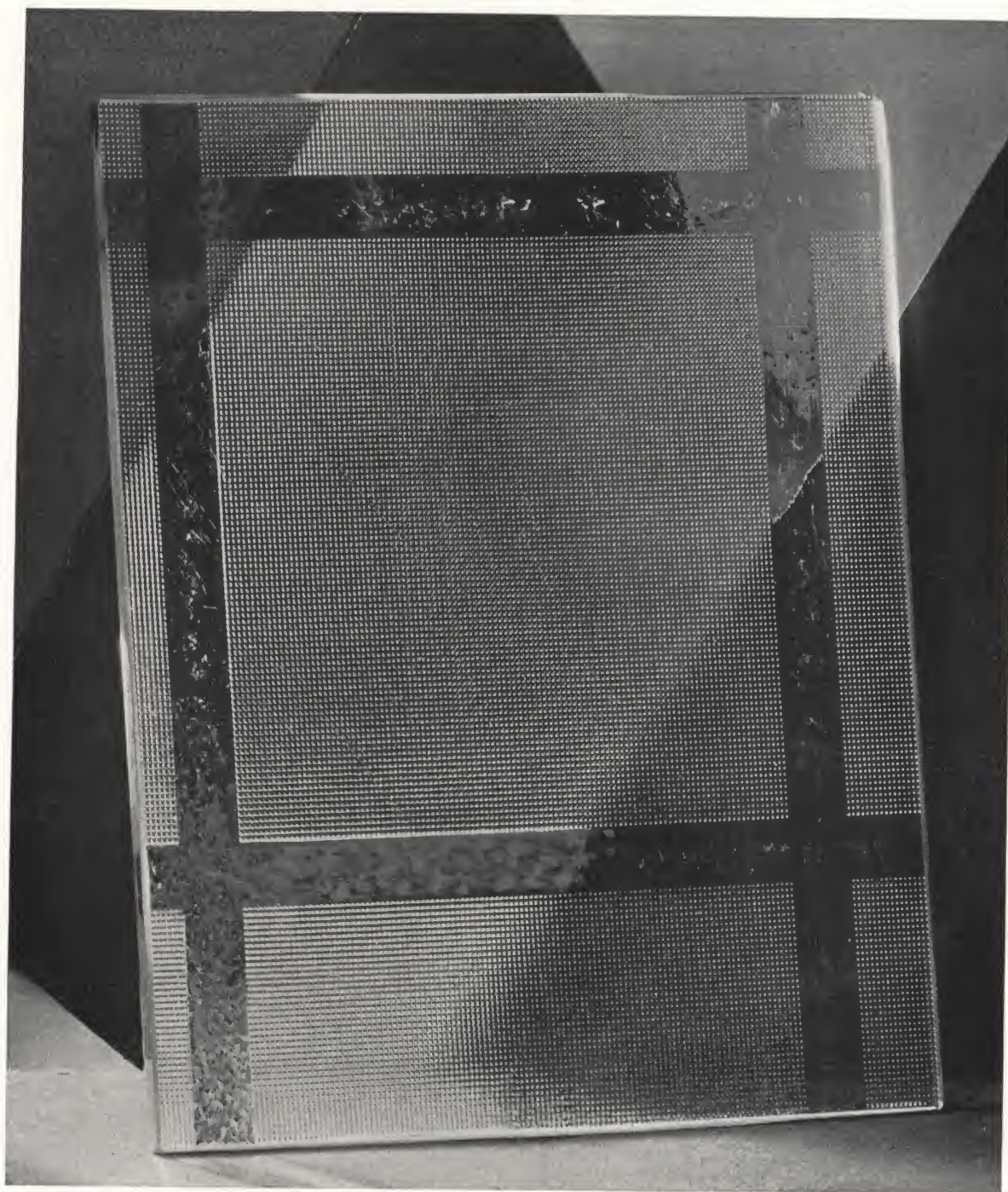


Hylite is also made in Wire Glass in two thicknesses. Consult the tables on page 12 for exact sizes.



Specify
"MISSISSIPPI"

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Pattern Actual Size

Translite Glass

A translucent glass of exceptional quality especially made for transoms. Its pattern of broad, semi-transparent stripes crossing in $3\frac{1}{2}$ -in. squares makes this an unusually effective glass for transoms—a place where too often no thought is given to the decorative value of the glass.

Translite adds the finishing touch to a job well done. It is easily kept clean, and having excellent light distributing qualities, can be effectively used for win-

dows in halls, bathrooms, etc., where an effective design, good light and privacy are considerations.



To make certain of obtaining the best quality be sure to

Specify
“MISSISSIPPI”

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12

Glass Designed Especially for Industrial Buildings

After extensive tests of the light transmission and distribution qualities of every available type of glass had been made, the Mississippi Glass Company developed two new types of glass to accomplish definite results—Factrolite for vertical sash and Pentecor for pitched skylights.

The following charts and graphs, together with condensed data, will doubtless be of service when determining the glass to specify for special purposes.

REPORT NO. 24558

DISTRIBUTION OF LIGHT TRANSMITTED THROUGH FACTROLITE—INCIDENT LIGHT ON ROUGH SIDE OF GLASS—RELATIVE LIGHT INTENSITIES

Test of Factrolite—The tests were made by measuring the distribution of light in two planes perpendicular with each other, with light from an incandescent lamp 3 ft. distant falling normally upon and passing through the glasses. The relative light intensities are recorded in per cent of the normal (0°—normal—equals 100%).

Angles	First plane		Plane perpendicular to first plane	
	Right	Left	Right	Left
0 (normal)	100%		100%	
2½	60.5	86.5	85.2	75.4
5	41.8	51.8	41.0	28.9
7½	24.0	30.6	15.8	13.8
10	9.88	13.3	1.33	9.14
15	1.43	4.45	.39	1.31
20	.101	.81	.....	.....

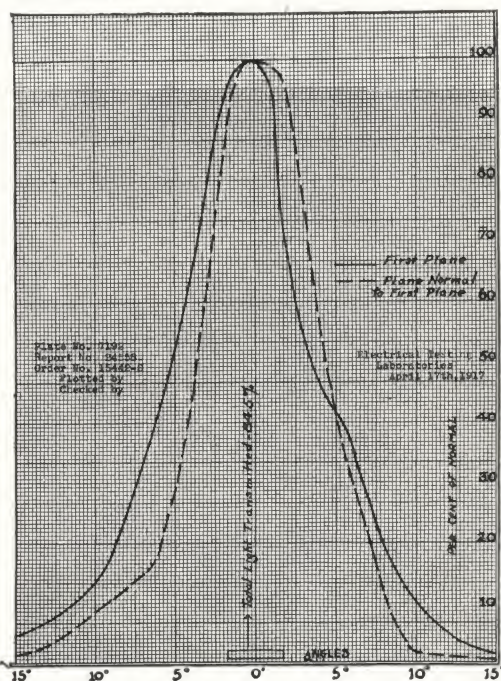


Chart Showing Efficiency in Light Transmission with Factrolite

Economy of Factrolite—Today, as never before, owners of industrial buildings are coming to realize the advantages of properly controlled daylight.

Whereas more heat is required to maintain a given temperature in a building with 80% of its wall area glass than is required for a wall area of 20% glass, this additional heat is required for only five months of the year, whereas with the 20% glass area, it is necessary to artificially light the building a large part of the time.

Factrolite breaks up the rays of the sun, diffusing the light and distributing it equally, so that glare is reduced to a minimum.

REPORT NO. 47571

LIGHT TRANSMISSION THROUGH NEW PENTECOR GLASS RENDERED TO THE MISSISSIPPI GLASS COMPANY ORDER NO. 42294-S

Distribution of light through the sample of sheet glass was made with the incident light falling normally upon rough side of glass. Measurements were made in plane at right angle to prism.

The light source used was a filament of small dimension, approximately 0.1x0.1 of an inch, and placed at a distance of three feet from the glass. Light distribution measurements were made by observations of the light through the glass. The observations were taken at different angles as noted on the graph.

The values of the light transmitted through the sample are in per cent of the maximum.

Transmission Factor

Light transmission measurements were made first with unidirectional light falling normally upon the surface of the glass and, second, with

diffused light falling upon the glass. In making the latter measurements, a hemisphere of uniform brightness was employed.

Results of Test

The distribution data are shown in Table No. 1 and on Plate No. 22310 reproduced below.

The light transmission values are shown on Table No. 2.

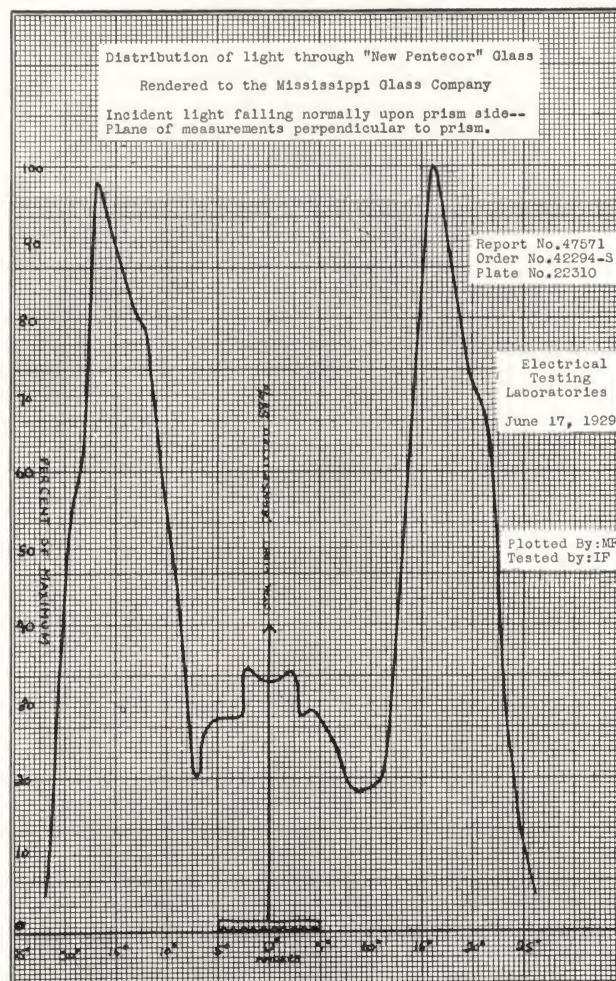
TABLE NO. 1
Distribution of Light Transmitted through "New Pentecor"
Sheet Glass

Incident light normal to rough side of glass
Relative light intensities in per cent of maximum

Angles	Left	Right
0°	32.5	32.5
1	33.0	32.5
2	34.3	33.9
3	27.7	28.0
4	28.0	28.9
5	27.8	28.0
6	25.7	25.7
7	20.0	21.4
8	35.7	18.4
9	42.8	17.9
10	57.2	18.9
11	66.1	19.7
12	76.8	32.2
13	80.4	50.0
14	83.9	75.0
15	89.3	89.3
16	94.7	100.0
17	92.8	94.6
18	62.5	85.7
19	57.2	78.6
20	42.8	71.4
21	17.9	67.9
22	4.8	59.0
23		35.7
24		21.4
25		9.8
26		4.8

TABLE NO. 2
Transmission of Light

Sample	Side toward light	Transmission Factor	
		Unidirectional light	Diffused light
New Pentecor Glass	Rough	0.88	0.685
	Smooth	0.88	0.685



For Full List of Sizes and Thicknesses of Mississippi Products See Page 12

BRIEF OF REPORT NO. 28482

RENDERED TO THE MISSISSIPPI GLASS COMPANY

DISTRIBUTION OF ILLUMINATION THROUGH FIGURED SHEET GLASS WINDOWS IN A MODEL ROOM

ORDER NO. 16649-S

Object

An investigation to study the distribution of daylight illumination in a room with various types of $\frac{1}{4}$ -in. figured sheet glass used in the window.

Test Room

Model, representing a room 50x100x14 ft.

Scale, 1 ft. = 25 ft. (24x48x7 in.)

Windows—Continuous on one side of room 3 ft. high, sill 4 ft. from floor.

Ceiling and walls—White gloss finish (commercial factory paint).

Floor—Brown linoleum (having reflection factor of average factory floor).

Source of Light

Concentrated filament incandescent lamp, representing the sun at 30 degrees from horizon. The intensity of the sun was approximately proportioned to the size of the room.

Sky uniformly bright within $\pm 20\%$

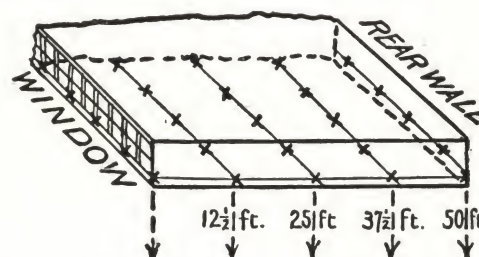
Light within the room—direct sunlight, 80%; skylight, 20%.

Tests

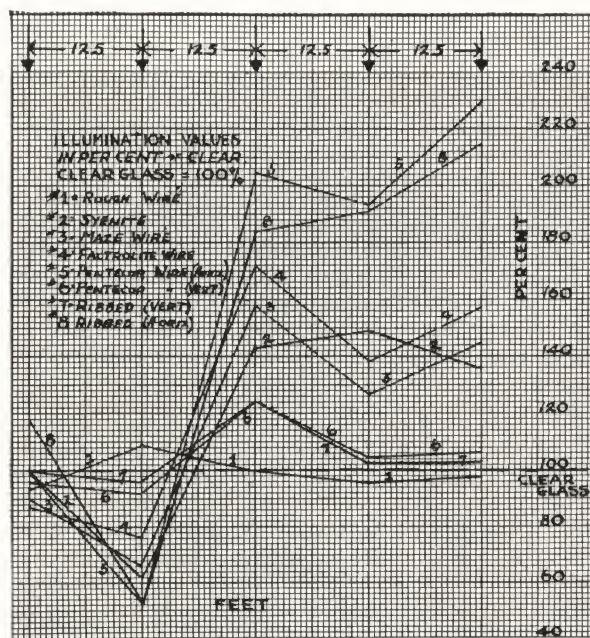
Test Stations in five lines as shown.

Horizontal illumination on working plane—equivalent to 40 in. above floor.

Transmission of light through glass samples.



AVERAGE HORIZONTAL ILLUMINATION OF LINES OF TEST STATIONS



Distance from window in feet.....	Transmission, per cent of clear	Average horizontal illumination of lines of test stations				
		0	12 1/2	25	37 1/2	50
Clear Glass.....	100	28	16.8	1.4	0.80	0.85
Values in per cent of clear						
1/8 Hammered Rough Glass.....	107	107	107	99	106	
1/8 Syenite Glass.....	100	62	143	149	136	
1/4 Maze Wire Glass.....	90	65	138	127	145	
1/4 Factrolite Wire Glass.....	89	75	172	138	157	
1/4 Pentecor Wire Glass, glazed horizontally.....	100	52	204	193	230	
1/4 Pentecor Wire Glass, glazed vertically.....	96	92	123	104	106	
1/4 Ribbed Glass, glazed vertically.....	100	96	124	101	103	
1/4 Ribbed Glass, glazed horizontally.....	118	52	183	191	215	

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12

MISSISSIPPI PRODUCTS

Thicknesses, maximum sizes and approximate weights of Wire Glass and Figured Glass

POLISHED FIGURED GLASS

Style	Thickness inch	Maximum width, inches	Maximum length, inches	Approximate weight per sq. ft., lbs.
Apex	about	50	100	4
Aurora	$\frac{1}{4}$	50	100	4
Syenite	$\frac{3}{4}$	50	100	4

PLAIN FIGURED GLASS

Aurora	$\frac{1}{8}$	48	130	2
"	$\frac{3}{16}$	60	130	$2\frac{1}{2}$
"	$\frac{1}{4}$	60	130	$3\frac{3}{4}$
Factrolite	$\frac{1}{8}$	48	130	2
"	$\frac{3}{16}$	48	130	$2\frac{1}{2}$
"	$\frac{1}{4}$	48	130	$3\frac{3}{4}$
Figure No. 2	$\frac{1}{8}$	42	110	2
"	$\frac{3}{16}$	42	110	$2\frac{1}{2}$
Florentine	$\frac{1}{8}$	48	130	2
"	$\frac{3}{16}$	60	130	$2\frac{1}{2}$
Hammered Rough	$\frac{1}{8}$	48	130	2
"	$\frac{3}{16}$	48	130	$2\frac{1}{2}$
"	$\frac{1}{4}$	48	130	$3\frac{3}{4}$
"	$\frac{3}{8}$	48	130	$5\frac{1}{4}$
"	$\frac{1}{2}$	48	130	$7\frac{1}{2}$
Hylite	$\frac{1}{8}$	48	130	2
"	$\frac{3}{16}$	48	130	$2\frac{1}{2}$
"	$\frac{1}{4}$	48	130	$3\frac{3}{4}$
Maze	$\frac{1}{8}$	48	130	2
"	$\frac{3}{16}$	60	130	$2\frac{1}{2}$
Ondoyant	$\frac{1}{8}$	30	100	$1\frac{3}{4}$
Pentecor	$\frac{1}{8}$	48	130	2
"	$\frac{3}{16}$	48	130	$2\frac{1}{2}$
Ribbed	$\frac{1}{8}$	48	130	2
"	$\frac{3}{16}$	48	130	$2\frac{1}{2}$
"	$\frac{1}{4}$	48	130	$3\frac{3}{4}$
"	$\frac{3}{8}$	48	130	$5\frac{1}{4}$
"	$\frac{1}{2}$	48	130	$7\frac{1}{2}$
Syenite	$\frac{1}{8}$	48	130	2
"	$\frac{3}{16}$	60	130	$2\frac{1}{2}$
Translite	$\frac{1}{8}$	60	130	$2\frac{1}{2}$

POLISHED WIRE GLASS PORT LIGHTS

Thicknesses $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and scant 1 inch. Diameter circles 6 to 24 inches

"WIRE GLASS"

Style	Thickness inch	Maximum width, inches	Maximum length, inches	Approximate weight per sq. ft., lbs.
Factrolite	$\frac{1}{4}$	48	130	$3\frac{3}{4}$
"	$\frac{3}{8}$	48	130	$5\frac{1}{4}$
Hammered Rough	$\frac{1}{4}$	48	130	$3\frac{3}{4}$
"	$\frac{3}{8}$	48	130	$5\frac{1}{4}$
Hylite	$\frac{1}{4}$	48	130	$3\frac{3}{4}$
"	$\frac{3}{8}$	48	130	$5\frac{1}{4}$
Maze	$\frac{1}{4}$	48	130	$3\frac{3}{4}$
"	$\frac{3}{8}$	48	130	$5\frac{1}{4}$
Pentecor	$\frac{1}{4}$	48	130	$3\frac{3}{4}$
Polished	$\frac{1}{8}$	50	130	4
"	$\frac{3}{16}$	30	72	8
Ribbed	$\frac{1}{4}$	48	130	$3\frac{3}{4}$
"	$\frac{3}{8}$	48	130	$5\frac{1}{4}$
Syenite, Plain	$\frac{1}{4}$	48	130	$3\frac{3}{4}$
Syenite, Polished	$\frac{1}{8}$	50	130	4

DECK, VAULT OR FLOOR LIGHTS

Ground Wire Glass	$\frac{3}{4}$	30	72	$9\frac{3}{4}$
Hammered Rough Wire Glass	$\frac{3}{4}$	30	72	$9\frac{3}{4}$
Polished Wire Glass	$\frac{3}{4}$	30	72	$9\frac{3}{4}$
Ribbed " "	$\frac{3}{4}$	30	72	$9\frac{3}{4}$

Mississippi Sales Policy

It has always been the policy of the MISSISSIPPI GLASS COMPANY to market its products only through glass distributors who always carry a large stock, assuring prompt delivery anywhere.

This policy has proven most beneficial to those who specify Mississippi, because the general contractor, owner or architect knows that he is assured of keen competition by inviting bids from reputable dealers.

Furthermore, by specifying a Mississippi pattern all dealers will figure on one and the same quality.

It is advisable to request your local glass distributors to quote you square foot prices on Mississippi products so that you can keep these comparative prices in your files with your copy of the latest Mississippi catalogue designed in accordance with the A.I.A. specification for filing. Should you not have this catalogue, one will be sent you upon request.



Reynolds Tobacco Building, Winston-Salem, N. C.

SHREVE & LAMB, Architects

JAMES BAIRD Co., Contractors

All Interior Doors and Partitions of Mississippi Polished Aurora Glass

Select the proper glass for the purpose intended from the Mississippi styles shown in this catalogue. To make certain of obtaining the best quality always

Specify
“MISSISSIPPI”

Polished Wire Glass	Syenite Polished
Syenite Wire Glass	Apex
Syenite Polished Wire Glass	Maze
Maze Wire Glass	Florentine
Factrolite Wire Glass	Figure No. 2
Pentecor Wire Glass	Ondoyant
Hammered Rough Wire Glass	Factrolite
Ribbed Wire Glass	Pentecor
Hylite Wire Glass	Ribbed
Aurora	Hammered Rough
Syenite	Hylite

Translite



MISSISSIPPI GLASS COMPANY
MISSISSIPPI WIRE GLASS COMPANY

CHICAGO

NEW YORK

ST. LOUIS

DETROIT SHOW CASE CO.

Makers of Metal Store Front Construction

OFFICE AND FACTORY

1670 West Fort Street
DETROIT, MICH.

NEW YORK OFFICE AND WAREHOUSE, 344-46 East 32nd Street

PACIFIC COAST OFFICE, 449 Skinner Building, Seattle, Wash.

DISTRIBUTERS AND DEALERS IN ALL PRINCIPAL CITIES

Products

"DESCO" METAL STORE FRONT CONSTRUCTION.

Also manufacturers of Hollow Metal Show Case Doors; Hollow Metal Mouldings; Extruded Brass Thresholds; Kick Plates; Push Bars; Mirror Frames; Sign Frames; Special Hollow Metal or Kalamein Mouldings in copper, brass, bronze, german silver or aluminum alloy, made to order.

Desco
METAL
STORE FRONTS
REG. TRADE-MARK

"Desco" ventilated sash is of the continuous gutter type, is made of heavy gauge cold rolled metal and ample ventilation and drainage holes assure proper ventilation and drainage at all times and seasons of the year. Dust strips that function can be provided if required. The setting blocks

are of heavy copper channel, rocker type, fitted with soft lead cushions. Caps for corners, both horizontal, vertical and reverse are included. Hollow metal moulding of the same design and shape of face

plate of sash can be furnished when necessary.

"Desco" sill covers, jamb covers, transom bar covers, etc., are rolled from cold rolled metal in heavy gauges. The corners are sharp and clean cut, the designs pleasing and practical.

Head jamb covers, transom bar covers and sill covers are fitted with water drips to make them waterproof when installed.

Description

"Desco" Metal Store Front Construction has been designed to meet requirements of the most critical architects, the several shapes and members of the construction harmonizing perfectly along most approved architectural lines.

Heavy gauge cold rolled non-ferrous metals only are used in its manufacture.

Architects will find "Desco" complete in every detail, including everything necessary for the simplest or most elaborate store front job.

Simplicity

The simplicity of "Desco" is one of its strongest points. Each member is designed to function in the simplest, safest and most practical manner. No freak ideas are found in "Desco" and overdesigning has been systematically avoided. No special shaped or out-of-the-ordinary woodwork is required for its use, and ordinary mechanics install it quickly and correctly without trouble.

Corner bars, division bars and reverse corner bars are of the simple, strong, practical, easy-to-install type. The glass rabbets are extra deep and the flat surfaces of the wings hold glass firmly and safely. All steel reinforcing channels are rustproofed and copper plated.



Copp's Arcade, Vancouver, B. C.

An interesting "Desco" installation showing the added attractiveness which these high quality Store Fronts give to display windows

Finishes

"Desco" is made in solid copper, solid bronze or aluminum alloy in plain, polished, statuary bronze, gunmetal, oxidized copper and nickelplated finishes.

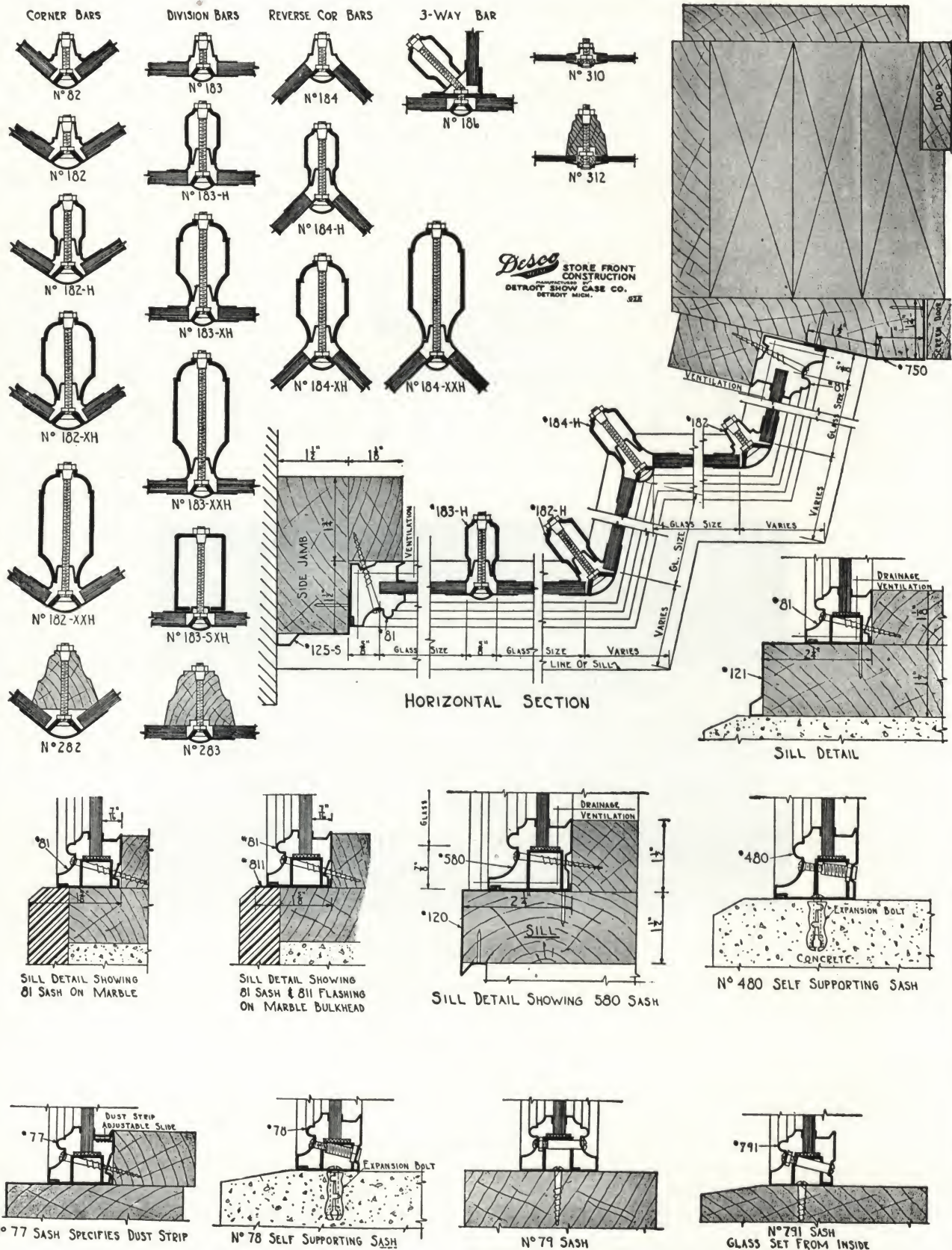
Special finishes can be supplied when desired. Samples furnished on request.

Distribution

Complete stocks of "Desco" are carried at the Detroit and New York warehouses, and by distributors in nearly every important city in the United States and Canada.

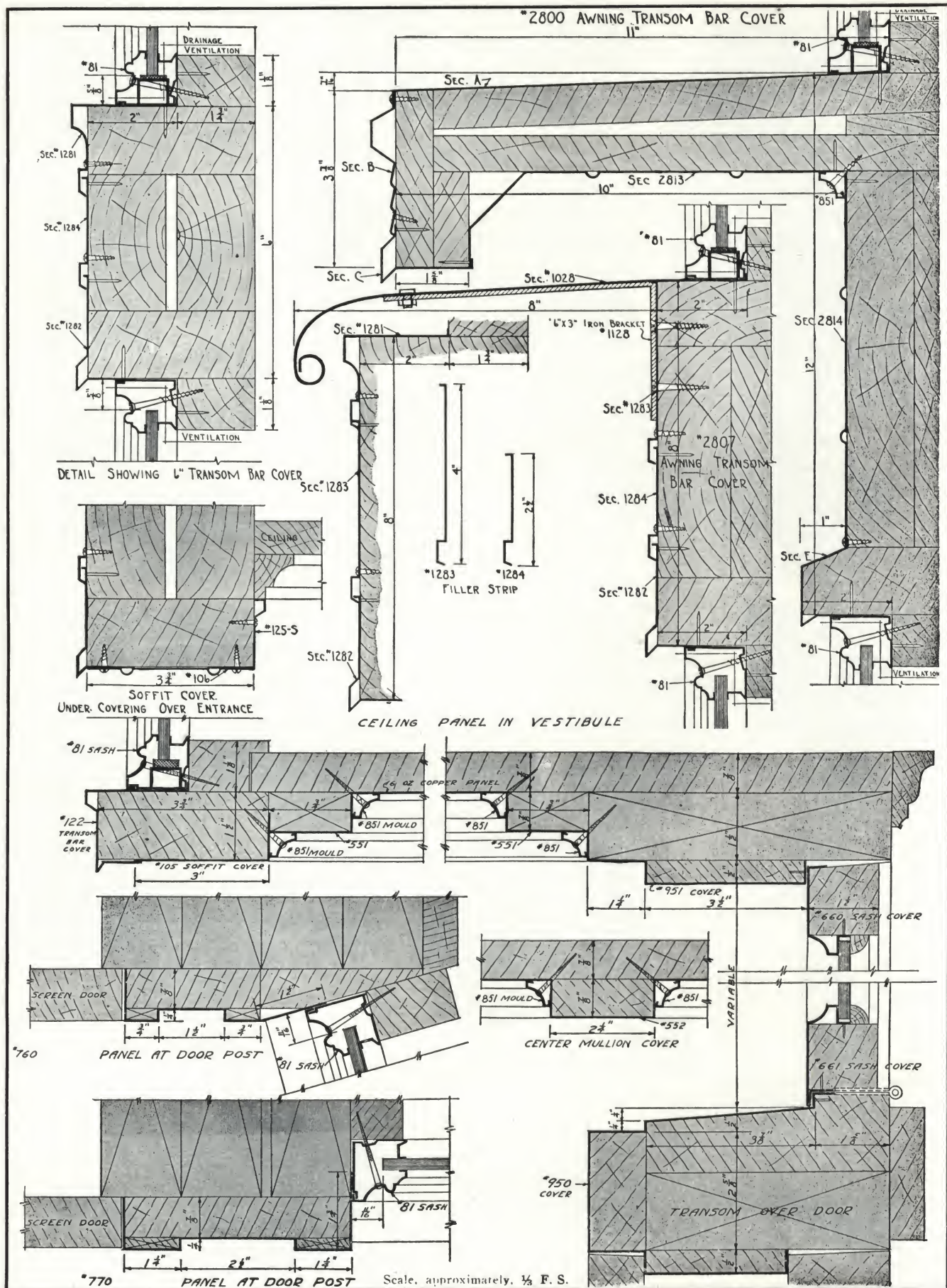
Architectural Service

Full size details and catalogue showing "Desco" in all its various combinations and uses will be mailed free to any architect on request.

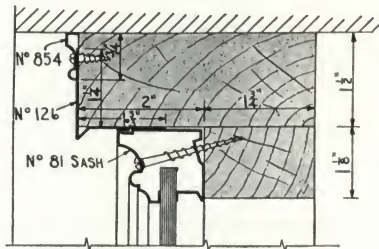


Scale, approximately, 1/8" F. S.

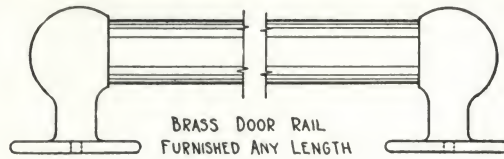
Working Details of Desco Metal Store Front Construction



Working Details of Desco Metal Store Front Construction



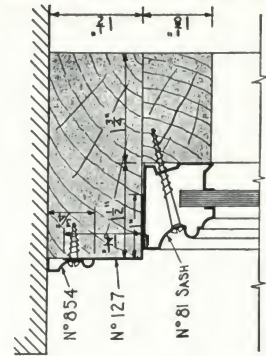
DETAIL AT HEAD JAMB
SHOWING ADJUSTABLE HEAD JAMB CONSTRUCTION N°130



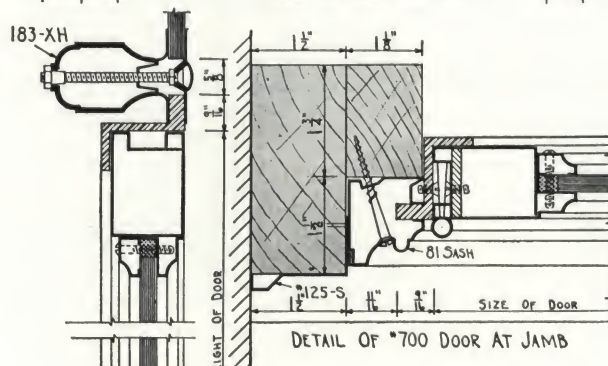
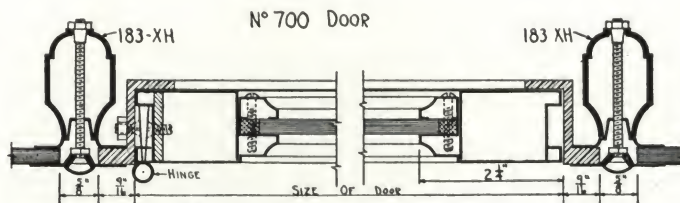
BRASS DOOR RAIL
FURNISHED ANY LENGTH



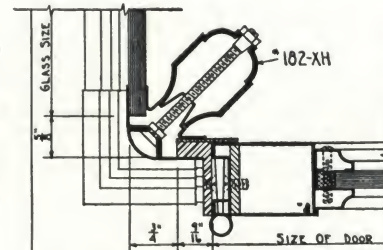
BRASS KICK PLATE
STANDARD HEIGHT 10"-12"-14"-16"
FURNISHED ANY LENGTH
16 GAUGE DRILLED FOR SCREWS



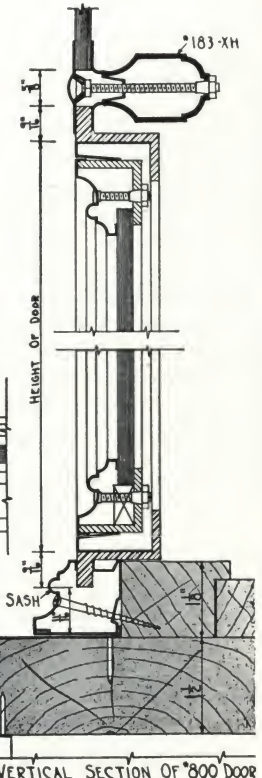
DETAIL AT SIDE JAMB
SHOWING ADJUSTABLE SIDE JAMB CONSTRUCTION N°135



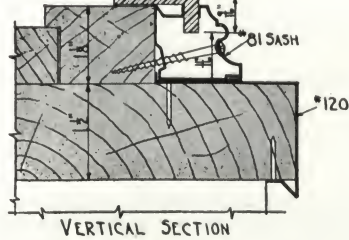
DETAIL OF N° 700 DOOR AT JAMB



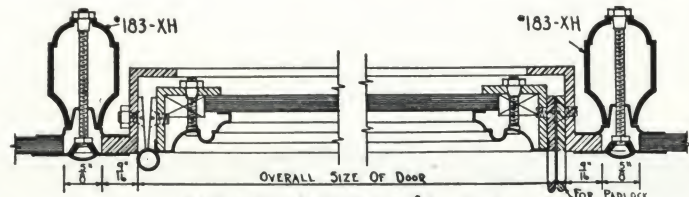
DETAIL OF N° 700 DOOR AT CORNER



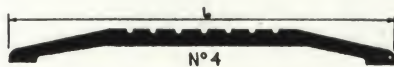
VERTICAL SECTION OF N° 800 DOOR



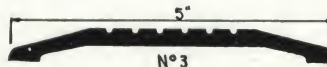
VERTICAL SECTION



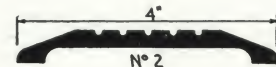
HORIZONTAL SECTION OF N° 800 DOOR



N° 4



N° 3



N° 2

BRASS THRESHOLD PLATES

Scale, approximately, 1/8" = 1"

Working Details of Desco Metal Store Front Construction

AMERICAN 3 WAY-LUXFER PRISM CO.

1301-1305 South 55th Court
CICERO, ILL.
(Suburb of Chicago)

55 West 42nd Street
NEW YORK, N. Y.

PRODUCTS DISTRIBUTED THROUGH ALL LEADING GLASS JOBBERS

For our Sidewalk and Vault Lights, Daylight Roofing and Obscuring Glass, see Manufacturers' Index

3 Way-Luxfer Pressed Tile Designs

3 Way-Luxfer daylighting products are used for store front transoms, windows, skylights, interior doors, partitions and ceiling lights. They are made and assembled in a number of different designs illustrated on the following page. The diamond shaped tile in the Lux Lens design and the 6-in. square diffusing tile are new developments. All styles are made in the pressed tile and built in panels to fit the opening. In these panels ventilators either with or without screens can be built to provide any desired ventilating area. In addition, firm names or business in colored glass can be incorporated for advertising signs.

Specifications—All transom lights, interior partitions and ceiling lights shown on plans shall be glazed with 3 Way-Luxfer Pressed Tile (design as selected) as made by the AMERICAN 3 WAY-LUXFER PRISM Co. These lights shall be in rigid panels, weatherproof and waterproof.

3 Way-Luxfer Geometrical Design Transoms

Geometrical designs for transoms are offered where some general design scheme may be intended and where the standard 4-in. squares or larger may not be desired. By using sheet prism glass in the construction of transoms, the same very satisfactory daylighting can be obtained as with the use of tile prism. However, in addition to the prism glass designs, we are in a position to fabricate these same panels from almost any other type or pattern of glass, and in every case these panels are built to fit the transom and, where necessary, are divided into suitable sections made interlocking by our improved 3-Way lock joint process. 3 Way-Luxfer Transoms are adaptable to any type of store front construction.

3 Way-Luxfer Sheet Prism

A prismatic sheet glass which, like the tile prism, is the only commercial adaptation of the natural law of light refraction, and may be best used in windows or openings where a maximum redirection of the light into dark interiors is desired. Easy to clean—therefore the maximum light transmission can be maintained. Can be furnished with or without wire in any size up to 60 in. high by 120 in. long.

3-WAY Daylighting Products

They daylight, they ventilate, they
beautify, they advertise, they
add distinction

3 Way-Luxfer Ventilators

While 3-Way Ventilators were originally designed and built by us for use in our transom lights, the demand for a well constructed inexpensive type of ventilator has grown to such an extent, that we have been called

upon to build a number of different types of ventilators, so designed that they may be used for various purposes and for different types of setting.

Construction—These ventilators are light weight, but because the frames are built of angle steel, securely and solidly riveted inside of a mounting frame of angles, channels or flats, they are very strong and rigid.

Ventilators can be furnished in the pivoted or swinging type, or in the hinged type as may be desired. Standard frames are electro-galvanized but can also be furnished copper plated.

Something New in Bronze and Aluminum Ventilators

With the recent increased use of bronze and white metal for store front construction and windows, as well as interior work, we have found it necessary to equip our shop to make our ventilators in the standard commercial bronze and aluminum and we are now prepared to build our various types in either the bronze or aluminum as well as the steel.

These ventilators are built essentially the same as the steel ventilators, light weight but very strong and rigid, and the cost is low considering the quality.

Can be furnished in either the natural finish or plated.

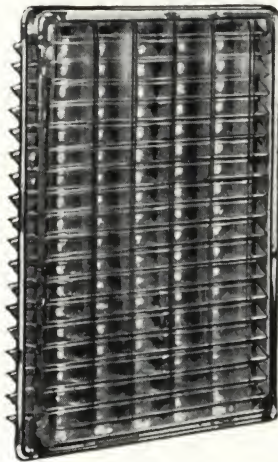
These ventilators do not rust or corrode and should last the life of the building. Ventilators are obtainable through your store front contractor or glass contractor.

Details and prices on all types of ventilators are available upon request.

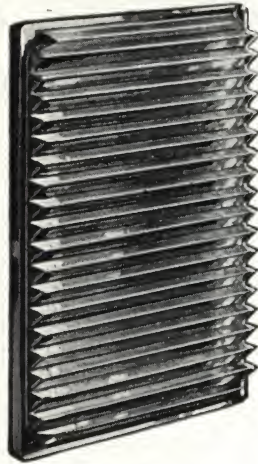
Removable Flat Screening—The specially designed 3-Way Removable Flat Screening can be provided for all of our standard types of ventilators. It is made of 24-mesh copper or bronze wire cloth thereby serving to keep out much dust as well as insects.



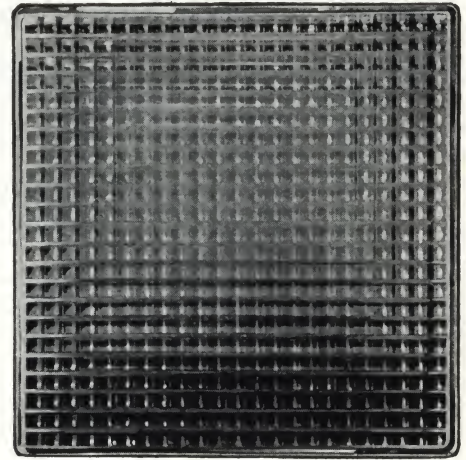
3-Way Prism Tile Transom with Ventilators and Name Panel



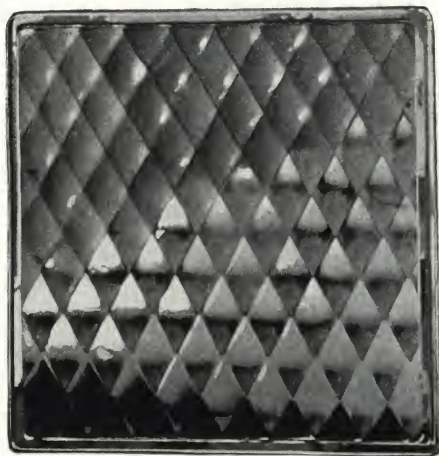
3-Way Lens Back 4-in.
Prism Tile



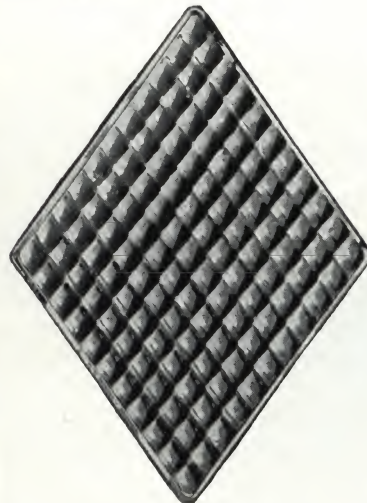
Luxfer Flat Back 4-in.
Prism Tile



6-in. Ornamental Diffusing Tile



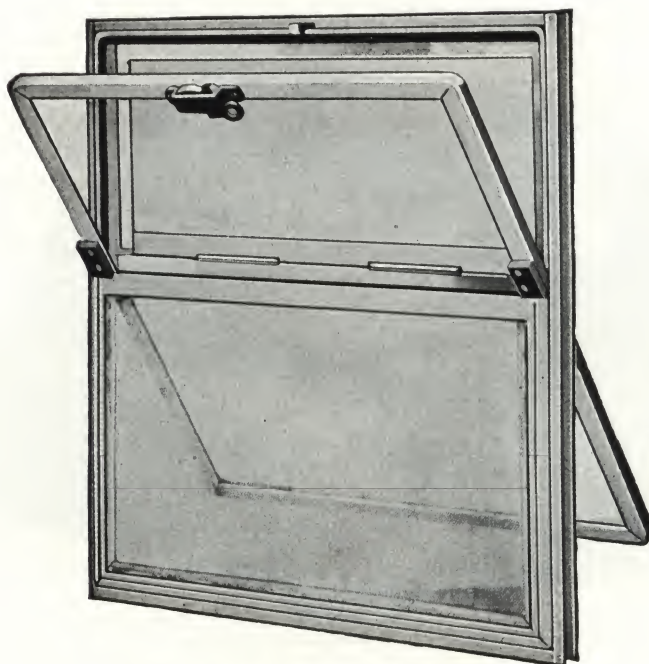
Lux Lens 4-in. Diffusing Tile



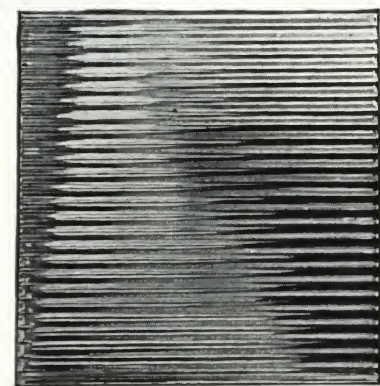
Lux Lens Diamond Tile
Approximately 5x7 in.



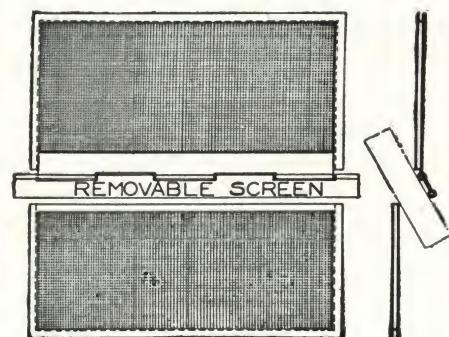
Spiro Lens 4-in. Tile



3-Way Transom Ventilator



3 Way-Luxfer Sheet Prism



BRASCO MANUFACTURING COMPANY

Patented Metal Store Fronts

HARVEY, ILLINOIS

(Chicago Suburb)

DISTRIBUTION AND COMPLETE STOCKS THROUGHOUT UNITED STATES AND CANADA

Products

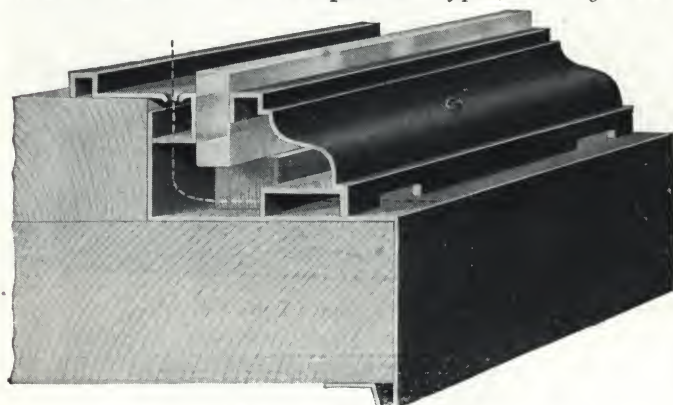
BRASCO COMPLETE METAL STORE FRONTS in copper, bronze, Monel Metal, Extruded Bronze, Extruded Aluminum and Perma-wite.

Also Rolled and Drawn Metal Mouldings in copper, brass, bronze, aluminum, monel, nickel, zinc, steel, white metal and special alloys of all descriptions; Metal Covered Wood Mouldings; Metal Store Front Ventilators and Showcase Doors; Thresholds, Kick Plates and Door Guards.

For Davis Bronze or Extruded Aluminum Sash, Bars and Jambs, see Manufacturers' Index.

Brasco All-metal Sash

This heavy gauged sash can be obtained in both indirect and direct screw pressure types, *although we*



No. 514 Sash and Gutter as Used with Complete Sill Cover
No. 541

Fully indirect screw pressure and extra wide gutter

strongly recommend indirect screw pressure always. Note the typically wide drainage gutter and staggered vents in face and gutter to eliminate dust. Gutter No. 506 can be used in conjunction with this sash to provide a *complete self-supporting sash*, eliminating the necessity of wood backing.

All Brasco systems embody the essential elements necessary to insure *safety* and *permanence* in the setting of plate glass. They combine simplicity and practicability with architectural beauty. Such other features as ventilation, drainage and maximum daylighting are embodied, which, together with the principle of *indirect screw pressure*, reach the highest degree of perfection in all Brasco systems.

In all Brasco construction, safety to the glass is assured by a wide grip on the plate, and by the provision in the sash

LOCAL REPRESENTATIVE

for the absorption of movement and vibration by the setting.

Brasco Approved by Insurance Companies

Brasco utilizes what the insurance companies' statistics prove to be the safest method of holding glass. Outside stops fastened by the *indirect method* permit a *grip of a full 1/2 in.*, and what is most essential, an *unobstructed space of 3/8 to 5/8 in.* between the edge of glass and jamb.

Installation

An examination of the illustrations on these pages and of our complete details, catalogues and actual samples will immediately show the simplicity and efficient design which assure ease of installation and satisfactory, faultproof Brasco installations.

Service

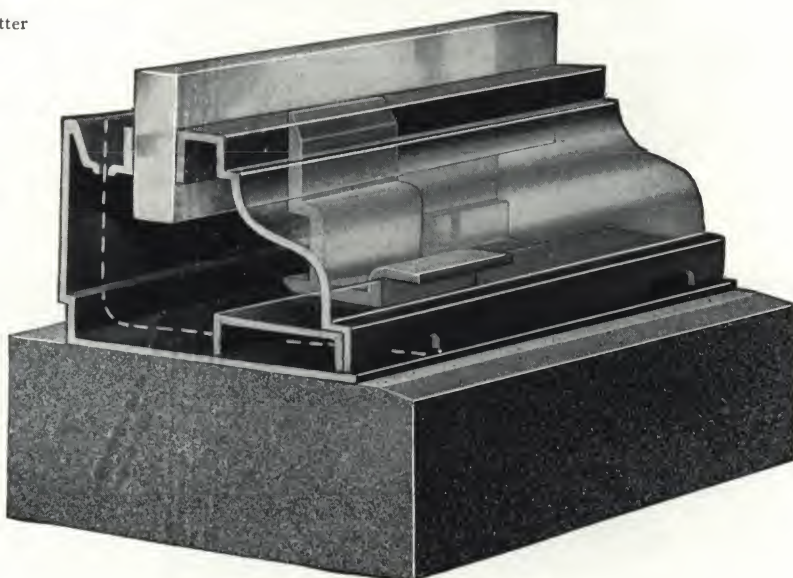
All architects will find our Service Department always ready to gladly submit suggestive floor plans and perspective elevations. Prompt service and no obligation.

Literature and Samples

Actual full sized samples of all sash and bars in various metals.

Complete portfolio of full sized details on all systems.

New catalogue, embracing Brasco All-metal Sash and Davis Extruded Bronze, complete in every detail.



No. 516 Self-supporting Sash

Brasco Store Fronts may be obtained in Monel Metal, Bronze, Copper, Perma-wite, Davis Solid Bronze and Extruded Aluminum

Brasco Series 600—Advanced Store Front Construction

A Complete System in Monel Metal

Description

Monel Metal is a rustproof, non-ferrous nickel-copper alloy of permanent beauty. It combines strength, equal to that of high grade steel, with an unusually attractive finish of silvery lustre.

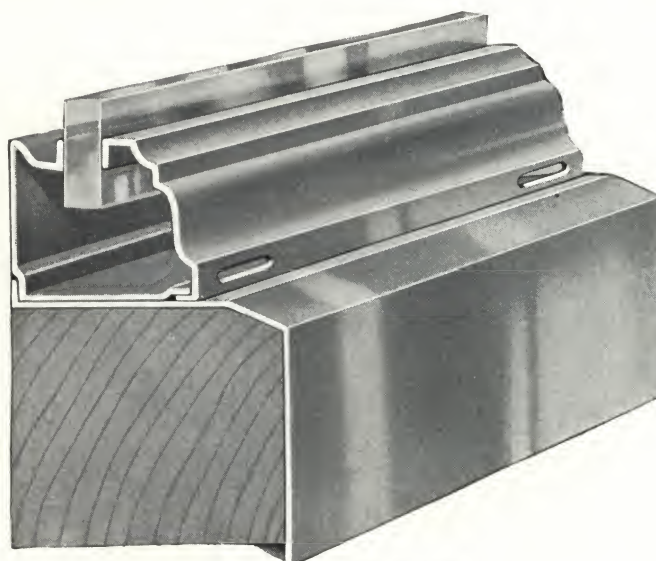
Adaptation

For the first time, this wonder-metal, used so successfully for a quarter-century under the most

assurance of ever increasing distinction and value.

Service

The various members comprising Brasco Series 600 include the standardized basic units of the modern store front. In addition, we are prepared to furnish solid Monel ventilators, showcase doors, sheets and soffit covers for entrance ceilings, special pilaster and post covers of all descriptions,



Series 600 in Monel Metal

Illustration shows the self-supporting type used in conjunction with sill 649. Gauge of sash face and back members .040-in.; of sill, .031-in. All attaching screws also of Monel Metal

difficult conditions in industry, lends its extraordinary properties to the advancement of store front construction.

Advantages

Lustrous silvery beauty in keeping with today's style in architecture—Absolutely rustproof—non-ferrous yet with the strength of steel—retaining its original brightness under all atmospheric conditions with a minimum of care, Monel Metal adds a new touch of perfection to the time-proven Brasco principles of safety and permanence. A *complete* hollow metal store front line is now available.

Once again the name Brasco comes to the fore in the march of store front progress and with it the

panels, complete bulkhead installations—in short, anything and everything required for the modern, individual store front.

Monel is available in both cast and sheet forms to match our rolled sections, thus widening the use of the construction. Attractive etched plates, panels and ornaments as well as cast crestings can be had promptly.

We particularly recommend polished finish Monel for store front use, but special finishes will also be furnished.

Samples

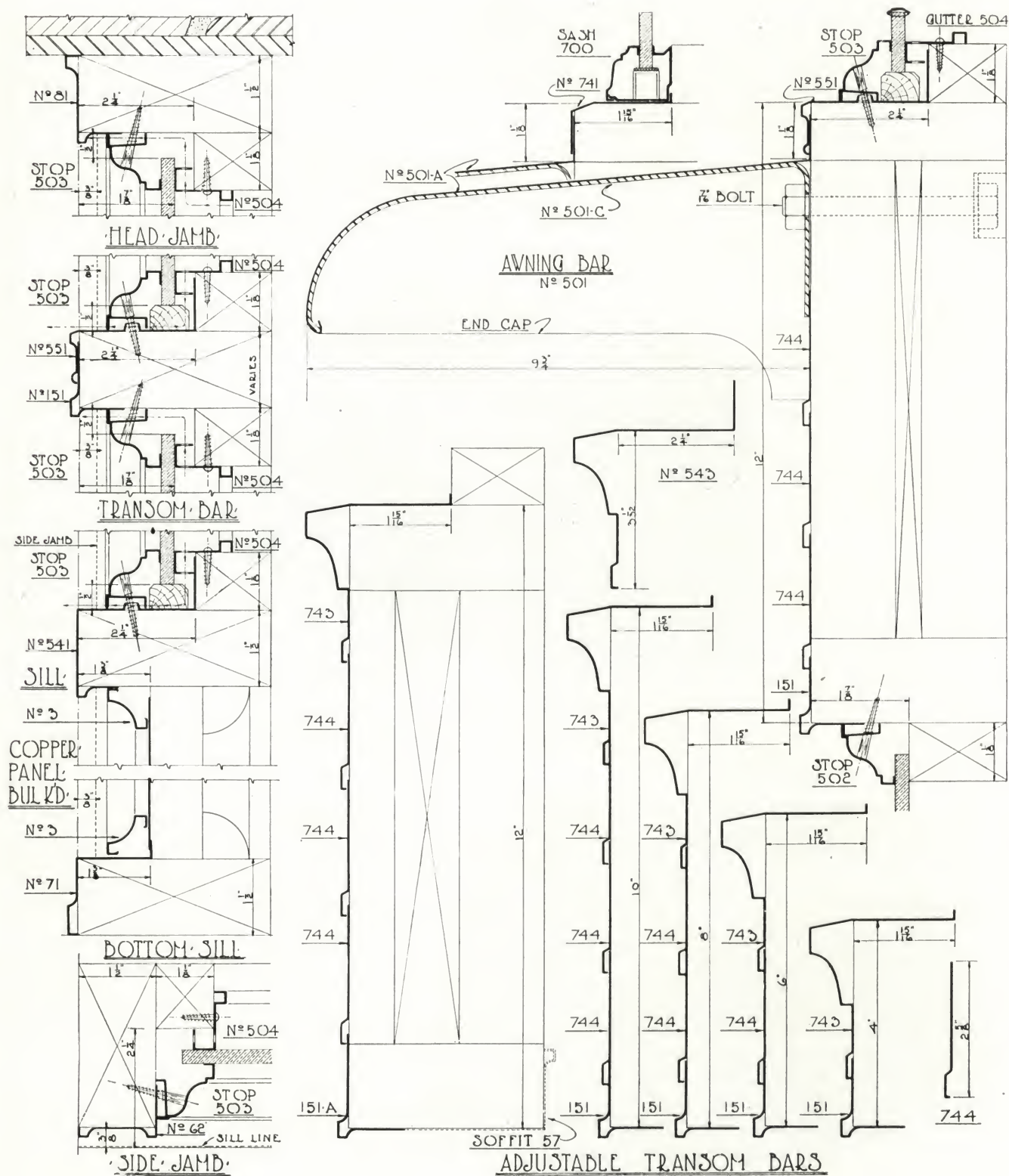
Samples of Monel Metal and other Brasco constructions gladly sent on request.

Brasco Store Fronts may be obtained in Monel Metal, Bronze, Copper, Permalloy, Davis Solid Bronze and Extruded Aluminum

Sectional Details

The illustrations on this and the following page show typical sections.

Write for complete, full size details.



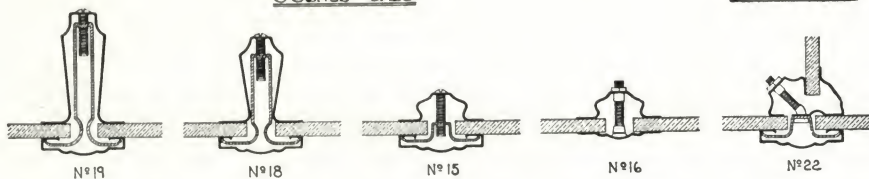
Brasco Store Fronts may be obtained in Monel Metal, Bronze, Copper, Permalloy, Davis Solid Bronze and Extruded Aluminum

Sectional Details



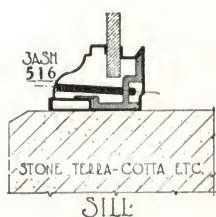
CORNER BARS

REVERSE BAR

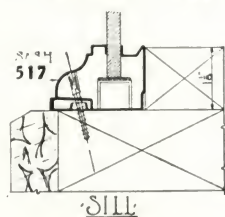


DIVISION BARS

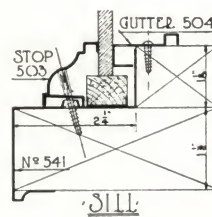
3-WAY BAR



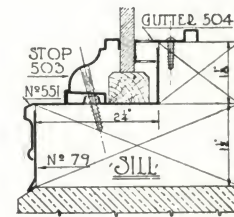
SILL



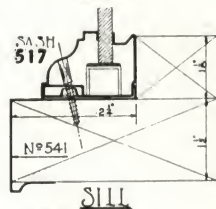
SILL



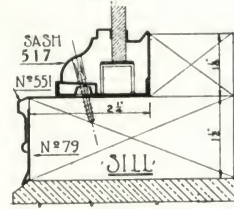
SILL



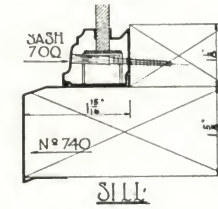
SILL



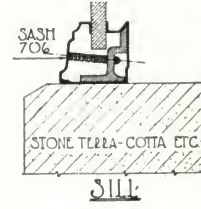
SILL



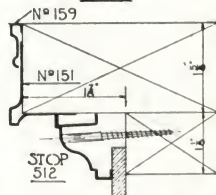
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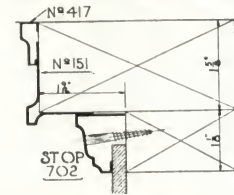
SILL



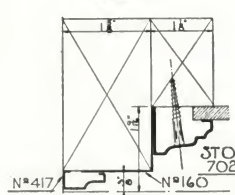
SILL



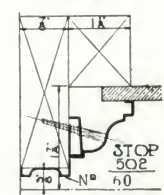
HEAD JAMB



HEAD JAMB



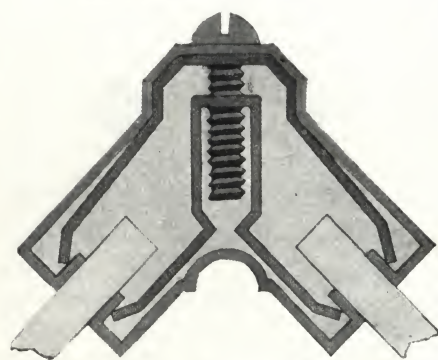
SIDE JAMB



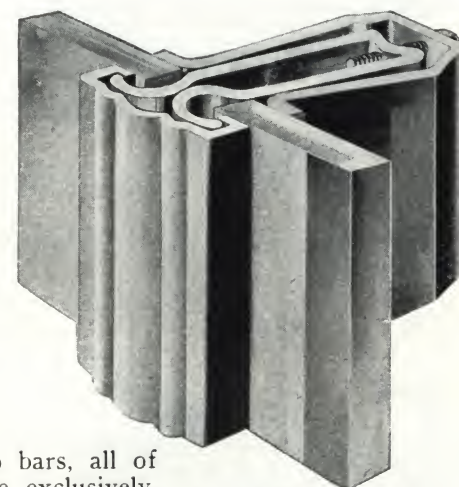
SIDE JAMB



No. 6 Corner Bar



No. 14 Reverse Bar



No. 18 Division Bar

Corner, Division and Reverse Bars

We show here the patented Brasco bars, all of which make use of indirect screw pressure, exclusively. The concealed steel reinforcement is *continuous* in bars of all sizes.

Brasco Store Fronts may be obtained in Monel Metal, Bronze, Copper, Permalloy, Davis Solid Bronze and Extruded Aluminum

DAVIS EXTRUDED SASH CO.

Extruded Bronze and Aluminum Store Fronts

LINCOLN, NEB.

Complete Stocks in New York and Chicago—Dealers Throughout United States and Canada

Davis Extruded Bronze and Aluminum

Complete, uniform, patented system of store front construction, embodying four types of sash, several sizes of corner, reverse and division posts and varied coverings for sills, side and head jambs, muntins, bulkheads, soffits, doors and frames, grilles, showcase doors, ventilators, crestings, enrichments and special items—providing for every modern store front need.

Heavy Weight Solid Extruded Bronze

All Davis members are $\frac{3}{8}$ -in. solid bronze. No hollow metal of any description is used in conjunction with Davis Sash.

To absolute glass safety Davis has added beauty, dignity, advanced design and permanence.

DAVIS
Solid Architectural
BRONZE SASH
"For Better Buildings"

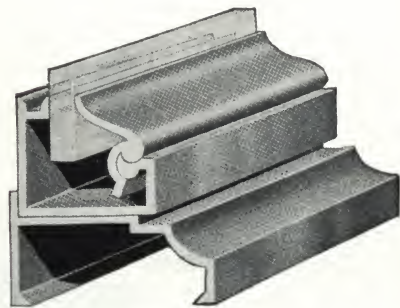
Fulcrum Principle of Indirect Screw Pressure

The patented fulcrum principle results in maximum glass safety for the largest plates, without the necessity of putty or other unsightly compounds.

The grip on the glass is always positive and uniform and all glazing is done from the outside.

Complete Literature and Samples

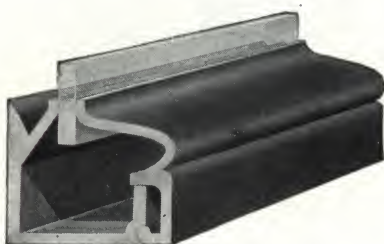
Full size working samples of Davis Sash (or any other Davis section) gladly sent on request; also eight sheets of full sized details and special descriptive catalogue, illustrating many of the finer modern buildings, in which all store fronts are Davis set.



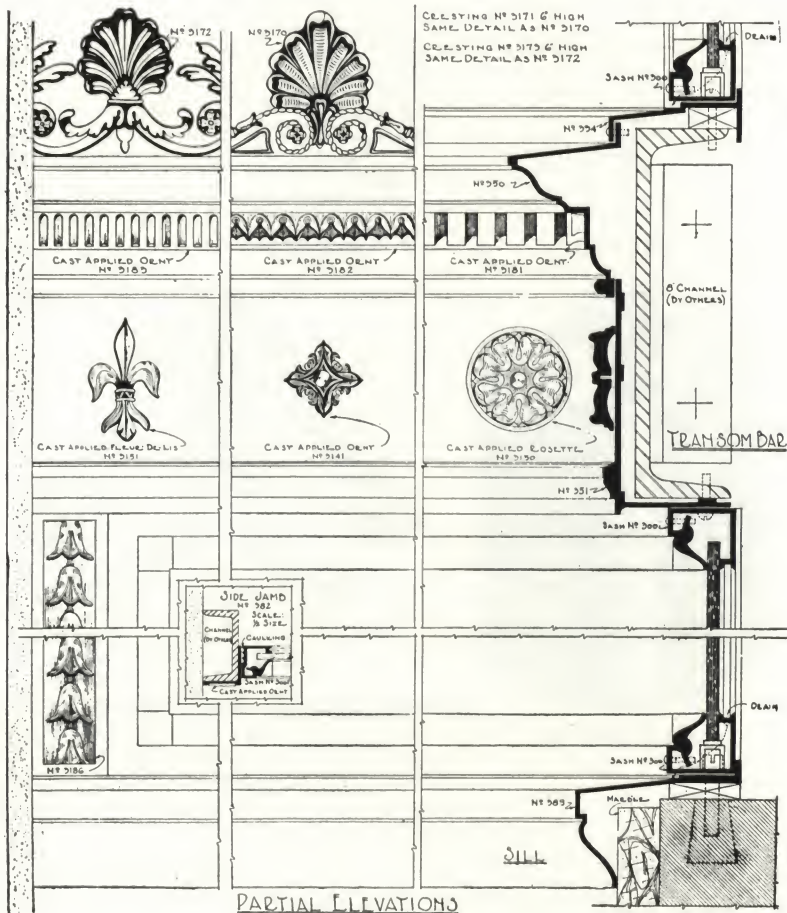
Sash No. 300

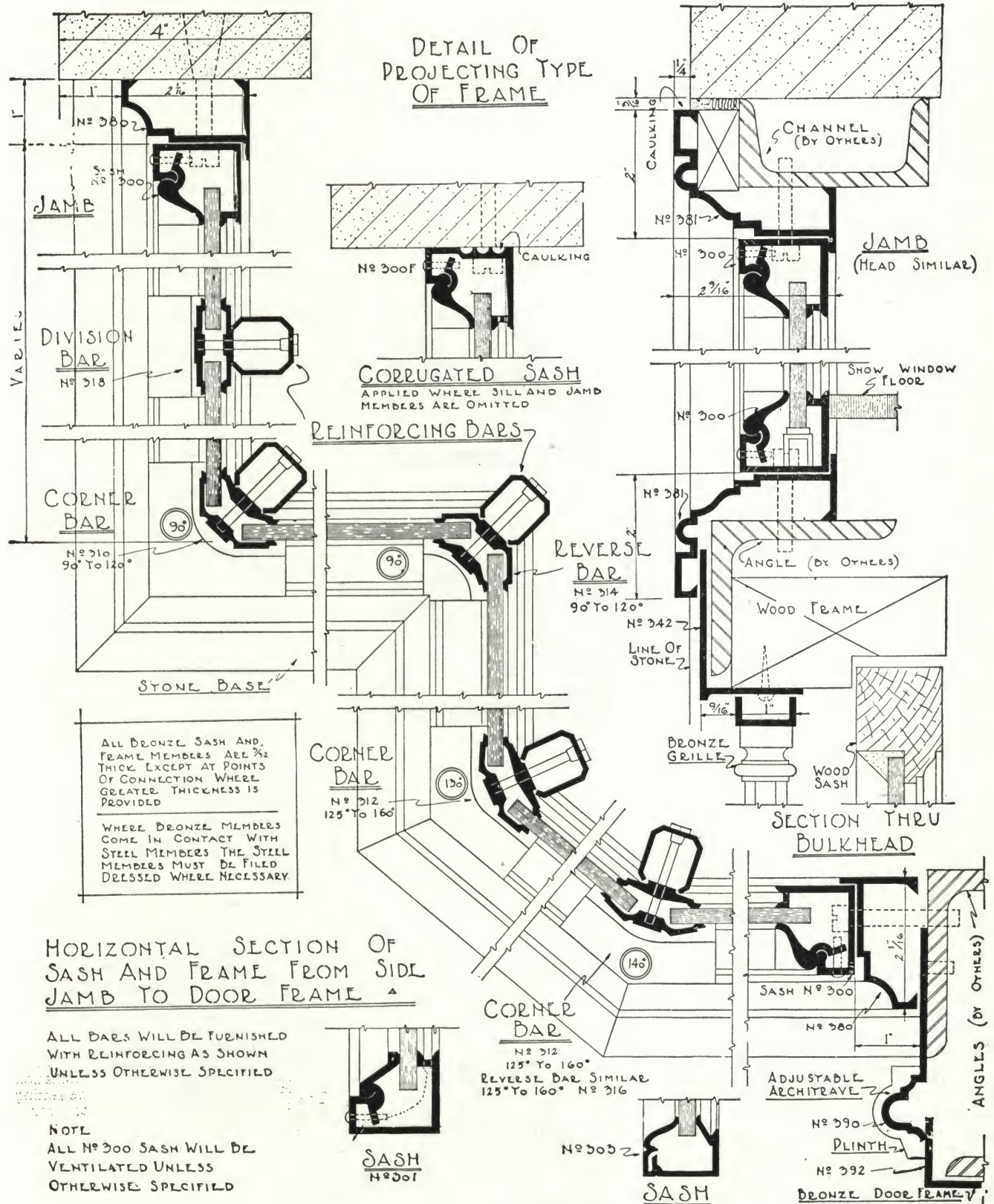
Note the self-contained compact unit, and the trim corner.

Details 300, 300F, 301 and 303 shown on following page.



Sash No. 303





THE HIMMEL BROTHERS CO.

Extruded Bronze and Rolled Solid Copper or Bronze Store Front Construction
200 Commerce Street, NEW HAVEN, CONN.

DISTRIBUTED BY GLAZIERS THROUGHOUT THE COUNTRY

Products Index

ARCHITECTURAL EXTRUDED BRONZE STORE FRONT CONSTRUCTION, Plates 400-1, 400-2, 400-3.

EXTRUDED BRONZE STANDARD MOULDINGS, Plate 400-3.

ROLLED SOLID COPPER, BRONZE AND ALUMCRO STORE FRONT CONSTRUCTION, Plates 60-1, 60-2, 60-3, 60-4, 33-1.



TRADE-MARK

SHOW CASE CONSTRUCTION, Plate 33-3.

SHOW CASE DOOR of COPPER or BRONZE, Hinged or Pivoted, Plate 33-3.

HOLLOW METAL MOULDINGS in Stock Shapes, Plates 4-4, 33-1.

DOOR SADDLES of Cast Bronze, Plate 400-3.

BRONZE SADDLES, Plate 400-3.

Also Kickplates of Brass or Bronze.

"HIMCO" ARCHITECTURAL EXTRUDED BRONZE AND STANDARD ROLLED SOLID COPPER, BRONZE AND ALUMCRO STORE FRONT CONSTRUCTION

The "Himco" Store Front Service

We offer to the architect a glass setting construction of extruded bronze for the highest quality fronts or of rolled solid copper or bronze for medium price work.

We do not erect these constructions but the sections are stocked by reputable glaziers throughout the country and are generally erected through the glazier, plate glass manufacturers, or setters.

Show Cases—We also manufacture show cases and show case doors to detail as shown on Plate 33-3. These show cases are made in solid copper or bronze in hollow metal type of construction. The door may be fitted in a number of ways, in the vertical intermediate bar, at the regular joint sections, etc., in store front construction. The door is made with a cylinder lock and can be made hinged or pivoted.

Transoms—These can be provided in a hinged or pivoted type. The construction is similar to the show case doors.

The Essential Elements for Satisfactory Store Front Construction

The principal factor in satisfactory glass setting construction is in holding the glass in a cushion-like grip which counteracts shocks from wind or vibration and yet provides for expansion and contraction.

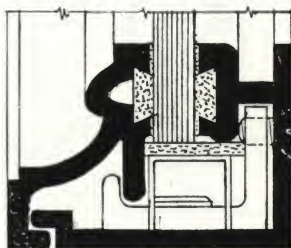
The setting member must be so arranged that it is possible to set and remove glass in a minimum amount of time in case of accident as well as in first erection. A simple, quickly erected construction with a maximum amount of glass protection, with reduced labor charges.

The Materials of "Himco" Glass Settings

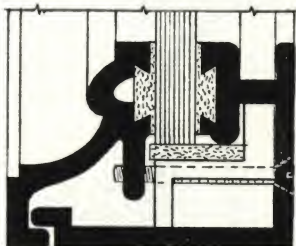
"Himco" Glass Settings are made in any type of non-ferrous metals, such as architectural extruded bronze and rolled solid copper, bronze, Alumcro (white metal) nickel-silver aluminum alloys, chrome nickel or chrome plated. Each type shown assures the greatest glass insurance.

The No. 400 Line Architectural Extruded Bronze Glass Setting with the Cushion Grip (Patent Pending)—For the very finest type of bronze store fronts.

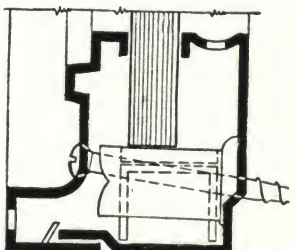
(White Metal)



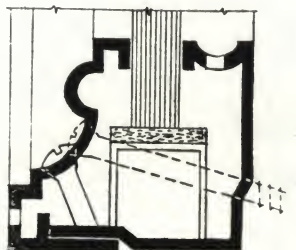
No. 400 Architectural Extruded Bronze Section



No. 402 Architectural Extruded Bronze Section



No. 60 Rolled Solid Copper Section



No. 33 Rolled Solid Copper Section

No. 34 same as No. 33 except that setting screw enters as shown by dotted lines

Glass sections can be supplied separately for cast bronze fronts by others if desired. No screws appear on the exterior.

The difference between the No. 400 and No. 402 Sections is the method of securing the front to the back plate and the type of glass support. The use of each is a matter of personal preference. In the No. 400 Section the front plate is secured by a bronze clip and in the No. 402 Section by a screw extending from back to front plate. In the No. 400 Section the glass rests on a leather pad over corrugated copper rocker channel while in the No. 402 Section the glass rests on a leather pad over a bronze Z-bar.

Inexpensive Rolled Solid Copper Bronze or Alumcro Glass Settings—

These settings for show window construction are equally good and are the same in cost. It is largely a matter of individual preference of moulding and setting construction that influences the selection of each.

The No. 60 Glass Setting (Patented)—

This has the spring type grip on the glass, the rolled mouldings holding the glass safely, yet resiliently. The setting screws pass through a tube from the front to the back member assuring freedom of the contact between the glass and the screw.

The No. 33 Glass Setting (Patented)—

Based on the same spring type grip as No. 60, but is secured differently. The screw in this section passes almost vertically through the front and the bottom of the back member. This should not be specified for use with marble, cast iron or bronze base; use No. 60 Section for this service; or if the design of No. 33 is still preferred, use it for jambs and head, and No. 34 for base.

The No. 34 Glass Setting (Patented)—

Is the same type as No. 33 except that the screw goes through at the same angle as in No. 60 setting. The No. 34 setting is used in combination with No. 33 as the bottom member of the setting where the base is marble, cast iron or bronze with which the wood screw cannot be used.

Finishes

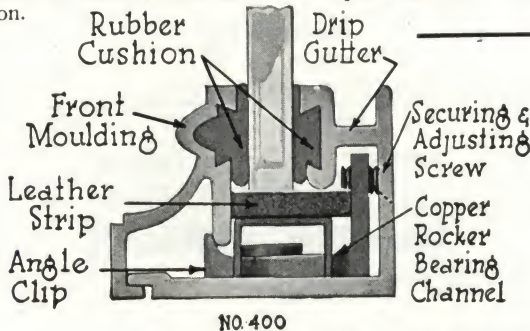
The standard finish of the bronze or copper store front construction is in the natural finish. Special finishes such as statuary copper, oxidized copper, statuary bronze and gunmetal, may also be supplied.

"HIMCO" 400 LINE ARCHITECTURAL EXTRUDED BRONZE STORE FRONT CONSTRUCTION

(Patented and Patent Pending)

The New "Himco" Cushion Type Bronze Setting (Patent Pending)

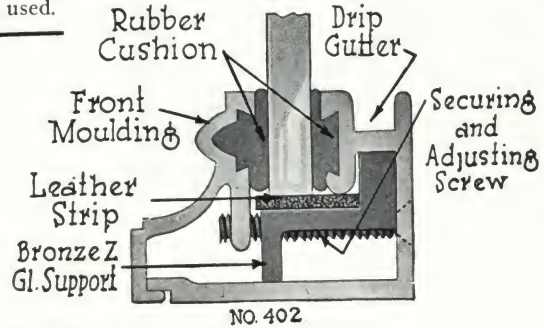
The new extruded bronze section offers an entirely new feature in rigid bronze store front construction. Our new cushion type glass setting eliminates the objectionable feature of rigid construction as the cushion grips the glass firmly yet allows for expansion and contraction of the glass. The cushions of finest rubber are held in place as shown on the section.



NO. 400

No Screws Show on the Face of the Setting

The setting section consists of only two shapes, the front and back plates. The front plate is held in place in the No. 400 Section by means of bronze clips. In the No. 402 Section the screw extends from the back to the front plate and holds it securely in place. No screws are visible on the exterior, giving the appearance of a strictly architectural cast bronze construction. Corner blocks or regular mitres may be used.

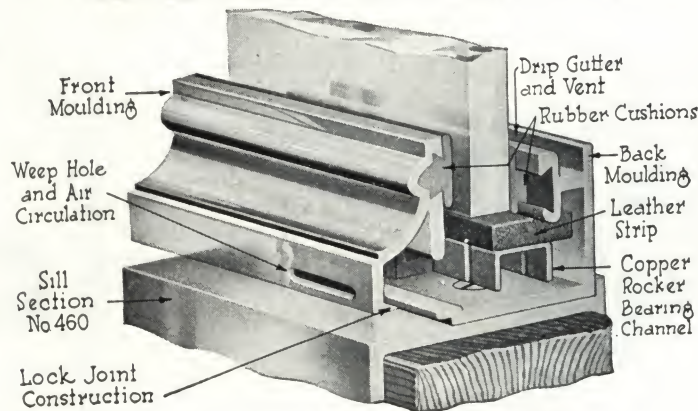


NO. 402

FULL SIZE SECTIONS THROUGH GLASS SETTING

The Any Angle Extruded Corner Construction (Patented)

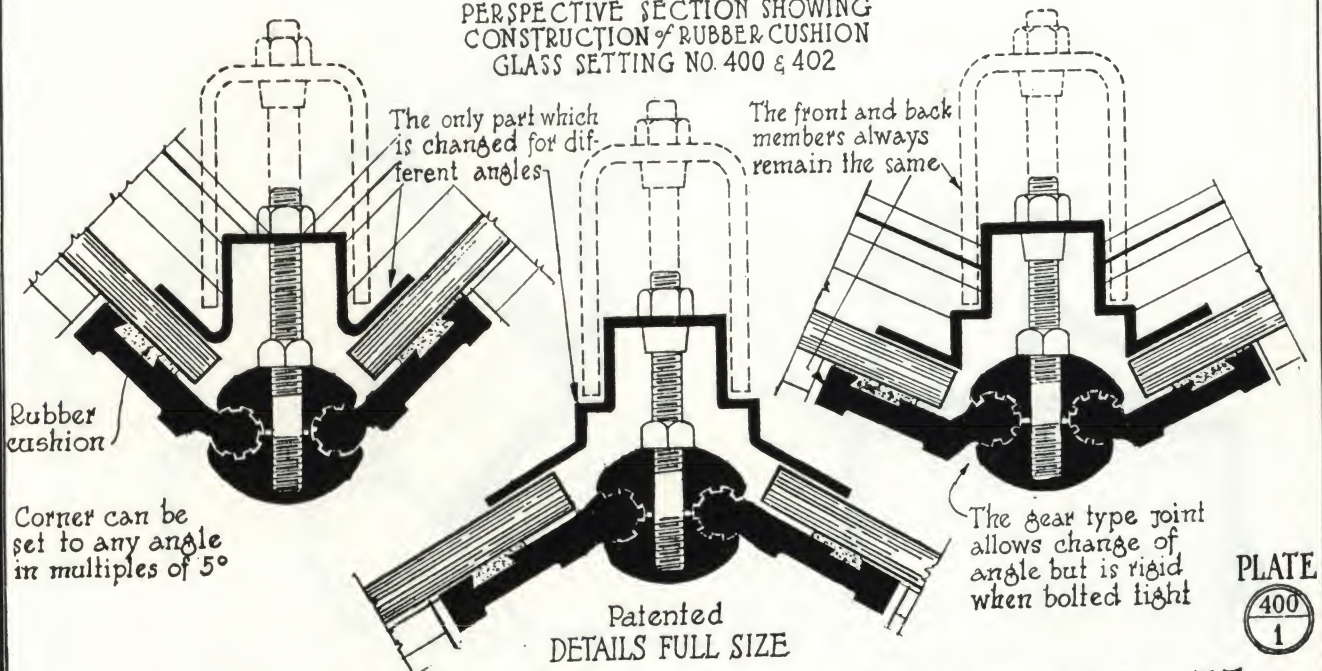
Only one section is required for any angle desired. The side wings are connected to the central upright by a gear type construction. When the front part of the upright is screwed tight from the inside the side wings are held rigid and secure. Any angle of 5°



PERSPECTIVE SECTION SHOWING CONSTRUCTION OF RUBBER CUSHION GLASS SETTING NO. 400 & 402

or more can be made with this corner. The only variation is on the interior spring grip for which the proper angle is supplied.

In Specifying—We suggest that our glass setting section be included in all cast bronze store front construction whether the balance of the work is done by ornamental bronze contractor or the entire front is furnished by us.



Corner can be set to any angle in multiples of 5°

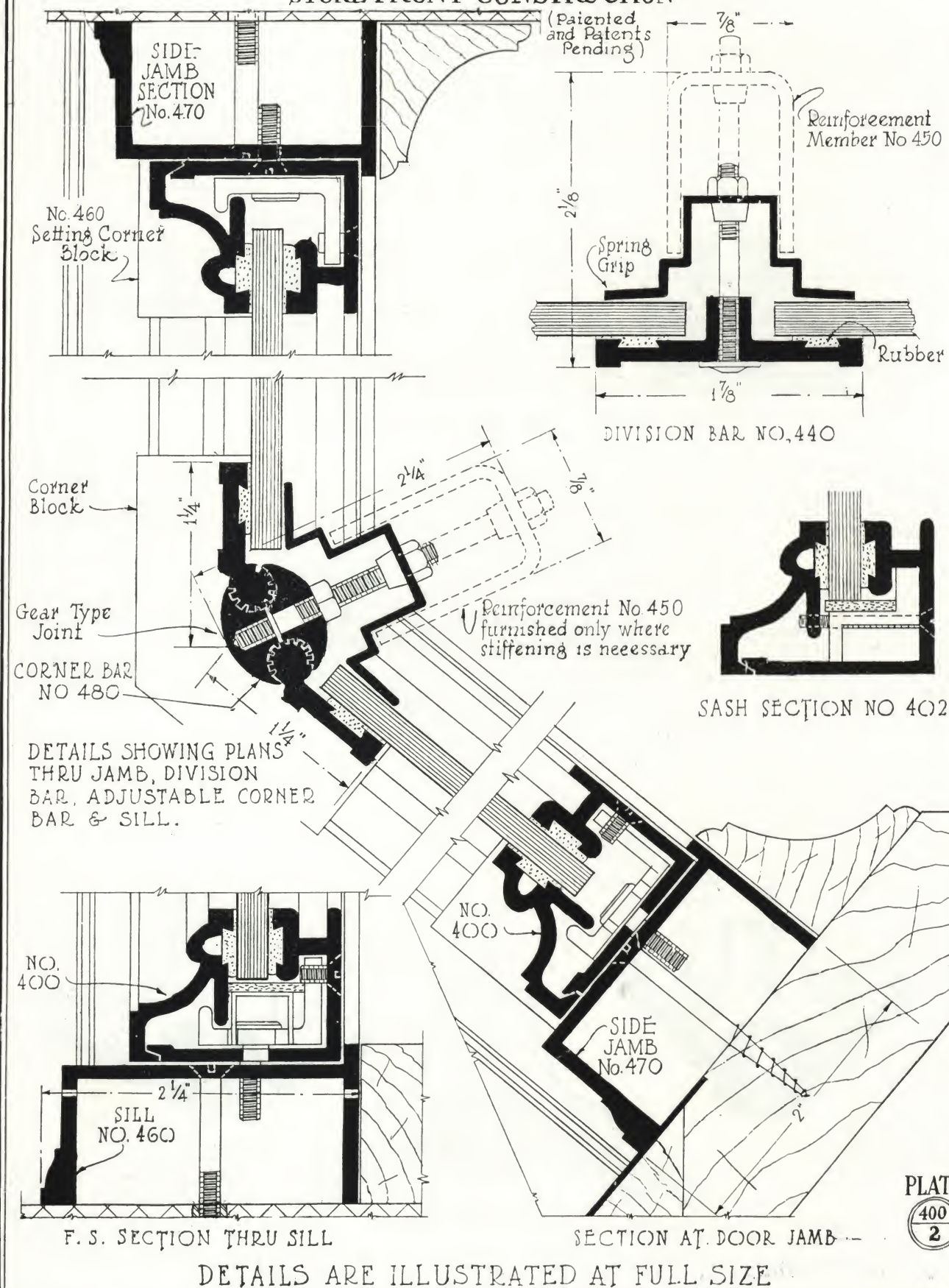
Patented DETAILS FULL SIZE

The gear type joint allows change of angle but is rigid when bolted tight

PLATE
400
1

SOME ANGLES AT WHICH THE NO. 480 CORNER BAR CAN BE SET

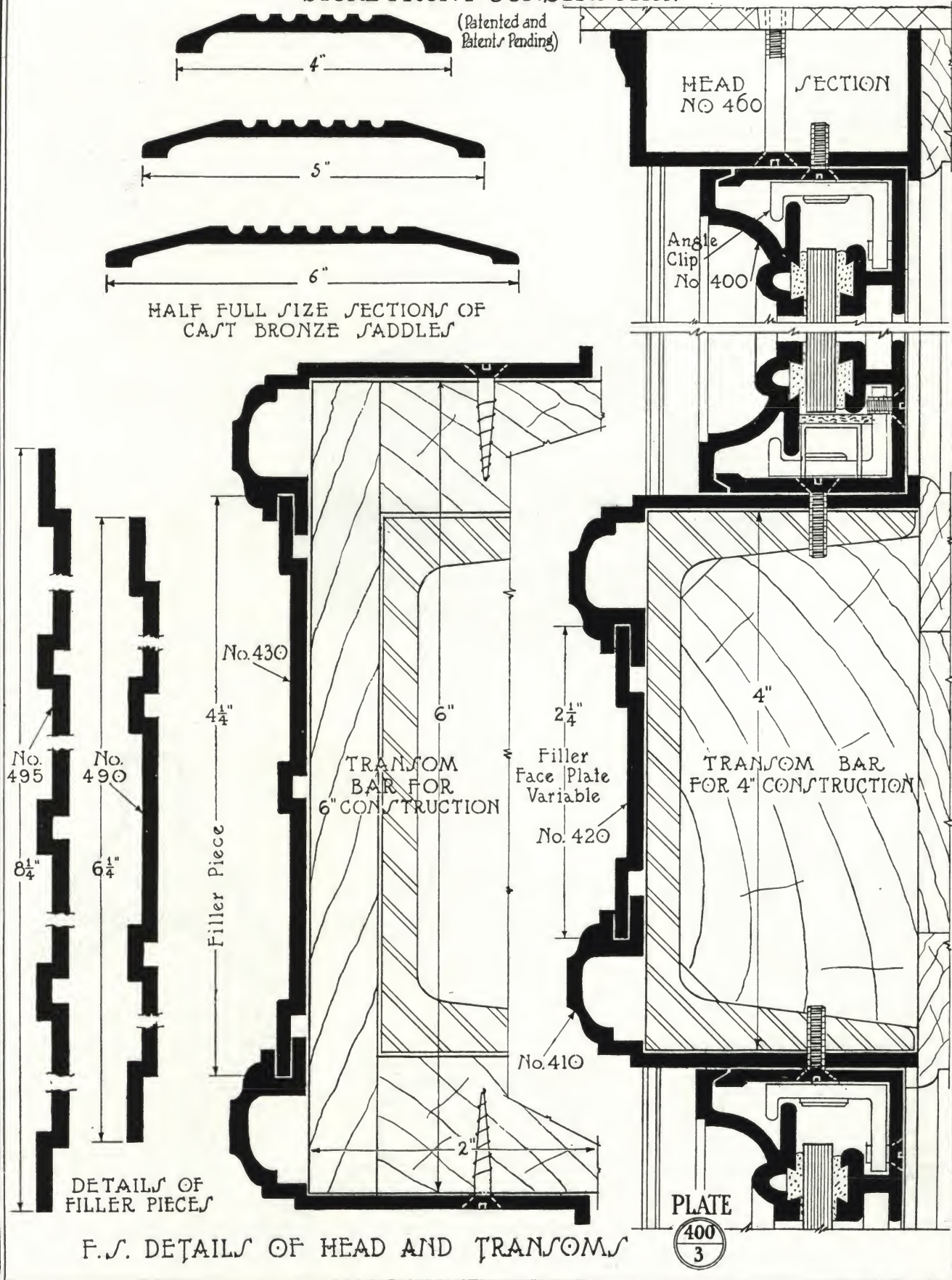
"HIMCO" 400 LINE ARCHITECTURAL EXTRUDED BRONZE STORE FRONT CONSTRUCTION



PLATE

400
2

"HIMCO" 400 LINE ARCHITECTURAL EXTRUDED BRONZE STORE FRONT CONSTRUCTION



"HIMCO" SOLID COPPER, ALUMCRO^(WHITE METAL) OR BRONZE STORE FRONT CONSTRUCTION

No. 60 GLASS SETTING (Patented)

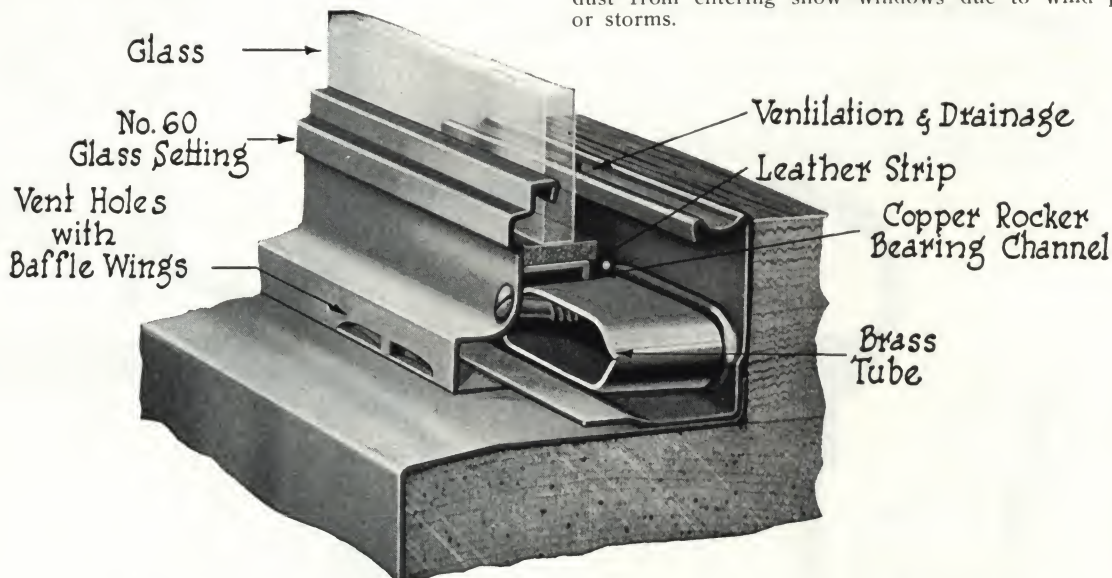
This glass setting is a screw pressure spring type section. The two parts, front and back, are held in place by screws which pass at an angle through the front plate, through brass tubes secured to the back plate and then into the wood or metal covered backing.

The slip joint between the front and back member automatically adjusts face member to position. The position of the face holes and tubes for the screws are accurately spaced by tool steel dies, assuring economy and accuracy in installation.

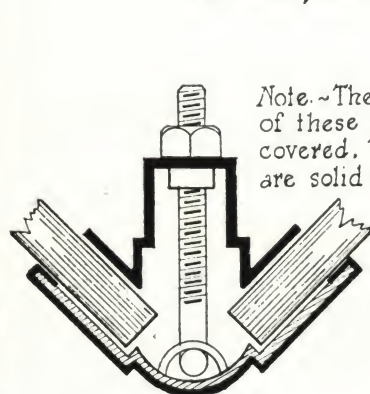
The glass rests on leather strips supported by corrugated copper channels. These channels are spaced along the bottom of the glass setting.

The Advantage of the Brass Tube in Setting—The brass tube eliminates the danger of the glass coming in contact with the setting screw. The screw entering at an angle draws the face plate down and inward and spreads the pressure against the glass uniformly throughout its length. This removes the danger of excessive local strain and uneven tension.

Ventilation and Condensation—There is a direct system of ventilation on all sides of the glass setting. Holes are spaced on centers which act as weep holes for any condensation and for ventilation from the outer air to the inner surface of the glass. The front vent holes indicated on the drawings have baffle wings which prevent direct drafts and dust from entering show windows due to wind pressure or storms.



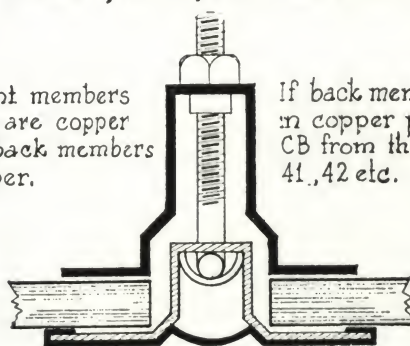
F.S. DETAIL OF CONSTRUCTION OF No. 60 GLASS SETTING



CORNER BAR NO. 41 CB

Corner Bars—These are made to fit any angle of glass setting desired. The patented method of bolting together the outer and inner sections, eliminates the use of clips, one of the commonest causes of glass breakage.

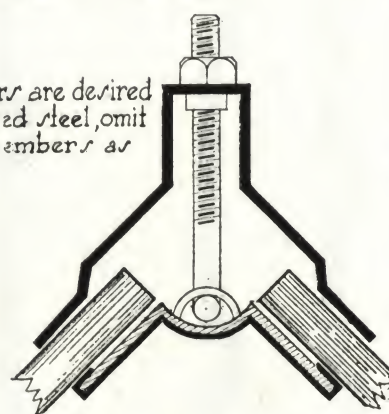
The bar constructions not only permit glass of varying thicknesses to be joined but provide equal pressure on both pieces of glass.



DIVISION BAR NO. 45 CB

Note.—The front members of these bars are copper covered. The back members are solid copper.

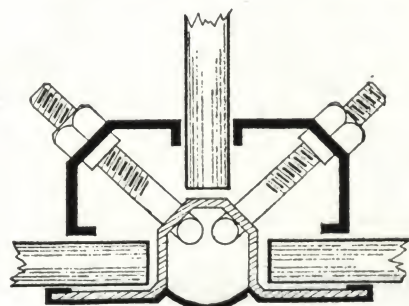
If back members are desired in copper plated steel, omit CB from the members as 41, 42 etc.



REVERSE BAR NO. 42 CB

Construction of Corner—The corners are formed up of drawn steel sections to give rigidity and strength and are bronze plated. The sections exposed to the weather are covered with drawn copper or bronze.

Use of Corner Bars—The drawn steel corner bars are used interchangeably with either the No. 60 or No. 33 type of setting.



3-WAY BAR NO. 48 CB



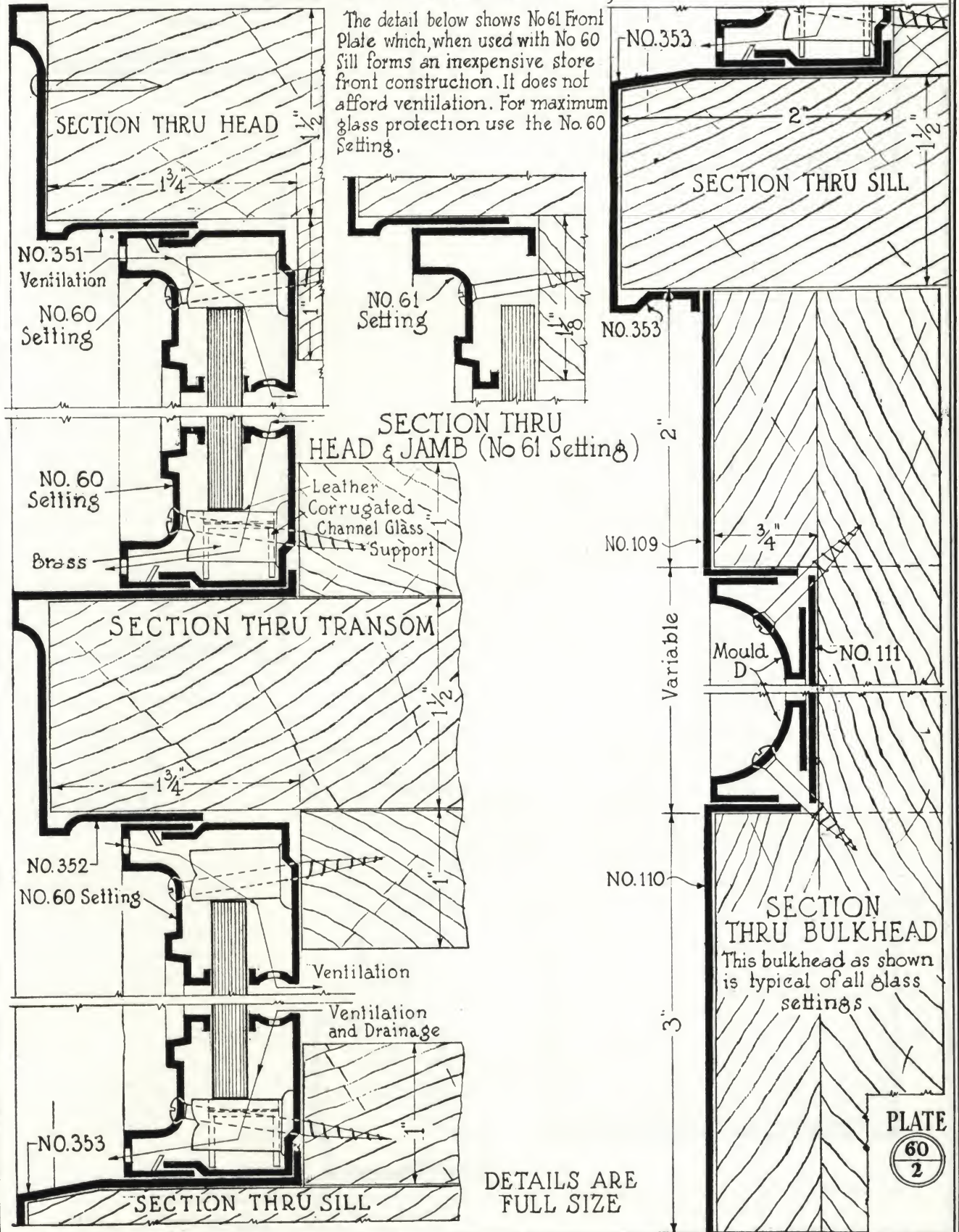
FULL SIZE DETAILS OF CORNER & DIVISION BARS

"HIMCO" SOLID COPPER, ALUMCRO (WHITE METAL) OR BRONZE STORE FRONT CONSTRUCTION

N^o 60 GLASS SETTING
 ALSO N^o 61 GLASS SETTING

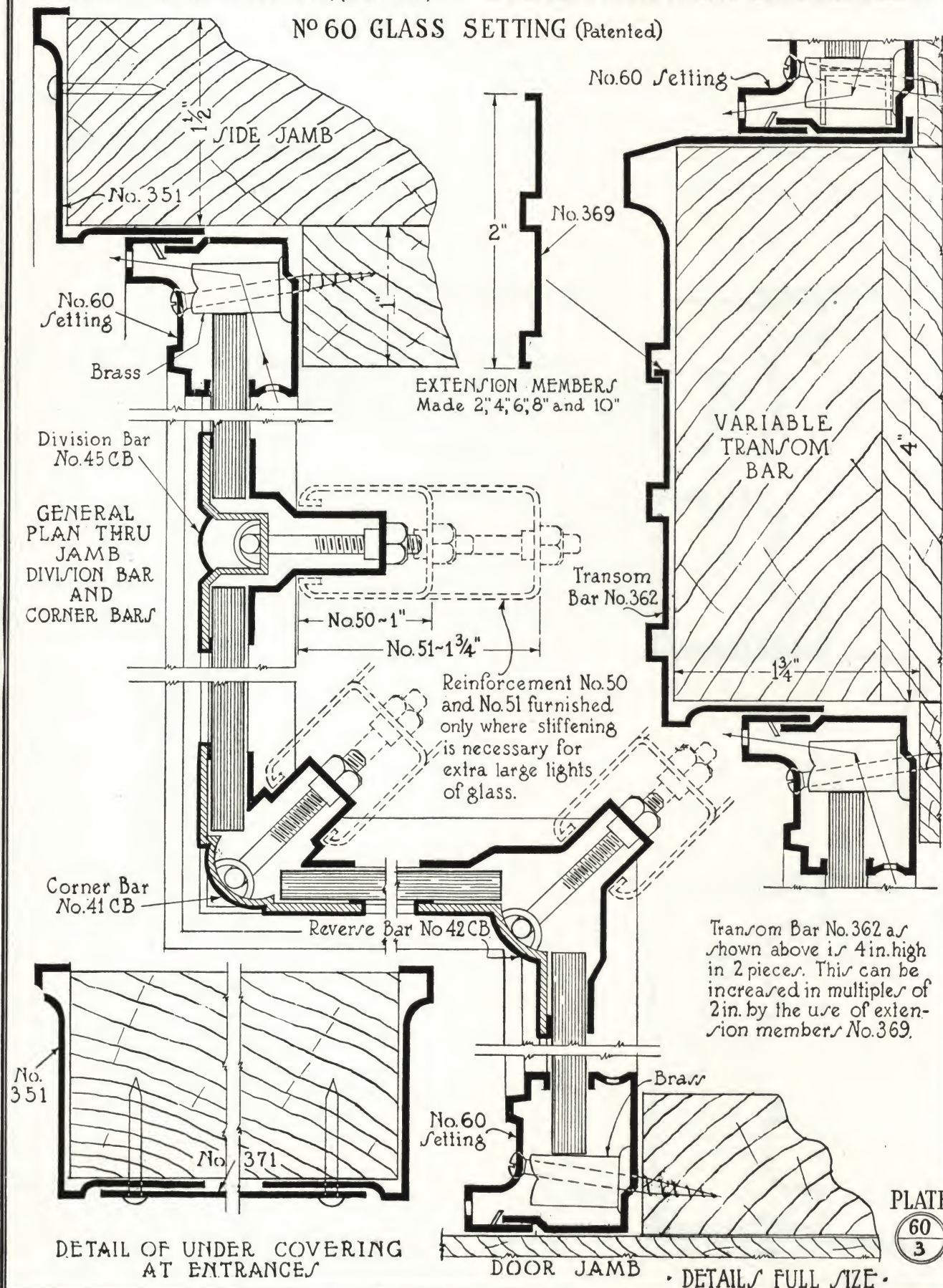
Patented

The detail below shows No 61 Front Plate which, when used with No 60 Sill forms an inexpensive store front construction. It does not afford ventilation. For maximum glass protection use the No 60 Setting.



"HIMCO" SOLID COPPER, ALUMCRO OR BRONZE STORE FRONT CONSTRUCTION

No 60 GLASS SETTING (Patented)



THINCO SOLID COPPER, (WHITE METAL) BRONZE STAIN FRONT CONSTRUCTION

FOR NO 60 OR NO 33 SETTING
(Patented)

HALF FULL SIZE SECTION THRU AWNING BAR NO. 370

TRANSOM SECTION NO. 373

TRANSOM SECTION NO. 372

TRANSOM SECTION NO. 371 Variable

NO. 351

Glass Setting NO. 33

Ventilation

Labels: A, B, C, D, E, F, EE, A-A, C-C, 362, 351, 371, 373, 370

Dimensions: 1/2", 3 1/2", 1 3/4", 7/8", 11 9/16", 1 1/2", 1 3/4", 1/8", 1/4"

UNDER COVERING
AT ENTRANCE

PLATE

A circular logo with a horizontal line. The number '60' is in the upper half and the number '4' is in the lower half.

HALF FULL SIZE DETAILS OF TRANSOM & AWNING HOODS

"HIMCO" ROLLED SOLID COPPER OR BRONZE STORE FRONT CONSTRUCTION WITH NO 33 GLASS SETTING (Patented.)

This type of setting is very similar in principle of construction to the No. 60 Glass Setting. The moulding of the front is different but is of the same spring type construction. The principal difference is in the method of securing the glass setting to the frame.

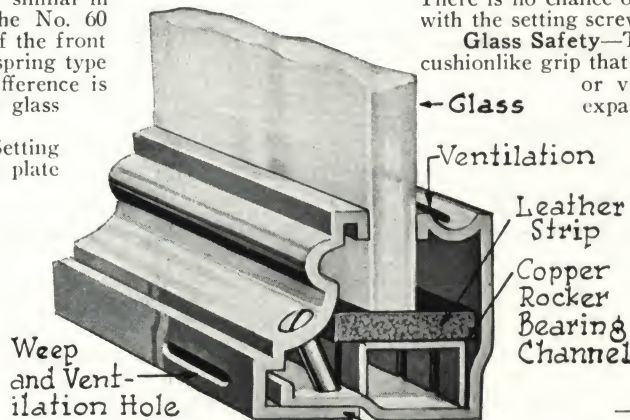
The screw in the No. 33 Setting passes down through the front plate at a steep angle then passes through both front and back members into the wood or metal covered backing. The setting screws entering on an angle draw the two plates together and spread the pressure on the glass uniformly over its entire length.

There is no chance of the glass coming in contact with the setting screw.

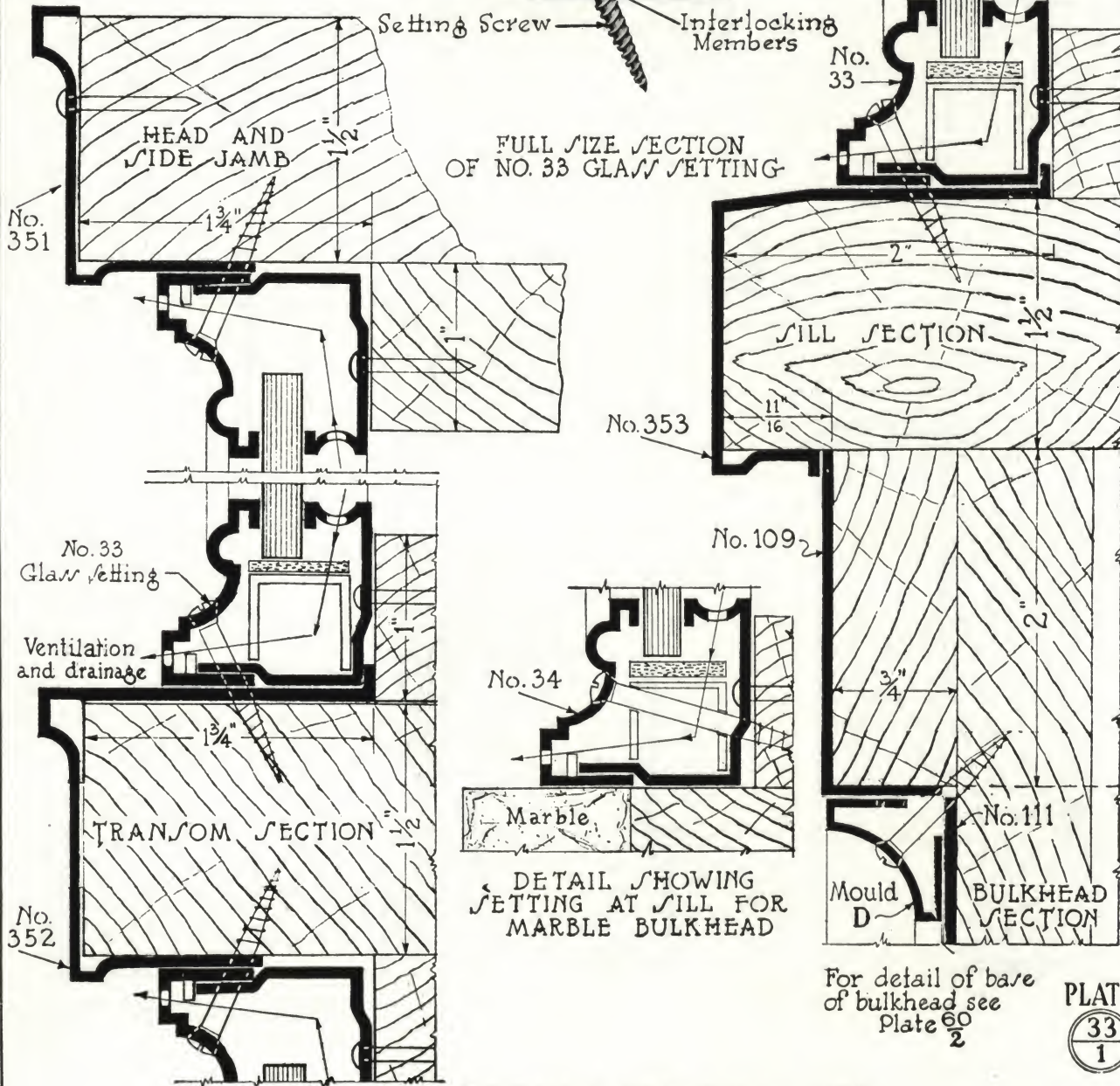
Glass Safety—The glass is held in a resilient cushionlike grip that counteracts shock from wind or vibration and it provides for expansion and contraction.

The holes for the screws are accurately spaced by steel dies for both members assuring ease of erection as well as accurately drawing the parts together.

Corner Bars—The corner bars illustrated on Plate No. 60-1 are used with the No. 33 glass setting in the same manner as for No. 60.



FULL SIZE SECTION
OF NO. 33 GLASS SETTING



DETAIL SHOWING
SETTING AT SILL FOR
MARBLE BULKHEAD

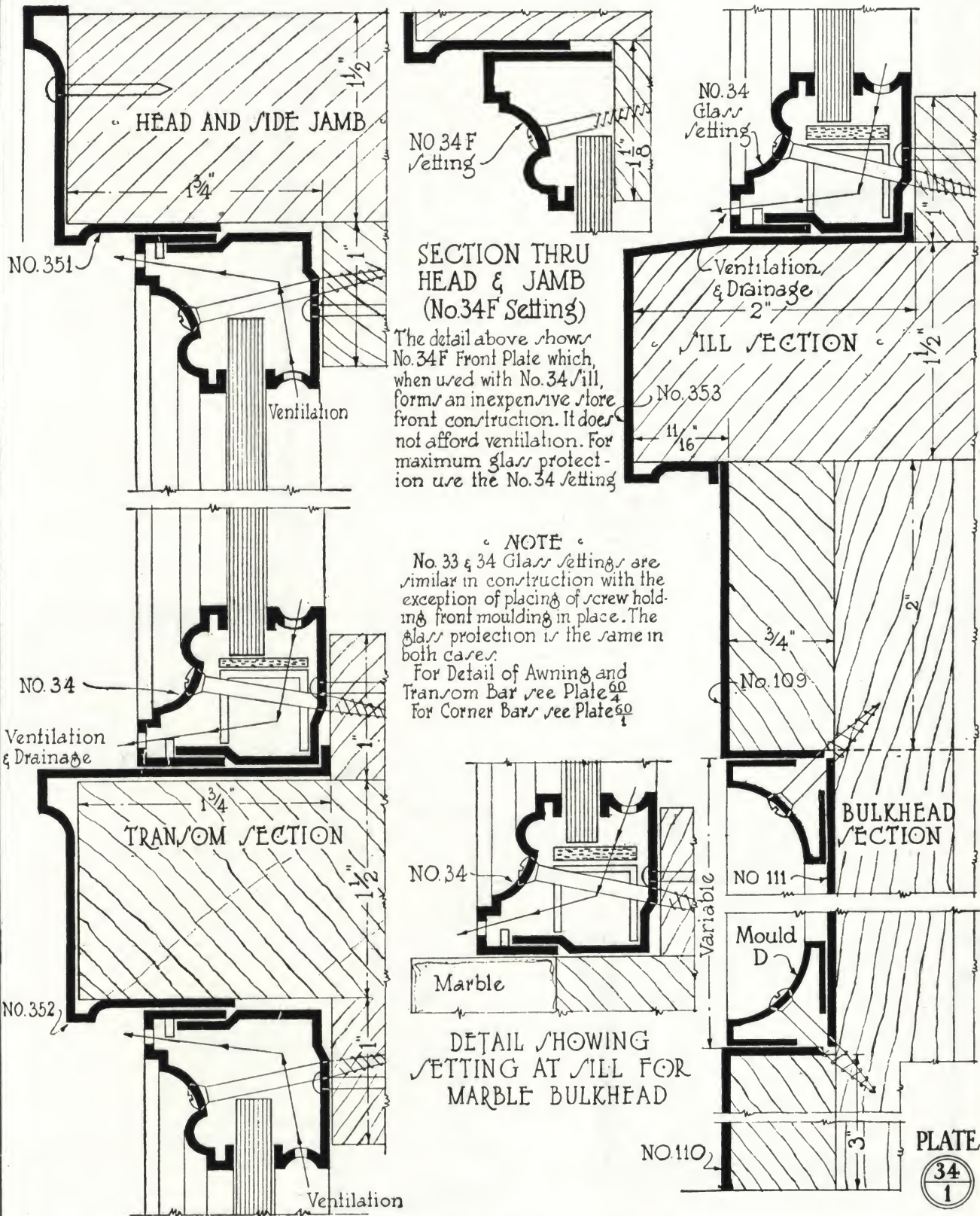
For detail of base
of bulkhead see
Plate 60
2

PLATE
33
1

DETAILS ARE FULL SIZE

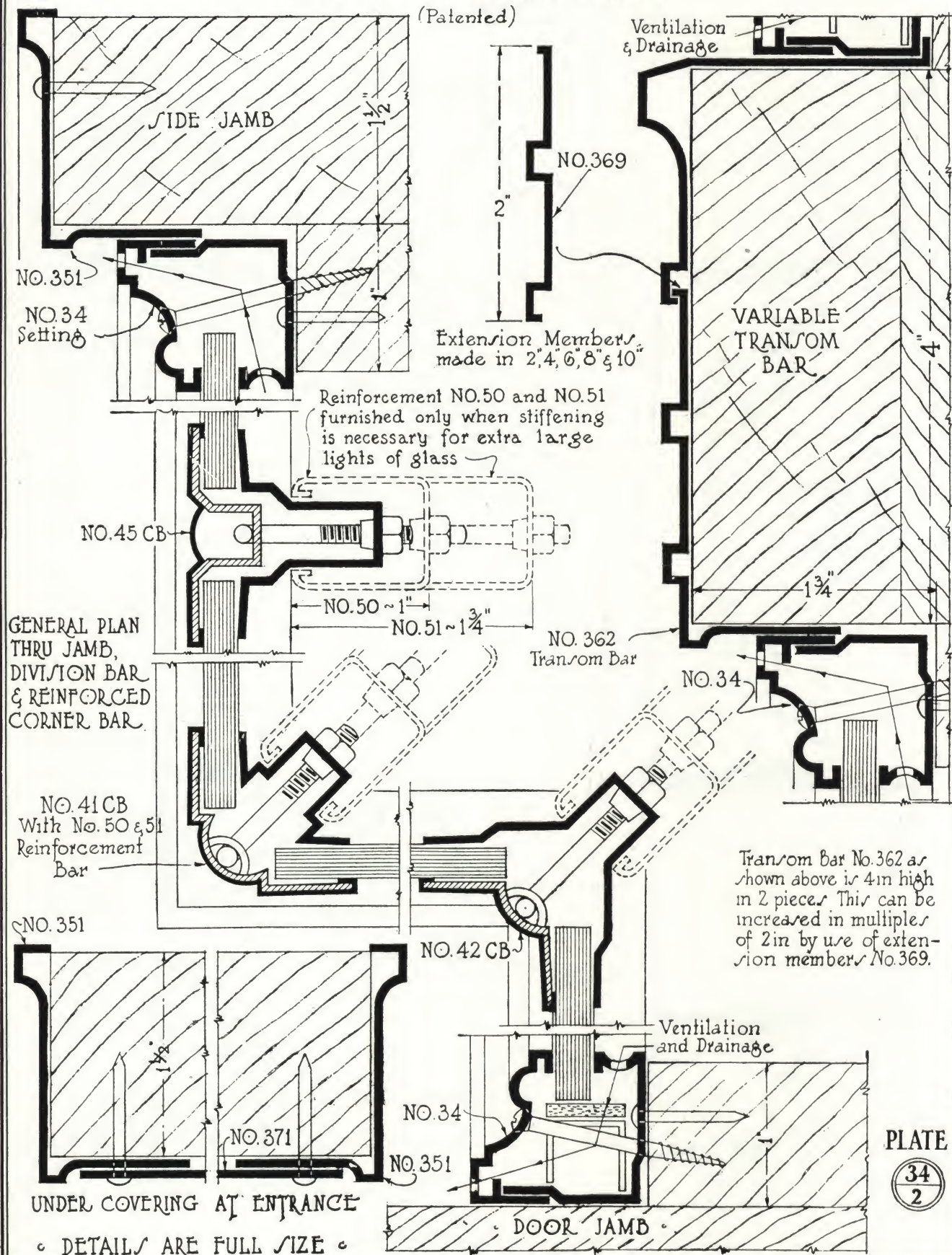
"HIMCO"ROLLED SOLID COPPER OR BRONZE STORE FRONT CONSTRUCTION

NO 34 GLASS SETTING
ALSO NO 34 F GLASS SETTING } Patented.



"HIMCO" ROLLED SOLID COPPER OR BRONZE STORE FRONT CONSTRUCTION WITH NO 34 GLASS SETTING

(Patented)



PLATE

34
2

"HIMCO" ROLLED SOLID COPPER OR BRONZE SHOW CASE CONSTRUCTION

(Patented)

PLAN OF
JAMB

No. 33

PLAN OF
LOCK STILE
OF HINGED
DOOR

Lock

PLAN SHOWING
HOW THE DOOR
AND FRAME MAY
BE FITTED INTO
A VERTICAL DIV-
ISION BAR

DIVISION BAR
NO. 45

Reinforcement No. 50

NOTE:

These details
show how readily
the "Himco" Door
Construction may
be used with our
regular store
front Construction

Doors may be added
or removed any
time it is desired
to change the
show window.

For small doors
reinforcement is
omitted but its
use is recomen-
ded where bronze
doors are hinged
to vertical member.

No. 351

SECTION THRU
HEAD OF
SHOWCASE
AND TOP OF
DOOR

SECTION THRU
SILL AND BOTTOM
OF DOOR

NO. 33
Setting

Vent.

NO.
353

CORNER
BAR NO. 41

PLATE

33
3

PLAN SHOWING DOOR AND FRAME
FITTED INTO A CORNER BAR.

DETAILS FULL SIZE

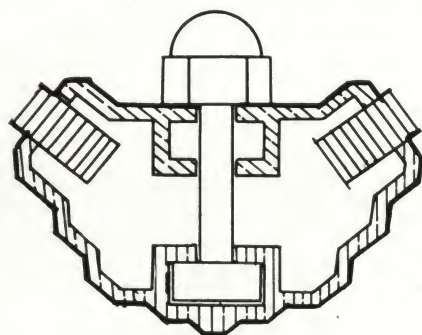
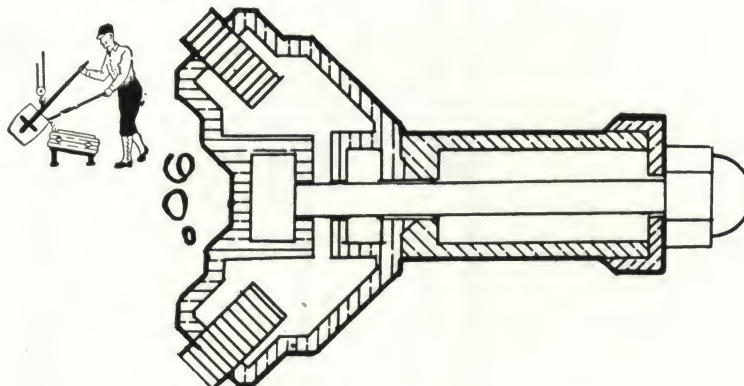
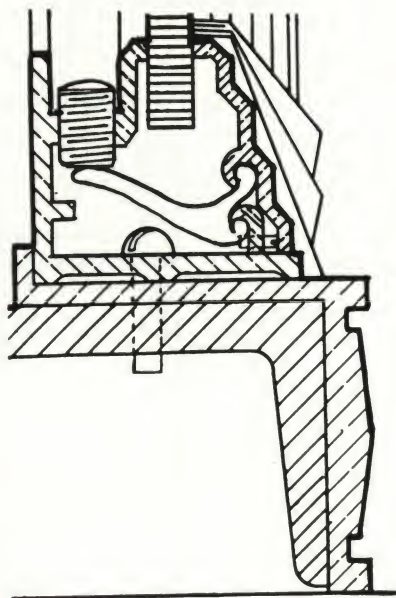
THE MICHAELS ART BRONZE CO., INC.

Patented Bronze Casement Sash and Store Front Construction
235-241 Court Avenue
COVINGTON, KY.

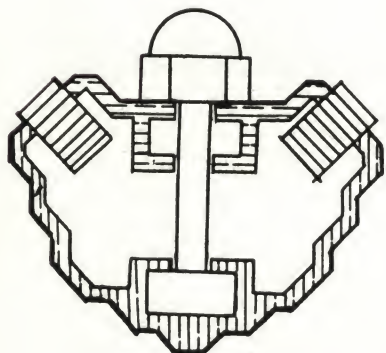
FACTORY: 230-240 Scott Boulevard, COVINGTON, KY.
(Three minutes from the heart of Cincinnati, Ohio)

REPRESENTATIVES IN ALL PRINCIPAL CITIES

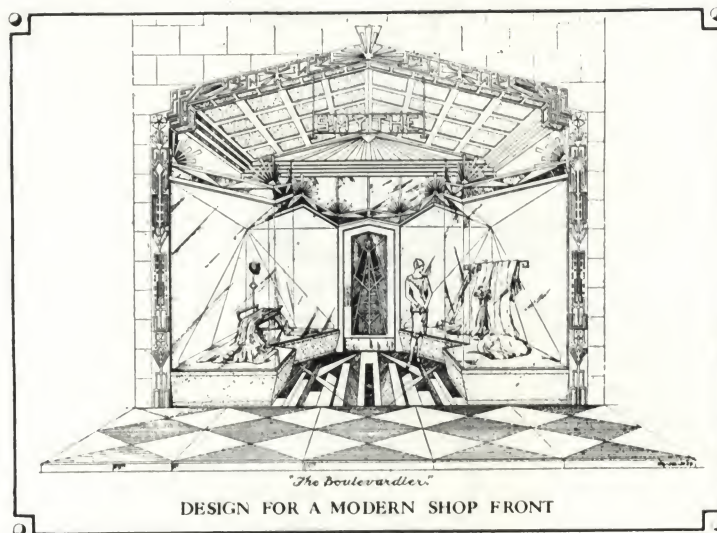
For other Michaels Products, see Manufacturers' Index



105°



90°



Features of Michaels Sash

Michaels Sash has a spring tension, is very easily applied, has no screws on outside moulding, has features so that one man can erect without difficulty.

Write for details today.

FULL SIZE SECTIONS OF MICHAELS PATENTED BRONZE CASEMENT SASH AND STORE FRONT CONSTRUCTION

THE KAWNEER COMPANY

AND SUBSIDIARIES

Metal Store Fronts

NILES, MICHIGAN

BRANCH OFFICES

ATLANTA, GA.
BALTIMORE, MD.
BOSTON, MASS.

BUFFALO, N. Y.
CHARLOTTE, N. C.
CHICAGO, ILL.
CINCINNATI, OHIO

CLEVELAND, OHIO
DETROIT, MICH.
KANSAS CITY, MO.
MILWAUKEE, WIS.

NEW ORLEANS, LA.
NEW YORK, N. Y.
NILES, MICH.
OMAHA, NEB.

PHILADELPHIA, PA.
PITTSBURGH, PA.
ST. LOUIS, MO.

KAWNEER MANUFACTURING COMPANY OF CALIFORNIA, BERKELEY, CAL.

BRANCH OFFICE, 1011 Architects Building, LOS ANGELES, CAL.

ADELBERT COLEMAN COMPANY, 336 W. 37th Street, CHICAGO, ILL.

Distributors are located in the Principal Cities in the United States and Canada

SEE OUR PERMANENT EXHIBIT AT THE ARCHITECTS' SAMPLE CORPORATION, NEW YORK, N. Y.

Products

CUSTOM BUILT STORE FRONTS made in exact accordance with architect's design.

STORE FRONTS made of cold Rolled Bronze, Aluminum Alloy or Copper, also Cast and Extruded Bronze.

Also Showcase Doors, Thresholds, Architectural Metal Mouldings, Grilles, Shower Bath Doors, Ventilators (for weight hung windows), Kick Plates and Push Plates.

For Welded Bronze Doors, Sealair In-swinging Windows, see Manufacturers' Index.

For Cast Architectural and Sculptural Metal Work, see Adelbert Coleman Company (in Manufacturers' Index).

Kawneer

STORE FRONTS

Store Front Construction

Distinctive design, harmonizing with the latest trend in architectural design, is a recent achievement by

Kawneer—at the same time maintaining the tested principles so successful in the past.

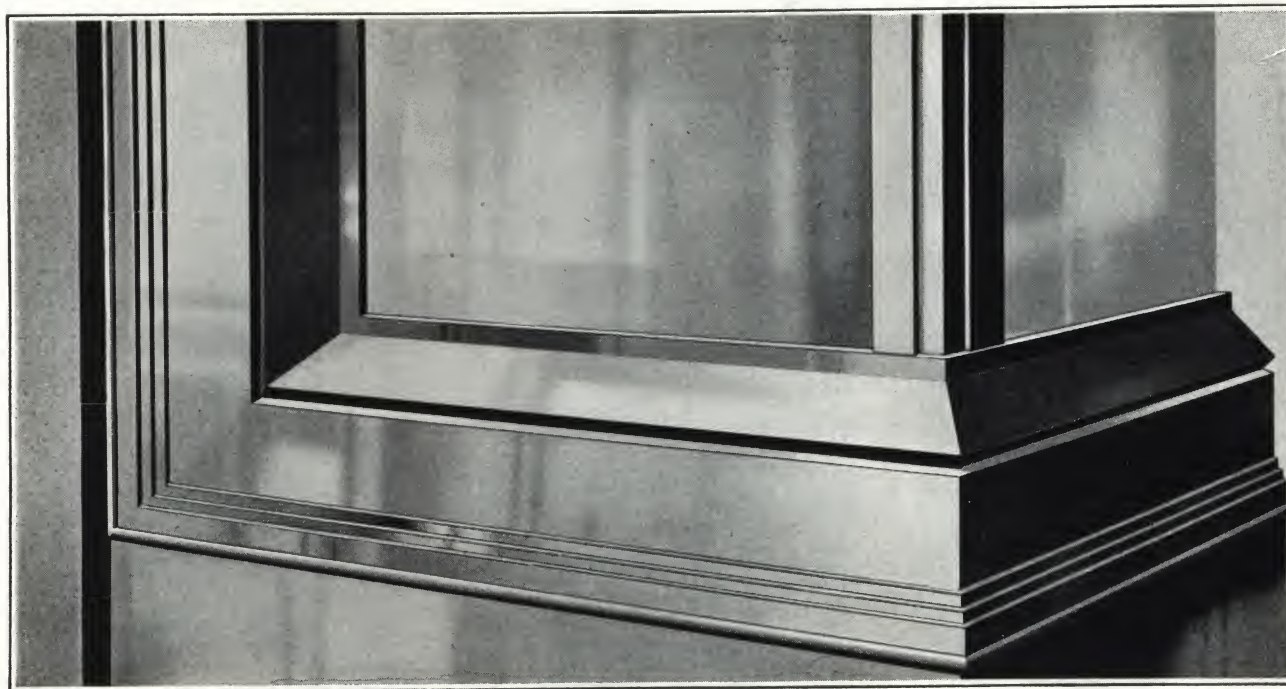
Mechanical Features

Resiliency, a predominant feature of Kawneer construction, assures plate glass protection. All screws are concealed and invisible from the outside.

Architectural Service and Catalogues

We maintain an Architectural Department for the purpose of assisting architects in the preparation of details.

Our Catalogue, Book of Recent Installations, and Portfolio of Details for A.I.A. Files will be mailed upon request.

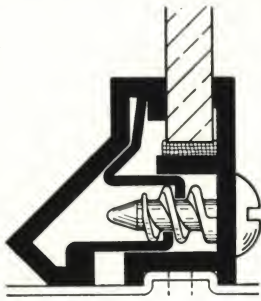


Assembled Units

Patents and Copyright Applied For

This distinctive addition to our regular line of store front construction embodies harmony of line throughout. One type screw, and the manner in which it engages the sash and bar members, is a noteworthy feature. This simple combination expels all complications of installation. The resiliency feature (protection to plate glass) of our standard line has been maintained in this construction

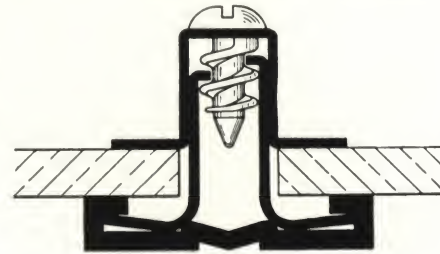
Patents and Copyright Applied For



EXTRUDED
SASH KE-B-1



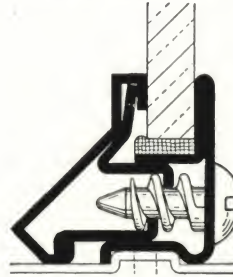
EXTRUDED FACE
CORNER BAR KE-B-2



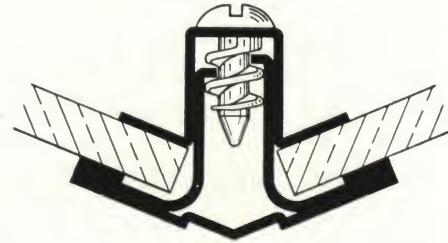
EXTRUDED FACE
DIVISION BAR KE-B-3



EXTRUDED FACE
REVERSE BAR KE-B-4



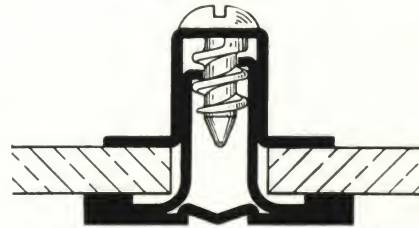
SASH B-1



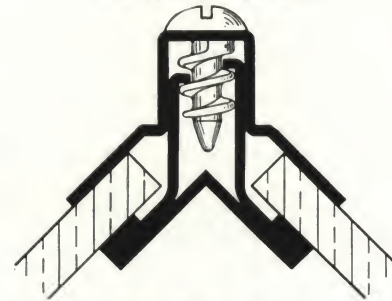
WIDE ANGLE BAR B-5



CORNER BAR B-2
FURNISHED IN ANGLES OF 95, 105
110, 135, 140, AND 175 DEGREES

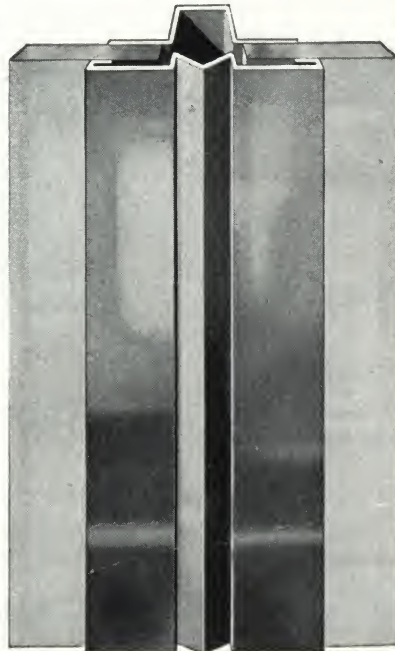


DIVISION BAR B-3

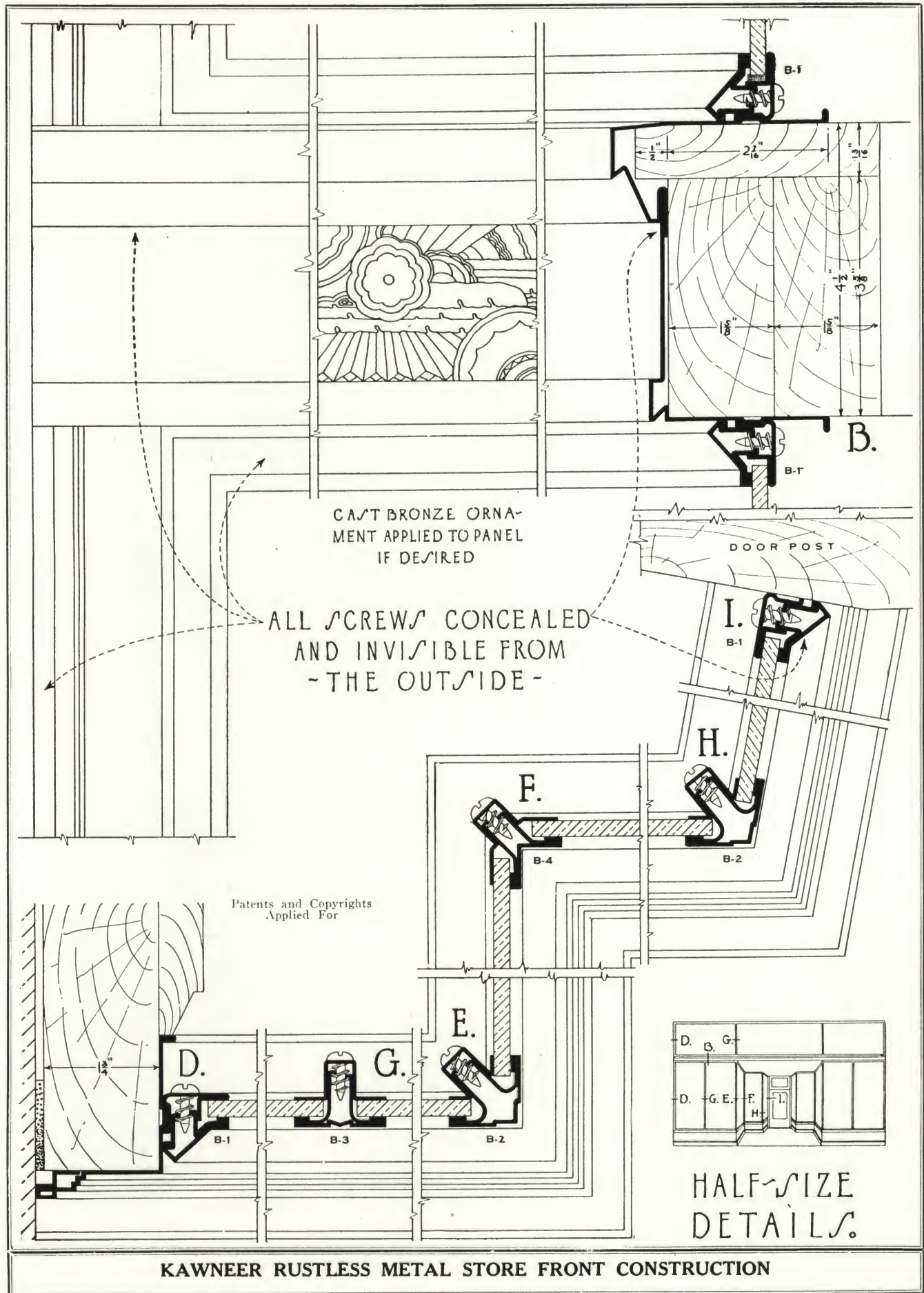


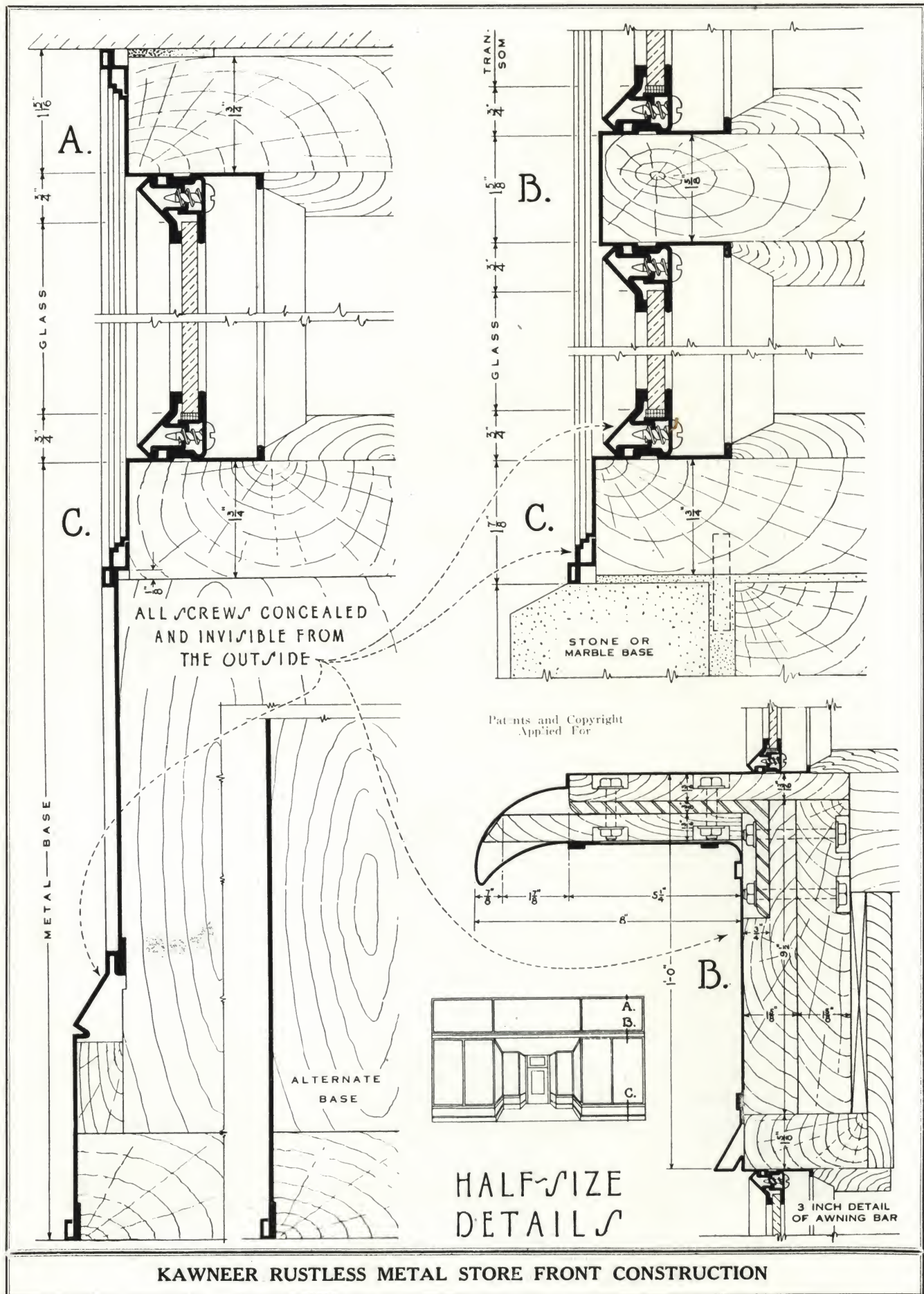
REVERSE BAR B-4
FURNISHED IN ANGLES OF 95, 105
110, 115, 135, 140, AND 175 DEGREES

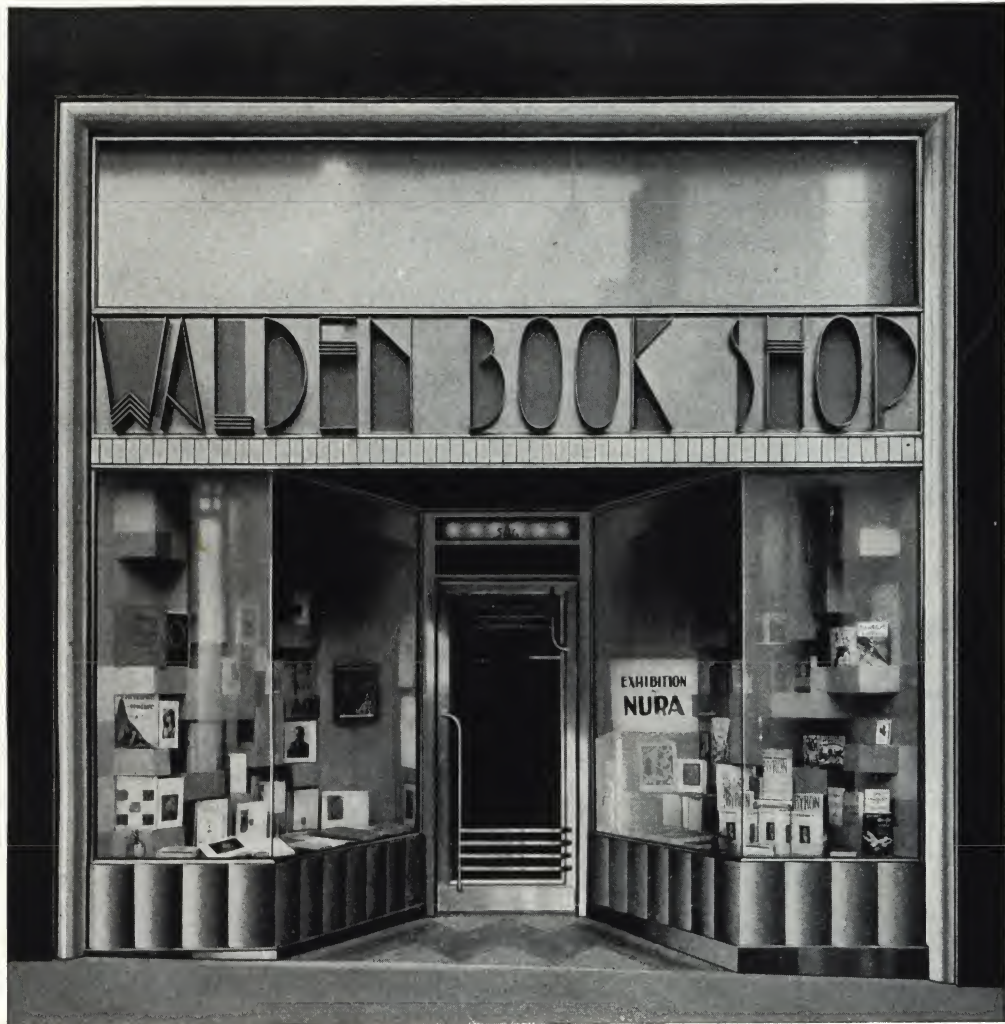
CROSS SECTIONS SHOWN FULL SIZE



KAWNEER RUSTLESS METAL STORE FRONT CONSTRUCTION







Walden Book Shop, Michigan Square Building, Chicago, Ill.
HOLABIRD & ROOT, Architects



A typical example of Kawneer custom built store front construction. This modern installation has gained widespread recognition. The entire front, including the door, and the unique lettering was built at the Kawneer factory.

We are equipped to render in any metal, a faithful reproduction of the architect's design.



KAWNEER RUSTLESS METAL STORE FRONT CONSTRUCTION

MODERN BRONZE STORE FRONT CO.

Factory-fabricated Store and Shop Fronts in Extruded and Cast Bronze

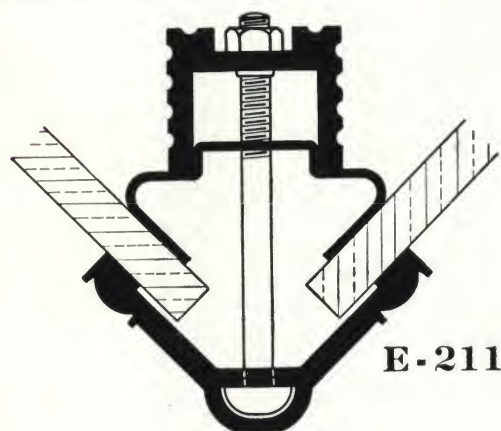
CHICAGO HEIGHTS, ILLINOIS

DEALERS IN PRINCIPAL CITIES OF THE UNITED STATES AND CANADA

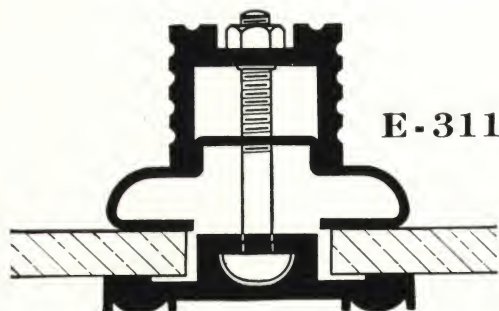
Products

ORNAMENTAL and ARCHITECTURAL NON-FERROUS METAL WORK including Store Fronts, Entrances, Facias, Cornices, Marquises, Tablets, etc., completely "factory-fabricated," ready for erection.

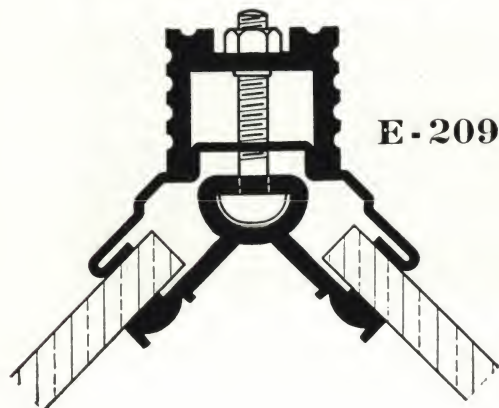
For Zouri Safety Key-Set and International Store Front Construction, Standard Store Front Construction, and Zouri "Sturdiweld" Shower Stall Doors, see Manufacturers' Index.



E-211



E-311



E-209

Facilities

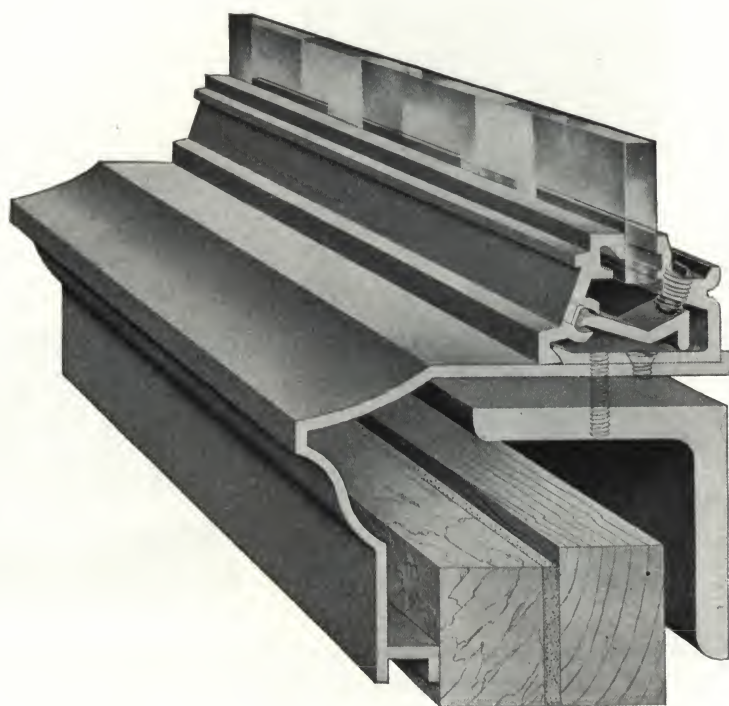
With a corps of skilled craftsmen and unlimited equipment, we are qualified to reproduce in any practical metal "Factory-fabricated" Store Fronts in exact accordance with the architect's design.

We carry a complete line of standard extruded shapes and cast ornaments to meet the requirements of a conservative or elaborate store front job.

The sash and bars of Modern Bronze Store Front Construction are so designed that no screws appear in the face mouldings, employing the well-known Zouri Safety Key-Set method.

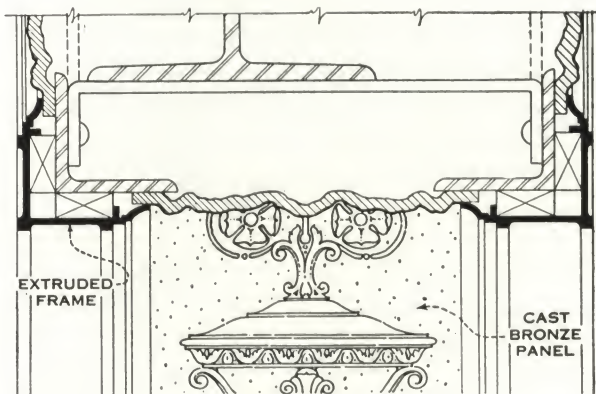
The cast crestings, caps, bases, etc., which we can furnish, may be used directly in relation with the regular bronze construction, inasmuch as they are of the same color and alloy.

Architects who desire to have their own designs extruded or cast, may rely upon the custom service offered by this company.





Sanders Store, Detroit, Mich.
POLLMAR & ROPES, Architects



Left:

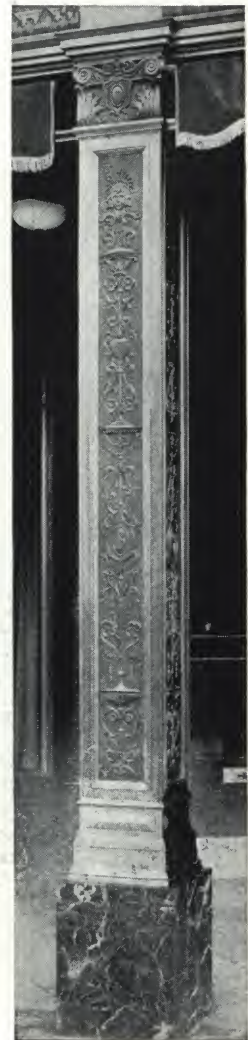
3-in. Detail Through Pilaster

Showing combination of extruded mouldings and cast bronze panel

Right:

Photographic View Ornamental Pilaster

Showing sharp, graceful detail of castings

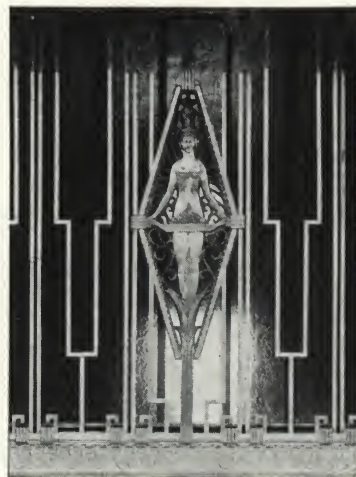


Close-up of Transom

This illustrates the beautifully embellished spindles, pediment and cresting, all furnished by the Modern Bronze Store Front Co.



Forsythe Building, Oak Park, Ill.
HOLABIRD & ROOT, Architects

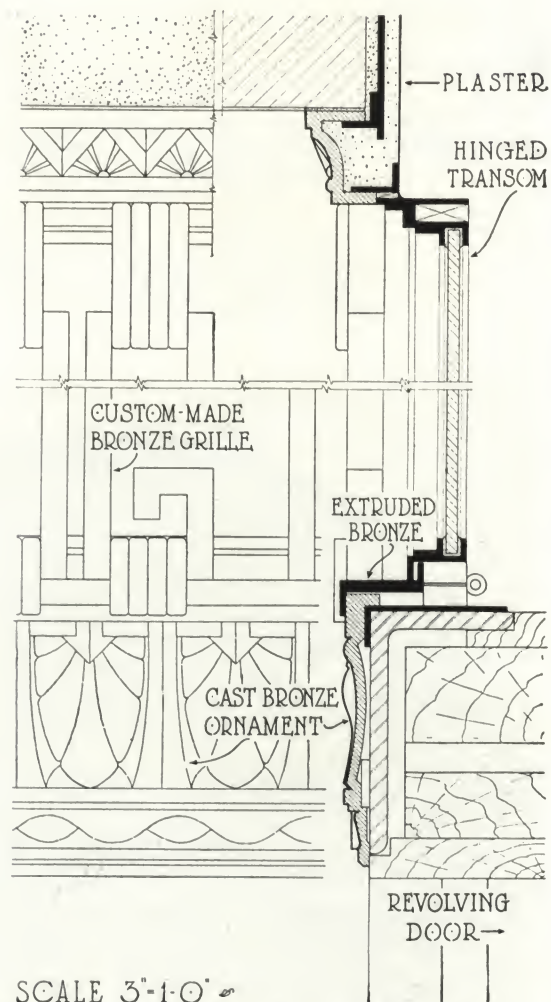


Architectural Bronze Ornamentation
Is comparable with the finest produced



Entrance

All metal work for this beautiful entrance, including cast and extruded bronze, was built and erected by the Modern Bronze Store Front Co.

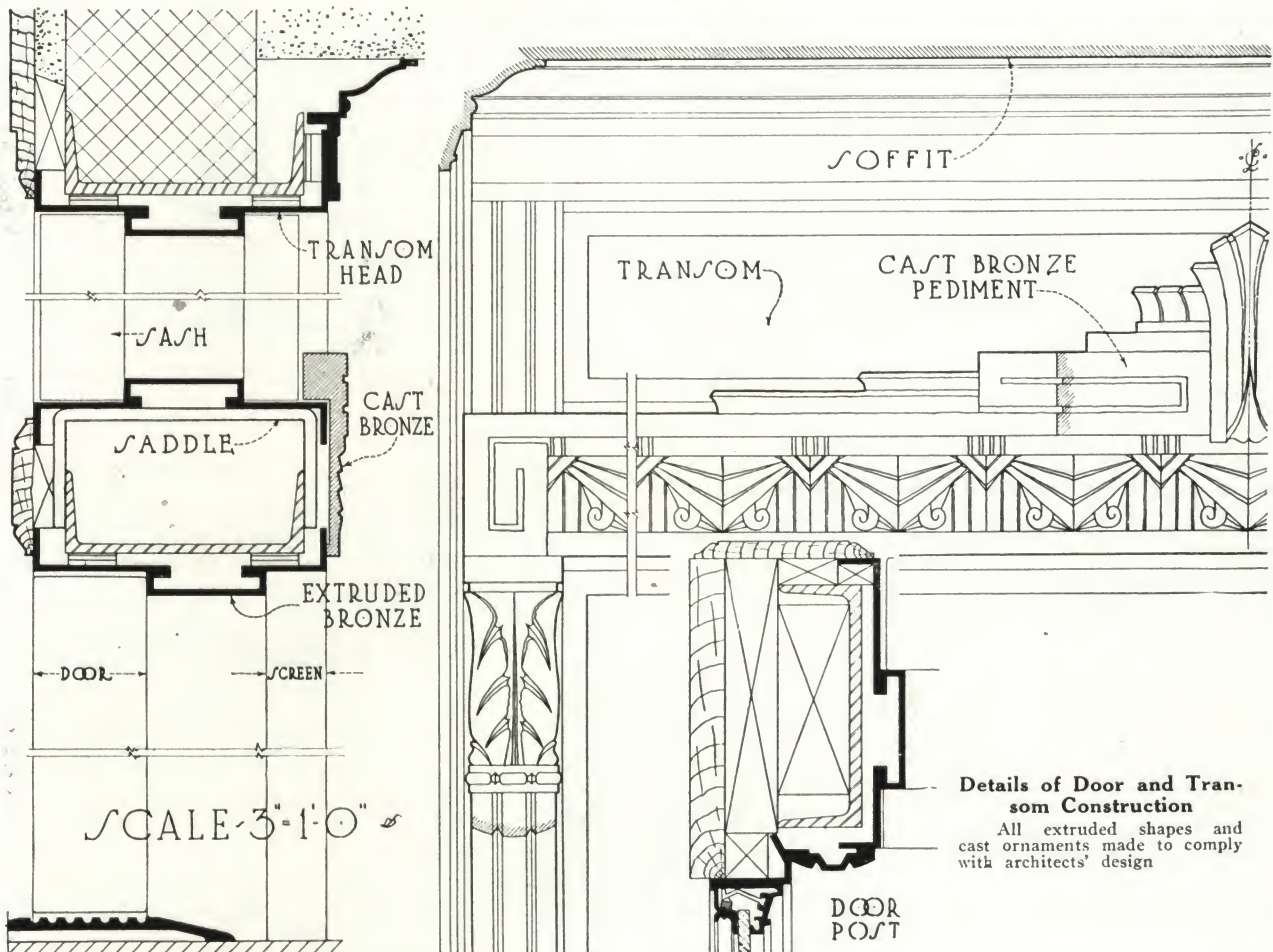


SCALE 3"-1'-0"

Details Showing Sturdy Construction of Transom and Head-jamb in Entrance, and Method of Fabrication



Katz Exclusive Millinery Store, Forsythe Building, Oak Park, Ill.
HOLABIRD & ROOT, Architects



THE NEWMAN MANUFACTURING CO.

FOUNDED 1882

Solid Cast and Extruded Bronze, Aluminum, Nickel and Monel Metal Storefronts

MAIN OFFICE AND PLANT
CINCINNATI, OHIO

BRANCHES: CHICAGO AND NEW YORK
SALES OFFICES IN 84 CITIES

Products

STOREFRONTS of cast and extruded bronze, aluminum, Monel metal and nickel.

AWNING BARS. Semi-automatic, self-concealing awning bar feature. (Patent applied for.)

For our pages on Ornamental Brass and Bronze Work, Solid, Kalamein, Hollow and Extruded Doors, Windows, double-hung and casement types, Grilles, see Manufacturers' Index.

For Iron Work and Lighting Fixtures, see our Midwest Metal Art Division in Manufacturers' Index.

Facilities

Plant contains 226,000 sq. ft. of space, and gives employment to 450 skilled craftsmen. Specialists in highest grade architectural ornamental metal work of every description, and particularly storefronts.

Engineering Department at your service. Will be delighted to submit sketches, specifications and estimates of cost covering standardized or special design storefronts of all kinds.

Description

Newmanco Storefronts are constructed throughout of solid heavy metal. The outstanding feature is their adaptability. As will be seen in our details, the entire front is made of extruded members (except where it is more practical or architecturally desirable that we use castings or drawn shapes), and to this front we affix by the invisible method such of our stock design cast ornaments, crestings, etc., as may be specified. This means that we have basic designs which are extremely flexible, and therefore can be utilized for any store of any architecture. And in addition, we make very *special bronze, monel metal, aluminum and nickel storefronts to order.*

Before detailing a metal storefront of any kind, may we suggest that you communicate with us? Given the necessary measurements and an elevation sketch, we will prepare drawings of a front or fronts exactly adapted to the job, and these will be sent with estimates of cost, positively without charge or obligation.

We have scores of stock design pilaster caps and bases, crestings and ornaments not shown in this section, and will gladly send blueprints, if you are designing an elaborate front, together with elevations of several different modern storefronts. Would you like to have tracings of some of the fronts shown herein?

For bulkhead grilles, see our Grille pages.



Awning Bar Feature

Our new and greatly improved awning bar feature (patent applied for) is a radical departure from the usual method, and has become recognized as the first practical means of concealing and protecting the awning. The only visible sign of an awning is the spindle arm, for when not in use the front bar is behind the swinging panel in the frieze of the cornice hidden section.

hidden section.

Points of Superiority

(1) Made throughout of solid heavy metal—not kalamein or sheet metal construction. Last forever, and require the minimum of upkeep expenditure. No refinishing cost. No replacements.

(2) A style for every front, and readily adaptable to any layout, with standardized designs sufficiently flexible to give an almost unlimited range. We are *not* confined to the glass-setting mouldings, etc., shown on succeeding pages.

(3) Extra heavy extruded or drawn members insure rigidity, eliminate unsightly waves and buckling, and positively prevent sagging and the resultant glass breakage.

(4) Especially beveled shapes permit of adjusting the fronts to any angle, without changing the style of the various members.

(5) Glass-setting mouldings (patent applied for) are self-adjustable to any thickness of glass, with plenty of excess rabbet space, making for a perfectly airtight, waterproof and dustproof contact.

(6) Screws are applied from the inside, but may be applied from the street side, if necessary.

(7) Glass may be easily tightened by merely turning down the screws which hold the members in place.

(8) Sub-frame so designed as to take your choice of our large variety of stock glass-setting mouldings.

(9) Greatly simplified drainage system.

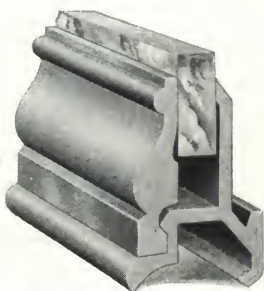
(10) Cornice is adjustable to any awning bar construction of standard make.

(11) Awning bar feature (patent applied for) permits of automatically concealing and protecting the entire awning, greatly adding to the appearance of the front when the awning is not in use. This feature is applicable to nearly every type of awning mechanism.

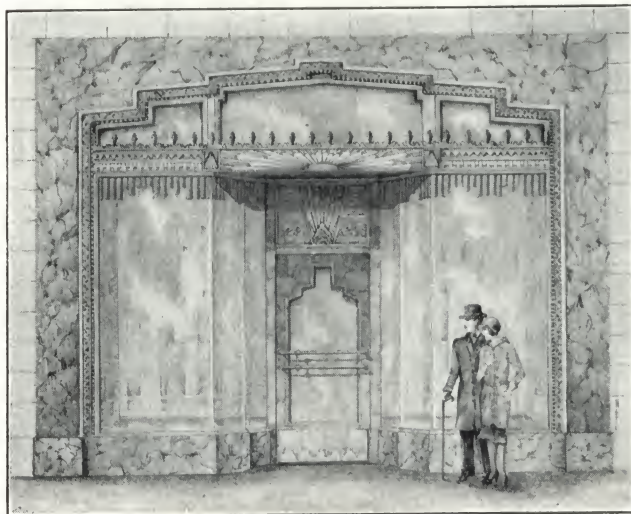
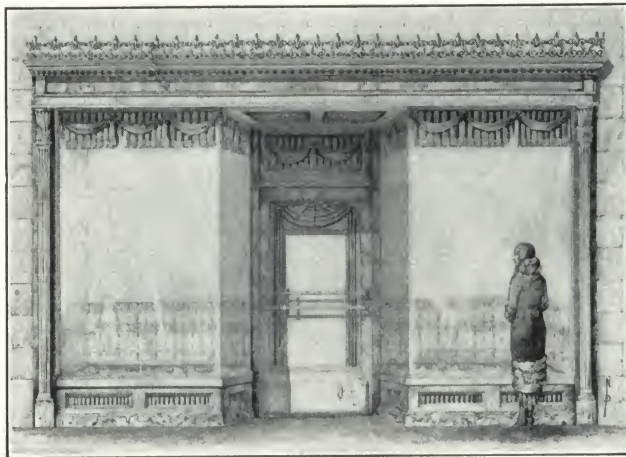
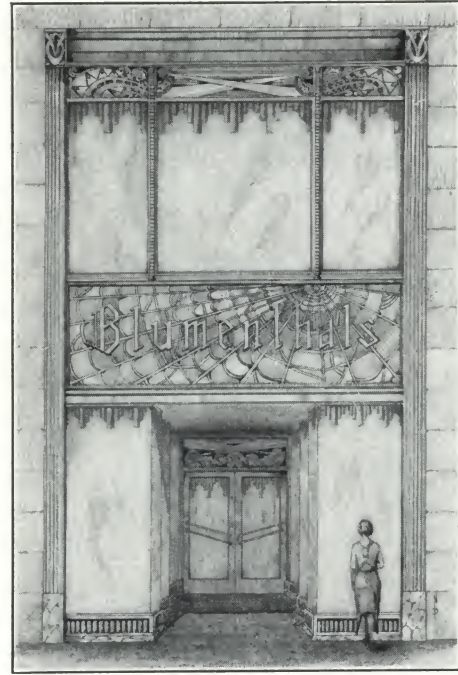
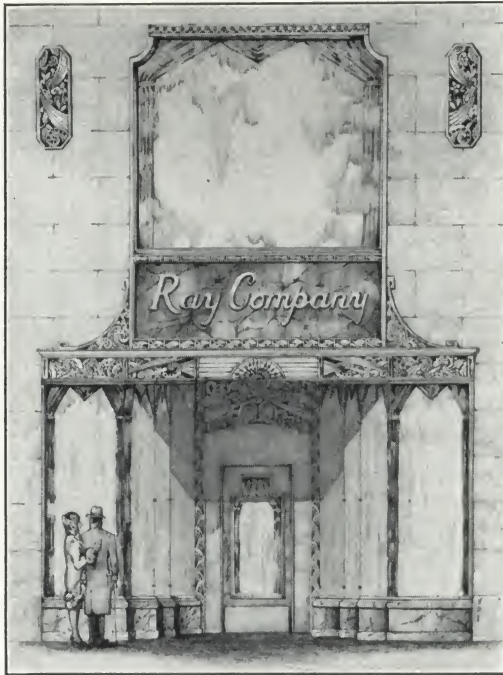
(12) Future alterations are inexpensive, as the corner construction, cornice, transom bar, etc., all are adjustable.

(13) Easily erected, due to the adjustability of the entire construction, and the scientific interlocking of all members.

(14) May be finished in any natural polished or electroplated finish.



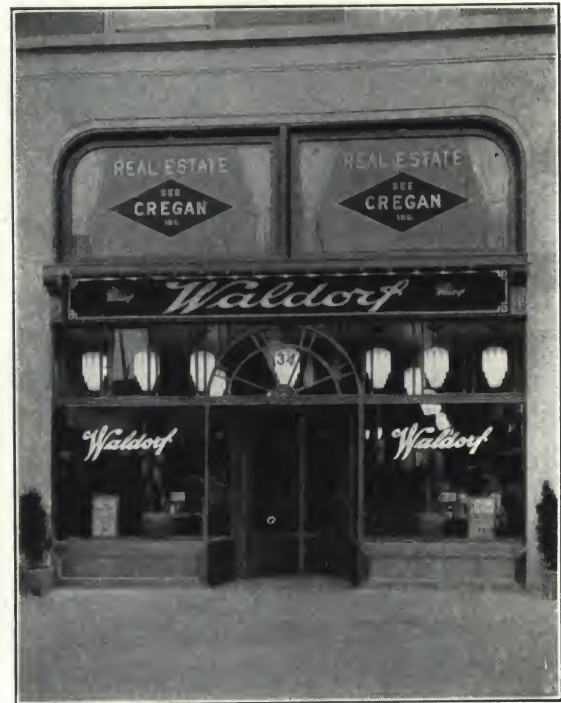
Typical Newmanco
Storefront Construction





Harrington Store, Columbus, Ohio
F. & Y. CONSTRUCTION CO.

NEWMAN
STORE
FRONTS



Waldorf Restaurant, Albany, N. Y.
Typical Newmanco Installation



Cutler Shoe Store, Chicago, Ill.
EDW. P. STEINBERG, Architect



Louis Appel Co., Louisville, Ky.
JOSEPH & JOSEPH, Architects



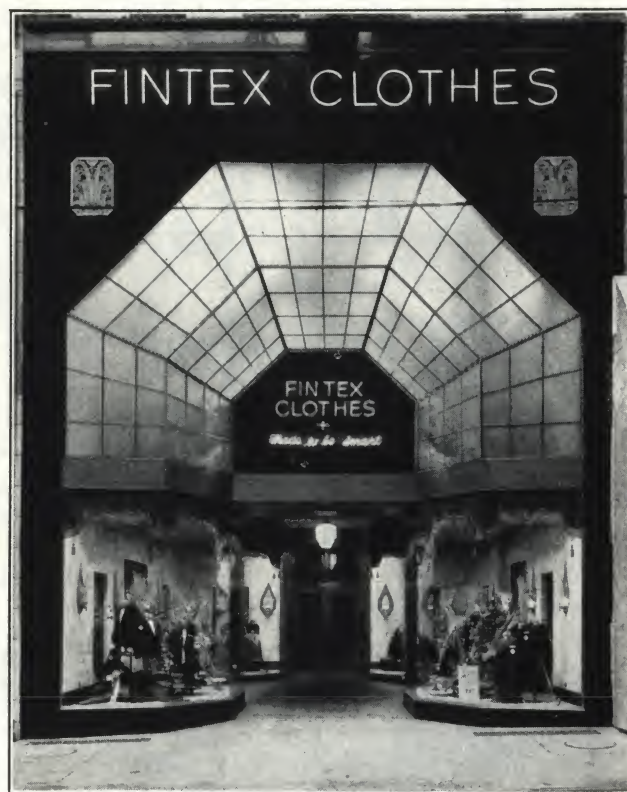
Vernor's Ginger Ale Store, Buffalo, N. Y.
FRANK E. HILL, Architect



Rubin's Department Store, Waukegan, Ill.
OMAN & LILIENTHAL, Architects



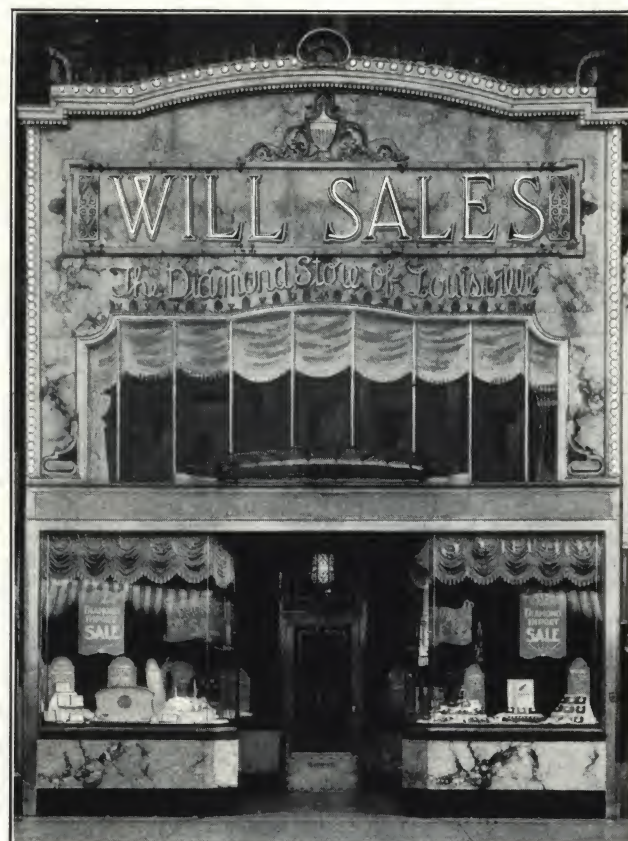
Hoffman-Green Co., Springfield, Ohio
F. & Y. CONSTRUCTION CO.



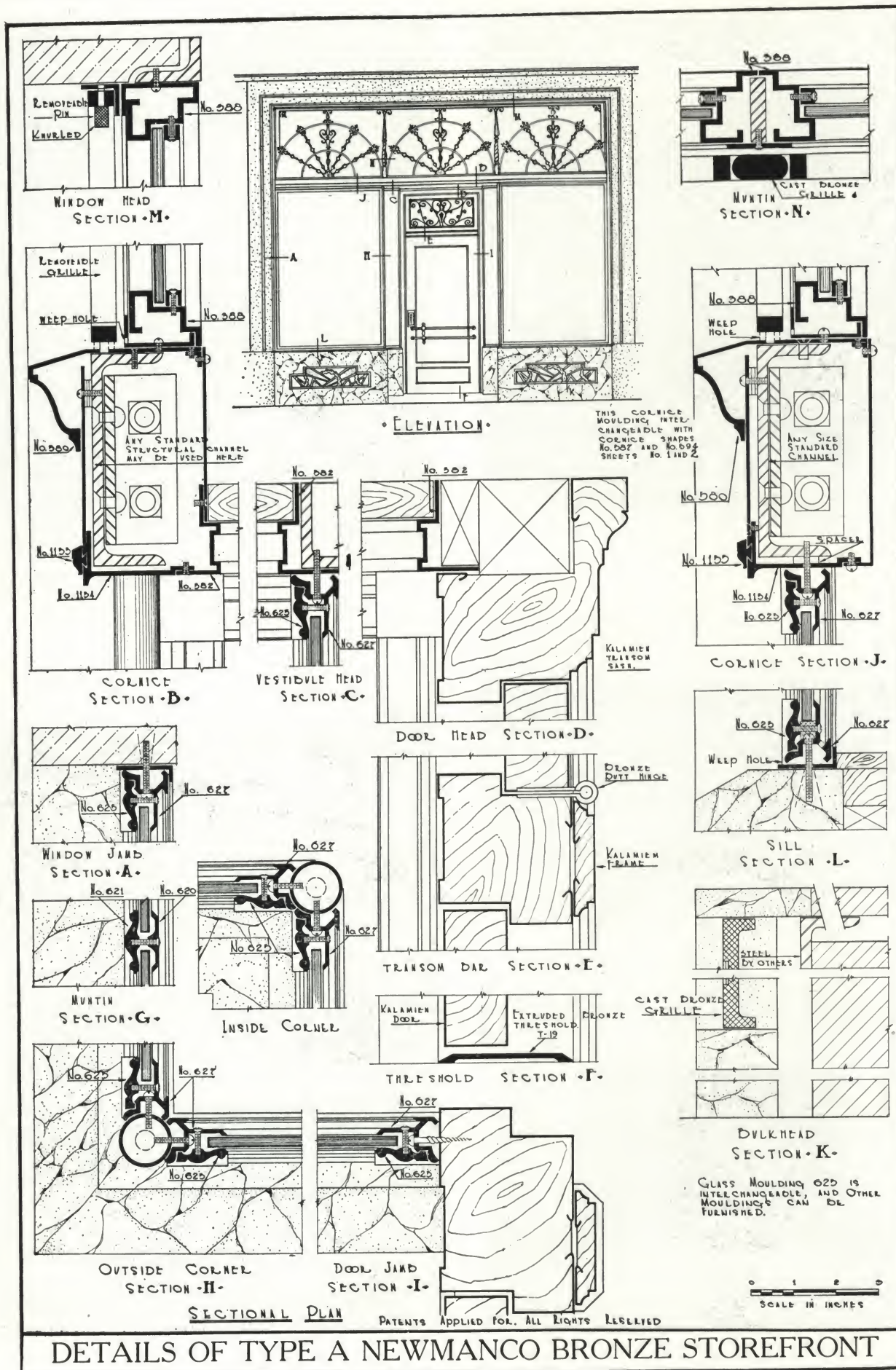
Fintex Clothes Shop, Pittsburgh, Pa.
MARKS & KANN, Architects



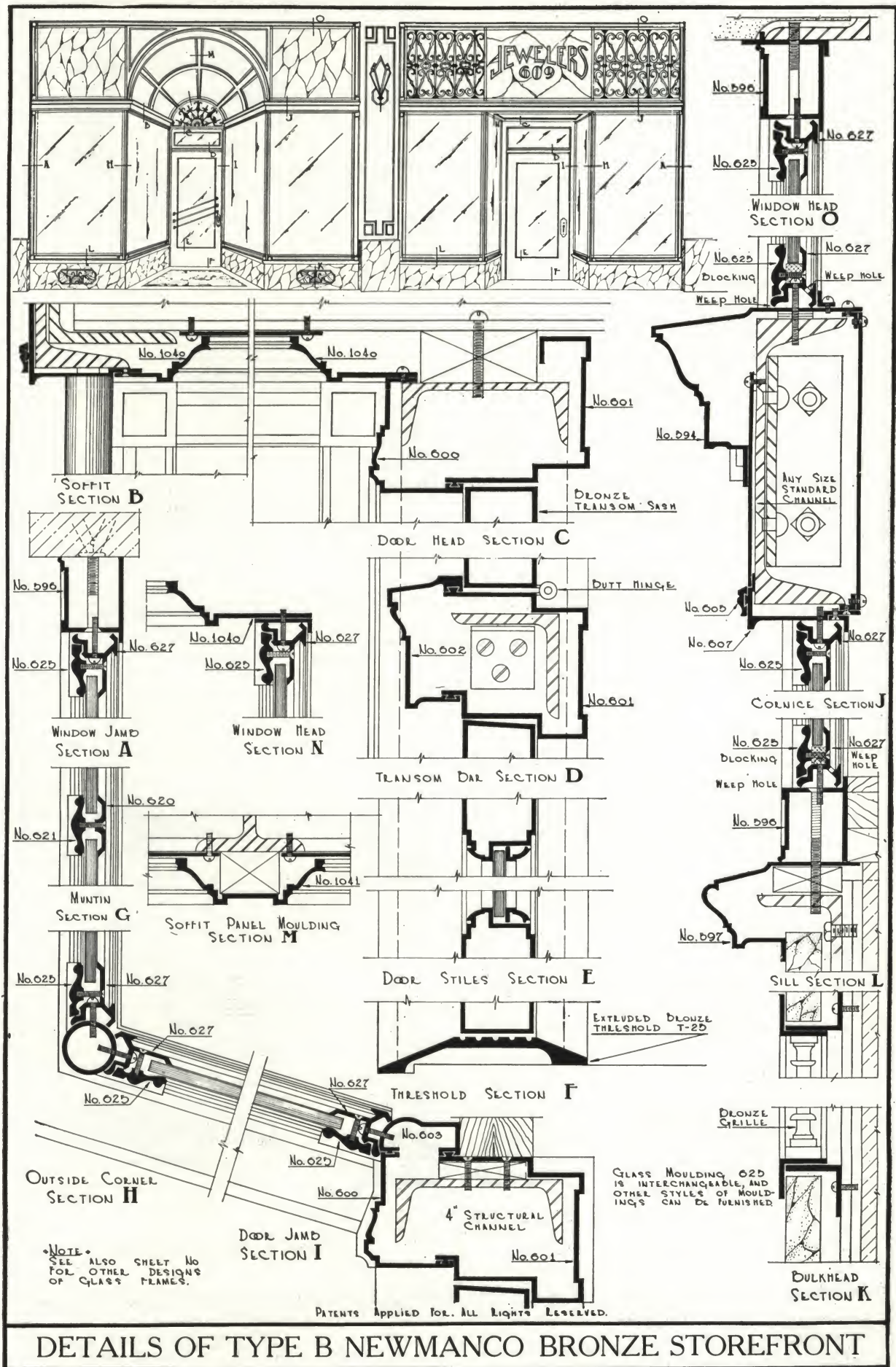
Jefferson Electric Co., Roanoke, Va.
ROBERT M. ALLEN, Architect



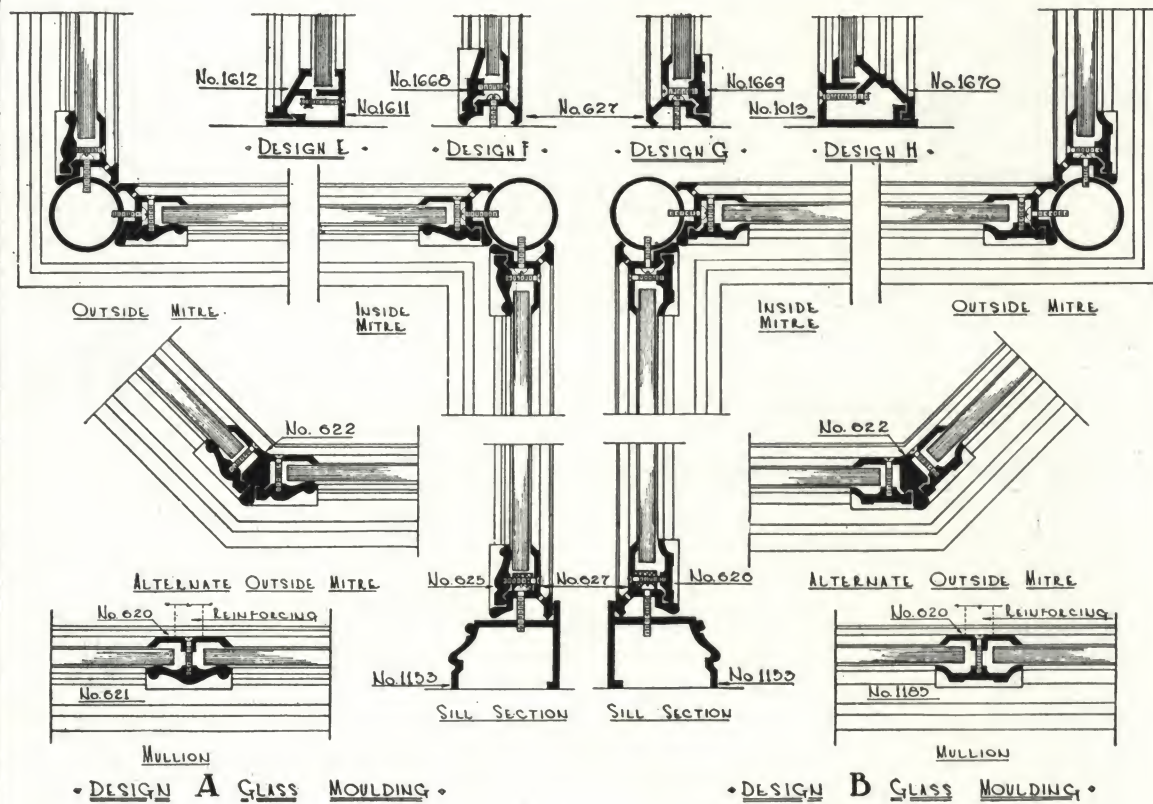
Will Sales Store, Louisville, Ky.
SANDERS & WEINDEL, Architects



DETAILS OF TYPE A NEWMANCO BRONZE STOREFRONT

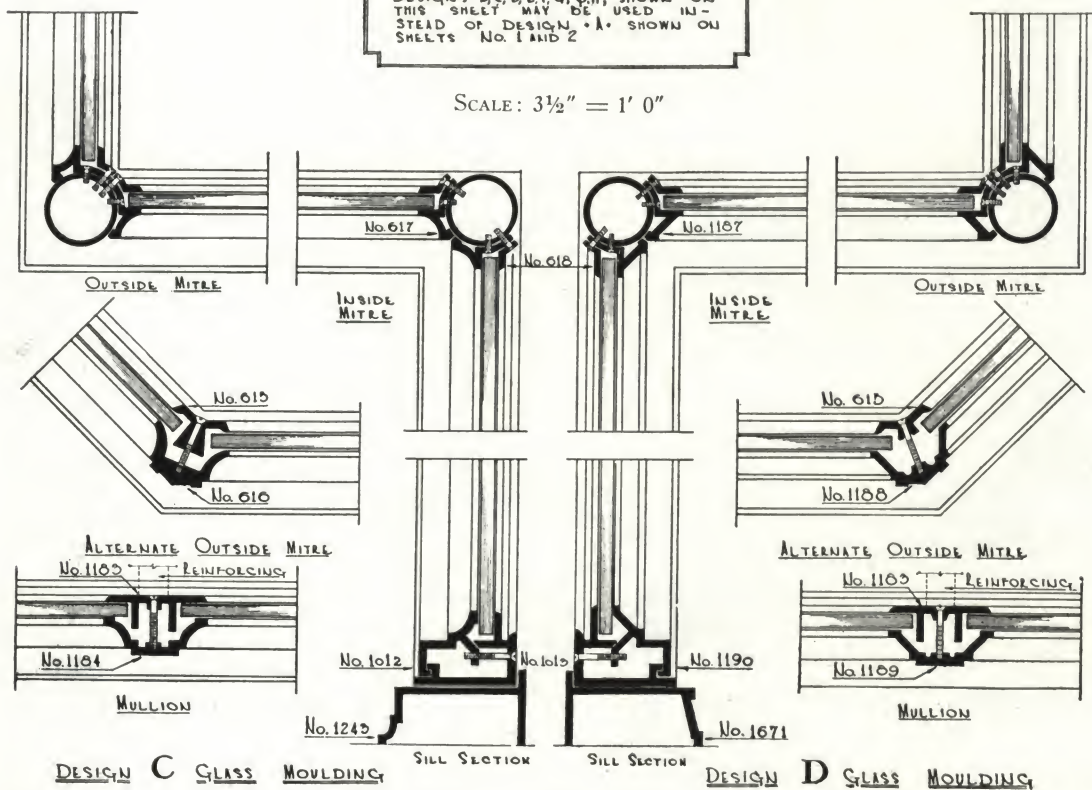


DETAILS OF TYPE B NEWMANCO BRONZE STOREFRONT



NOTE
DESIGNS B, C, D, E, F, G, & H, SHOWN ON THIS SHEET MAY BE USED INSTEAD OF DESIGN A, SHOWN ON SHEETS No. 1 AND 2

SCALE: $3\frac{1}{2}" = 1' 0"$



PATENTS APPLIED FOR
ALL RIGHTS RESERVED

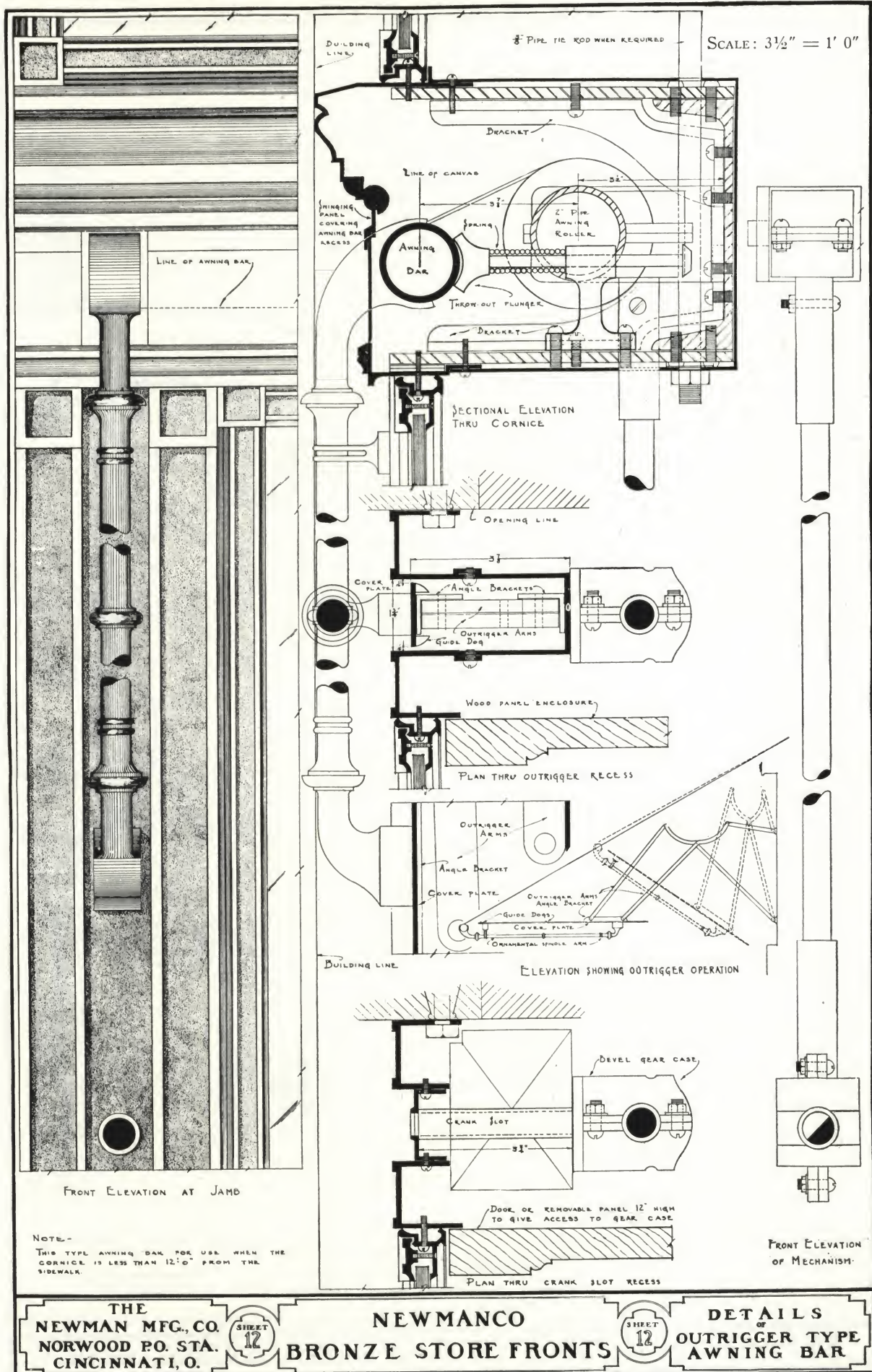
THE
NEWMAN MFG. CO.
NORWOOD P.O. STA.
CINCINNATI, O.

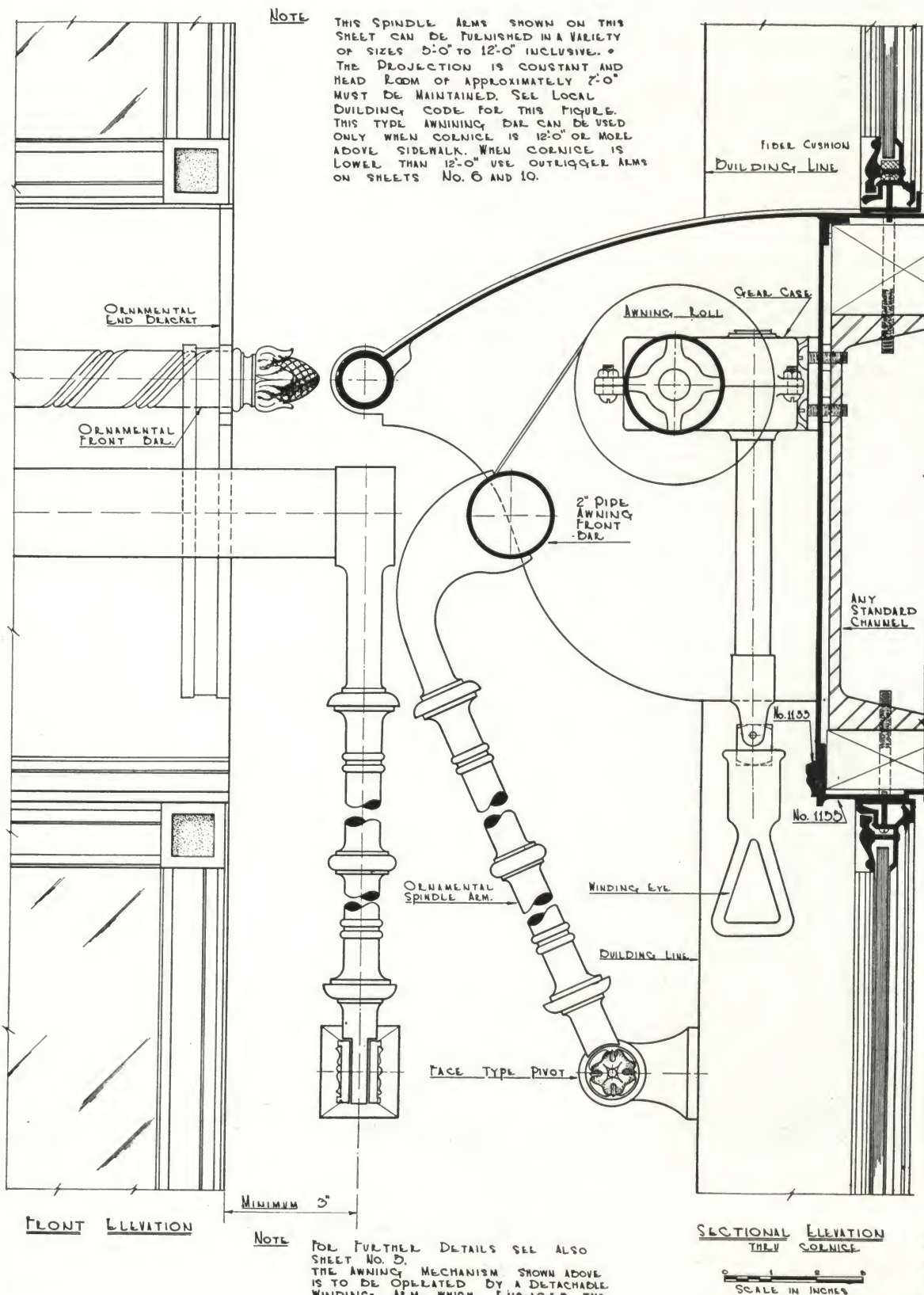
SHEET
3

NEWMAN CO
BRONZE
STORE FRONTS

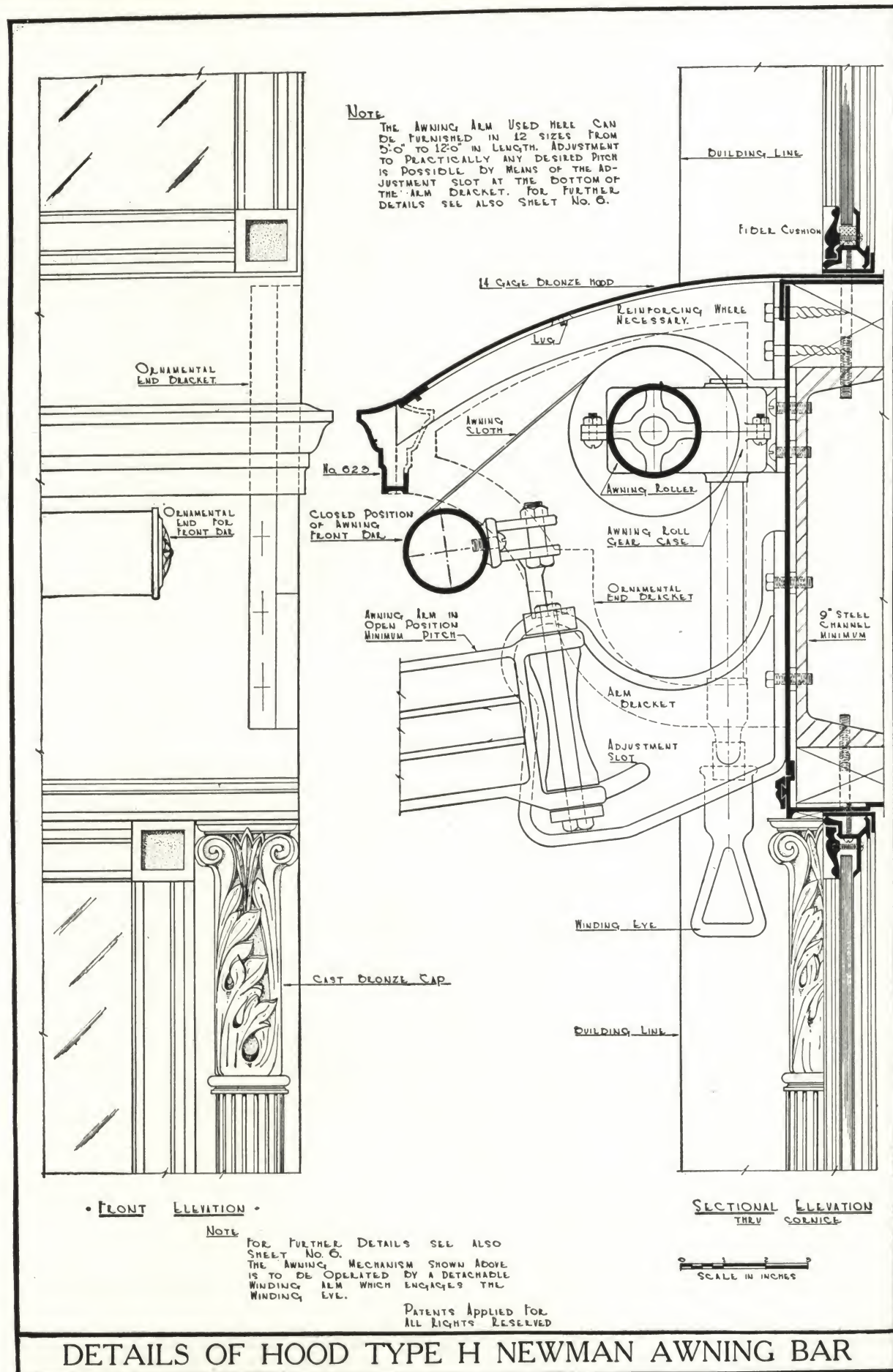
SHEET
3

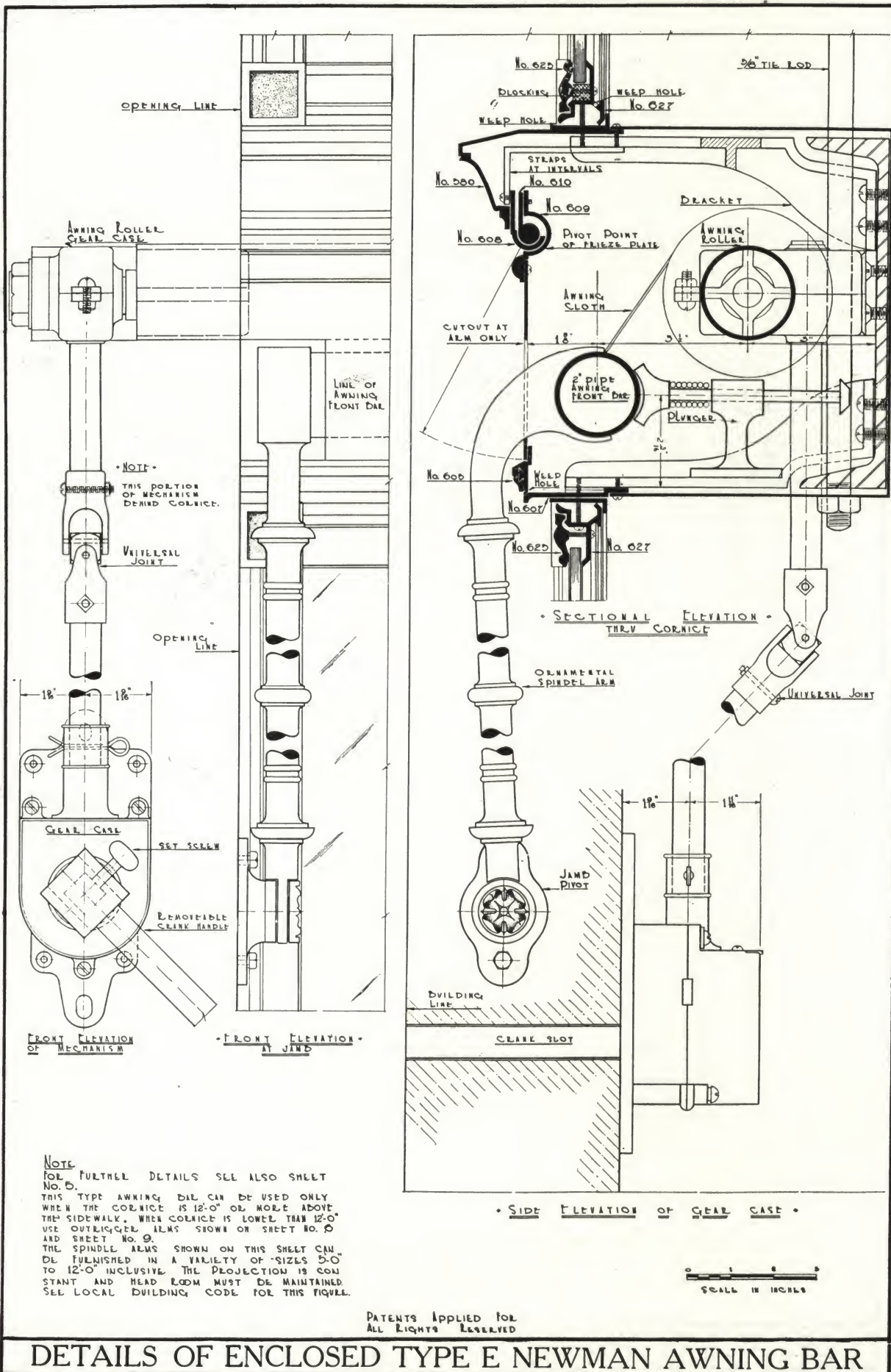
DETAILS OF
STORE FRONT GLASS
MOULDINGS



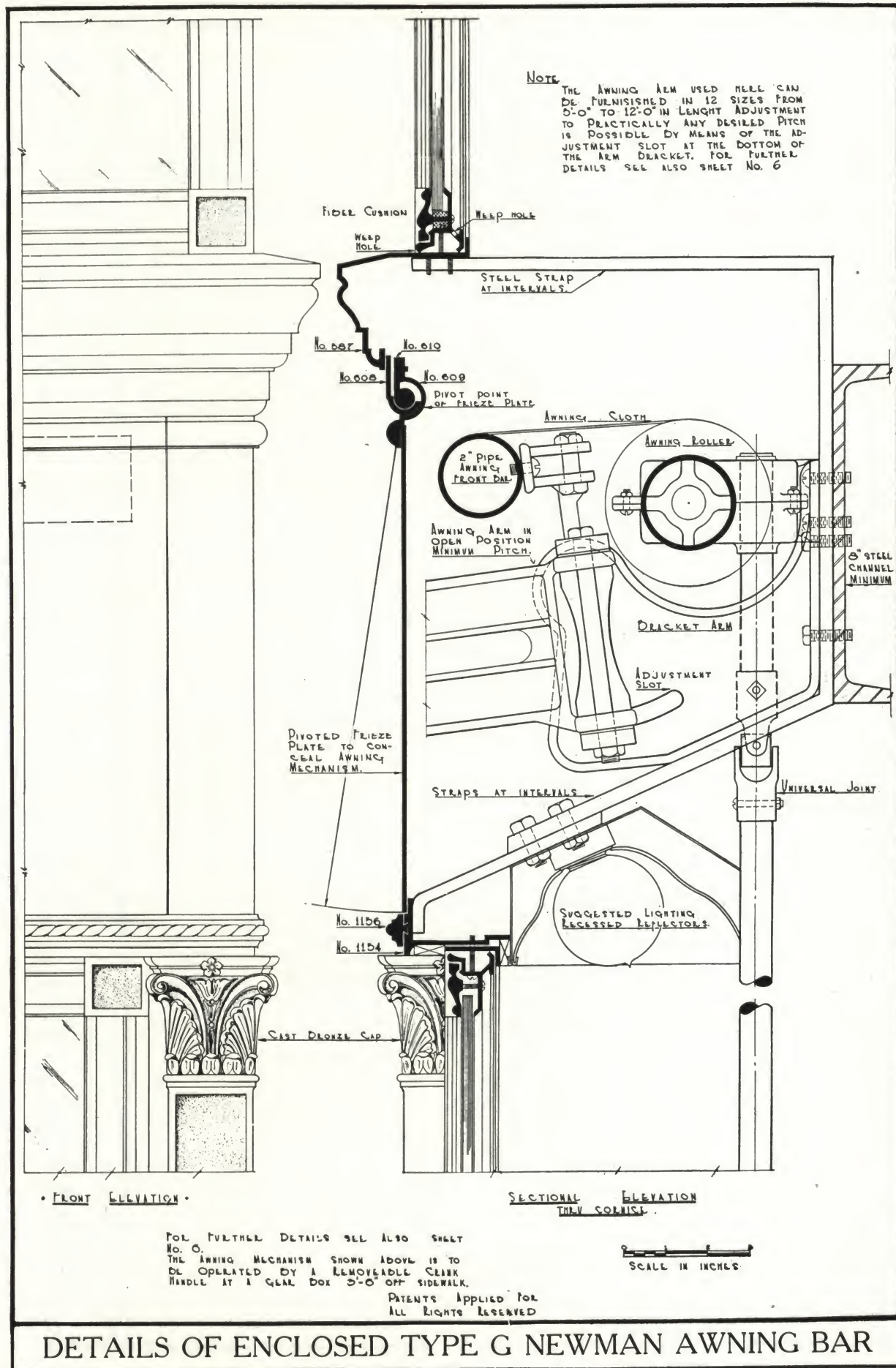


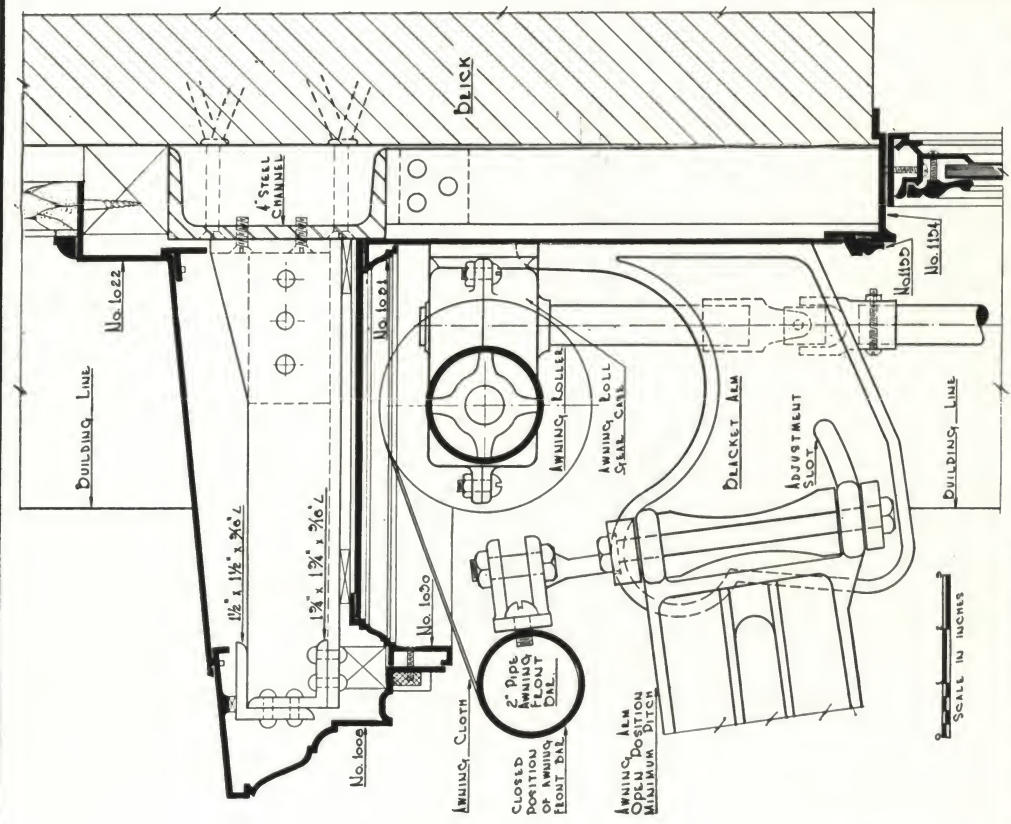
DETAILS OF HOOD TYPE F NEWMAN AWNING BAR





DETAILS OF ENCLOSED TYPE E NEWMAN AWNING BAR





THE NEWMAN MFG. CO.
NORWOOD P.O. STA.
CINCINNATI, O.

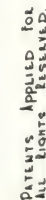
NEW MANZ CO
STORE FRONTS



**DETAILS
OF CANOPY TYPE H
AWNING BAR**

NOTE- THE TURNING ARM USED HERE CAN BE
FURNISHED IN 12 SIZES FROM
5-0" TO 12-0" IN LENGTH. ADJUSTMENT
TO SPECIALLY ANY DESIRED
PITCH IS POSSIBLE BY MEANS
OF THE ADJUSTMENT SLOT AT THE
BOTTOM OF THE ARM. DICKET,
THE AMVING MECHANISM SHOWN
ABOVE IS TO BE OPERATED
BY A REMOVABLE CLANK,
HANDLED AT A GEAR BOX 5-0"
OFF SIDEWALK.
FOR FURTHER DETAILS SEE ALSO
SHEET NO. 6.





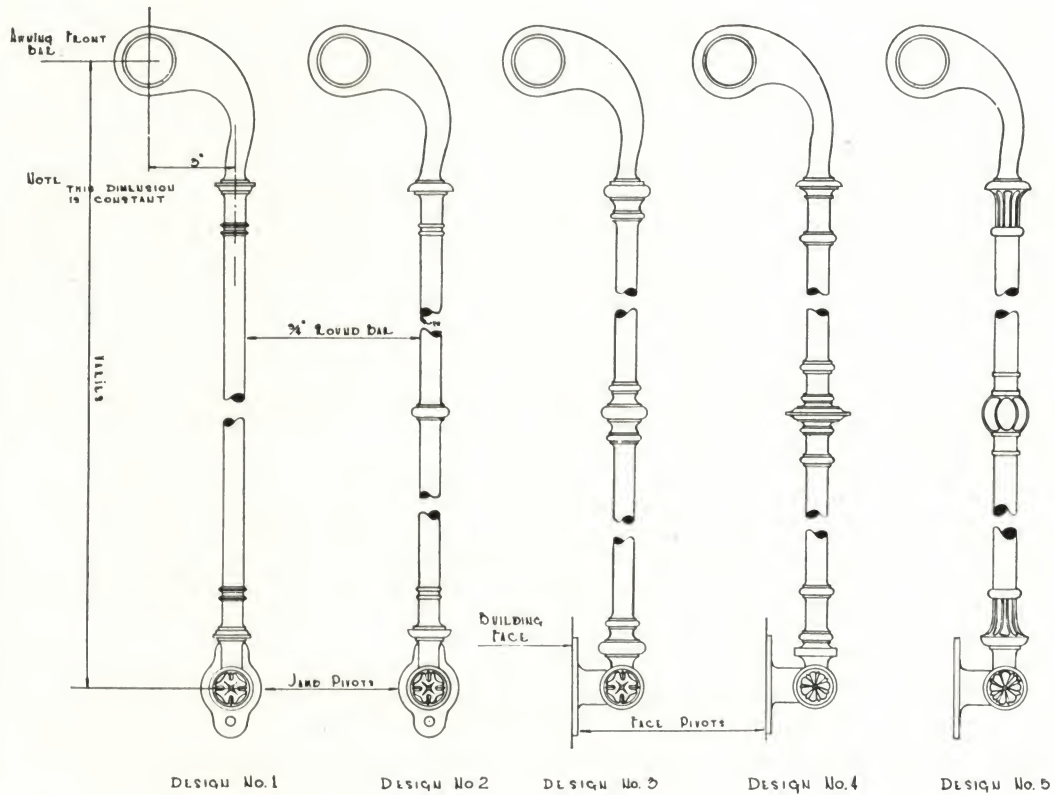
THE
NEWMAN MFG. CO.
NORWOOD PO. STA.
CINCINNATI, O.

NEW MAN CO
BROOKLYN
STOBBE FRONTS

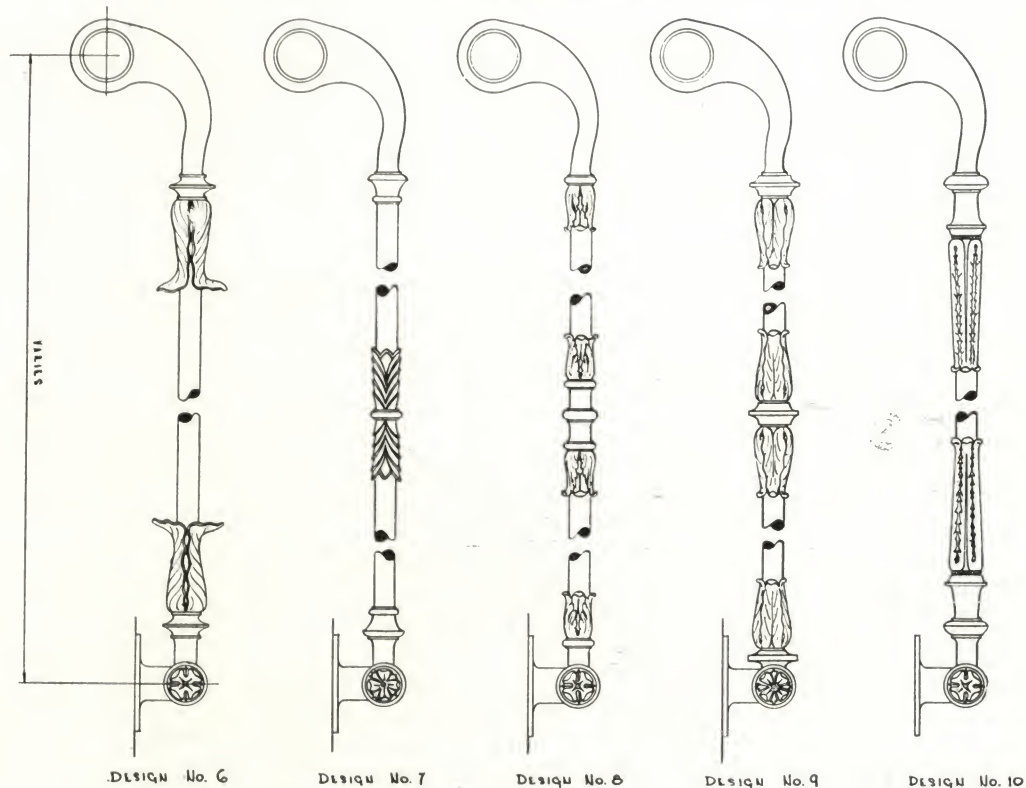
GENERAL DETAILS AND DATA ON AWNING BARS

6 SHEET

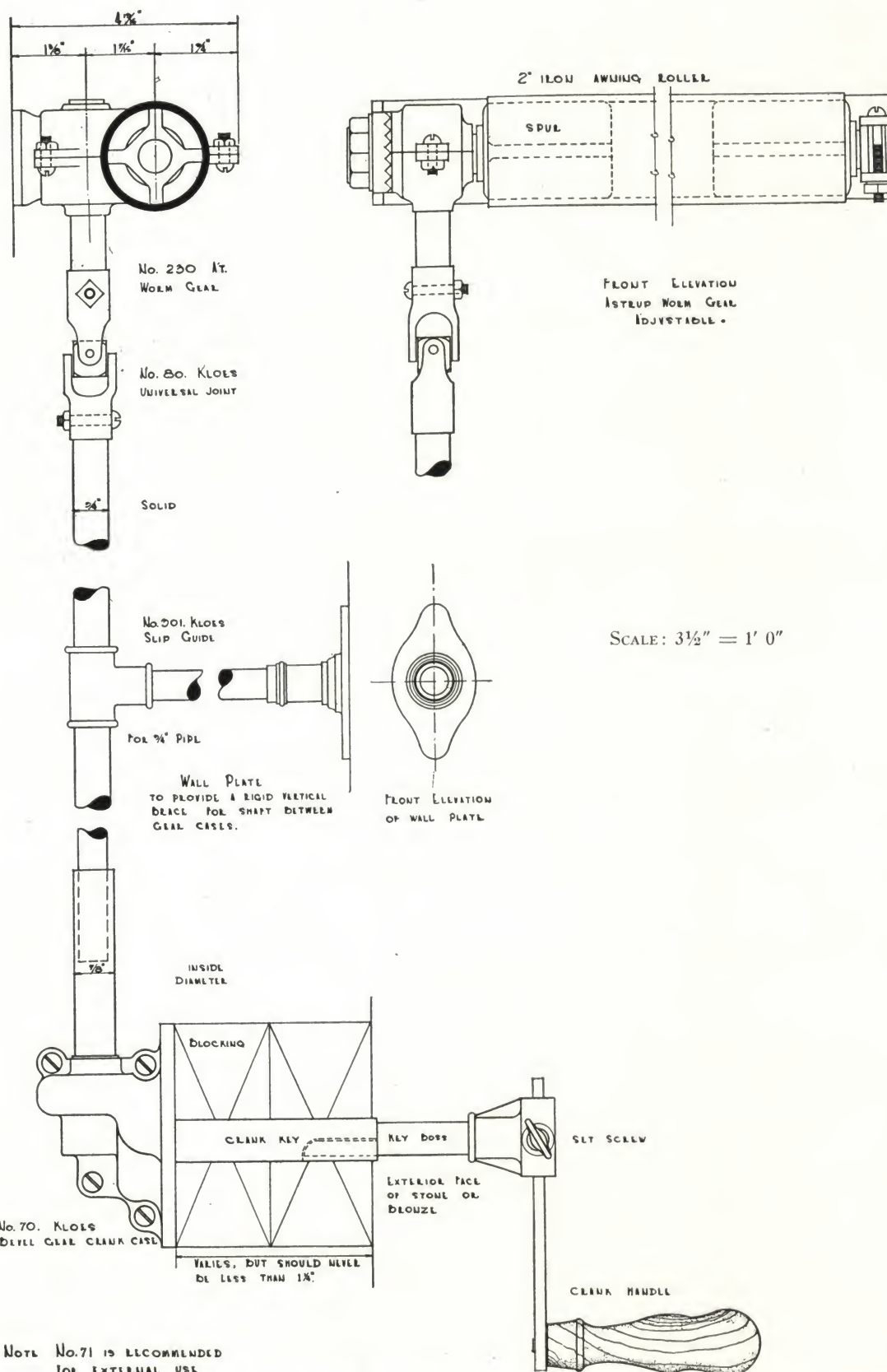
NOTE
FOR P. S DETAILS SEE
SHEETS No 9, AND 10.



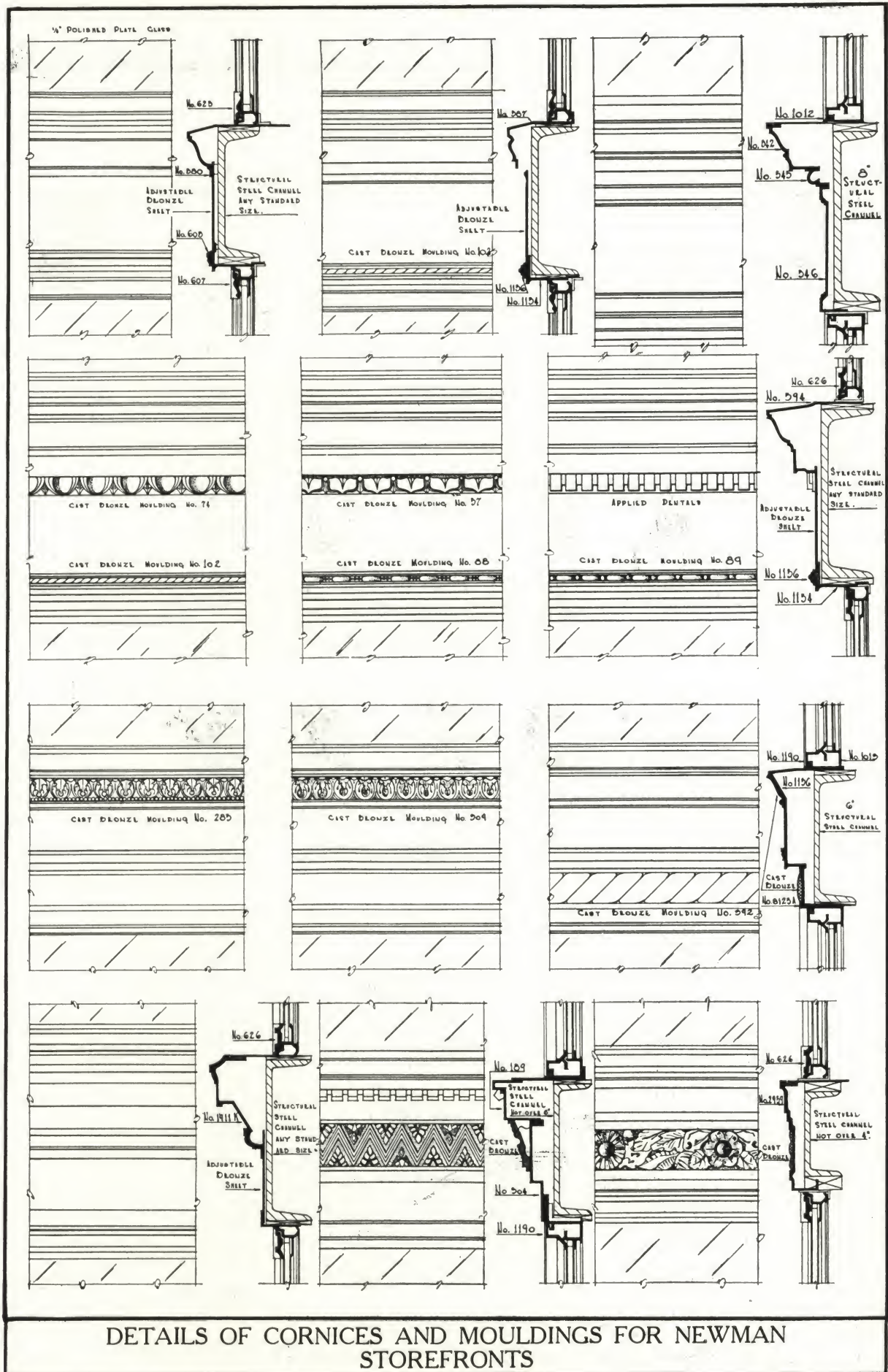
WHEN ORDERING SPINDLE ARMS SEPARATELY STATE LENGTH - I.E. - DIMENSION FROM SIDEWALK TO $\frac{1}{2}$ OF THE AWNING FRONT DIA., LESS 7'-0". GIVE MAXIMUM PROJECTION OF AWNING FROM BUILDING FACE, AND ALSO TYPE OF PIVOT DESIRED

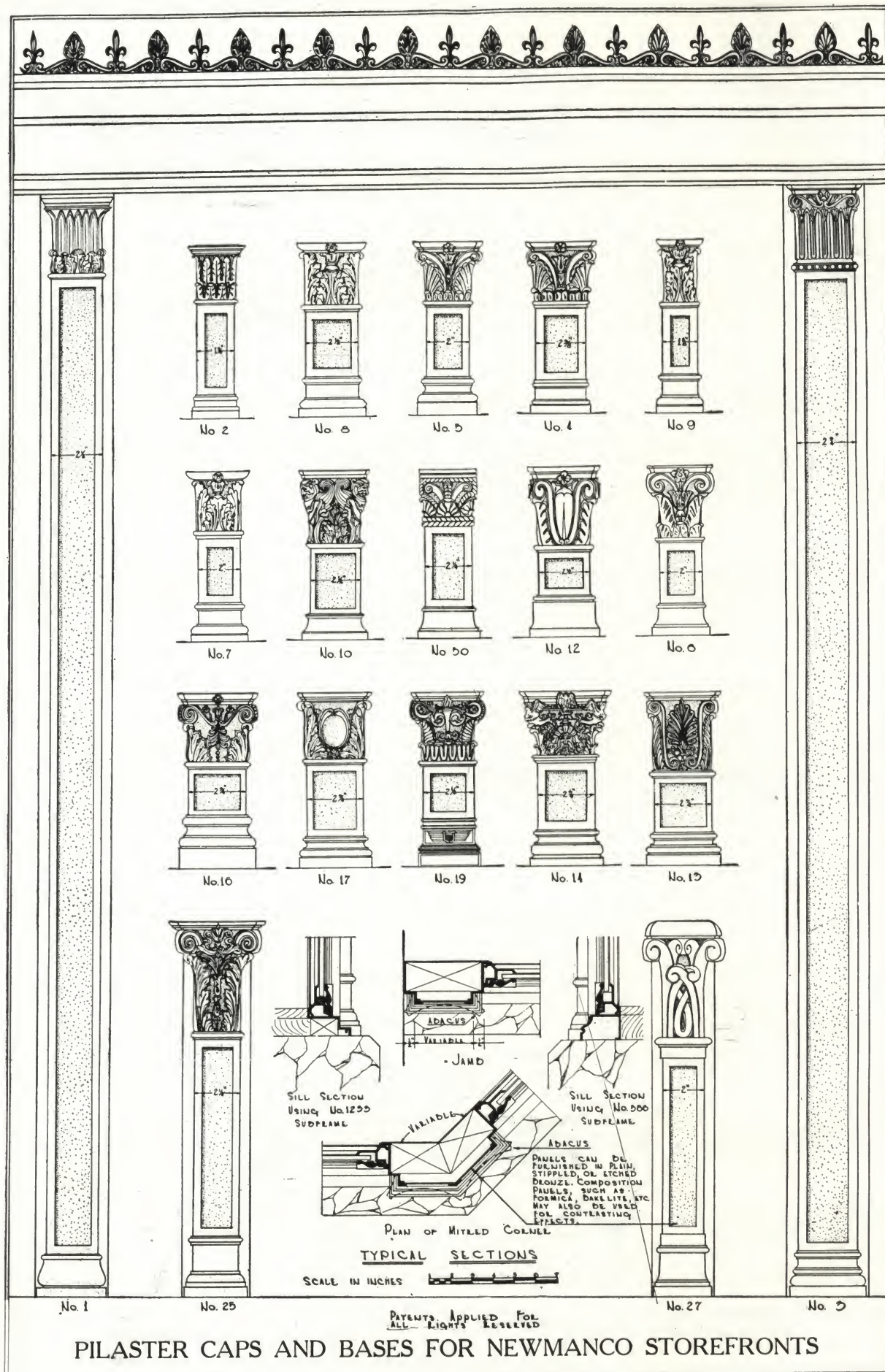


DETAILS OF ORNAMENTAL SPINDLE ARMS FOR NEWMAN STOREFRONTS

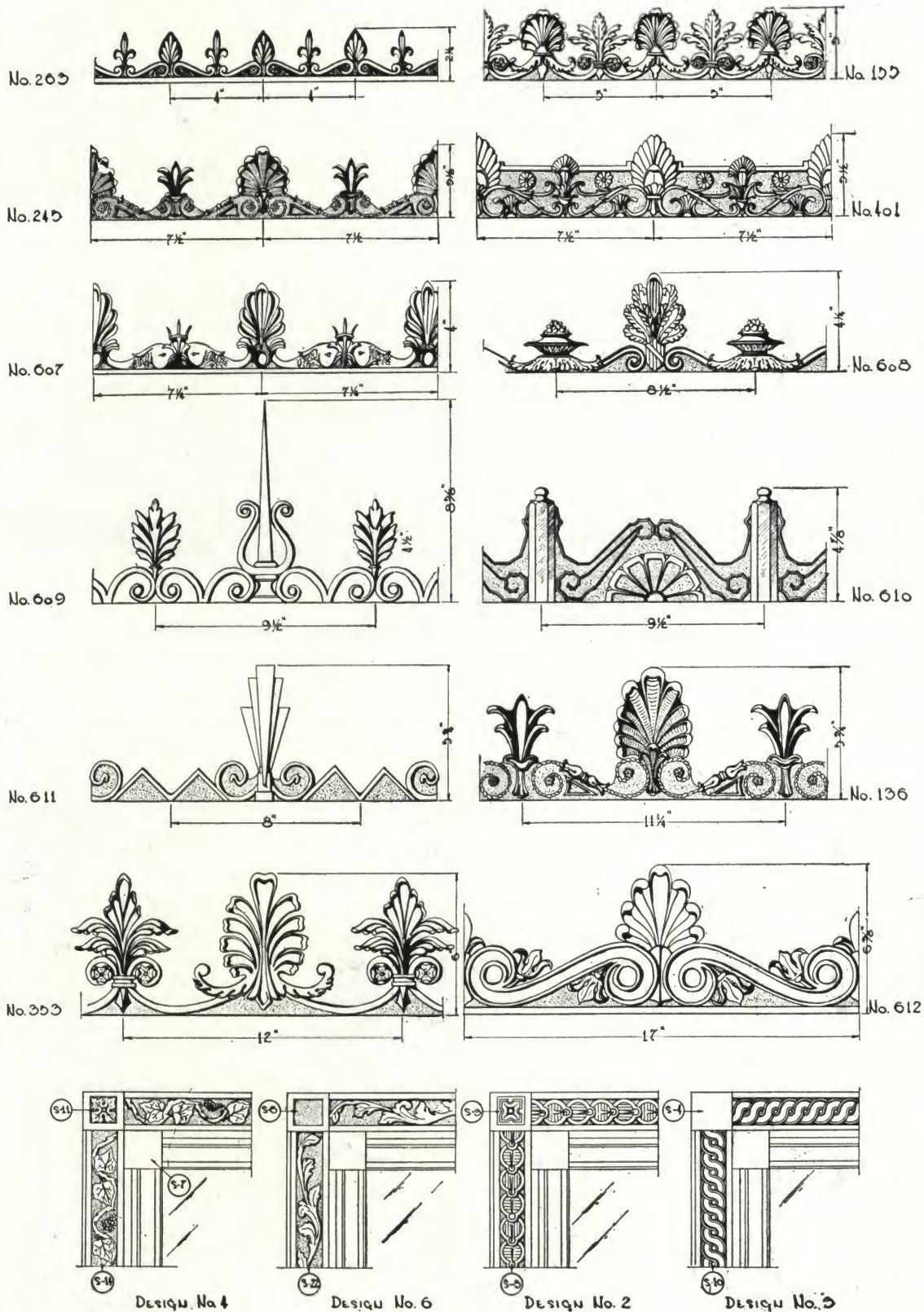


DETAILS OF ASSEMBLED AWNING MECHANISM FOR
NEWMAN STOREFRONTS





PILASTER CAPS AND BASES FOR NEWMANCO STOREFRONTS



STOCK CRESTINGS FOR NEWMANCO STOREFRONTS

PITTSBURGH PLATE GLASS COMPANY

“Easyset” Metal Store Front Construction

PITTSBURGH, PA.

DISTRIBUTING WAREHOUSES AND BRANCH OFFICES

AKRON, OHIO
ALBANY, N. Y.
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SCRANTON, PA.
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 SOUTH BEND, IND.
 SPRINGFIELD, MASS.
 ST. LOUIS, MO.
 ST. PAUL, MINN.
 SYRACUSE, N. Y.
 TAMPA, FLA.
 TOLEDO, OHIO
 TULSA, OKLA.
 UTICA, N. Y.
 WASHINGTON, D. C.

WILKESBARRE, PA.

YOUNGSTOWN, OHIO

Products

"EASYSET" SYSTEM of METAL STORE FRONT CONSTRUCTION.

Also Awning Covers, Kick Plates, Thresholds, Special Mouldings, Showcase Doors, Grilles and Ornamental Store Front Construction.

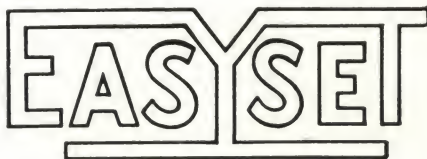
For Structural Glass, Flat Sheet Window Glass, Vista Plate Glass, Tapestry Glass, Mirrors, Ultra-Violet Ray Window Glass, Paint and Varnish, see Manufacturers' Index.

Construction

A careful study of the principles involved in "Easy-set" Store Front Construction will convince you that it is practical and satisfactory.

In the development of "Easysat" we have striven to achieve store fronts unique and architecturally beautiful in design, simple and practical to install, and last but not least—durable.

The first cost of "Easyset" is the only cost. Ex-



pensive periodical repairing or renovating is practically eliminated.

New Features

Many new features and methods of ornamentation have been added to the "Easyset" line which we are

sure will be welcomed by those desiring unusual individuality and character.

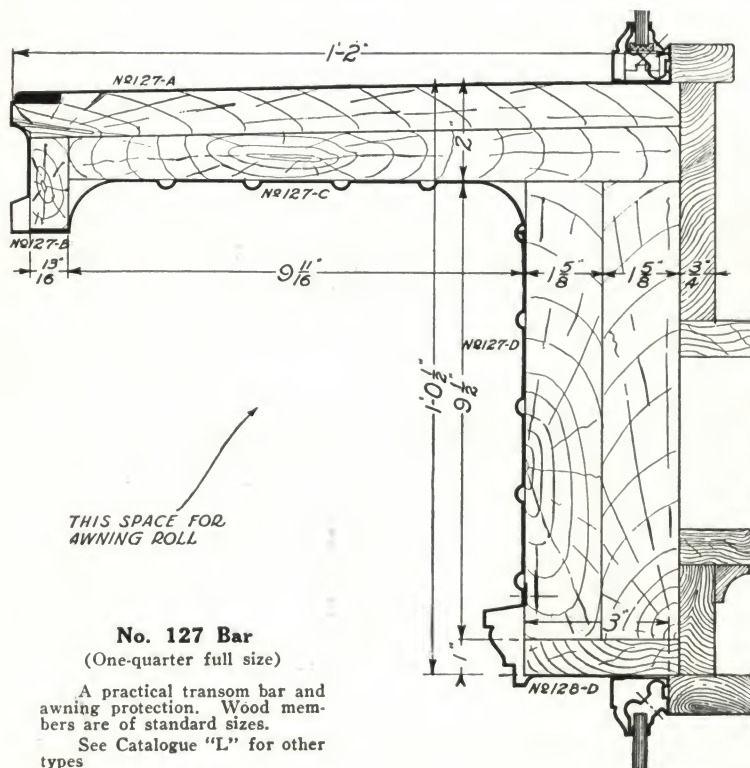
Installation

The "Easysset" system, as the name implies, is easily and quickly installed. Skilled men or special framing are not required to prepare store front openings for this construction.

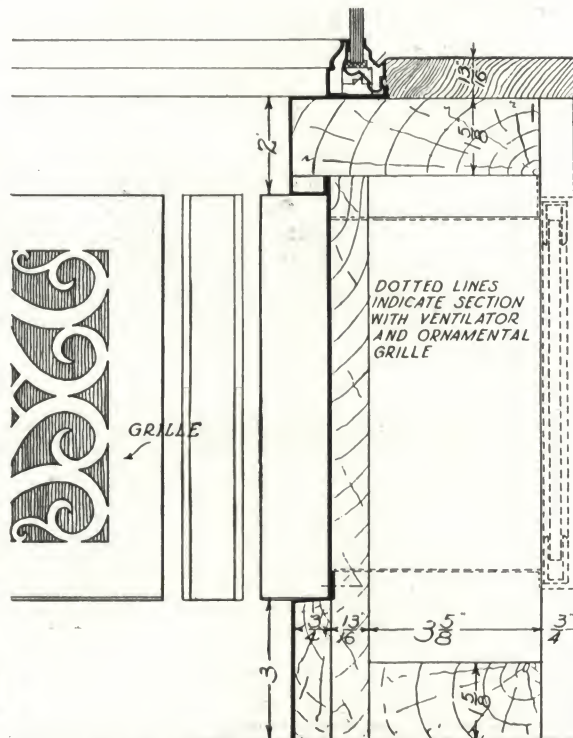
Catalogue and Full Size Details

Our Catalogue "L," just recently published, features the complete "Easyset" system of copper or bronze store fronts illustrated and detailed. Write for it.

We also furnish full size working details for the asking.

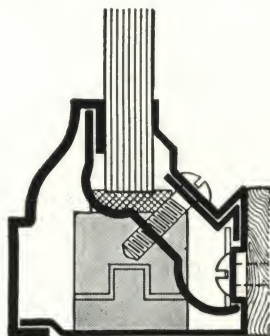


VERTICAL SECTION - BULKHEAD N°101

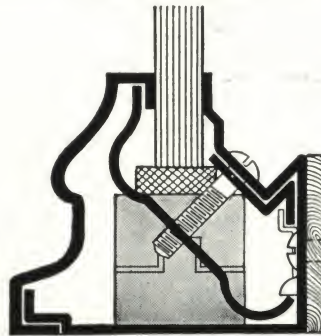


EASYSET SASH AND BARS

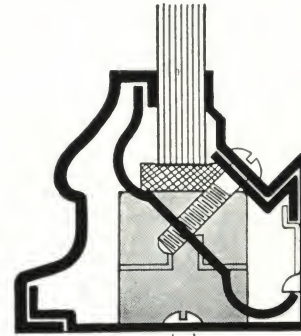
(Full size details)

**25-B**

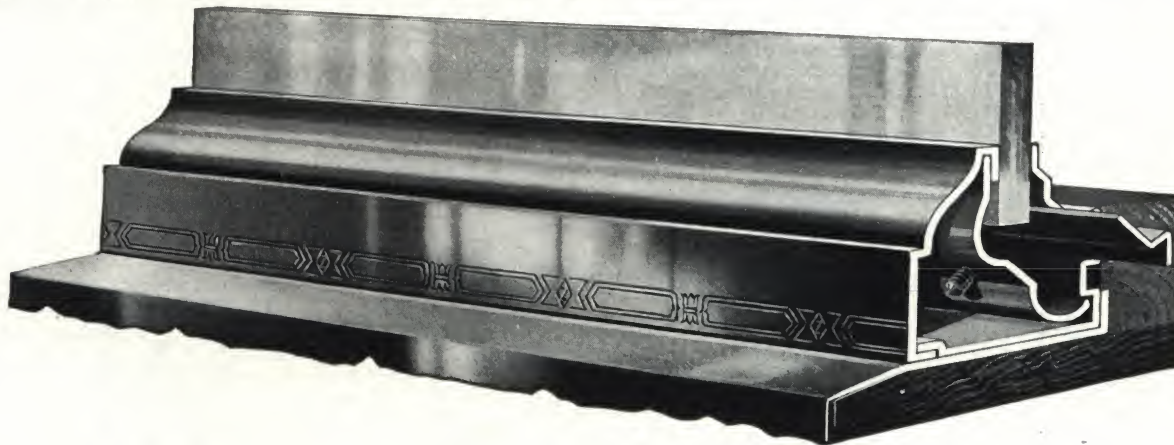
A sash made of heavy copper or bronze for all around use. Set from inside—no screws through face

**25-C**

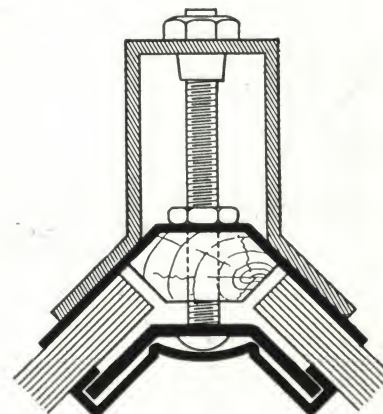
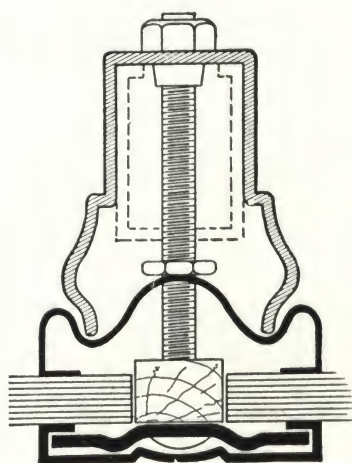
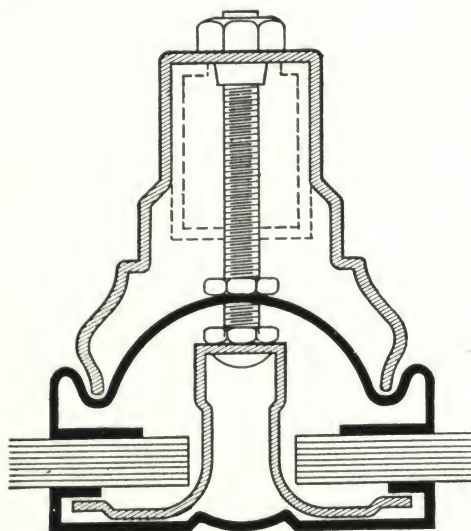
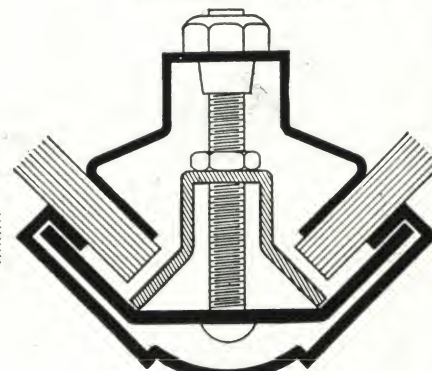
An extra heavy sash for holding large plates of glass. It is perforated for use with backing

**25-D**

Similar to 25-C, except that it is self-supporting. Its lines are well proportioned and refined

**No. 4-B
Division Bar**

All Easyset sash and bars are made of solid copper or bronze unless otherwise indicated. They possess handsome lines and provide for ventilation and drainage when desired. With but few exceptions the face members are chased with the ornamental design if preferred

**No. 35-D Reverse Bar****No. 15-A Division Bar****No. 15-C Division Bar****No. 4-C Corner Bar**

Write for complete Catalogue "L"

THE ZOURI COMPANY

Manufacturers of Zouri Safety Key-set Store Front Construction
CHICAGO HEIGHTS, ILL.

ASSOCIATED COMPANIES

STANDARD STORE FRONT CONSTRUCTION CO.

MODERN BRONZE STORE FRONT CO.

INTERNATIONAL STORE FRONT COMPANY

INTERNATIONAL DISTRIBUTION

Products

ZOURI KEY-SET STORE FRONT CONSTRUCTION in Rolled Bronze, Copper, Aluminum and Nickel-Silver or Electrolytic Finishes.

Also Bronze Doors.

For Zouri "Sturdweld" Shower Stall Doors, see Manufacturers' Index.

For Extruded and Ornamental Bronze for store and shop windows, see Modern Bronze Store Front Co. in Manufacturers' Index.

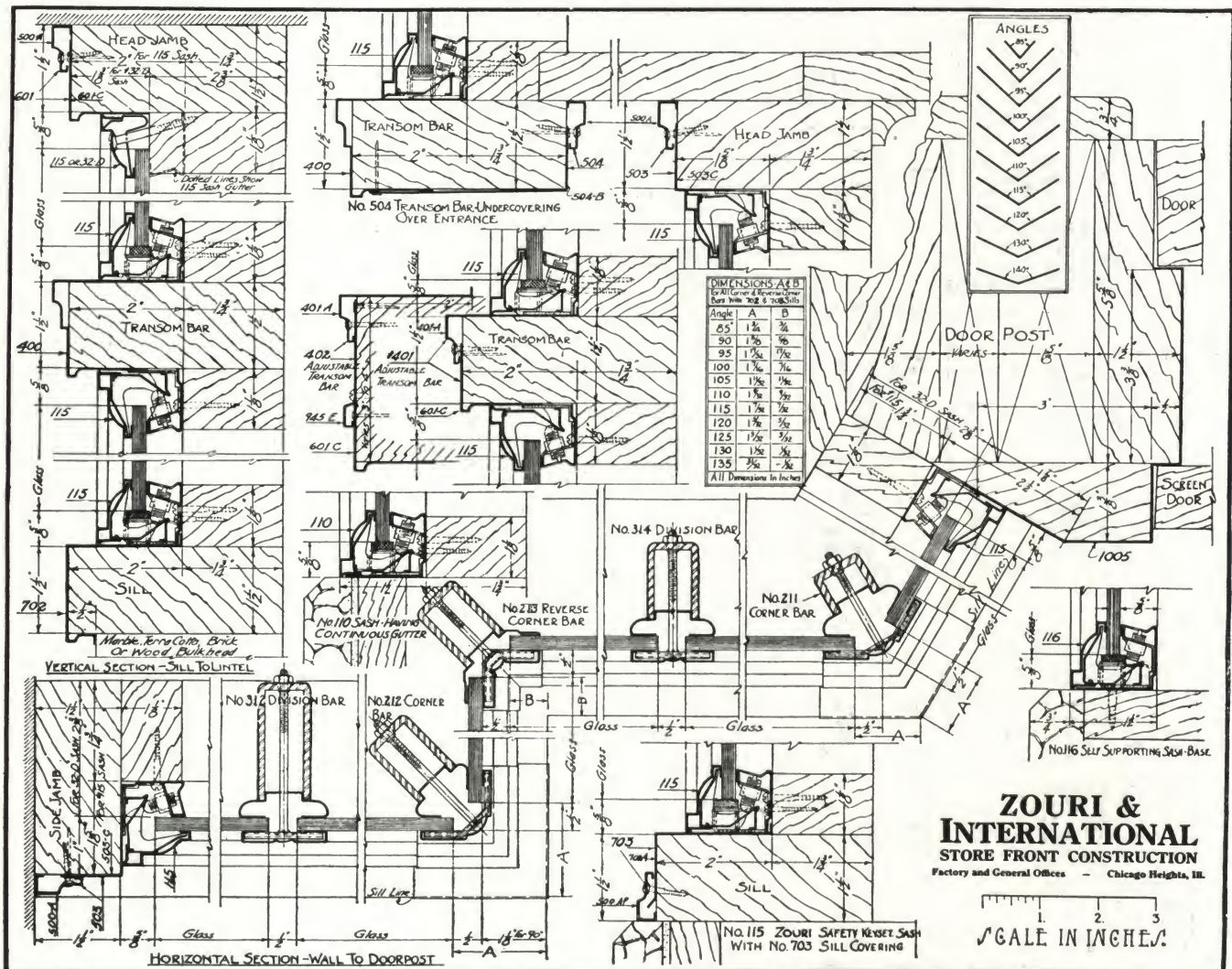
For Standard Store Front Construction Co., see Manufacturers' Index.

Service

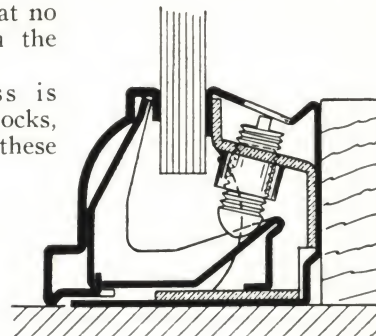
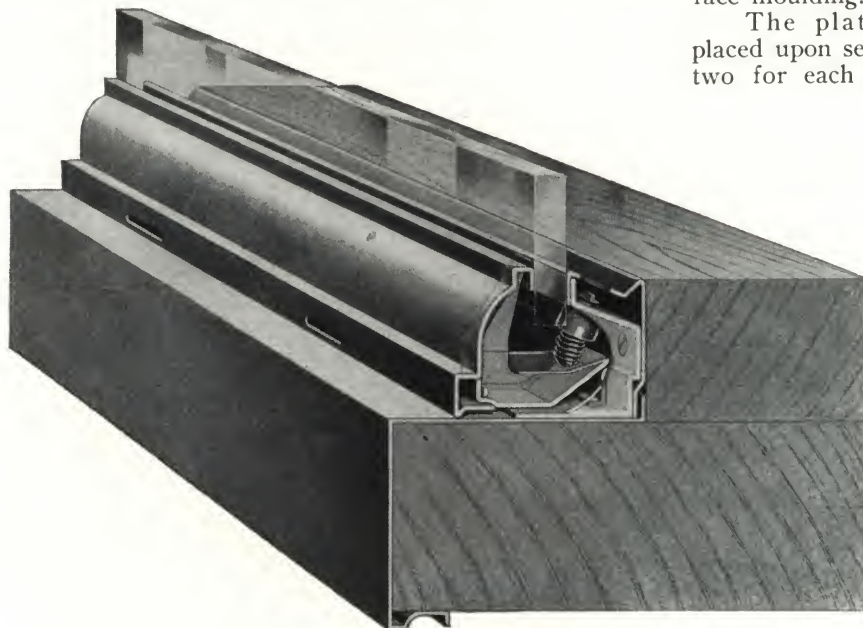
A copy of our latest catalogue and detail sheets furnished on request. We welcome the opportunity of submitting drawings and details without obligation.

Description

The advanced ideas of construction embodied in Zouri Key-set Construction are many. The sash face is firmly held to the glass by a setscrew against the inclined plane of the draw plate, presenting the well-known Zouri method of actual indirect screw pressure.



The plate glass is placed upon setting blocks, two for each plate, these



Various enrichment members are available in cast or stamped bronze in stock designs, or ornamentation can be furnished and applied in strict accordance with the architect's details.

[illegible]

PAINT

Aluminum Co. of America.....	C4050	Johnson, S. C., & Son.....	C4094-4095
American Crayon Co.....	C4051	Laucks, I. F., Inc.....	C4167
Artstone Products, Inc.—		Martin Varnish Co.....	C4097
Cold Water Paint.....	C4157	Minwax Co., Inc.....	C4098-4099
Texturing Paint	C4159	Muralo Co., Inc.....	C4165-4166
Artwall Waterall Co.....	C4160	Murphy Varnish Co.....	C4100-4101
Berry Brothers, Inc.....	C4053-4072	National Lead Co.....	C4102-4104
Bonded Materials Co.....	C4052	New Jersey Zinc Co.....	C4113
Bradley Stuc-O-Tint Co., Inc.....	C4162-4163	Pfaltz & Bauer, Inc.....	C4035
Cabot, Samuel, Inc.....	C4076-4077	Pittsburgh Plate Glass Co.....	C4105-4112
Calbar Paint and Varnish Co.....	C4039	Pratt & Lambert—Inc.....	C4114-4115
Carbolineum Wood Preserving Co.....	C4034	Protexol Corp.	C4036-4037
Certain-teed Products Corp.....	C4073-4075	Reardon Co.—	
Craftex Co.—		Cement Paint	C4158
Flat Wall Paint.....	C4078	Texturing Paint	C4168-4169
Texturing Paint	C4161	Reinhardt, Geo. W., Co., Inc.....	C4116
Creo-Dipt Co., Inc.....	C4085	Scofield, Evans & Co.....	C4038
Detroit Graphite Co.....	C4040-4041	Seidlitz Paint & Varnish Co.....	C4147
Dixon, Joseph, Crucible Co.....	C4042-4047	Sherwin-Williams Co.	C4117-4146
du Pont de Nemours, E. I., & Co., Inc.....	C4086-4089	Standard Varnish Works.....	C4148-4149
Duralith Corp.	C4164	Tnemec Paint & Oil Co.....	C4049
Eagle-Picher Lead Co.....	C4090-4091	Truscon Laboratories	C4150-4151
Glidden Co.	C4079-4084	U. S. Gutta Percha Paint Co.....	C4154-4156
Goheen Corp. of N. J.....	C4048	United States Gypsum Co.....	C4170-4171
Hilo Varnish Corp.....	C4092-4093	Wadsworth, Howland & Co., Inc.....	C4152-4153
Hockaday, Inc.	C4096	Wiggin's, H. B., Sons Co.....	C4172

CARBOLINEUM WOOD PRESERVING CO.

PIONEER AND ORIGINAL COMPANY INCORPORATED

Carbolineum Building, 518-520 Highland Street
MILWAUKEE, WIS.

Address Sole Manufacturers at Milwaukee—No Eastern Branches or Successors
Used All Over the World Since 1876

CABLE ADDRESS
"CARBOLINUM"

Product

The original and genuine CARBOLINEUM registered in U. S. Pat. Off. No. 14048, is always sold with inventor's name added, as: Avenarius Carbolineum. The arrow trade-mark makes identification easy.



Appearance

The Rustic Nut Brown Stain it applies to the wood makes it well suited for dwellings and other outside woodwork in place of paint.

Prologue

In 1876, when the late Richard Avenarius invented Carbolineum, and originated wood preservation by simple surface treatment, the public did not take it seriously, having in mind the plentiful timber supply then available. Now, however, preservation of wood is a necessity, due to the cost of lumber and the long life required of wood used in modern construction.

Avenarius Carbolineum

A thin heavy oil ready for immediate use. Will not dry up or evaporate.

Its cost is reasonable and far less than lead or oil paints. The covering capacity is as great or greater than the best oil paints.

Wood Preservation at Construction Site

The wood preserving can be done at the point of construction by simply applying Avenarius Carbolineum with a brush, mop, sprayer or a few minutes' submersion of the lumber.

Always Uniform in Quality

Avenarius Carbolineum preserves wood against dry-rot and premature decay. It is especially prepared for the purpose and always produced in only one standard grade of uniform quality. Thus, results in the future will positively satisfy as heretofore; and the present-day user is assured of adding at least 100 per cent to the life of any wood.

No Increase in Fire Risk

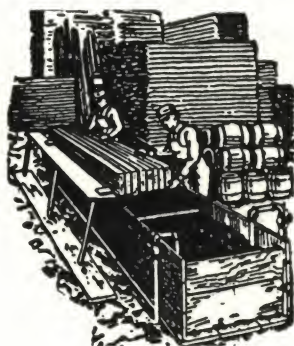
It contains no volatile ingredients and does not increase fire-risk.



Spraying



Brush or Mop



Dipping

Methods of Applying Avenarius Carbolineum

Wood in Concrete Construction

Concrete supplies ample moisture; airtight construction is impossible—an ideal condition for growth of ever present decay fungi, causing rot and dry-rot—thus a preservative is essential, and there is none better than Avenarius Carbolineum.

Reputation

Avenarius Carbolineum has established its reputation for highest quality and uniformity. Its preservative value is no theoretical conclusion, but is based on actual results. References can be supplied by us from nearly every locality in the United States.

COST AND COVERAGE, BRUSH AND SPRAY APPLIED

Lumber	Cost per 1000 sq. ft., 2 coats		Coverage, sq. ft. per gal.	
	Brush	Spray	Brush, 1 coat*	Spray, 2 coats
Dressed.....	\$ 5.00	\$ 5.00	350	250
Rough.....	8.00	9.00	250	150
Shingle roof..	13.00	15.00	100	75

*For second coat, one-quarter to one-third as much required.

COST AND COVERAGE, DIPPED

Cost per 1000 ft., b. m. \$6.00 to \$12.00*	Coverage			
	Timber, in.			Boards, in.
Size	6x6	4x4	2x4	1x4 1x2
Gallons required	6	8	10	12 14

*According to size and correspondingly larger or smaller surfaces.

Specifications

A wood preservative known as Avenarius Carbolineum, manufactured by the CARBOLINEUM WOOD PRESERVING CO., Milwaukee, Wis., shall be used on

It can be used in its natural state when the temperature is above 75° F., otherwise when quick penetration is desired or on damp or partly seasoned wood, it shall be heated to 100° to 150° F. and applied hot. (Boiling point about 500° F., heating causes no danger with reasonable precautions.)

(Specify method of applying.)

Brush or Mop—After lumber is trimmed or framed, apply Avenarius Carbolineum liberally with a wire bound or rubber set long handle brush or mop. Saturate well at all cross cuts, mortises, tenons and knotty spots. In old wood, where decay has already started, decayed parts should be removed before applying oil.

Spraying—(When a large amount of surface or wood in structure already erected is to be treated, the spraying method can be used best.) Avenarius Carbolineum is to be applied with any efficient spraying or paint machine.

Dipping—(When the treatment of a large amount of lumber comes in consideration, this method is the most economical.) After trimming timber or lumber, immerse it in Avenarius Carbolineum. 1-in. lumber to be submerged about two minutes. Add two minutes for each additional inch of lumber thickness.

Free Samples

Upon request we will be glad to send a liquid sample of the preservative or a sample of board which has been treated. No obligation.

Warning

Anyone offering other material under similar name, is deliberately attempting to confuse and mislead the public.

PFALTZ & BAUER, INC.

300 Pearl Street, NEW YORK, N. Y.

BRANCH OFFICES

LOS ANGELES, CAL., 583 Antonia Avenue

MONTREAL, QUEBEC, CANADA, 359 St. James Street, West

CHICAGO, ILL., 217 East Illinois Street

LIGNI-SALVOR—THE WOOD PRESERVING STAIN

A Thorough Preservative That Does Not Deteriorate

Ligni-Salvor is more than a surface treatment, more than just a creosote oil; it is a beautifier as well as a preserver of wood. It is a scientific blend of the active principle of creosote with other oils. Its processing requires six weeks and the finished Ligni-Salvor is not released until after it has been aged twelve weeks at least.

Ligni-Salvor handsomely emphasizes the grain of the wood and renders that natural brown tone popularly known as an antique, or rustic, effect. Dull and glossy finishes are equally easy to obtain and where a dark brown or black is desired, the addition of up to 2% of lampblack will attain the color.

Ligni-Salvor penetrates into the innermost pores of the wood, killing all wood-destroying fungi and their spores. Thus it insures permanently against dry rot, decay, and all the elements that tend to shorten the life of lumber.

How Ligni-Salvor Is Used

The Surface—Ligni-Salvor is more than a surface treatment; the deeper it penetrates the better it preserves. The wood must be thoroughly dry and its pores must be open. The surface must be smooth and clean (naturally, unpainted).

Consistency—Ligni-Salvor is an oily substance which flows freely and covers readily. In very cold weather it must be warmed up to make it flow freely. Never must it be cut down or diluted. The specific odor disappears in time, usually two weeks.

Three applications are necessary, no matter how sufficient the first application may look. Remember, it is not the surface covering you want but the penetration. Allow at least 48 hours between applications.



Application—On Plane Surfaces of Wood-work—Apply as paint with stiff wirebound bristle brush.

On Shingles—Shingles should be dipped wherever possible and when laid given a heavy coat with brush or any standard painting or spraying machine.

Various Finishes Obtainable with Ligni-Salvor

Wax Finish—Obtained by rubbing down with cheesecloth after each of three applications, until wood is thoroughly dry and no more material will rub off. A weighted polishing brush is recommended for floors.

Flat Brown Effect—Obtained by giving only one application and rubbing down as above.

Silver Grain Effect—This effect is obtained on open wood by giving the usual three coats of Ligni-Salvor followed by one coat of white paint which is wiped off before it is dry.

Coverage of Ligni-Salvor

Ligni-Salvor will cover 300 to 350 sq. ft. of dressed lumber per gal. For 1000 shingles to be dipped, with an extra brush, about 2½ gal. are required.

Packing

Ligni-Salvor is packed in 5 gal. steel kits; 25 and 50-gal. drums; and 50-gal. wooden barrels.

A Few Well-known Structures on Which Ligni-Salvor Was Used

Andrew Carnegie Residence, New York, N. Y., Babb, Cook & Willard, Architects

Frank A. Vanderlip Residence, Scarborough, N. Y., W. Welles Bosworth, Architect

John D. Rockefeller Residence, Pocantico Hills, N. Y., W. Welles Bosworth, Architect

Princeton Cottage Club, Princeton, N. J., McKim, Mead & White, Architects

Harold McCormick House, Lake Forest, Ill., Charles A. Platt, Architect

Names of additional users furnished on request.



Geo. P. Kingsley, Jr. Residence,
Bethlehem, Pa.

LOVELACE & SPILLMAN, Architects
FRANK R. WEAVER, Contractor



Grace Episcopal Church,
Chicago, Ill.

TALLMADGE & WATSON, Architects
H. B. BARNARD, Contractor



C. L. Ward Residence, Centerville, Del.

MELLOR & MEIGS, Architects
JOHN W. BARNES, Contractor

"FALBA" CONCRETE FLOOR HARDENER

Description

A dry, small crystal, readily soluble. The solution penetrates into the concrete, fills up its pores, forming a hard surface, proof against water, dust, and wear.

Treatment

The "Falba" treatment consists of one or more applications of a solution of the "Falba" Hardener.

The solution for the first application is prepared by dissolving about ½ lb. of hardener in 1 gal. of water. For the second and subsequent applications the solution is made

with about 2 lb. of the hardener to each gallon of water.

In no case should one application follow in less than three-quarters of an hour after the preceding one. The surface treated should be kept wet with the solution for at least three minutes at each application so as to replace any of the solution absorbed at once by the concrete.

Packing

"Falba" Concrete Floor Hardener is packed in kegs of 50 and 100 lb. Barrels of 442 lb.

PROTEXOL CORPORATION

IN KENILWORTH SINCE 1919

SUCCESSOR TO CARBOLINEUM WOOD PRESERVING CO., INC.

OFFICE AND WORKS

TELEPHONE

ROSELLE 4-1900

37 Market Street
KENILWORTH, N. J.

Products and Services

WOOD PRESERVATIVES to standard specifications of the American Wood Preservers Association, United States Government, and various national engineering associations—a gallon or a tank car.

Protexol, Neosote and Osco represent the highest grades produced from anthracene oil for brush, spray or open tank treatments; Creosote Oil to recognized specifications; a gallon or a tank car. Protexide, the colorless and odorless preservative.

Pressure treatments by all standard salt processes as zinc chloride, sodium fluoride or fluorphenol.

Fireproofing by the Max Bachert (Electric) Process to New York Building Department requirements.

Combined preservative and fireproofing treatments for structural timber, especially timber roofs.

Dyeing or transforming of wood—This is accomplished by the vacuum pressure method when ebonizing or otherwise transforming wood. Hardwood and other veneers are produced with the same equipment. Fuming to any desired shade.

Kiln drying of wood.

Fireproofing, dyeing and wood preservation require a specialized knowledge of the structure of wood, causes of decay, antiseptics, chemicals that act as fire retardants and means for effecting satisfactory treatments. This organization acts as consultants on matters pertaining to timber treatments.

Facilities for Treatment

The equipment includes two pressure cylinders or retorts and three 25,000 ft. capacity dry kilns. Investigation and inspection of works is invited. Treatments are warranted to pass the requirements of New York City as tested by Columbia University. References upon request.

Fireproofing

This term is used to describe the complete impregnation of wood under pressure with chemicals so that shavings from the interior will not receive, sustain or transmit flame.

Flameproofing is a term used to designate impregnations with more limited quantities of chemicals. Such treatments are recommended for temporary wooden structures as for fairs or expositions, for scaffolding, contractor's shanties or hoist towers. Specify Protexol Flameproofing.

For interior woodwork of fine residences, schools, churches, libraries, museums or art galleries it is recommended that fireproofing by the Bachert Process be specified.

Flameproof preserved wood is offered for structural requirements. This combines in one treatment chemicals that will prevent decay with fireproofing chemicals precipitated in the wood in an insoluble form; suitable for interior or exterior work. Specify Pyresote Process.

Fireproofed wood is practically stainless and can be given any desired finish with stains, waxes, varnishes or paint. The gluing properties of wood are not affected.

Principles of Fireproofing—The basic principle of fireproofing wood is to prevent the spread of a fire. The aim is to increase the resistance which such wood offers to burning. It is not to be assumed that such wood will endure indefinitely an increasing attack of flame without charring or disintegrating. Wood properly fireproofed will not receive, sustain or transmit flame. All flame existing will be only that of the extraneous substance. When flame or intense heat is applied to fireproofed wood, the wood will char at the point of contact, but it will not burst into flame and the destructive effect of the heat will be confined to the point of contact with the flame. Thus, the fireproofing of wood aims at the permanent elimination of the property of inflammability from wood.

Combustion is controlled by injecting into the wood chemicals which upon decomposing give off non-combustible gases which mix with the inflammable gases given off by heated wood and render them non-combustible. Other chemicals give protection by fusing or forming a glasslike coating over the fibers of the wood, while a third class of chemicals used gives up



TRADE-MARK

waters of crystallization which are gradually released as the wood is heated during a fire. These chemicals which are injected into the wood must be so precipitated in the wood that they will remain fixed until liberated by heat.

An interesting case proving the permanency of the Bachert Fireproofing Process is that of the R. G. Dun Building in New York City erected in 1897. In 1926, or 29 years after its erection, a fire broke out in the building adjoining on the north. The fire attacked the wooden window frames and sash on some ten or twelve stories, but the fire was not communicated to the Dun Building since the fireproofed wood while decomposing did not ignite.

The Bachert Electric Fireproofing Process was adopted by the United States Navy for battleships, cruisers, torpedo boats, etc., on July 25th, 1895.

Tests—Tests for permanence were made on duly authenticated specimens in accordance with the Rules for Testing Fireproofed Wood approved and adopted by the Bureau of Standards and Appeals, New York City, which require for the shavings test a temperature of 800°, and for the timber test a temperature of 1700° F., with results noted below:

Building	Wood		Shavings Test		Timber Test		Un-burned area, %	Required %
	Species	Age, yrs.	Flame	Glow, sec.	Flame	Glow, sec.		
Belmont Hotel.....	Red oak	24	none	none	none	5	63	55
Commercial Cable Building.....	Mahogany	33	none	none	none	2	67	55
Hotel McAlpin.....	Red oak	18	none	none	none	3	85	55
R. G. Dun Building.....	Red oak	33	none	none	none	2	77	55

Preservative Experience

For over 50 years Protexol quality applied by brush, spray or open tank has been successfully used for the surface treatment (brush, spray or open tank) of timber to prevent decay and the attack of insects. Protexol (protects all) represents value demonstrated by actual time tests—by results.

It is the "standard" wood preservative for surface treatments established by practice.

Wood Preservative for Various Service Conditions

Where the Greatest Protection Against Decay Is Desired—Protexol Wood Preservative No. 1 is recommended especially for use where brush or spray treatments are used. Also where non-inflammability of the treated timber is an important factor, and the color of the treated wood is important. Made to the 53-year-old standardized quality.

It is a non-volatile, heavy oil derived from the highest boiling distillate of coal tar. Its constituents belong to the anthracene group, the permanent antiseptic properties of which are acknowledged.

After filtration and refining, the oil is chemically treated to improve its character and to increase its viscosity and efficiency.

Where Structures Are Temporary and a Lesser Degree of Protection Is Required and Lower Cost Is a Factor—Protexol Wood Preservative No. 2 is recommended where waterproofing of timber is the prime object sought. Also recommended for heavy open tank treatment. It is a straight run anthracene oil which meets the chemical standard of the carbolineum type of preservative.

Where It Is Desired to Destroy, at a Low Cost, Organism on Sound Timber Not Liable to Decay—Neosote Wood Preservative No. 1 is recommended where the lowest cost compatible with a satisfactory return is sought. Also used for open tank treatments where depth of penetration only is considered the means of preservation or as a temporary preservative agent. It is a mixture of lighter anthracene oils and heavy creosote oils to give a liquid grade preservative suitable for surface treatments.

Neosote Wood Preservative No. 2 is a heavy distillate oil for the same purpose as Neosote No. 1 but is less permanent and less expensive than Neosote No. 1.

Standard grades of creosote oils for pressure treatments because of their volatility and content of crystallizable salts are not suitable for surface treatments.

Notes: It is worth bearing in mind that the item of labor cost will be substantially the same in the application of any one of the four grades. Equipment cost will likewise be substantially the same except where heavy open tank treatments are desired.

Protexol No. 2 and Neosote are more volatile and their use is not expected to insure the factor of safety to be had from the use of Protexol No. 1, except that a larger quantity of Protexol No. 2 and Neosote will probably give the same results as a smaller quantity of Protexol No. 1.

Odorless Wood Preservative—Protexide—A fluorophenol preparation, using sodium fluoride as a base, combining high toxicity with low solubility. Non-corrosive and applied in an aqueous solution of 3% to 5%. Especially prepared for treatments which will require subsequent applications of varnish or decorative paint or for woods with low absorbing qualities. Also used for vacuum pressure treatments.

Cost of Surface Treatments

While variable, will run from 1¢ to 1½¢ per sq. ft. of surface area. Brush treatments will add approximately 1% to the cost of a completed wooden structure. Spray treatments will run about \$1.00 per gallon applied or 1¢ per sq. ft. for the best grade of Protexol Wood Preservative. Open tank treatments vary in cost according to the desired absorption and grade of preservative employed from 4% to 10% of the total cost of a complete wooden structure or 10% to 15% of the timber used.

Types of Buildings, What and How to Treat

The following table suggests the wood requiring preservation from decay in various types of buildings:

Type of Structure	What to Treat	Method Recommended
Schools Hotels Libraries Banks Offices Apartments Department stores	Furring Screeds Sleepers	Empty cell
Mill construction	Girders Sleepers Sills Subfloors Plates	Full cell
Timber roofs	Roof members Roof planking	Empty cell or combination treatment

Protexol is a permanent, rich, walnut stain and preservative for shingles, half timbers, trellises, arbors. Correspondence is invited on any stated requirements.

Notes on Grade and Amount of Preservative to Be Used

This must be varied with the conditions of exposure and the quality and characteristics of the timber used. The desired protection against decay-producing influences is a further factor. How small a surface a gallon can cover rather than how much determines the protection afforded.

Since the permanence of oils in treated wood is generally considered a sound basis for comparison of value, it is suggested that the same factor be used in determining the amount of preservative and the treatment to be specified for similar conditions of exposure.

It should be understood that where it is desired to use lower grade preservatives consideration should be given to the use of a greater quantity. In brush treatments, this is accomplished by specifying three to four brush coats. In open tank treatments these results can be obtained by variations in time and temperature of the hot and cold baths.

It is always well to bear in mind that the smaller the absorption of the preservative, the more important its permanence since the rate of evaporation of the lighter oils is greatest from the outer portions of the wood.

Amount of Preservative to Be Used

The data in Table 1 include 5% for waste, except for spray treatments which allow 15%. Calculations are for lateral surfaces only. The end absorption in most

cases is but a very small proportion of the total and, except in the case of paving blocks or other short lengths, may be disregarded in estimating.

Absorption Requirements (Table 1)—

For rough, yard dry merchantable grade of long leaf yellow pine one gallon Protexol Wood Preservative No. 1 will be required for

- (a) 2 brush coats at 180° F. for every 90 sq. ft.
- (b) 1 spray application at 230° F. for every 80 sq. ft.
- (c) 2 spray applications at 230° F. for every 50 sq. ft.
- (d) 10-min. immersion at 180° F. full cell for every 80 sq. ft.
- (e) 20-min. immersion at 180° F. full cell for every 70 sq. ft.
- (f) 30-min. immersion at 180° F. full cell for every 60 sq. ft.
- (g) 60-min. immersion at 180° F. full cell for every 50 sq. ft.
- (h) Full Cell, Hot and Cold Bath Treatment
30-min. immersion at 180° F., 30-min. cold for every 40 sq. ft.
- (i) Empty Cell, Hot and Cold Bath Treatment
30-min. immersion at 240° F., 15-min. cold for every 60 sq. ft.

Note: The amount of preservative required depends, however, not only upon the dimensions of the timber but on the kind of wood, its absorbing qualities and its condition. Absorption varies and in Table 2 merchantable grade of L.L.Y.P. is taken as one hundred. This table gives factors by which the figures given in Table No. 1 must be corrected, when timber other than rough, yard dry, merchantable long leaf yellow pine is used.

Absorption Factors (Table 2)—

Timber	Dry			Green		
	Rough	Dressed	S.I.S.I.E.	Rough	Dressed	S.I.S.I.E.
Red cedar, poplar, cottonwood...	131	118	124	124	113	119
Sound square edge long leaf yellow pine, merchantable short leaf yellow pine, loblolly pine, white cedar, hemlock, birch, lodgepole pine...	113	102	107	107	97	103
Merchantable long leaf yellow pine, prime short leaf yellow pine, jack pine, slippery elm, tupelo gum, tamarack, redwood	100	90	95	95	86	91
Prime, long leaf yellow pine, pitch pine, Norway pine, western yellow pine, maple, cherry, ash, beech, white or soft elm, red oak, chestnut oak, chestnut...	94	85	89	89	81	86
Douglas fir, white pine, butternut, sassafras, catalpa, balsam fir, hickory, red gum, sycamore, cypress...	65	59	62	62	56	59
White oak, spruce, black walnut, honey locust, cork or rock elm...	56	50	53	53	48	51

Note: In estimating requirements, each kind of timber should be calculated separately as though it were of this kind and grade and then the proper conversion factor should be applied.

Tongue and grooved (matched) ship lap and splined lumber may for all purposes be estimated as dressed lumber.

Literature

A list of all available bulletins and circulars will be sent on request. Each answers definite questions on wood preservation.
Circular 60—Dry Rot in Timber.
Circular 68—Deterioration of Timber and Its Causes.
Circular 89—The "How" of Surface Treatments.
Circular 93—Is Fireproofed Wood Worth While?
Bulletin 40—The Annual Charge Against Treated Timber.
Bulletin 41—Maintenance Treatments.
Bulletin 43—Preservative Oils for Surface Treatments.
Bulletin 44—Facts About Fireproofed Wood (in preparation).
Wood Preserving Terms (for sale at \$1.00 per copy).



SCOFIELD, EVANS & COMPANY

Manufacturers of Floor Preservatives

Commercial Trust Building
PHILADELPHIA, PA.

DISTRIBUTORS

EASTERN AND MIDDLE WESTERN TERRITORY: C. J. PHILLIPS COMPANY, 508 South Dearborn Street, CHICAGO, ILL.
PACIFIC COAST TERRITORY: CONTINENTAL BUILDING SPECIALTIES, INC., Hibernian Building, LOS ANGELES, CAL.

Products

REPELLO, a Permanent Preservative Treatment for floors of wood, concrete, composition, terrazzo and linoleum.

REPELLO

TRADE-MARK

ing and dustproofing qualities result from the same action which occurs in an asphalt pavement—the elastic binder holds the grit resulting from traffic until it gets so hard that it glazes over.

Repello

Repello is a mixture of processed organic oils having no chemical effect upon any material to which it is applied. Its action is entirely mechanical as it fills the pores or voids, and remains an elastic and cohesive binder for years. This elasticity is essential to withstand traffic, to prevent penetration of dirt and injurious materials and to stop disintegration of floor when exposed to the action of the elements.

On Wood Floors—One application is sufficient for the life of the floor. Penetration is complete and the wood becomes so well filled that the finish remains even though part of wood be worn away.

Repello will penetrate entirely through an inch of maple flooring in about twenty hours, and leaves a permanent finish in the wood itself. A floor so treated will not stain or lose its finish.

Repello prevents warping, checking, dusting and splintering, because it is waterproof and prevents the disintegration of the natural wood resins. It leaves no film on the surface, but becomes a part of the wood itself and completely fills the pores. By keeping out dampness and moisture which are necessary to the life of fungi it prevents dry-rot.

By preventing the grain of wood from raising, it insures a permanently smooth surface and finish.

Repello in oak floors prevents the formation of discolored areas through the wearing out of the usual surface coatings and the subsequent action of air and water.

It prevents splintering and splintering; is one of the few materials which will make a pine floor resist the action of weather. When applied to wood sleepers, it prevents the usual rotting of the sleepers due to absorption of moisture from the concrete in which sleepers are embedded.



Illinois Merchants Bank Building, Chicago, Ill.
GRAHAM, ANDERSON, PROBST & WHITE, Architects
Maple and cork tile floors treated with Repello

On Concrete Floors—No other known treatment penetrates more deeply than Repello. This penetration varies, depending on the density of the concrete, usually between $\frac{1}{4}$ and $\frac{1}{2}$ in. It hardens the concrete to the full depth of its penetration by filling the tiny voids of the concrete with a tough elastic binder. The harden-

Repello renders a concrete floor waterproof, oil-proof and alkaliproof. It protects the floor from the action of fatty and other organic acids which result from the decomposition of oils and greases.

On Composition Floors—Dusting and disintegration of composition floors is prevented because of the waterproof binder deposited in voids of the floor.

On Terrazzo Floors—Prevents dusting and disintegration of the cement binder in terrazzo.

On Linoleum and Cork Carpet—Applied to linoleum and cork carpet, it penetrates the entire body of the fabric. When so treated they do not become brittle and the life is increased.

Repello Specifications

All concrete floors, after they have had their proper set [All wood floors after being properly planed and sanded] and approved by the architect, are to be treated with Repello to be furnished and applied by the manufacturers, SCOFIELD, EVANS & COMPANY, Commercial Trust Building, Philadelphia, Pa., or their authorized agents.

A Few Representative Installations and Customers

Olympia Fields Country Club, Matteson, Ill.
F. W. Woolworth Company
Sears Roebuck & Company
International Tailoring Company, Chicago, Ill.
National Cash Register Company, Chicago, Ill.
American Seating Company, Grand Rapids, Mich.
General Baking Company
Tower Garage, Chicago, Ill.
Sinclair Auto Service Corp., Chicago, Ill.
Montefiore Hospital, Pittsburgh, Pa.
Toledo City Hospital, Toledo, Ohio
Hotel Stevens, Chicago, Ill.
Board of Trade, Chicago, Ill.
Famous Players-Lasky Company, Chicago, Ill.
Pacific Mutual Life Building, Los Angeles, Calif.
Atchison, Topeka & Santa Fe Ry. Co.
Chicago, Burlington & Quincy R. R. Co.
Chicago & North Western Ry. Co.
Massachusetts Institute of Technology, Cambridge, Mass.
University of Michigan, Ann Arbor, Mich.
Minneapolis Arena, Minneapolis, Minn.
First Presbyterian Church, River Forest, Ill.
Corpus Christi Church, Newport, Ky.
G. C. Kuhlman Car Co., Cleveland, Ohio
American Brass Company, Torrington, Conn.
State University of Iowa, Iowa City, Iowa



Phoenix Knitting Co. Works, Milwaukee, Wis.
LOCKWOOD, GREENE & Co., Architects

CALBAR PAINT & VARNISH COMPANY

Manufacturers of Technical Paints, Caulking and Glazing Compounds

FACTORY AND EXECUTIVE OFFICE

2620 North Martha Street, PHILADELPHIA, PA.

Products

CALBAR CAULK-O-SEAL NON-STAINING CAULKING, POINTING and GLAZING COMPOUND.

Also Calbar Industrial and Technical Coatings and Finishes.



Calbar Caulk-O-Seal Non-staining Caulking, Glazing and Pointing Compound

The necessity for a material having an elastic nature for sealing cracks, waterproofing and glazing prompted us some years ago to devote a large amount of time, money and effort to produce a product that would fill every requirement for varying conditions. After several years of constant experiments and gradual improvements we developed a compound which was considered the acme of perfection. Time has proven that our product is just right. Each feature has been carefully tested and we offer those, who are interested in a caulking compound of exceptional merits, Calbar Caulk-O-Seal Plastic Compound.

The saving of fuel from air leakage is an economic necessity. Heating and ventilating of buildings can not be controlled while there are cracks around doors and windows and other openings where air in unregulated amounts can enter. Of course, there are other things to consider also. Such openings allow dirt, dampness and deterioration to get in their work. It is well recognized at the present time that all buildings, from the modest two-story home to the highest skyscraper, require caulking. The cost is low and the benefit is great.

Caulk-O-Seal—Permanently Plastic Compound

Caulk-O-Seal is a permanently plastic compound that is impervious to heat, cold, moisture and fumes. It dries with a tough surface hide which can be painted over without bleeding through. Beneath the surface it remains plastic and pliable for years, taking up expansion or contraction of adjoining surfaces. Vibration does not harm it. It is strictly a waterproof product. It adheres firmly and tenaciously to any surface, whether glass, marble, tile, brick, concrete, wood, steel, limestone, etc.

Caulk-O-Seal—Non-staining Compound

Caulk-O-Seal is a truly *non-staining* compound. This feature is of extreme importance and we suggest that it be considered carefully. It will not stain the surrounding surface adjacent to the place applied. This is a distinctive feature of our product and worthy of consideration. Many beautiful buildings, of limestone and marble construction principally, have been marred by the use of a compound which exudes liquid. The liquid is required as it is the life of the compound. If it bleeds out, its life is lessened. It will be a revelation

to you to make a few simple tests with Caulk-O-Seal. Samples will be furnished to demonstrate its *non-staining* quality.

Method of Application

The method of application advocated by us is by the use of a hand caulking gun. We furnish a light, powerful gun, easily operated and capable of developing a high pressure. However, Caulk-O-Seal is of the proper consistency and is easily forced to the required depth in an opening. A canvas of caulking contractors proves conclusively that the use of a hand gun saves labor cost and does the work properly, making a smooth, even exterior finish.

Caulk-O-Seal Gun Grade—Knife Grade

Caulk-O-Seal is supplied in Gun Grade (for use with caulking gun) and in Knife Grade (for use with a putty knife or caulking tool.) Made in white, gray, limestone, natural, green, red, maroon and black. Special colors made to order in any quantity. Packed in all sized convenient containers. One gallon of Gun Grade will caulk about 150 lineal feet of an opening, 1/4 in. wide and 1/2 in. deep.

Caulking Around Window and Door Frames

In new construction, it is recommended that the compound be applied between the frame proper and the masonry. When spaces are deeper than 1/2 in., they should be packed within 1/2 in. of the surface with oakum and the remaining space completely filled with Caulk-O-Seal. The staff bead is then put in place.

Pointing Stonework, Terra Cotta, Copings, etc.

All joints should be raked back to a depth of 1/2 in. and filled in with Caulk-O-Seal.

Glazing

For embedding and glazing glass in wood or metal sash or skylights, use the same as putty. Its elasticity prevents glass from breaking due to vibration or contraction and expansion.

Guarantee

Caulk-O-Seal when applied as directed under usual conditions is guaranteed to give five years' service.

References

Many important buildings have been caulked with Caulk-O-Seal, including schools, hospitals, apartment houses, churches, public buildings, hotels, United States Government buildings, and industrial plants.

Contractors approved by us are available in principal cities of the United States.

DETROIT GRAPHITE COMPANY

Makers of Paints in All Colors for All Purposes

DETROIT, MICH.

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SEATTLE, WASH.
TULSA, OKLA.

Products

DEGRACO PAINTS, which include:

Degraco Metal Protective Paints
Sta-White for plant interiors
Degraco Building and House Paints
Degraco Interior Finishes (Decorative)
Degraco Brick and Concrete Paints
Cemtex—galvanized iron primer
Silvr-Cool—aluminum paint
Degraco Enamels
Degraco Machinery Finishes
Silvr-Leaf—aluminum paint
Degraco Industrial Finishes
Degraco Railway Finishes
Anti-Aqua—waterproofing
Degraco Fume Resistive Paint
Degraco Gas Holder Paints

Specifications

Complete data on all products listed above and miscellaneous finishes with specifications are covered in our standard catalogues.

Distribution and Warehouse Stocks

Degraco Paints are sold through branch offices with warehouse stocks in all principal cities.

Metal Protective Paints

Superior Graphite Paint—Manufactured in black, brown, red, olive green and stack black. Superior Graphite Paint has established its reputation as a leader among metal protective paints with service records covering a long period of years.

Brown is generally used as shop coat. For first and second field coats different colors are recommended that complete covering may be secured with each coat.

Prime-Rite—A red lead base paint for priming or shop coat on structural steel and metal. In this paint all the good qualities of red lead are retained and in addition Prime-Rite has certain advantages, such as ease of application, elasticity of film to expand and contract with the steel, resistance to abnormal exposure conditions, fumes, etc.

DEGRACO PAINTS

All Colors for All Purposes

Ornamental Iron Finishes—

For all types of ornamental iron work for interior and exterior exposure. Made in three finishes: eggshell, flat and bower-barff; also gloss black primer.

Metal Paints in Light Colors—Highest quality metal protective paints for finishing steel in light colors. Manufactured in a wide range of colors.

Miscellaneous Metal Paints—This Company produces a complete line of metal protective paints, including in addition to above, Red Oxide Paints, Blue Lead Paints, Asphaltum Paints, Carbon Paint, Lead Chromate Paints, Stack Paints, Fume Resisting Paints, etc., each of which are recommended for certain specific surface and exposure conditions.

Refer our Catalog No. 1 for complete data and specification charts on Metal Protective Paints.

Degraco Aluminum Paints

Degraco Aluminum Paints are supplied in ready mixed form. The high quality of the vehicle insures long life and the high lustre bronze used in their manufacture insures maximum light and heat reflective value. No. 325 Silvr-Cool is recommended for tankage and other structures demanding maximum service requirement. Use No. 555 Silvr-Leaf Aluminum for general work, interior painting, etc. Both materials are used over Degraco Aluminum Undercoater.

Sta-White—For Plant Interiors

Sta-White is a pure white oil paint for industrial interiors. Recommended for interior painting in mills, factories, offices, dairies, public buildings, etc.

It may be used on wood, concrete, plaster, metal, brick, wall board and other surfaces.

Sta-White produces a light reflecting washable finish. It is supplied in gloss, semi-gloss and flat.

Three-coat Work—First and second coats, Sta-White Primer. Finish coat, Sta-White Gloss, Semi-gloss or Flat.

Two-coat Work—The unusual opacity of Sta-White Primer and Finish makes possible a complete solid white job in many instances with two coats. First coat, Sta-White Primer, finish coat Sta-White Gloss, Semi-gloss or flat.

Fume Proof White Enamel

A finish of the same characteristics as Sta-White producing a white enamel washable finish for use in operations where fumes, heat and moisture discolor the average type of white paint. Applied over priming coat of Fume Proof White Primer.

Degraco Building and House Paints

Highest grade building and house paints made in white and wide range of colors. Manufactured from highest grade accepted standard pigments and vehicles by modern and scientific machinery. Recommended for protection of wood and metal in general building construction, for mill and mine villages, etc.

Refer our Catalog No. 3 for detailed data and specifications covering complete line of Building and House Paints.

Decorative Interior Finishes

Degraco-Tone—A velvet finish wall paint for use on plaster, masonry, metal, woodwork and other interior surfaces. It produces a soft velvet finish of unusual beauty and texture.

Foundation coat should be a mixture of three parts Degraco Wall Sealer and one part Degraco-Tone. Follow with two coats of Degraco-Tone.

Stiploid—Washable Wall Finish—A non-porous washable wall paint producing a beautiful job in stipple finish. Highly suitable for use in hospitals, hotels, schools, colleges, public buildings and other institutions where wall paints are subjected to severe usage and frequent washing. Dust, dirt, grease and such defacements as match scratches, ink spots, etc., can be readily removed from Stiploid without destroying its decorative qualities.

Stiploid is supplied in two parts—Stiploid Body, white, and Stiploid Reducer to be mixed and applied in accordance with specifications.

Degraco Flat Wall Paint—A high quality flat wall paint producing a mat finish. For use on plaster, masonry, metal, woodwork and other interior surfaces.

Foundation coat should be a mixture of three parts Degraco Wall Sealer and one part Degraco Flat Wall Paint. Follow with two coats Degraco Flat Wall Paint.

Degraco Wall Enamel—Semi-gloss—A low lustre wall enamel producing a full bodied enamel film but with an absence of glare or high lights. A non-porous washable finish.

Foundation coat, Degraco Wall Enamel Undercoater. Follow with two coats Degraco Wall Enamel tinted to desired shade.

Degraco Wall Enamel may be used on plaster and other interior surfaces. Supplied in white only for ready tinting. When enamel finish in gloss or eggshell

is desired for application in white refer specification covering Sta-White.

Degraco-Lite Enamel—Finest quality white enamel for interior or exterior use. For use on woodwork and other surfaces. Supplied in white for ready tinting on the job. Used over Degraco-Lite Undercoater.

Master Painters Enamel—White enamel of excellent quality for interior use on wood trim and other surfaces. Supplied in white for ready tinting on the job. Used over Master Painters Undercoater.

Degraco Interior Metal Trim—Low lustre enamel finish for interior metal trim on doors, metal sash and casements and other ornamental work. Supplied in ivory, buff, light and dark gray, light brown, mahogany, verdi green, olive green and black. Used over Degraco Flat Metal Primer.

Degraco Floor Enamels—Enamel finish for use on wood and concrete floors producing a protective film that is hard drying, non-porous and washable. Two coats produce an excellent wear resisting finish.

Degracolin—A colorless concrete floor hardener. Its use insures a hard flintlike surface without changing the color or appearance of the concrete floor.

Degraco Radiator Finishes—Supplied in flat and gloss white for ready tinting. For aluminum finish use Silvr-Cool No. 325. For priming coat on radiators use Degraco Flat Metal Primer light or dark depending on color of finish.

Refer our Catalog No. 2 for complete data and specifications on Wall Paints and Decorative Interior Finishes.

Anti-Aqua—Waterproofing

For waterproofing foundation walls below grade. Also highly suitable as a plaster bond and waterproofing for use on the interior surfaces of outside masonry walls that are to be plastered.

Degraco Brick and Concrete Paints

For exterior and interior use on concrete.

Manufactured on a formula to meet the requirements for beautifying and preserving concrete over long periods.

Degraco Paints in General

Degraco Paints are made in all colors for all purposes including many special types of finishes and enamels.

Complete specifications and color cards will be furnished on request.

Special data will also be supplied on Acid Fume Resistive Paints and other special coatings for abnormal exposure conditions.

ESTABLISHED
1827

JOSEPH DIXON CRUCIBLE COMPANY

JERSEY CITY, N. J.

DISTRICT SALES OFFICES

NEW YORK, N. Y., 68 Reade Street

PHILADELPHIA, PA., 612 Public Ledger Building

SAN FRANCISCO, CAL., 444 Market Street

CHICAGO, ILL., Builders' Building

BUFFALO, N. Y., Erie County Savings Bank Building

ST. LOUIS, MO., Victoria Building

BOSTON, MASS., 80 Federal Street

Products

DIXON'S INDUSTRIAL PAINTS (*Flake Silica-Graphite*). DIXON'S BRIGHT ALUMINUM.

DIXON'S MAINTENANCE FLOOR PAINTS.



The Company

For over one hundred years the business of the JOSEPH DIXON CRUCIBLE COMPANY has followed every ramification of graphite use with every known grade and form of graphite passing through its laboratories.

The company is, therefore, in position to select and use that kind of graphite best suited to any particular purpose. That this selection is made with the utmost care and with due regard to the purpose for which the graphite is intended is evidenced by the high character and quality of Dixon's products generally and the popularity of *Dixon's Paints* in widely diversified fields.

How Dixon Discovered the Value of Flake Graphite As a Paint Pigment

Over sixty-five years ago, alterations in the mining plant of the JOSEPH DIXON CRUCIBLE COMPANY at Ticonderoga, N. Y., resulted in the removal of a large amount of good machinery. As it was necessary to store it out of doors and protect it from rusting, the superintendent started to paint it with a mixture of oxide of iron and linseed oil.

The supply of oxide giving out, he thought to use some of the *flake graphite* which was a product of the plant. Two years after, examination of the surface showed that, though still intact, the oxide of iron paint had become exceedingly dry and brittle, while the *flake graphite* paint had, to a wonderful extent, retained its original toughness and elasticity. *On many of the pieces the paint remained in good condition for twenty-four years.*

We use today precisely the same material used in this trial so long ago, and never have we found any cause to change our views as to its absolute superiority as a protective coating on wood and metal surfaces.

Flake Silica-Graphite is Favored by the United States Department of Commerce

The United States Department of Commerce, Bureau of Mines, in Information Circular No. 6123, May 1929, under caption "Pigments and Paints" commends the use of *flake silica-graphite* as a paint pigment because of its opacity and great resistance to deterioration. This statement literally substantiates the claims made by the JOSEPH DIXON CRUCIBLE COMPANY respecting the wearing and protective qualities of Dixon's Industrial Paints in which the pigment used is *flake silica-graphite*.

DIXON'S INDUSTRIAL PAINTS

(*Flake Silica-Graphite*)

The Physical Properties of a Protective Paint

There are two components in paint—the *pigment* and the *vehicle*. They are of prime importance for upon them depend the life and wearing qualities of the paint.

Linseed Oil Vehicle

Of all paint vehicles linseed oil is recognized as one of the most suitable because of its ability to withstand wear and exposure. When dry, linseed oil adheres strongly to surfaces upon which it is applied, and even when used alone offers a certain amount of protection. However, when so used, the film is thin and soon wears away under the influence of the elements and the abrasive action of dust, cinders, etc.

In order to make the film thicker so as to furnish a greater amount of wear resistance, a pigment is added and its resistance to wear is increased in direct proportion to the thickness of this pigment.

Flake Silica-Graphite as a Paint Pigment

As a paint pigment, graphite is absolutely inert. It is not affected by the action of even the strongest acids or alkalis. It does not undergo any chemical change in use and will not affect the natural resiliency of the oil vehicle.

Natural *flake graphite*, however, needs something to give it further endurance and for that reason we call on the aid of *silica*. The peculiarity of Dixon's Silica-Graphite Paint is that the silica is

mined with the graphite and is largely an integral part of the graphite itself.

Silica is sometimes used as a paint pigment but it has no covering power and is hard, rough and transparent while graphite is soft, unctuous and opaque.

Silica and flake graphite are two most excellent paint pigments possessing in the greatest possible degree those most necessary characteristics—inertness and low specific gravity. But to be perfect, each needs just that amount of improvement which the presence of the other affords.

Nature's mixture of *flake silica-graphite* is obtained from our own mines and affords a most superior paint film as compared with a pigment where silica is mechanically added to the graphite.

Advantages of Using Flake Silica-Graphite Paints

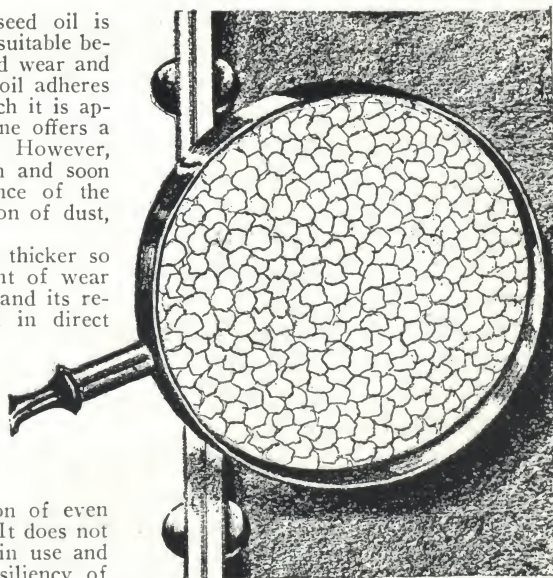
(1) They are easier to apply, the unctuous peculiarity of flake graphite giving an ease of brushing not to be found in other paints.

(2) They are stronger in covering quality, particularly in the darker shades, the tendency of graphite as a paint pigment being toward heavy opacity.

(3) They cover more surface per gallon because of the assistance graphite lends in smoothness, without depreciating the protection of the paint film.

(4) They are more waterproof, graphite having waterproof qualities unsurpassed by any other pigment.

Dixon's Industrial Paints are, therefore, more durable and afford the greatest measure of protection because of the *flake silica-graphite* pigment.



Flat Flakes of Silica-Graphite Overlap Like the Scales of a Fish

Cemented together by a tough elastic "skin" of pure boiled linseed oil, these flakes give to *Dixon's Industrial Paint* a striking resemblance to nature's own best protection against water—the armor of a fish

Where the Use of Dixon's Industrial Paint is Recommended



For finishing outdoor metal and wood surfaces where unusual wear or climatic conditions present a disturbing maintenance problem.

These paints are waterproof in the rigid sense of the word. Changes in temperature do not affect them.

They are strong in covering power and have a spreading capacity of 450 to 500 sq. ft. to the gallon.

As a protective coating for:

Structural steel	Coal tipples
Water conduits	Iron fences
Grain elevators	Lamp posts
Roofs	*Smokestacks
Bridges	Marine work
Boilers	Steel and wood barges
Gas tanks	Condensers
Oil tanks	Transformers
Tank cars	Excavating and hauling machinery
Water tanks	

*As a finish for smokestacks or heated surfaces they are without peer, resisting heat up to 500° F.

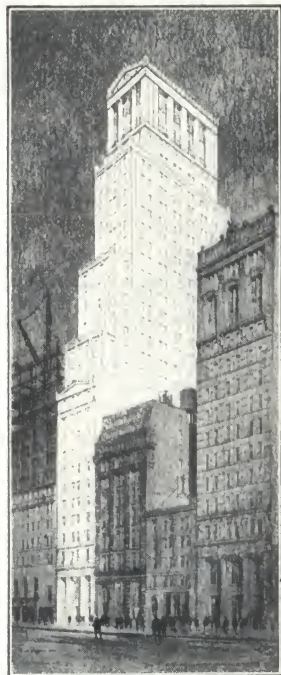
Dixon's Red Lead Graphite Primer No. 101

Composed of red lead, *flake silica-graphite*, a high grade oxide of iron and tested boiled linseed oil, it meets the requirements of those inclined toward straight red lead because of its strong adherence to metal and long life.

The unctuous quality of the *flake graphite* prevents "dragging" and destruction of brushes. Because of the nature of its pigment and vehicle, this primer will not become hard and brittle with resultant chipping and scaling, but retains its elasticity. Having a covering capacity of 450 sq. ft. to the gallon it is most economical either from a standpoint of cost per gallon or years of service.

A metal surface finished with a coat of Dixon's Red Lead Graphite Primer No. 101, followed by two coats of Dixon's Industrial Paint (*flake silica-graphite*) will have the best of protection for a period of 9½ years, on the average, without renewal.

Hundreds of testimonials submitted by engineers, chemists, contractors, etc., substantiate this claim.



National City Company,
New York, N. Y.
McKim, Mead & White,
Architects
Geo. A. Fuller Co.,
Contractors



Dixon's Aluminum Paints

The value of aluminum as a reflective and protective paint, and its ability to lessen evaporation losses is well established.

Its use in oil and gas fields is standard practice. There are, however, many other equally important uses to which this unique paint is adaptable.

Aluminum Graphite—Prepared with the same care as our other *flake silica-graphite* paints, it has established a reputation for quality and durability.

The pigment is *flake aluminum* and *flake silica-graphite*. The similarity of their flake structure permits them to lap over one another like fish scales forming a film of great elasticity and durability. So closely do they overlap that it is impossible for anything to penetrate to the undersurface. The vehicle is a tough marine spar varnish.

Gases, acids, smoke and other deteriorating influences have practically no effect on surfaces protected by Dixon's Aluminum-Graphite and it is also highly resistant to the effects of the elements. Its unusual durability, reflectivity and lower cost per year of service is due to the overlapping of the flakes in a bond of durable spar varnish.

Because of the graphite component, it brushes easily and covers well.

Bright Aluminum—The vehicle used is a tough marine spar varnish giving great resistance to the elements and insuring life and brightness to the *straight aluminum pigment*.

This paint will not dull or take on a brownish cast with the readiness of ordinary aluminum paints nor will its pigment precipitate as rapidly.



William Taylor Hotel and Temple M. E. Church,
San Francisco, Cal.

Lewis P. Hobart, Architect
McClintic Marshall Co., Contractors

SPECIFICATIONS FOR DIXON'S INDUSTRIAL PAINTS (FLAKE SILICA-GRAPHITE)

Foreword

In preparing the following specifications covering the application of Dixon's Industrial Paints we have spared no effort to insure their technical and practical correctness.

Each specification is based on our observation during 65 years in the manufacture of metal protective paints and is placed before the architect and engineer with the assurance that in following any specification herein they may feel fully confident that the results therefrom will be of the most satisfactory nature.

Dixon's Industrial Paints (*flake silica-graphite*) are recognized the world over for their protective value and in specifying them the architect or engineer insures for his client permanency of the steel and iron work.

General Conditions

Materials—All paint materials shall be delivered to the building site in the original unbroken containers bearing the manufacturer's stamp or label thereon.

The top of the container to be removed, and the paint properly stirred before being used.

The use of adulterants at any stage of the work is strictly prohibited, nor shall materials be thinned or changed in any way other than specified.

Workmanship—All materials shall be applied by skilled mechanics. Paint shall be evenly spread and thoroughly brushed out. All workmanship shall be executed in accordance with the best practices.

All surfaces to be painted shall be dry and free from foreign matter, dirt, cement, grease, oil, scale, etc. No paint shall be applied until the preceding coat is thoroughly dry.

*Specification No. 1***Steel Bridges**

Shop Coat—All steel work, including iron and cast steel shall be thoroughly cleaned of all scale, rust, dirt, grease or other foreign particles and shall be given one shop coat of Dixon's Red Lead Graphite Primer No. 101. Where surfaces of riveted work come in contact they shall be painted with the same material before being assembled.

Field Coat—After erection, all damaged surfaces of shop coat, all shop marks, rivets, bolts, etc., shall be touched up with Dixon's Red Lead Graphite Primer No. 101. A first field coat of Dixon's Industrial Paint of approved color, shall then be applied. After the first coat is thoroughly dry, a second field coat shall be applied, a difference in shade to be observed between the first and second field coats to insure proper coverage.

*Specification No. 2***Structural Steel**

Shop Coat—All structural steel work, before leaving the shop shall be cleaned of all scale, rust, dirt, grease or other

foreign particles and shall be given one shop coat of Dixon's Red Lead Graphite Primer No. 101. Where surfaces of riveted work come in contact they shall be painted with the same material before being assembled.

Field Coat—After erection all damaged surfaces of shop coat, all shop marks, rivets, bolts, etc., shall be touched up with Dixon's Red Lead Graphite Primer No. 101, and then all exposed surfaces of the steel work shall be given a coat of Dixon's Black Paint (Alkali Resisting) No. 333.

Miscellaneous—All grillage shall receive one coat of Dixon's Red Lead Graphite Primer No. 101, and one coat of Dixon's Black Paint (Alkali Resisting) No. 333 before setting.

*Specification No. 3***Miscellaneous Iron, Ornamental Iron, Steel Partitions, Steel Windows, Kalamein Work, etc.**

General—Before shop coat is applied, all steel and iron work shall be thoroughly cleaned of all scale, rust, dirt, grease or other foreign particles. Before the field coat is applied all damaged surfaces of shop coat, all shop marks, rivets, bolts, etc., shall be retouched with the same material used for the shop coat, which is to be Dixon's Red Lead Graphite Primer No. 101.

Miscellaneous Iron—All miscellaneous iron work, such as steel lintels, steel bucks, anchors, brackets, etc., shall receive one shop coat of Dixon's Red Lead Graphite Primer No. 101, and one field coat of Dixon's Standard Oxide Red No. 114.

Note: All exposed miscellaneous iron, such as window lintels, etc., shall receive an additional coat of lead and oil paint as specified under "Painting."

Ornamental Iron—All ornamental iron, such as railings, fencing, window grilles, flagpoles, etc., shall receive one shop coat of Dixon's Red Lead Graphite Primer No. 101, and one field coat of Dixon's Standard Oxide Red No. 114. The final coat shall be Dixon's Industrial Paint of approved color.

Note: When colors to harmonize with surrounding woodwork, etc., are desired, the final coat should be lead and oil paint as specified under "Painting."

Steel Partitions—Steel partitions, such as metal toilet partitions, etc., shall receive one shop coat of Dixon's Red Lead Graphite Primer No. 101, and two coats of Dixon's Olive Green No. 110.

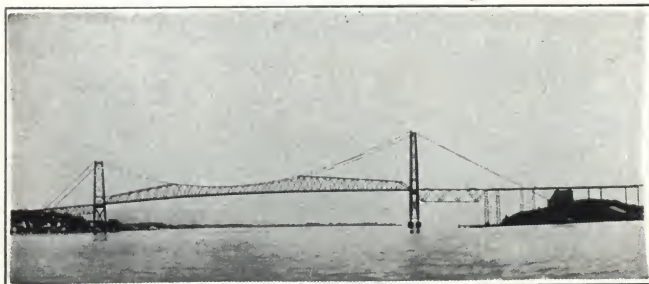
Steel Windows—Steel windows shall receive one shop coat of Dixon's Red Lead Graphite Primer No. 101, and one shop coat of Dixon's Standard Oxide Red No. 114. The final coat shall be lead and oil paint as specified under "Painting."

Kalamein Work—All kalamein work shall receive one shop coat of Dixon's Red Lead Graphite Primer No. 101. The final coats shall be applied as specified under "Painting."

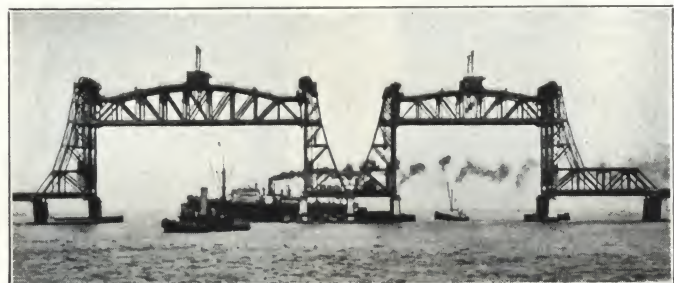
*Specification No. 4***Dixon's Bright Aluminum for Walls, etc.**

Note: Dixon's Bright Aluminum No. 113 is highly recommended for the interiors of workrooms and industrial buildings because of its light reflecting qualities. It does not tarnish, is not affected by sulphurous gases and can be washed with soap and water.

Priming Coat—All plaster surfaces of walls, columns and ceilings shall receive a coat of primer having lime resisting qualities. It shall be applied in accordance with the printed instructions.



Florianapolis Bridge, S. A. (4,400 Tons of Steel)



Newark Bay Bridge, C.R.R. of N. J., Newark, N. J.

tions of the manufacturer and shall not be recoated until it has dried hard and absolutely free from tack.

All metal surfaces shall be primed with Dixon's Red Lead Graphite Primer No. 101.

Aluminum Coat—All plastered surfaces of walls, columns and ceilings and all wood and metal trim and doors shall be painted with two coats of Dixon's Bright Aluminum No. 113.

Specification No. 5

Water Tanks, Smokestacks, Gas Holders, Power Plant Equipment, etc.

Shop Coat—All steel work, including cast iron and cast steel, shall be thoroughly cleaned of scale, rust, dirt, grease or other foreign particles and shall be given one shop coat of Dixon's Red Lead Graphite Primer No. 101. Where surfaces of riveted work come in contact they shall be painted with the same material before being assembled.

Field Coat—After erection, all damaged surfaces of shop coat, all shop marks, rivets, bolts, etc., shall be touched up with Dixon's Red Lead Graphite Primer No. 101. A first field coat of Dixon's Industrial Paint of approved color shall then be applied. After the first coat is thoroughly dry, a second field coat shall be applied, a difference in shade to be observed between the first and second field coats to insure proper coverage.

Note: For smokestacks and other heated surfaces we recommend Dixon's Black No. 108, or Dixon's Natural No. 107. Both paints will withstand heat up to 500° F. In repaint work two coats are required for best results, and on new work, three coats, including the priming coat (Dixon's Red Lead Graphite Primer No. 101).

Specification No. 6

Wire Work

All uncoated wire work, including frames, fixtures, etc., shall receive one coat of Dixon's Red Lead Graphite Primer

No. 101, and two coats of Dixon's Bright Aluminum No. 113.

All galvanized iron wire work shall receive one coat of galvanized iron primer and two coats of Dixon's Bright Aluminum No. 113.

Specification No. 7

Maintenance Painting

Cleaning—All broken or blistered paint, all rust, grease and dirt, must be removed by wire brushes, scrapers, blow-torch, or by sandblasting with fine sand. The method to be selected and made part of the contract.

Repainting—All surfaces shall be given two coats of Dixon's Industrial Paint of approved color. The second coat to be applied when the first is thoroughly dry and to be slightly different in color to insure proper coverage. Surfaces must be perfectly dry when painted.

For Roofs—*Note:* The same qualities which make Dixon's Industrial Paints so efficient for other exposed surfaces account for its great protection to roofs—a practically inert pigment and a linseed oil vehicle. We recommend three coats for new metal roofs—the first coat to be Dixon's Red Lead Graphite Primer No. 101 followed by two coats of Dixon's Industrial Paint. On previously painted metal roofs, two coats of Dixon's Industrial Paint is ordinarily sufficient. This paint is also suitable for canvas and shingle roofs. Where shingles are dry, they should receive a coat of oil, otherwise they will quickly absorb oil from the paint, leaving the pigment without sufficient binding material. Use Dixon's Light or Dark Green for beautifying effect or Dixon's Natural Color for slate effect.

Galvanized Iron or Tin Roofing—Before Dixon's Industrial Paint is applied to a new roof, it should be washed clean of oil, etc., with a solution of sal-soda. When dry, a first coat of Dixon's Red Lead Graphite Primer No. 101 should be applied followed by a second and third coat of Dixon's Industrial Paint of approved color.

DIXON'S MAINTENANCE FLOOR PAINTS

All-purpose Floor Coatings

Dixon's Maintenance Floor Paints are all-purpose coatings for use on floors of

Concrete	Linoleum
Composition	Wood

They are designed to give the maximum of durability, the special vehicle used being properly balanced to give this result.

These paints are solid covering and heavy bodied so that a satisfactory finished job can be had in a two-coat operation.

For use in factories, garages, hotels, public buildings, steamships, hospitals, laboratories, railway cars and every place where a protective durable floor coating is required.

For Inside or Outside Use

Dixon's Maintenance Floor Paints may be used inside or out and are particularly adapted to withstand the rigorous action of climatic changes, sleet, rain and salt water to a remarkable degree.

Because of their "all-purpose" characteristics, Dixon's Maintenance Floor Paints have met the rigid standards of the marine trade which may be taken as an indication of their superior quality. They have also found unqualified acceptance in the industrial and railroad fields where service conditions are, as a rule, particularly severe.



Prevent "Dusting" of Cement Floors

Dixon's Maintenance Floor Paints withstand the disintegrating action of the alkali in cement and concrete and effectually prevent "dusting." They are not affected by hot, cold, fresh, salt or soapy waters, oil, alkali or dirt, and will give service over a long period despite hard weather and extraordinary wear.

These paints dry in six to eight hours thereby facilitating the work which heretofore has been subject to irritating delays.

Colors

Dixon's Maintenance Floor Paints are made in eight conventional colors:

Mahogany Red	Special Tan
Dark Red	Dustproof
Light Gray	Standard Green
Rich Brown	Oak

Specifications

[All cement floors, steps, platforms and wall bases] [All composition floors, steps, platforms and wall bases] [All wood floors] shall receive two coats of Dixon's Maintenance Floor Paint, color selected.

All surfaces to be painted shall be thoroughly cleaned before the paint is applied.

To insure satisfactory performance, Dixon's Maintenance Floor Paint shall not be applied to cement surfaces until at least three months after installation.

DIXON'S INDUSTRIAL PAINTS



Red Lead Graphite Primer—No. 101



Extra Light Gray—No. 102



Light Gray—No. 106



Dark Gray (Natural)—No. 107



Light Green—No. 110



Dark Red—No. 103



Battleship Gray—No. 104



Medium Gray—No. 105



Black—No. 108



Dark Green—No. 112



Standard Oxide Red—No. 114



Aluminum-Graphite (Dark)
No. 109



Aluminum-Graphite (Light)
No. 111



Bright Aluminum
No. 113

DIXON'S MAINTENANCE FLOOR PAINTS



Mahogany Red



Dark Gray



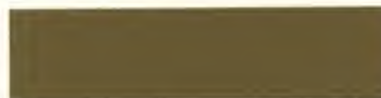
Light Gray



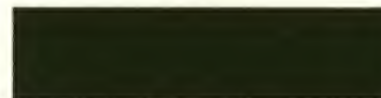
Rich Brown



Special Tan



Dustproof



Standard Green



Oak

A FEW OF THE MANY NOTABLE STRUCTURES IN WHICH DIXON'S INDUSTRIAL PAINTS WERE SPECIFIED AND USED

Thousands of tons of steel are in these buildings and hundreds of barrels of Dixon's Industrial Paint were used to assure the steel frameworks that "ounce of prevention" against rust and corrosion.

Architects, engineers and contractors are unanimous

in their approval of this method of safeguarding and lengthening the life of steel framework.

Dixon's Industrial Paint has made records for long protection service on all types of structures and is universally recognized as being low in cost per year of service.

BALTIMORE, MD.

Belvedere Hotel
Chamber of Commerce
National Marine Bank
Savings Bank of Baltimore

CHICAGO, ILL.

Chicago Telephone Company Building
Commonwealth-Edison Company Building
Fair Department Store
Illinois Athletic Club

CLEVELAND, OHIO

City Hall
Willys-Overland Building

NEW YORK, N. Y.

Astor Hotel and Addition
City Investing Building
Equitable Life Insurance Building
Hudson Terminal Building
Lord & Taylor Department Store
Ritz-Carlton Hotel
W. & J. Sloane Building
St. Regis Hotel

OAKLAND, CAL.

Y. M. C. A. Building

PHILADELPHIA, PA.

Stephen Girard Building
Girard Trust Company Building
Ritz-Carlton Hotel
John Wanamaker Department Store

PITTSBURGH, PA.

Annex Hotel
Jenkins Building



Equitable Trust Company, New York, N. Y.

TROWBRIDGE & LIVINGSTON, Architects
THOMPSON, STARRETT Co., Contractors

PITTSBURGH, PA. (Continued)

Schenley High School Building

ROCHESTER, N. Y.

Federal Building
New York Telephone Building
Rochester City Hospital

SAN FRANCISCO, CALIF.

Metropolitan Life Insurance Co. Building
Mills Building
Palace Hotel
Postal Telegraph Building
John A. Roebling's Sons Co. Building

SCRANTON, PA.

D. L. & W. Railroad Station
Strand Theatre Building

ST. LOUIS, MO.

City Hospital Pathological Building
St. Louis Library

TRENTON, N. J.

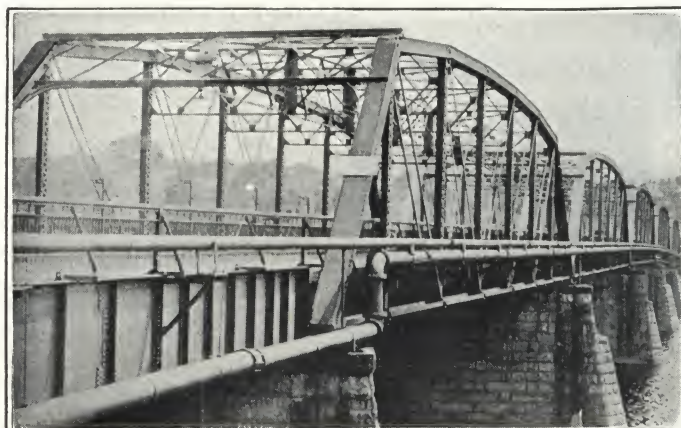
First National Bank Addition
Modern Aeros Corporation, Ltd.
John A. Roebling's Sons Co. Plant

WASHINGTON, D. C.

Perry Belmont Residence
Central High School Building
Riggs Hotel and Theatre
Telephone Building

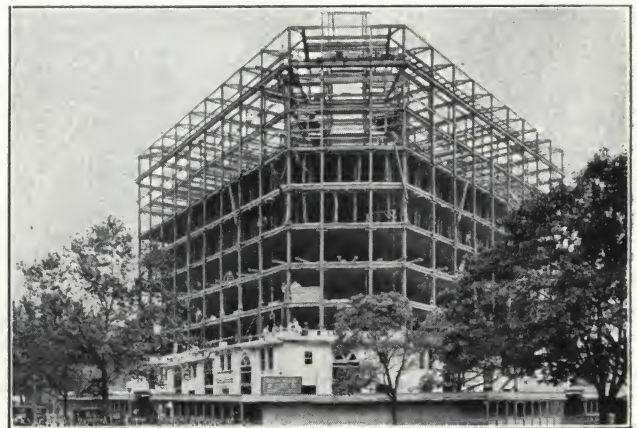
WILMINGTON, DEL.

E. I. duPont de Nemours Powder Plant
Du Pont Hotel



Highway Bridge, Haverhill, Mass.

For nearly twenty years this bridge has been protected by Dixon's Industrial Paint. The original coating is still in excellent condition



Acacia Mutual Life Association, Washington, D. C.

HOGGSON BROS., Engineers and Contractors
BARBER & ROSS, Inc., Fabricators

ESTABLISHED 1888

NEW YORK OFFICE
331 Madison Avenue**GOHEEN CORPORATION**OF NEW JERSEY
Paint Engineers
NEWARK, N. J.

BRANCH OFFICES IN ALL PRINCIPAL CITIES

FACTORY
NEWARK, N. J.
202 Emmet Street**Products****BRITENOL INTERIOR WHITE**—interior washable white for industrial plants.**BRITENOL FUME PROOF WHITE.****CARBONIZING COATING**—iron and steel preservative paint.**HIGHWAY RED**—chemically combined Red Lead Paint.**GALVANUM**—special paint for galvanized iron.**CONCREWALTUM FLOOR ENAMEL**—paint for protecting and decorating concrete floors.

Also manufacturers of Rockote, Hardener for concrete floors; Concrewaltum Wall Paint, for masonry walls; Oxidized Carbon Cement Paint, acid, alkali, fume resistant; Thermokote, heat resisting paint for stacks and boilers; Old Honesty, Ready Mixed Paint for wood surfaces; Alumikote, Aluminum Paint; House Paints; Wood Floor Preservative; Flat Wall Finish; Asbestos Ore, Fire Resisting Paint; Goheen's Machinery Enamel; Carbonizing Coating Gas Holder Paint; Exterior and Interior Enamels; Concrewaltum, Waterproofing and Damp-proofing Paint; Hydrolite, Integral Hardener for concrete; Fondcoat, Plaster Bond for dampproofing below grade; Plasterkote, Plaster Bond for dampproofing interior masonry walls; Surfalox, Wall Sizing; Graphite Paints; Roof Paints; Blue Lead Paints; Red Lead Paints.

Send for standard specifications and descriptive literature.

Forty-two Years of Paint Engineering Service

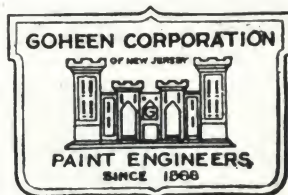
Goheen Paint Engineers have, since 1888, perfected a series of scientific, specific purpose paints, to meet the special requirements of architects, engineers, large industrials, public utilities, railroads and mining interests for every exterior and interior surface.

When you specify Goheen Paints, you are assured of quality plus engineering service, controlled by experts from the raw material to the finished product.

Britenol Interior White

A superior mill white designed specifically for interiors of industrial plants, textile mills, paper mills, power plants, food product plants, dairies, laundries, bakeries and offices. Will remain white under practical industrial conditions, and possesses the highest light reflecting qualities.

It stays where it is put—on walls or ceilings, and will not crack, peel or flake off under vibration. Has great hiding power, giving first class results with a single coat in many cases. It is used on concrete, brick, plaster, wood, or steel and the finished surface is smooth, dustfree and washable as an enamel.



Supplied for spray application as well as brush. Made in flat, eggshell, or gloss finish. Special shades available for dado work.

Britenol Fume Proof White

Standard industrial Britenol is mildly acid and fumeproof. For severe acid, gas, fume or moisture conditions, Britenol Fume Proof White should be used.

Carbonizing Coating

An inhibitive and protective coating for iron and steel, including structural steel, steel buildings, steel sash, fire escapes, bridges, transmission towers, tanks, standpipes, gas holders, penstocks, pipe lines, condensers, turbines, etc. Will give seven to ten years exterior service under normal conditions, and has lasted as long as fifteen years.

Made in a variety of standard shades and in special colors to order.

Highway Red

A chemically combined red lead paint, mixed ready for application, possessing all advantages of hand mixed red lead with disadvantages eliminated. Eliminates any whitening or non-uniformity of film. Remains in suspension without any tendency to settle or harden in package.

Made in two shades—No. 22 Red Lead shade and No. 21 Standard shade.

Galvanum

A special paint for the protection of galvanized iron. Galvanum adheres to new galvanized iron without priming, acid washing or weathering. It is applied directly to the bare metal without any preliminary treatment whatsoever. Is equally successful on galvanized iron which has previously been painted. Lasts from five to seven years, often from ten to fifteen years. Made in a variety of standard shades and in special colors to order.

**New St. George Hotel, Brooklyn, N. Y.**

EMERY ROTH, Architect
BING & BING, General Contractors
Goheen Paints were used on the new addition to this hotel, which is the largest in Greater New York

Concrewaltum Floor Enamel

Produces a hard, elastic, durable and beautiful enamel finish on concrete floors. Prevents absorption of oils and greases and gives a surface easy to clean and to keep sanitary.

Made in a wide range of colors and in special shades to order.

TNEMEC PAINT & OIL COMPANY

Manufacturers of Tnemec (Patent Cement Pigment Products)

KANSAS CITY, MO.

BRANCH OFFICE: 205 West Wacker Drive, CHICAGO, ILL.

Tnemec Is Carried in Stock by Distributors in Over 125 Cities in the U. S. A.

Write This Company for Name of Nearest Distributor

Products

TNEMEC INDUSTRIAL COATINGS in large variety of colors, designed especially for iron and steel, galvanized iron, concrete walls, brick and stucco walls. Approved by Investigating Committees of Architects and Engineers, New York City.

TNEMEC FLOOR COATINGS, for cement and wood floors, shelves and other surfaces where a hard, abrasion resisting durable high gloss finish is desired. Made in attractive colors.

TNEMEC HOUSE COATINGS for outdoor woodwork, made in wide variety of shades and have unusual hiding power. The white cement pigment plus auxiliary pigments used in these coatings give increased durability.

TNEMEC FLAT WALL COATINGS for plastered walls in homes, offices, schools and public buildings. Made in wide variety of shades. Have unusual hiding power. The white cement pigment plus auxiliary pigments used in these coatings give increased durability. Can be washed with soap and water repeatedly without injury.

TNEMEC MILL WHITES (gloss, eggshell and flat) for factories and interior walls of buildings. Increases lighting efficiency.

TNEMEC TRAFFIC ZONE COATINGS for marking traffic lanes, curbing, etc. of streets, in garages, around filling stations, etc.

Tnemec (Cement Written Backward)—What It Is

A patented product, consisting of portland cement re-ground to exceeding fineness, as pigment, with kettle-boiled linseed oil as vehicle, plus only enough tinting color to produce desired shades. The cement, by a process fully covered by patents, is held in suspension in vehicle, and does not settle on bottom of container. The linseed oil has been kettle-boiled and so processed that it is neutral to the portland cement pigment.

Tnemec is applied by brush or spraying, and handles like any high grade linseed oil paint. Sealed ready to use in 1, 5 and 55-gal. steel containers.

Tnemec has been investigated and approved by Investigating Committees of Architects and Engineers, New York, N. Y.

Weatherproofing and Decorating Concrete, Brick and Stucco Walls

Tnemec dries in 6 to 8 hours, gives the surface a soft, dull, satinlike texture, provides a tough, water repellant film which weatherproofs the surface of concrete, brick, stone and stucco and protects it against checking, cracking and disintegration. Because of the portland cement pigment and because the vehicle of Tnemec has been made neutral to that pigment combined with it, Tnemec is the ideal coating for such surfaces. Tnemec makes a positive part of the surface itself.

Specifications—Preparation of Surface—All surfaces shall be absolutely dry. All dust, dirt and loose material shall be brushed from surface. If concrete and stucco surfaces are less than 60 days old at time painting is to be done, such surfaces shall be given a wash consisting of 3 lb. zinc sulphate to the gallon of water. After this application, surface shall be allowed to dry for 24 hours, then dusted with bristle brush, before application of paint.

First Coat Work—Select color and formula number, as shown below. If applied by brush, stipple thoroughly into all cracks and pores. Thinning with turpentine to insure penetration is permitted, but printed instructions regarding this must be adhered to.

Finish Coat—Use same color as used for primer.

Note: Mention both formula number and color of Tnemec.

No. 3 Pearl gray	No. 21 Cherry red	No. 30 Indian red
No. 6 Brick red	No. 24 Light gray	No. 43 Pea green
No. 7 Nile green	No. 25 White	No. 44 Cream
No. 16 Slate	No. 26 Buff	No. 0131 Sugar house gray
No. 20 Silver gray	No. 29 French gray	No. 0188 Tan

Note: We match any desired color.

Protecting Steel from Corrosion

The rust preventive ability of portland cement is well known. In Tnemec this feature is utilized to the fullest extent

by combining the portland cement as a pigment with the kettle-boiled linseed oil to provide an exceptionally tough, long wearing, waterproof protective coating for structural steel. Tnemec will absorb incipient rust and stop the rusting action, and because of its composition does not crack or blister even under sudden temperature changes. Where Tnemec coated surfaces have been abraded, rust forming on the exposed metal will not creep back under the coating.

Specifications—Preparation of Surface—The steel surface to be painted shall be thoroughly clean and dry. Rust, mill scale, loose paint, dirt or other foreign matter shall be removed by wire brushing, scraping or sandblasting. Oil and grease shall be cleaned off with gasoline. No painting shall be done in wet weather or when there is frost on the steel. No adulterating oils shall be used as thinners—turpentine only and as authorized by manufacturer of Tnemec.

Shop Coat—Use No. 6 Red Tnemec as shop coat before assembling on surfaces which are to be riveted together at the shop. Then one complete coat of No. 6 Red Tnemec shall be applied over all surfaces.

Field Coats—Abrasions in shop coat shall be touched up with No. 6 Red Tnemec before application of field coats. Steel work, after erection, shall be given an evenly applied coat (or two if specified) of Tnemec. Select color and formula number from following list:

No. 3 Pearl gray	No. 20 Silver gray	No. 30 Indian red
No. 4 Battleship gray	No. 21 Cherry red	No. 43 Pea green
No. 5 Semi-gloss black	No. 24 Light gray	No. 44 Cream
No. 6 Brick red	No. 25 White	No. 0131 Sugar house gray
No. 7 Nile green	No. 26 Buff	No. 0150 Orange
No. 16 Slate	No. 29 French gray	No. 0188 Tan

Galvanized Iron Coatings

Painting of galvanized iron, especially new galvanized iron, presents a problem. Ordinary paints tend to crack and peel after a short time. Tnemec has proven to be an outstandingly useful paint on galvanized iron. The portland cement pigment enables it to bond firmly to the galvanized iron when being brushed on. Tnemec, because of its remarkable rust absorbing qualities, absorbs any rust that may have already broken through the galvanized coating, and because of its composition, prevents cracking or blistering of the coating under sudden changes in temperature.

Brushing the first coat on rather than spraying it, insures a firm bond with the galvanized surface.

Specifications—Specify one of Tnemec formulae with colors as shown for painting of steel surfaces.

Cement Floor Protection and Decoration

Tnemec Floor Coatings form a very hard, tough, glossy, wear-resisting surface, that withstands abrasion exceptionally well, even under severe usage. Tnemec Floor Coatings dry dustproof in 2 hours and may be walked on in 6 hours. We recommend 8 to 10 hours where conditions permit.

Specifications—Preparation of Surface—Cement floors must be dry and clean. Dust and dirt shall be removed. Oil and grease shall be scrubbed out thoroughly with high test gasoline and floor wiped dry immediately afterward.

First Coat Work—Specify color and formula number of Tnemec as shown below:

No. 32 Olive green	No. 27 Medium gray	No. 33 Olive gray (dust color)
No. 28 Maroon	No. 35 Tan	No. 34 Venetian red

First coat shall be thinned with turpentine sufficiently that paint may flow on freely and penetrate surface pores and crevices readily.

Finish Coat—Shall be applied not less than 8 hours after first coating. Second coating may be thinned slightly with pure turpentine, just enough to facilitate brushing.

General Information

Complete catalogue of Tnemec Coatings and their uses, sent on request.

ALUMINUM COMPANY OF AMERICA

Manufacturers of "Alcoa Albron" for Aluminum Paint

PITTSBURGH, PA.

For our pages on Aluminum and its Alloys, and Roofing, see Manufacturers' Index

Alcoa Albron Aluminum Bronze Powder for Paint

Growth of the Use of Aluminum Paint in the Architectural and Engineering Fields—The durability, highly protective and light-reflecting qualities of Aluminum Paint on wooden, brick, concrete, and structural steel surfaces have become widely known and generally appreciated by architects and engineers.

Aluminum Paint consists of a suitable vehicle and a pigment of aluminum bronze powder. To be sure of obtaining a pure aluminum bronze powder of the highest grade and free from mica and other adulterants, specify Alcoa Albron, made only by ALUMINUM COMPANY OF AMERICA.

The Unique Characteristic of "Leafing" Gives Aluminum Paint Superior Durability and Protective Qualities—Used with the proper vehicle, the tiny flat flakes of Alcoa Aluminum, of which Alcoa Albron is composed, rise to the surface of the paint film and "leaf," forming a continuous coat of metal protection. This metallic coat protects the underlying film as well as the surface covered by the paint. Being opaque to ultra-violet as well as to visible light rays, these Alcoa Albron flakes prevent the paint-destroying ultra-violet rays from reaching the body of the film. Thus, Aluminum Paint is provided with extra durability. This leafing action does not take place with ordinary paint pigments which are in the form of granules instead of tiny flat flakes like Alcoa Albron.

Aluminum Paint has proven itself in actual service to be a superior paint for protecting all outside structures. For not only is it opaque, but it is also highly resistant to moisture penetration. The United States Forest Products Laboratory has shown that Aluminum Paint on wood has a moisture-proofing efficiency higher than any other oil base paint. It is especially recommended as a primer for wooden surfaces to be followed by additional coats of Aluminum Paint, or other paints if desired. Its light and heat-reflecting qualities make it valuable for protecting oil storage tanks and other structures that are exposed to sunlight and which it is desired to keep as cool as possible.

Hiding and Covering Properties of Aluminum Paint—Because of the "leafing" of aluminum flakes and their opacity, the paint has great hiding properties. Even on very dark surfaces, one coat will ordinarily provide complete hiding and give a surface of good appearance. Two or more coats are recommended for surfaces exposed to the weather and where long life is required. Under favorable conditions, 1 gal. of Aluminum Paint will cover as high as 500 sq. ft. of smooth surface.

Light-reflecting Qualities of Aluminum Paint—Aluminum Paint is especially recommended for interiors of factories and industrial buildings because of its light-reflecting quality. A well-made Aluminum Paint will reflect 60% to 70% of the light falling upon it and will maintain a high reflectivity over a long period of time. It is easily kept clean and will withstand repeated washings. Sulfur and sulfurous gases do not darken Aluminum Paint.

Where Obtained—ALUMINUM COMPANY OF AMERICA does not sell paint. But Aluminum Paint made with satisfactory vehicles and Alcoa Albron Powder may be purchased from most reputable paint manufacturers, jobbers and dealers. Be sure the pigment portion is Alcoa Albron and is so designated. If for any reason you can not obtain such a paint, advise ALUMINUM COMPANY OF AMERICA and we will be glad to direct you to the nearest Aluminum Paint dealer.

Process of Making Alcoa Albron—Alcoa Albron is made by stamping pure Alcoa Aluminum into very small thin flat flakes, which are carefully sized by sieves to give a uniform product. This is followed by a special polishing process which gives the flakes their high luster.

Importance of the Vehicle—The type of vehicle influences the lasting and working qualities of Aluminum Paint. Spar varnish or long oil varnishes and kettle bodied linseed oil combined with drier and thinner are good vehicles for Alcoa Albron. The use to which the paint is put determines the character of the vehicle to be used.

For painting wood, most paint manufacturers prepare special kettle bodied linseed oil vehicles or very long oil varnishes; for painting other kinds of surfaces, including metal, long oil varnish is commonly recommended as the vehicle. There are a variety of high quality vehicles made by different manufacturers especially for use with Alcoa Albron.



Architects' and Contractors' Specifications

Application—Before any paint is applied, the surface shall be thoroughly clean and dry, and all loose paint or scale shall be removed. No exterior painting shall be done in wet or freezing weather. Each coat of paint shall be allowed to dry for at least 48 hours before a succeeding coat is applied.

Aluminum Paint may be applied either by brushing or spraying. If spraying equipment is employed, the usual precautions shall be exercised. In applying Aluminum Paint with a brush, care shall be taken that all of the final strokes are made in the same direction in order that the particles of powder may "leaf" uniformly in the paint film.

Painting Steel Outdoors—Old Work—After thorough cleaning to remove all loose paint or rust, all bare spots shall be painted with a good primer. Two coats of Aluminum Paint made with a long oil varnish and Alcoa Albron, as specified hereinafter, shall be applied over the old paint.

Painting Steel Outdoors—New Work—New steel shall be free from rust before any paint is applied. A rust inhibitive priming coat of good quality shall first be applied. Two coats of Aluminum Paint made with a long oil varnish and Alcoa Albron, as specified hereinafter, shall be applied over the priming coat. Where unusual exposure conditions are encountered, three coats are recommended.

Painting Wood Outdoors—Wooden surfaces which are to be painted shall be dry and free from dust or old loose paint before any paint is applied. The paint to be used on wood shall consist of Alcoa Albron mixed with a kettle bodied linseed oil vehicle, as specified hereinafter, or a very long oil varnish in the proportion of 2 lb. of Alcoa Albron per gallon of vehicle. Three coats shall be applied to new exterior work, and the composition of the paint shall be the same for all three coats, except in the case of open grained lumber or badly weathered wood. In this case, the priming coat shall contain 1½ lb. of Alcoa Albron per gallon of kettle bodied linseed oil vehicle. In the case of old work, two coats of Aluminum Paint shall be used in all cases of exterior exposure.

Painting Brick, Concrete, and Plaster—The Aluminum Paint for this class of work shall consist of Alcoa Albron mixed with a long oil varnish vehicle of the spar type, as specified. The surface shall be free from all loose dust, plaster, and calcimine, and shall be dry. For outdoor exposure, at least two coats of Aluminum Paint shall be used. In case the surface to be painted is extremely porous, the amount of Alcoa Albron per gallon of vehicle shall be reduced to about 1¼ lb. per gallon for the first coat. For interior work of this character, one coat will usually suffice, but in case the surface is of a porous nature, the instructions for exterior painting shall be followed.

Interior Work—For ordinary interior work one coat of Aluminum Paint may suffice. The liquid portion of the paint shall consist of any high grade interior varnish of the consistency hereinafter described. The work shall be carried on in the same manner as for exterior work.

For interior steel work where unusual exposure conditions exist, such as acid fumes, high humidity, etc., the method of application outlined for painting steel outdoors shall be followed. Wooden surfaces under such conditions shall be given at least two coats of Aluminum Paint as specified.

Painting Metal Surfaces to Be Heated—For metal surfaces which reach high temperatures, well-diluted spar varnish may be used. A roughened surface will improve the adherence of the aluminum paint. The paint shall be applied to the cold, clean surface and allowed to dry thoroughly before heating. Special vehicles in the nature of gloss oil have also been commercially developed for use on heated metal and have proved remarkably successful, even at temperatures as high as 700° to 900° F., where not simultaneously exposed to the weather.

Pigment—Aluminum Bronze Powder—The pigment portion of the paint shall consist of Standard Varnish Alcoa Albron, manufactured by ALUMINUM COMPANY OF AMERICA.

Vehicle—Exterior Long Oil Varnish Vehicle—The vehicle for use with Alcoa Albron may be a long oil varnish. The varnish for exterior use shall fulfill the following requirements:

The varnish shall contain not less than 50% by weight of non-volatile oils and gums.

The varnish shall pass a 60% kauri reduction test, as described in Federal Board Standard Specification No. 18.

The varnish shall be of such consistency that when thoroughly mixed with Alcoa Albron in the proportion of 2 lb. per gallon of vehicle, the paint shall show satisfactory spreading qualities, and shall not run or sag when applied to a smooth vertical surface. This consistency will be between 0.5 and 1.0 poise and will correspond to tubes A to D of the Gardner Holdt Air Bubble Viscometer.

The paint shall set to touch in not less than two, or more than six hours, and dry hard and tough in not more than twenty-four hours.

Kettle Bodied Linseed Oil Vehicle—A vehicle specially suited for exterior application on wood is made from linseed oil, bodied by heat alone, and known to the trade as a "kettle bodied" linseed oil. It shall contain the necessary amounts of thinner and drier as received from the maker.

The kettle bodied linseed oil vehicle shall contain not less than 60% by weight of non-volatile oil and driers.

This vehicle shall be of such consistency that when thoroughly mixed with Alcoa Albron in the proportion of 2 lb. per gallon, the resulting paint shall show satisfactory spreading qualities and shall not run or sag when applied to a smooth vertical surface. This consistency will be between 0.5 and 1.0 poise and will correspond to tubes A to D of the Gardner Holdt Air Bubble Viscometer.

The paint shall set to touch in not less than six, or more than ten hours, and dry hard in not more than thirty hours.

Mixing the Paint—Aluminum Paint shall be mixed on the job and only enough for one day's use shall be mixed at one time. The paint shall be mixed in the proportion of 2 lb. of Alcoa Albron per gallon of vehicle, unless otherwise specified. This makes a paint containing approximately 21% pigment and 79% vehicle. The weighed amount of powder shall be placed in a suitable mixing container and the measured volume of vehicle then poured over it. Alcoa Albron shall be incorporated in the paint by stirring with a paddle. Alcoa Albron will readily disperse in the vehicle. Before removing any paint from the mixing container, the paint shall be thoroughly stirred to insure a uniform mixture and the paint shall be suitably stirred during use. A number of paint manufacturers are prepared to supply Alcoa Albron and a suitable vehicle in double containers in exactly the right proportions for mixing.

THE AMERICAN CRAYON COMPANY

Manufacturers of "Permatite"—A Penetrating Varnish
(An "Old Faithful" Product)

SANDUSKY, OHIO

BRANCH OFFICES

NEW YORK, N. Y., 130 West 42nd Street

DALLAS, TEX., Santa Fe Building

SAN FRANCISCO, CALIF., 116 New Montgomery Street

Products

"PERMATITE"—the modern wood sealer and finish.

Also manufacturers of "Nolatite"—linoleum sealer and finish; "Trazatite"—terrazzo sealer and finish, and "Filtite"—cement sealer and finish.

"Permatite"

The following specifications are used by the Navy Department and the Supervising Architect of the United States Treasury:

"Varnish for wood floors and for interior wood finish shall be a penetrating varnish with China wood oil base and free from wax. It shall completely seal the pores of the wood against moisture, grease, oils, etc., and exclude all dust and dirt. It shall produce a finish similar in appearance to a waxed and polished surface without leaving a film on the surface. It shall have a record of successful use for a period of at least four years."

"Permatite" is made to meet each and all of these requirements. It is the original and only emulsified penetrating varnish free from wax that dries bone dry and which may be polished by friction, or that has a record of successful use for a period of seven years.

The remarkable quality possessed by "Permatite" of bringing out the full beauty of the grain and the fact that it need never be refinished, but can be repolished with one application of "Permatite" as often as wear requires, are some of the reasons for its universal acceptance.

"Permatite" Qualities

Because of its fire resisting qualities, its ability to withstand hard usage, the ease with which it may be maintained or repaired, and being non-slippery, it finds favor for schools, public buildings, apartment houses and stores, as well as for the finest residences.

"Permatite" has real value as an under or back coating for it has great resistance to moisture—in fact, four times that of an equal number of coats of linseed oil.



Home of the Late James J. Hill, St. Paul, Minn.

Floors of the first story were all "Permatited" in 1928. The rosewood, teak, mahogany, walnut and maple used for trim and floors of this building make it one of the finest finished in the Northwest.

This building is now used for a Training School for Teachers of the Catholic Diocese of St. Paul, Minn.

"Permatite" will not show laps. It produces a finish which is most easily cleaned—fine steel wool removes spots and all surface accumulations leaving the finish in its original condition, uninjured.

Cost of Application

For the reason that the use of "Permatite" either colored or uncolored, does away with the necessity of a stain coat and of a shellac coat, and for the added reason of its economy of application, the cost of finishing with "Permatite" is less than for a first-class job finished in any other way.

Covering Capacity—"Permatite" spreads on average conditions 300 sq. ft. per gallon, with 3 applications.

A filler may be added to the "Permatite" for the first application.

Maintenance

"Permatited" floors are easily maintained. Ordinary surface accumulations may be removed with a stiff broom and an occasional mopping with a dustless mop. After mopping, again use the broom.

When rough spots appear in traffic lanes, buff the spots with No. 1 steel wool until the wood is smooth and then apply "PERMATITE" as a polish with a cloth.

Specifications

For Woodwork or Floors—There shall be applied in strict accordance with the manufacturer's directions, three full applications of "Permatite," made by THE AMERICAN CRAYON COMPANY, Sandusky, Ohio. Color shall be as directed by the owner or architect. Before proceeding with the work, the contractor shall present to the architect, and have approved, a finished sample of the color and kind of work he proposes to reproduce.

For Back Coating—All unexposed woodwork, including back and sides of standing trim, both exterior and interior, and the underside ends and sides of all flooring, before erection, are to be given a full and undiluted coat of "Permatite," made by THE AMERICAN CRAYON COMPANY, Sandusky, Ohio.

Some Buildings Finished with "Permatite"

Senior High School, Fort Smith, Ark.
Liberty Loan Building, Washington, D. C.
Illinois Bell Telephone Co., Maryland Avenue Branch Office, Chicago, Ill.
Illinois Bell Telephone Co., Sunnyside Avenue Branch Office, Chicago, Ill.
Davis Department Store, Rug Department (showroom floor), Chicago, Ill.
Sacred Heart Home for Aged, Hyattsville, Md.
Cadillac Athletic Club, Detroit, Mich.
Sarah W. Fisher Children's Home, Detroit, Mich.
Medford High School, Medford, Mass.
Cretin High School, St. Paul, Minn.
Kent State Normal College, Kent, Ohio
Ohio State Reformatory, Mansfield, Ohio
Ohio State Soldiers' and Sailors' Home, Sandusky, Ohio
Lookout Mountain Hotel, Lookout Mountain, Tenn.
Dallas Athletic Club, Dallas, Tex.
Library Building, Huntsville, Tex.
Central State Teacher's College, Stevens Point, Wis.

And hundreds of others given upon request.

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INCORPORATED

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421 West Avery Street, LOUISVILLE, KY.

Products

B.M.C. SPECIFICATION BUILT-UP ROOFS.

BITUMOTILE—a super-waterproofing and roofing material.

FLASHINE—a high grade plastic cement.

VITROMASTIC—a cement for applying non-porous materials.

WOODMASTIC—a plastic cement for laying parquetry floors.

BITUMOTILE SATURATE—a waterproofing material to be used with Vitromastic and Woodmastic Cement.

GILASFO—an industrial paint for many purposes.

SILVER SHEEN—a ready-mixed heat resisting aluminum paint.

B.M.C. Specification Built-up Roofs

B.M.C. Specification Built-up Roofs are guaranteed for 25, 20, 15 and 10 years respectively and are applied by reputable roofing contractors appointed by this company. This roof is a cold process of application as it is not necessary to heat any of the materials used. It retains its elasticity and is neither affected by heat, cold or acid fumes. In the method of application under these specifications, waterproofing materials are retained between reinforcing members in such a way that they are able to float, providing for expansion and contraction.

Bitumotile

Bitumotile is a guaranteed roof roating which is applied cold and is used by maintenance engineers who have found in it a material which solves their roofing problems because of its long life and sealing qualities. It is also recommended for waterproofing foundations. The material is easily applied and the cost is very low. Owners of industrial plants, commercial buildings and dwellings will find it a satisfactory material for this purpose. Consult us when you have an unusual waterproofing problem.

Flashine

Flashine is a plastic cement made of similar materials to Bitumotile, but of a thicker consistency, and is used for flashing, copings, deep cracks, etc., and when used in combination with Bitumotile it is ideal for waterproofing problems.

Vitromastic

Vitromastic is a peculiar material of putty consistency, having fine adhering tentacles, for use in construction of Vitrolite, Sani-onyx or in cases where a cement for applying glass or other non-porous products is required. Vitromastic is waterproof and retains its elasticity and stick-to-itiveness.

Woodmastic

Woodmastic—a waterproofing and quick setting plastic cement for use in laying parquetry floors over concrete. Applied cold.

Bitumotile Saturate

Bitumotile Saturate is a waterproofing material to be applied before the finished construction. It is to be used in connection with Vitromastic and Woodmastic as it forms the proper affinity with these products.

Gilasfo

Gilasfo is made from an inert pigment in a vehicle of treated oils which makes it acid, alkali and heat resisting as well as waterproof. It may be applied with either brush or spray gun. No priming coat is required and under ordinary conditions a single application is sufficient to seal any surface—metal, wood or concrete. For all maintenance work there is no better product than Gilasfo.

Coverage—Gilasfo will cover approximately 350 to 400 sq. ft. per gal., and from 250 to 300 sq. ft. with spray gun, depending upon the condition of the surfaces painted.

Colors—Standard Gilasfo is black. Colors can be furnished on special order.

Silver Sheen

Silver Sheen is a unique protective covering. It is an aluminum ready-mixed product with a vehicle that prevents corrosion, and is also highly penetrative and sealing. Silver Sheen is not only moistureproof, but it will not crack, craze, peel, blister or discolor when subjected to high heats or extreme cold temperatures as high as 1000° F. above zero, and as low as 100° F. below zero. Silver Sheen can be applied with either brush or spray gun, over any surface—metal, wood or concrete, and without the use of a priming coat. *One coat* is sufficient for any application.

Coverage—Silver Sheen has a coverage of approximately 550 to 600 sq. ft. per gal., over metal or wood; approximately 250 to 300 sq. ft. per gal. when applied to brick or concrete. These coverages are for brush application. The coverage is slightly lower when applied with spray gun.

Drying Time—Silver Sheen in the standard product requires from 12 to 18 hours drying time, depending upon weather conditions, and its application to interior or exterior surfaces. A Special Silver Sheen can be furnished where a quicker drying finish is desired.

Uses—Silver Sheen is a product of unlimited uses, and can and should be used in all maintenance work where a high quality protective coating is required to meet conditions of corrosion, moisture or heat. Silver Sheen, as its name implies, has an extremely high light reflectivity and retains this property indefinitely. This property makes it the most desired material to use for maintenance of inside structures, passages, light shafts, etc. It is excellent for use in the maintenance of all types of tanks, towers; for fences, poles, fire escapes, machinery of all kinds, and any and all uses where a bright lasting finish and efficient protection of the surface is desired.

Heat Deflection—The heat deflecting property of this product can be used to advantage in painting the roofs of buildings, tanks, etc., which will materially reduce the internal temperatures. Recent tests show a difference in temperature as high as 13° under metal roofs, where a top coat of Silver Sheen was applied.

Priming and Backpainting—Silver Sheen is without a peer as a priming or backpainting material, as its vehicle will penetrate and seal the new wood or metal against moisture more effectively than any other material that could be used. It also presents a surface of minute "teeth" that gives the top coats of paint or enamel something to adhere to. On new galvanized metal structures, Silver Sheen and Gilasfo will adhere without previous treatment or weathering—merely apply a single coat and the metal is perfectly protected.

Engineering Service

Our Engineering Department will readily furnish you with necessary information and helpful suggestions that will enable you to meet your particular problem.

Berrycraft

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DETAILED INFORMATION
for ARCHITECTS



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ADAPTABILITY CHART

PROJECT:	Residences	Apartments and Hotels	Office and Public Buildings	Hospitals	Churches and Club Buildings	Recreation and School Buildings	Factories, Warehouses, and Garages
SURFACE Interior Woodwork	Berry's Enamel Undercoat Luxeberry Enamel Berrycraft Quick-Drying Enamel Liquid Granite (Gloss and Dull) Luxeberry Wood Finish	Berry's Enamel Undercoat Luxeberry Enamel Berrycraft Quick-Drying Enamel Liquid Granite (Gloss and Dull) Water White Flat Varnish for glazing	Luxeberry Wood Finish No. 364 Clear Berryloid for Int. No. 507 Clear Berryloid (Spraying Lacquer) for Ext. Pyroxylin Wood Filler	Berry's Enamel Undercoat Luxeberry Enamel Liquid Granite (Gloss and Dull) Luxeberry Wood Finish No. 364 and No. 507 Clear Berryloid Spraying Lacquer	Liquid Granite (Gloss and Dull) Luxeberry Wood Finish Hard Drying Church Oak Lacklustre Luxeberry Enamel Berryloid Clear Spraying Lacquer	Liquid Granite (Gloss and Dull) Luxeberry Wood Finish Lacklustre No. 507 Berryloid Clear Spraying Lacquer Lionoil Floor Enamel	Lacklustre Liquid Granite (Gloss or Dull) Lionoil Floor Enamel
Walls and Ceilings	Delitone and Berry-flat Wall Finish Berrycraft Interior Finish (Semi-Gloss)	Delitone and Berry-flat Wall Finish (An Eggshell Finish) Berrycraft Interior Finish (Semi-Gloss)	Delitone (Semi-Gloss) Berry Flat Wall Finish Berrycraft Interior Finish (Semi-Gloss)	Delitone (Semi-Gloss) Luxeberry Enamel Berryflat Wall Finish	Delitone Luxeberry Enamel Berryflat Wall Finish	Delitone (Semi-Gloss) Berryflat Wall Finish	Delitone Berryflat Wall Finish No. 3 Aluminum Paint Liquid
Metal Trim, Sash and Doors (Int. and Ext.)	Berry's Enamel Undercoat Luxeberry Enamel Berrycraft Quick-Drying Enamel	Berry's Enamel Undercoat Luxeberry Enamel Berrycraft Quick-Drying Enamel L. M. T. Enamel for Ext.	Lionoil Metal Trim Enamel (Int. and Ext.)	Lionoil Metal Trim Enamel (Int. and Ext.)	Lionoil Metal Trim Enamel (Int. and Ext.)	Lionoil Metal Trim Enamel (Int. and Ext.)	Lionoil Metal Trim Enamel (Int. and Ext.)
Radiators and Pipes	Berry's Radiator Enamel (20% more heat)	Berry's Radiator Enamel	Berry's Radiator Enamel	Berry's Radiator Enamel	Berry's Radiator Enamel	Berry's Radiator Enamel	Berry's Radiator Enamel
Floors (Int. Wood)	Liquid Granite (Gloss and Dull) Acid Stain and Paste Wood Filler	Liquid Granite (Gloss and Dull) Berry's Floor Wax	Liquid Granite Lionoil Floor Dressing	Liquid Granite Lionoil Floor Dressing	Liquid Granite Lionoil Floor Dressing	Liquid Granite Lionoil Floor Dressing	Lionoil Floor Dressing Lionoil Floor Enamel
Cement Surfaces, Floors, etc.	Luxeberry Cement Coating Lionoil Floor Enamel Berry's Brushing Lacquer	Luxeberry Cement Coating Lionoil Floor Enamel Berry's Brushing Lacquer	Luxeberry Cement Coating Lionoil Floor Enamel Berry's Brushing Lacquer	Luxeberry Cement Coating Lionoil Floor Enamel Berry's Brushing Lacquer	Luxeberry Cement Coating Lionoil Floor Enamel Berry's Brushing Lacquer	Luxeberry Cement Coating Lionoil Floor Enamel Berry's Brushing Lacquer	Luxeberry Cement Coating Lionoil Floor Enamel Berry's Brushing Lacquer
Brick and Cement (Exterior)	Luxeberry Cement Coating (Flat Finish)	Luxeberry Cement Coating	Luxeberry Cement Coating	Luxeberry Cement Coating	Luxeberry Cement Coating	Luxeberry Cement Coating	Luxeberry Cement Coating
Doors (Ext. Wood)	Berryspar No. 507 Clear Berryloid Spraying Lacquer for Cabinet Finishing	Berryspar No. 507 Clear Berryloid Spraying Lacquer, for Cabinet Finishing	Berryspar No. 507 Clear Berryloid Spraying Lacquer	Berryspar No. 507 Clear Berryloid Spraying Lacquer	Berryspar No. 507 Clear Berryloid Spraying Lacquer	Berryspar No. 507 Clear Berryloid Spraying Lacquer	Berryspar No. 507 Berryloid Spraying Lacquer
Surfaces (Ext. Wood)	Berrycraft House Paint	Berrycraft House Paint	Berrycraft House Paint	Berrycraft House Paint	Berrycraft House Paint	Berrycraft House Paint	Berrycraft House Paint

BERRY BROTHERS, INC.

Manufacturers of Architectural Finishes, Paints, Stains, Varnishes, Enamels
Lacquers, Bleachers of Shellac

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SOLD IN THE PRINCIPAL CITIES OF THE WORLD

(1) The Company

Berry Brothers were established in 1858 and the experience of over seventy (70) years of continuous business has built an enviable reputation as manufacturers of high grade paints and varnishes. The formulas and methods of manufacture are time tested. The various brands have been well and favorably known over a period of time sufficient to guarantee their durability and reliability to the discriminating architect.

(2) Reliability

The Company's rating in Bradstreet's and Dun's is over \$1,000,000—first grade of credit.

(3) Manufacturing Facilities

The plant, one of the largest in the country, is thoroughly modern in all its equipment facilities. The "mass-action" ageing or ripening facilities consist of a combined tankage capacity of one and one-half million (1,500,000) gallons.

Note: In the manufacture, especially of varnishes, color varnishes and enamels, the ageing or ripening in the mass is essential for completion of chemical changes necessary for stability and uniformity. The results of this process cannot be produced by any artificial means. Dependent on the grade of the particular product, this ageing process must be maintained for from 3 to 12 months.

The architect may rest assured that where essential to produce the best in quality, all materials bearing a Berry Brothers' brand are thoroughly aged in the mass before they leave the factory.

(4) Laboratory Control

More important than the manufacturing facilities is the chemical laboratory control of all products, from the purchase of the raw materials which must fulfill rigid laboratory specifications, to the control and constant inspection and supervision of all manufacturing processes. Berry Brothers maintain a group of chemical laboratories, each having a distinct function confined to a particular branch of the industry, such as the manufacture of varnishes, lacquers, shellac, color varnishes and enamels, etc. Most important of these is the Laboratory of Analytical Research and Manufacture wherein new materials and methods are analyzed and formulas are perfected before a product is merchandised under the Berry Brothers name.

The various laboratories and the personnel of trained paint chemists is under the supervision of a chief chemist of wide experience.

The facilities of these laboratories are at all times accessible to the architect for advice and assistance.

(5) Architectural Finishing Department

The factory maintains a practical finishing department where samples of finish and color may be developed to meet particular needs. We solicit the opportunity to co-operate with the architect in establishing standards of quality, color, etc., to meet his requirements.

(6) How to Select Paints, Varnishes and Lacquers

Particularly in the selection of paints, varnishes and nitro-cellulose products is the reputation and experience of the manufacturer of first importance. Chemical analysis is practically impossible and only in the selection of well known brands of known quality can assurance of high quality and durability be obtained.

Note: The durability of varnish, for example, depends in addition to the careful selection of the materials, more especially on the treatment of the material and particularly treatments involving heat. Varnish and lacquer deterioration results chiefly from chemical change—the more successful the process of manufacture has been in forming stable compounds the more assurance is there that no further change will take place on exposure. Only those products which involve no extensive chemical change can be successfully analyzed and duplicated on a laboratory scale. Products which require high temperature or long "mass-action" ripening cannot be analyzed and so duplicated. Chemical analysis of varnish, therefore, is not possible. Metallic salts and volatile constituents can be separated and determined, and from the presence of certain inorganic compounds the use of some materials may be indicated, but these furnish little to indicate the actual quality of the varnish.

The specifying of varnish ingredients is of no practical use since in the completed product the original ingredients do not exist and different treatments of the same materials invariably yield different products.

Physical tests afford the only trustworthy means of determining quality and durability and the tests of actual use and time are the only practical guide.

Care should be exercised in selecting the right product or brand for its particular use and here the manufacturer's recommendations, backed by intimate experience, should be the guide.

(7) Local Service

In all important centers there is accessible an experienced local representative thoroughly familiar with Berry Brothers' products. His services and recommendations may be obtained not only in assisting to select materials best adapted to the particular use, but he is available to the architect, without cost, in obtaining satisfactory samples of finish and color

and the practical supervision of work on the site.

(8) Technical Information

The general technical information given in this catalogue has been assembled from the data compiled and published by The American Paint and Varnish Manufacturers' Association, Inc., and may, therefore, be considered unbiased and authentic.

(A) BERRY BROTHERS ARCHITECTURAL FINISHES—DESCRIPTION**(A1) Lionoil (Clear and Colored)**

Note: See (C10j) for specification application index.

General—An exclusive Berry Brothers formula resulting in a product of remarkably wide adaptability as a waterproof rust and corrosion preventive for metals and a waterproof sealer for wood, cement, brick, etc. Made of a combination of several oils and varnish gums treated at high temperatures, its adhesive, penetrating, waterproof and wear-resisting qualities recommend it for wide architectural use. While the finished surface is hard and tough, it maintains a high degree of elasticity—it will not check, peel or flake off under the severest weather conditions.

Note: Lionoil has found its staunchest advocate in the airplane industry, both here and abroad, due to its efficient protection of duralumin against deteriorating influences of dampness, sea water and even acids. It is used on steel tubular frame work, ribs, spars and wooden parts.

The largest builders of small boats, canoes, speed boats and similar craft use Lionoil as a waterproof sealer for wood both on the inside and outside of the hulls. It acts as a binder for succeeding coats of spar varnish or lacquer, and saves one coat of spar. The world's largest builder of metal boats is a large user of Lionoil.

(A1a) Lionoil Clear—A clear amber liquid (transparent).

(A1b) Lionoil Colored—Made in black and white and nine attractive standard colors.

Adaptability—Exterior and interior metal, wood, cement, plaster, brick, etc.

Surface Appearance—Low velvet lustre.

Drying—Dust free in 2 hours, hard in 12 hours under proper drying conditions.

Covering Capacity—Brush applied, from four hundred (400) to six hundred and fifty (650) sq. ft. per gallon depending on surface.

Application—Lionoil Clear may be applied with a brush, or by dipping or spraying processes. On floors it may be applied with a mop. Lionoil Colored is for brush or spray application.

Cost—The "colored" costs approximately the same as pure lead and oil.

(A2) Lionoil Floor Enamel—Quick Drying (Gloss)

Note: See (C10k) for specification application index.

General—A quick drying waterproof gloss enamel with a Lionoil base (see (A1)). A rust preventative enamel for metals and a moisture-proof, durable, wear-resisting enamel for wood, cement, etc., under hard use and severe exposure.

Colors—Made in twelve attractive standard colors (see color chart, Page 6).

Adaptability—Exterior and interior metal, wood, cement, brick, etc.

Surface Appearance—Gloss.

Drying—Dust free in one hour, hard in four hours under proper drying conditions.

Covering Capacity—Brush applied over smooth surface, four hundred (400) sq. ft. per gallon.

Application—Brush application advocated. Is free flowing and leaves no brush marks.

(A3) Lionoil Metal Trim Enamel (Semi-gloss)

Note: See (C10l) for specification application index.

General—A high grade metal enamel with a Lionoil base (see (A1)). It adheres tenaciously to bare metal or priming coat, is a rust preventive, and resists the action of water, heat and extreme cold. It dries hard where often there is difficulty with lead and oil.

(A3a) Lionoil Metal Trim Enamel—Exterior—For exterior use.

(A3b) Lionoil Metal Trim Enamel—Interior—For interior use.

Colors—Both exterior and interior, made in two standard colors, dark golden brown and telephone green (see color chart, Page 4). Special colors will be made on quantity orders (50 gal. or over).

Adaptability—Exterior and interior metal doors and trim, sheet metal and steel windows, steel and cast iron stairs, ornamental iron, etc.

Surface Appearance—Semi-gloss, so closely resembling baked enamel as to be commonly mistaken for it.

Drying—Dust free in two hours, hard in ten hours under proper drying conditions.

Covering Capacity—Brush applied over smooth surface, six hundred (600) sq. ft. per gallon.

Application—Brush or spray. Flows out perfectly showing no brush marks.

(A4) Berrycraft House Paint (Lionoil Processed)

Note: See (C10p) for specification application index.

General—The highest grade of paint made under the supervision of experts who know the service required. The best materials obtainable are used. The white is made of pure carbonate of lead, pure zinc (French Process) refined linseed oil and Lionoil (see (A1)). The process of grinding and mixing is of the very latest and best. The colors used are finely ground, and thoroughly mixed.

Adaptability—Made to meet present day demands and building conditions. Particularly adapted for all exterior exposed surfaces. Made to endure wind, sun, rain, snow, ice and salt air.

Colors—Made in 32 standard colors and in Outside White (Gloss), Inside White (Flat) and Semi-gloss Interior, in white and 7 colors. (See color chart, page 13).

Note: Berrycraft House Paint color cards are made to fit three assortments—32 colors (full line) 16 colors and 8 colors.

Surface Appearance—A pleasing gloss.

Drying—Sets in 18 to 24 hours under normal drying conditions. Should not be recoated in less than 48 hours.

Covering Capacity—300 to 400 sq. ft. per gal., according to the surface to be covered.

Application—Applied with brush or spray.

(A5) Luxeberry Cement Coating (Flat)

Note: See (C10m) for specification application index.

General—A flat, washable, moisture-proof, hard, elastic finish for cement, brick, concrete, and interior plaster. It fills the pores preventing surface dusting; is non-absorptive and moisture-proof, therefore sanitary. It is durable and unaffected by heat and cold.

Colors—Made in white and six (6) standard colors. (See color chart, Page 6.)

Adaptability—Exterior and interior cement, stucco, brick, concrete and interior plaster. Ideal for walls and ceilings of hospitals, schools, office buildings, industrial plants, etc. Under a coat of Lionoil Floor Enamel, it is an economical, durable concrete floor finish. It is decorative and protective on exterior stucco, cement, concrete and brick and is especially effective in light courts, etc.

Surface Appearance—Flat.

Drying—Dust free in two hours, hard in eight hours under proper drying conditions.

Application—Brush or spray. Spreads as well as lead and oil.

(A6) Berry Brothers Mill White (Gloss, Eggshell, Flat)

Note: See (C10n) for specification application index.

General—A smooth, light reflecting, washable, elastic finish of reasonable cost for interior brick, concrete, plaster and wood surfaces. It is made by an exclusive process and should not be confused with ordinary paint. Due to its smooth surface which resists the adherence of small dust particles to a surprising degree, Berry Brothers' Mill White remains clean much longer than a surface covered with ordinary white paint. Since it does not chip and crack a renewal coat may be applied over the old.

Color—A pure, radiant white.

Adaptability—Especially adapted to industrial buildings where light reflecting walls and ceilings save expense in artificial light and increase visibility, efficiency and cleanliness. May be used economically to advantage in other classes of buildings for similar purposes.

Surface Appearance—Gloss, Eggshell or Flat.

Drying—Dust free in four hours, hard in twenty-four hours under proper drying conditions.

Covering Capacity—Six hundred (600) square feet of wood surface and approximately four hundred (400) square feet of brick or concrete surface per gallon.

Application—Brush or spray.

(A7) Stains (Oil and Acid)

Note: See (C10q) for specification application index.

(A7a) Berrytone Penetrating Oil Stains—These stains strike deeply into the wood without raising the grain, producing a solid uniform surface. They may be brushed on, but as in all staining operations, wiping-in always produces a more uniform color tone.

Made in twelve (12) standard stains. Special stains made when required to produce special effects.

Note: Oil stains are not as permanent or as clear in tone as acid stains. Penetrating oil stains contain ingredients which will affect varnish unless sealed with a coat of pure shellac.

(A7b) Berry Brothers Acid or Water Stains—These stains penetrate deeply and are clear in tone and permanent. They should only be used on new wood. Water stains tend to raise the grain of the wood which necessitates sanding. The addition of a small quantity of denatured alcohol to acid or water stains will greatly reduce the grain raising tendency. For standard stains see Page 11. Special stains made when required to produce special effects.

Note: Acid stains on veneered surfaces, especially where the veneer is thin, may affect the glue unless waterproof glue is specified, which is advocated.

(A8) Berry Brothers Paste Wood Filler (Light and Dark)

Note: See (C10r) for specification application index.

General—For filling or leveling the surface on open-grain wood under varnish or clear lacquer finish. Furnished in "Light" or "Dark" which may be colored to suit any special effect. Applied with a brush. For varnish finish, paste wood filler should be thinned or reduced with turpentine or turpentine substitute. For lacquer finish, pyroxylin paste wood filler must be specified or the paste wood filler reduced with lacquer thinner.

Note: Ordinary turpentine or benzine thinned paste fillers are acted upon by the solvents in the lacquer which constantly dry out the oil in the filler resulting eventually in the grain of the wood showing as though no filler had been used. Paste wood fillers thinned with pyroxylin thinner, for use with clear lacquer, creates an affinity between the two materials.

(A9) Lacklustre

Note: See (C10t) for specification application index.

General—Lacklustre is a combined penetrating stain and finish for new work only. It produces the same effect in one operation as staining, shellac and wax. A coat of Liquid Granite Dull over Lacklustre is recommended where wear is severe—this will give unusual service.

Colors—Made in twelve (12) standard color effects.

Adaptability—Particularly adapted to Flemish and similar period woodwork trim, exposed beams, trusses, furniture, etc.

Surface Appearance—Semi-gloss finish similar to polished wax.

Drying—Sets almost instantly, dries quickly.

Covering Capacity—Six hundred and fifty (650) sq. ft. per gallon.

Application—Applied with a cheese cloth pad or brush. Wiped off and polished with cheese cloth.

(A10) VARNISHES

Note: See (C10u) for specification application index.

(A10a) Berryspar (Gloss)

General—A high grade spar varnish of unusual characteristics. It has the same wearing qualities as the regular long oil spar varnish, but with the advantage that it is quick drying. For interior use it may be rubbed. It is moisture resisting and will not turn white.

Color—Light or pale.

Adaptability—Exterior and interior wherever exposed to the elements or subject to moisture, such as exterior doors, interior of wood windows and trim, baseboards, furniture, etc.

Surface Appearance—Gloss or may be rubbed dull.

Drying—Dust free in 2 hours, hard in 8 hours under proper drying conditions.

Covering Capacity—Six hundred (600) sq. ft. per gallon.

Application—Applied with a brush or spray.

(A10b) Luxeberry Wood Finish (Gloss)

General—An interior cabinet rubbing varnish of the highest quality.

Color—Light or pale.

Surface Appearance—"Gloss," which may be rubbed to an eggshell finish.

Drying—Dust free in three hours, hard in eight to ten hours under proper drying conditions.

Covering Capacity—Six hundred (600) sq. ft. per gallon.

Application—Applied with a brush or spray.

(A10c) Liquid Granite Floor Varnish (Gloss and Dull) Also "Quick Drying" (Gloss and Dull)

General—An extremely tough and durable interior floor varnish of the highest quality. It is so elastic that the wood may dent under a blow, but the varnish will not crack. Can be rubbed.

Liquid Granite "Dull" contains no wax and is as durable as the "Gloss."

Color—Medium light.

Adaptability—Floors in the best class of work and on interior standing trim where the greatest in durability is demanded such as public and semi-public buildings, schools, etc. Advocated for stair treads, baseboards and similar parts in all classes of work where the wear is severe.

Surface Appearance—"Gloss," which may be rubbed dull. "Dull," dries flat without rubbing. "Semi-gloss," which closely resembles rubbed finish by blending Gloss (1 part) and Dull (3 parts).

Drying—Dust free in 4 hours, hard in 10 hours under proper drying conditions.

Note: Liquid Granite Floor Varnish—Quick Drying dries dust free in 1 hour and hard in 4 hours.

Covering Capacity—Six hundred (600) sq. ft. per gallon.

Application—Applied with a brush or spray.

(A11) LACQUERS CLEAR SPRAYING

Note: See (C10v) for specification application index.

General—Berryloid Clear Lacquers are supplied at spraying consistency and are to be applied full body (unless specially otherwise specified by the manufacturer).

They produce a particularly durable, hard, transparent surface, which when applied over a dry surface will not check or crack but will expand and contract with the surface. May be applied to metal as well as wood.

Note: All clear lacquer materials must comply with the Government formulas as approved by the Bureau of Standards and must not contain less than 22% of non-volatile constituents, of which 7% must be nitrocellulose—the remainder shall consist of gums and plasticizers properly proportioned to make a balanced lacquer with easy sanding and rubbing qualities. The volatile portion of the lacquer shall be formulated to give the lacquer good spraying characteristics, free from blushing and a minimum of pebble on drying.

LUXEBERRY ENAMEL



White

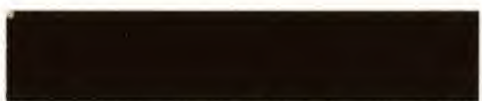


Old Ivory

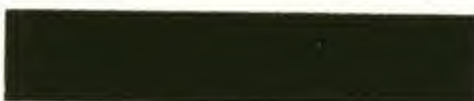


Rich Cream

LIONOIL METAL TRIM ENAMEL



Dark Golden Brown



Telephone Green

Special shades will be made in quantities of 50 or more gallons on one order.

BERRYCRAFT QUICK-DRYING ENAMEL

Berry White



Sky Blue



Ripe Orange



Wild Rose



Silver Gray



Yale Blue



Old Ivory



Jade Green



Buttercup Yellow



Berry Brown



Oriental Red



Chinese Green

Also made in Black

Please do not detach color samples. Duplicate color cards will be furnished on request.

(A11a) No. 364 Berryloid Clear (Gloss)

A clear, transparent gloss lacquer for interior cabinet work. Can be rubbed.

(A11b) No. 502 Semi-gloss Berryloid Clear

For application over No. 364 Berryloid Clear Lacquer to eliminate the cost of rubbing and especially desirable on carved surfaces where it is impractical to rub the surface to a dull finish. Should always be applied over gloss lacquer undercoat to build sufficient foundation.

(A11c) No. 398 Flat Berryloid Clear

Adapted to same uses as No. 502 Semi-gloss except that a dead flat effect is produced.

(A11d) No. 507 Berryloid Clear Exterior (Gloss)

A clear, transparent gloss lacquer for exterior use such as exterior doors, trim, etc., and the interior or exterior wood sash, window sills, baseboards, etc., where severe wear and contact with moisture is to be encountered. It is unaffected by rain or the disintegrating action of the sun's rays. Can be rubbed.

Color—Light or pale.

Adaptability—No. 364 for the highest quality of interior cabinet work either gloss or rubbed finish; No. 502, over clear gloss lacquer to save the cost of rubbing; No. 507, for severe wear and exterior use. Adaptable for all classes of work.

Surface Appearance—No. 364 and 507, high gloss. No. 502, semi-gloss which closely resembles a rubbed surface. No. 398, dead flat.

Drying—Dust free in 10 minutes, hard in one hour under proper drying conditions.

Covering Capacity—Six hundred (600) sq. ft. per gallon.

Application—Spray only, using from 60 to 80 pounds air pressure.

(A12) ENAMELS

Note: See (C10w) for specification application index.

(A12a) Berry's Enamel Undercoat (Semi-flat)

General—A triple-ground undercoat for enamels of the highest quality. It has great opacity and flows so smoothly without brush marks that it requires when properly applied little or no sanding to provide a perfect surface for the enamel.

Colors—Made in white to be colored to match the enamel coats. Can be obtained colored to match the standard enamels (See Page 4) or in special colors where quantity warrants (50 gals. or over).

Adaptability—As undercoats for the highest type of enamel finish.

Surface Appearance—Semi-flat.

Drying—Dust free in 3 hours, hard in 8 hours under proper drying conditions.

Covering Capacity—Five hundred (500) sq. ft. per gallon.

Application—Applied with a brush or spray.

(A12b) Luxeberry Enamel (Gloss and Eggshell)

General—A long-oil, rubbing enamel of the highest quality. Produces a smooth tilelike surface, easily kept clean.

Colors—Made in white, old ivory and rich cream. (See color chart, Page 4).

Adaptability—Exterior and interior woodwork trim in the best class of work. Also for plaster surfaces in bathrooms, kitchens, etc.

Surface Appearance—High Gloss which may be rubbed dull. Eggshell (semi-gloss) which closely resembles a rubbed finish, without the expense of rubbing.

Drying—Dust free in 4 hours, hard in 24 hours under proper drying conditions.

Covering Capacity—Six hundred (600) sq. ft. per gallon.

Application—Applied with a brush or spray. It is full bodied, flows freely without brush marks.

(A12c) Berrycraft Quick Drying Enamel (Gloss)

General—A durable new process, quick drying enamel of great opacity. It is not a lacquer—has no disagreeable odor or unusual fire hazard and requires no special thinner. Berrycraft Enamel is waterproof and is unaffected by heat or cold. May be rubbed.

Colors—Made in black and white and eleven (11) attractive colors. (See color chart, Page 4).

Adaptability—Made to meet the modern demand for speed for both exterior and interior use. Particularly adapted for apartments hotels, etc., for both interior trim, plaster and fur-

niture. Adaptable for use on wood, cement, metal, brick and plaster.

Surface Appearance—Gloss which may be rubbed dull.

Drying—Dust free in a few minutes, hard enough to re-coat in four (4) hours under proper drying conditions.

Covering Capacity—Six hundred (600) sq. ft. per gallon.

Application—Applied with a brush or spray. Brushes on easily without brush marks or laps.

(A12d) Berry's Radiator Enamel (Flat)

Note: See (C10w4) for specification application index.

General—A special enamel designed to increase the efficiency of radiators by at least 20% without burning more fuel. Does not lose efficiency when applied over sound old finish. Wears well, is unaffected by heat and is washable. Will not chip or flake.

Note: Tests made in the Engineering Department of the University of Michigan prove that the correct radiator enamel in the proper colors, increases heat transmission. Radiators painted with flake metal pigments (aluminum, gold or bronze) stand seventh. These same finishes covered with Radiator Enamel immediately increase the radiator's efficiency. Tests also prove that flat enamel radiates more heat than gloss. The remarkable fact is that the color of the enamel, likewise plays an important part. The University tests show color efficiency in the following order:

(1) Flat white enamel (2) Cream flat enamel (3) Red flat enamel (4) Green flat enamel (5) Yellow flat enamel (6) Black flat enamel (7) Aluminum flat enamel (8) Brown flat enamel (9) Bare iron flat enamel.

Color—Made in white only which may be tinted with pure colors ground in oil.

Adaptability—Radiation, whether exposed or concealed, exposed piping and connections.

Surface Appearance—Flat.

Drying—Dust free in 2 hours, hard in 6 to 8 hours under proper drying conditions.

Covering Capacity—Four hundred and fifty (450) sq. ft. per gallon.

Application—Applied with a brush or spray. Flows out leaving no brush marks.

(A13) PLASTER PAINTS

Note: See (C10x) for specification application index.

(A13a) Berryflat (Eggshell)

General—An oil paint wall finish made of the best raw materials. Produces a hard, non-porous surface that wears and washes remarkably well. One (1) coat over Delitone Sealer or equal parts of Lionoil Clear and Berryflat as a sealer.

Color—Made in white only to be colored as desired with pure colors ground in oil.

Adaptability—Interior plaster surfaces.

Surface Appearance—Soft, lustrous eggshell which may be stippled.

Drying—Dust free in 2 hours, hard in 6 to 8 hours under proper drying conditions.

Covering Capacity—Five hundred (500) sq. ft. per gallon.

Application—Brush or spray.

(A13b) Delitone and Delitone Thinner (Semi-gloss)

General—This material comes in paste form and when used with Delitone Thinner, produces an excellent sealer for plaster surfaces. Two coats produce a tough elastic, non-porous finish.

Pencil marks, ink spots and match scratches can be easily removed from this finish without impairing its lustre. Takes an excellent stipple finish.

Its excellent appearance may be maintained for years by periodic washing.

Color—Made in white only (not blue) readily tinted to any shade with pure colors ground in oil.

Adaptability—Interior plaster brick and cement surfaces in the best work.

Surface Appearance—Semi-gloss. Takes an excellent stipple finish.

Drying—Dust free in 4 hours, hard in 24 hours under proper drying conditions.

Covering Capacity—Seven hundred and fifty (750) sq. ft. per gallon, first coat; six hundred (600) sq. ft. per gallon, second coat.

Application—Brush or spray.

LIONOIL FLOOR ENAMEL



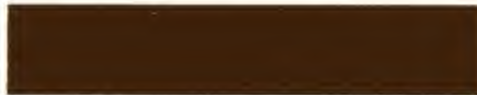
Oak Tan



Buff



Dust



Walnut Brown



Mahogany Red



Black



Light Gray



Blue Gray



Slate



Light Brown



Green



Slate Blue

Please do not detach color samples. Duplicate color cards will be furnished on request.

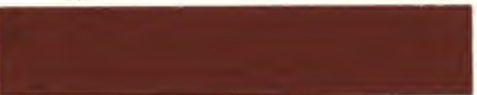
LUXEBERRY CEMENT COATING



Cream



Buff



Red



Pearl Gray



Stone



Slate

Also made in White

(B) PREVENTABLE DEFECTS**(B1) GENERAL**

Independent of the quality of finish unsatisfactory and defective work frequently results from conditions over which the manufacturer has no control. That the architect may properly allocate responsibility and guard against their occurrence the following common defects and their causes are set forth for his assistance. Many of the provisions suggested in the Master Specifications given on Pages 8 to 17 are based on this information.

(B2) PAINT DEFECTS**(B2a) "Peeling"**

Imperfect attachment of the paint film to the surface due to application over a damp, greasy or resinous surface. Often induced by artificial heat driving moisture outward under paint film or by capillary moisture rising into wood in contact with moisture.

(B2b) "Scaling" and "Flaking"

Premature detachment of paint in small scales or larger flakes. A brittle paint will scale or flake (dependent on degree of brittleness) under the same conditions that a more elastic paint will peel as in (B2a).

(B2c) "Blistering"

Due to heat vaporizing underlying moisture. New paint is more subject to this defect than old unless the heat is excessive. Incompletely dried lumber is the chief cause.

(B2d) "Alligatoring"

An incomplete form of peeling. The paint cracks into large segments resembling the back of an alligator—one end of the segment loosens and curls back from the surface, the other end remains firmly attached. Fine alligatoring is usually termed checking. Heavy coats of paint, especially if slow drying, tough and inelastic, applied to unseasoned wood will alligator. (Resin drier in zinc paints is often the cause of checking).

(B3) VARNISH DEFECTS**(B3a) "Bloom"**

Opalescence of surface caused by contact with moisture (excessive humidity) before complete drying. It may occur intermittently as a temporary phenomenon, disappearing on drying. If ammonia is present in the atmosphere the change is chemical and may be permanent.

(B3b) "Blistering"

Formation of blisters on the surface. Possibly due to underlying spots of grease, sap or moisture; excessive heat or direct sun exposure during the process of drying.

(B3c) "Spotting"

Discolored spots on the surface. Possibly due to chill of the fresh varnish which separates its constituents; substances on the surface at time of application; splashes of liquids before dry.

(B3d) "Crazing"

Minute interlacing cracks on the surface. Possibly due to extreme cold; excess of hard gums in the particular varnish—selection of a varnish of insufficient elasticity for the particular use.

(B3e) "Sweating"

Reappearance of lustre on a "rubbed to a dull finish" surface. Most frequently due to application of last coat before under coats have properly hardened.

(B3f) "Powdering"

Gradual crumbling of the varnish into dust. Possibly due to the selection of an improper varnish for the particular use (interior varnish for exterior use), or to accidental and abnormal exposures.

(B3g) "Crawling"

Refusal to spread or flow smoothly on a surface. The cause is physical due to preponderance of surface tension and cohesion over capillary attraction. Possibly due to excessive viscosity of the varnish or the condition of the surface itself such as low temperature; moisture, grease, etc., especially where surface is of high polish.

(B3h) "Cracking"

Intensification of "crazing" (see (B3d)) due to the same causes.

(B3i) "Chipping" or "Flaking"

Often follows "cracking" due to the same causes.

(B3j) "Deadening"

The opposite of "sweating" (see (B3e)). Possibly due to insufficient or defective undercoat but most frequently to improper filling of the wood.

(B3k) "Tackiness"

Adhesive property of incomplete drying. After "setting" varnishes retain "tackiness" until completely dry. Slow drying varnishes remain "tacky" longer than quick drying varnishes. A slight rise in temperature may cause recurrence in some varnishes though not objectionable in the spar varnishes. Proper selection of varnish for its particular use is essential. Tackiness frequently occurs in refinishing old work due to application over unclean, greasy surfaces when complete removal is the only remedy.

(B3l) "Pitting" or "Pinholing"

Due to changes in atmospheric conditions during drying; mixing different grades of varnish; application over "sweating" (see (B3e)), incompletely dried undercoats or in a humid atmosphere; rubbing through to undercoat; dirty or frothy varnish; underlying spots of grease or soap; cold draughts.

(B3m) "Enameling" or "Silking"

Appearance similar to enameled leather or silk. Due to application in hot, humid weather; too long continued brushing; use of brushes saturated with oil; mixing different grades of varnish.

(B3n) "Clouding"

Loss of lustre. Due to application over unseasoned wood; imperfectly dried undercoats; or more frequently porous undercoats. Coal gas may cause clouding.

(B3o) "Seedy" or "Sandy" Varnish

Varnish may be found full of small grains. Due to chill in transit or in storage or a decided difference in temperature between the varnish and the work. Same appearance may be caused by defective or improperly cared for brush.

(B3p) "Runs" or "Sags"

Irregularities of surface due to uneven flowing. Due to too much varnish; incomplete brushing; an inelastic brush. When fresh they may be wiped off with turpentine. If in finishing coat of bright varnish removal of coat is necessary on fine work. If in rubbing coat, rubbing will remove them.

(B3q) "Wrinkling" or "Crimping"

Conditions similar to "runs" and "sags." Generally due to same causes (see (B3p)) but chiefly to an attempt to substitute a few heavy coats for a greater number of thin, properly applied ones. Also due to sudden lowering of temperature when freshly applied.

(B3r) "Brush Marks"

Marks of brush due to working after the varnish has begun to set. In rubbing coats they may be removed in the rubbing. Brush marks in undercoats will show through the subsequent coats—each coat therefore, successively, must be smooth for perfect results and the first coat in this respect is quite as important as the last.

(B3s) "Ribbs"

The result in the last coat of brush marks in undercoats. Often due to use of rubbing varnish of excessive body which favors heavy coats.

(B3t) "Grain Showing"

The result of lack of sanding after staining and filling both of which operations may raise the grain of the wood surface which may have previously been in perfect condition.

(B3u) "Crumbling" or "Pershing"

Gradual loss of lustre resulting finally in disruption of surface and complete destruction of varnish. Quite often the result of washing with water heated above a tepid degree. Also due to ammonia fumes, coal gas, salt sea air, soil of limestone localities.

(C) PAINTING AND FINISHING—MASTER SPECIFICATIONS

Note: Notes in italics are explanatory or advisory only and should not be included in the specifications.

Note: The scope of this specification covers conditions ordinarily encountered. Select and include only those clauses which apply to the particular work supplemented by special conditions or topics not herein included. Local ordinances and trade customs should be considered.

(C1) General Conditions

(C1a) The general conditions governing the General Contract apply to the work under this division—see pages (.....).

Note: The American Institute of Architects' standard form of general conditions is advocated.

(C2) Work Included

(C2a) The work included under this heading shall be the painting and finishing of the following:

Note: Here give the general scope of the work such as exterior and interior woodwork; exterior and interior brick, concrete, stucco; exposed steel; iron and sheet metal; plaster walls and ceilings, etc.

(C2b) The following items are furnished by the manufacturer completely finished and require no further finish under this contract.

Note: Here list such items as vault doors, metal doors and trim, metal stall partitions, metal cabinets, special cabinet work, fixtures, etc.

(C3) Exterior Painting Conditions

Note: Since not only the appearance but the life of the painter's finish is materially affected by the weather conditions the following provisions are desirable. Exterior painting should only be done in dry, mild seasons. See "Preventable Defects," Page 7.

(C3a) Paint shall not be applied in moist or humid weather. No paint shall be applied in temperatures below 50° F. or in extreme heat.

(C4) Condition of the Building

Note: Since not only the appearance but the life of the painter's finish is materially affected by the condition of the building, over which the painting contractor has no jurisdiction, the following provisions are desirable for the protection of this contractor. The carrying out of these provisions should be allocated under the proper contract in other specification divisions. See "Preventable Defects," Page 7.

(C4a) (Short Form)

(C4a1) During the application of painter's finish effective working conditions will be maintained as to absence of dampness and humidity; uniformity of temperature (70° F.); ventilation necessary to assist drying; elimination of dust producing operations (other than sanding). The absence of fire hazards shall be maintained.

(C4b) (Detailed Form)

(C4b1) Elimination of Dampness—No interior painter's finish shall be applied until the building (particularly plaster) is thoroughly dry.

(C8) CONDITION OF SURFACES—PRELIMINARY PROVISIONS

Note: Since not only the appearance but the life of the painter's finish is materially affected by the condition of the surfaces to be finished over which the painting contractor has no jurisdiction, the following provisions are desirable for the protection of this contractor. The carrying out of these provisions should be allocated under the proper contract in other specification divisions.

(C8a) General

(C8a1) All surfaces to be finished under this contract shall be clean and dry.

(C8a2) Any surface not in suitable condition to receive the finish contemplated shall be reported to the architect or his authorized agent before work is commenced.

(C4b2) Temperatures—A uniform temperature of approximately 70° F. will be maintained day and night during the application of painter's finish. Finish shall not be applied in summer in extreme heat or under damp, humid conditions. Paint store rooms will be maintained approximately 70° F. Painter's finish shall be at room temperature before application.

(C4b3) Ventilation—Proper ventilation will be maintained to carry off the volatile gases and promote drying.

(C4b4) Dust Prevention—Absence of dust (other than sanding) induced by sweeping or work by other trades will be maintained.

(C4b5) Fire Safeguards—Smoking is prohibited in paint store and mixing rooms or rooms where painter's finish is being applied. All paints and finish containers shall, when not in use, be kept sealed or covered. All oily waste, rags, etc., shall be collected each day and, unless destroyed, temporarily stored in tight covered metal containers to prevent spontaneous combustion.

(C5) Scaffolding

(C5a) This contractor shall provide and erect all scaffolding, staging, etc., necessary for the proper execution of his work.

(C5b) He shall co-operate with other trades to the extent that erection of scaffolding shall not conflict with the execution of other work immediately preceding or carried in, without undue conflict, simultaneously with the painting and finishing.

(C5c) If, after due authority has been granted to erect scaffolding, it is necessary to remove parts therefore for the accommodation of others, demolition and re-erection shall be done only after allocation of the cost thereof, if any, has been equitably adjusted.

(C6) Protection

(C6a) This contractor shall furnish and lay drop cloths, so placed as, at all times, to adequately protect floors and other surfaces from spatter and droppings.

(C6b) This shall include the protection of all (fixed furniture and equipment) (movable furniture) (specify), etc.

(C6c) The canopies of all lighting fixtures shall be unscrewed and set away from the surface to be finished and the fixtures adequately covered and protected from injury.

(C6d) Remove all electric switch plates and similar equipment before painting and finishing and replace in as good condition as found.

(C6e) Damage done to the building, fixtures or equipment, through lack of protection, accident or carelessness incident with work under this contract shall be satisfactorily repaired or made good by replacement at this contractor's expense.

(C7) Cleaning

(C7a) At completion remove all spots, stains, oil, etc., attributable to work under this contract, from (walls) (ceilings) (trim) (floors) (furniture) (fixtures) (hardware) (glass) (specify) and leave in as good condition as found.

(C8a3) Application of the first coat of finish shall be construed as acceptance by this contractor of the surface to be finished.

(C8b) New Exterior Woodwork

(C8b1) Exterior woodwork is presumed to be of thoroughly seasoned stock, clean and free of surface defects.

(C8b2) Incidental minor cleaning, sanding and dusting of surfaces shall be done by this contractor that these shall be in perfect condition to receive finish.

(C8c) New Interior Woodwork

(C8c1) (Standing woodwork trim) (wood floors) (specify)

etc., are presumed to be clean and sanded smooth, free of machine marks or surface defects and in suitable condition to receive advantageously the painter's finish under this contract.

(C8c2) Incidental necessary minor cleaning, sanding and dusting of surfaces shall be done by this contractor, that these shall be in perfect condition to receive finish.

(C8d) Old Exterior Woodwork

Note: On the condition of the existing paint surface should depend the necessity of its complete removal or its use as a base for new finish.

(C8d1) Remove all loose paint and dust by scraping, sandpapering, wirebrushing, dusting, etc.

(C8d2) Carefully burn off all existing paint down to the original wood surface without charring. Sandpaper where necessary to leave the surface smooth.

(C8d3) Any necessary carpenters' repairs will be done by others before new painter's finish is applied.

(C8d4) Touch up all abrasions with paint as specified for finish.

(C8e) Old Interior Woodwork

Note: On the condition of the existing finish and the nature of the proposed new finish should depend the necessity of its complete removal or its use as a base for new finish. In the case of clear varnish it is usually advisable to remove the existing finish.

(C8e1) Remove existing finish with paint remover down to the original wood and sand smooth.

(C8e2) Bleach the woodwork with dilute oxalic acid to restore it as nearly to its original color and condition as possible and when bone dry sand smooth.

Note: Required only for new varnish finish.

(C8e3) Wash existing woodwork thoroughly with soap and water to remove all dirt, grease and wax. Dry completely and sand to a smooth surface.

Note: Required where sound existing finish remains to be refinished with enamels, paints, etc.

(C8e4) Thoroughly rub down existing woodwork with pumice and water and completely dry.

Note: Required in good work where sound varnish remains to be refinished with clear varnish. Cleaning with benzine is not sufficient.

(C8e5) Any necessary carpentry will be done by others before new painter's finish is applied.

(C8e6) Touch up all abrasions with paint as specified for finish.

(C8f) New Plaster Work

(C8f1) Remove all dust and sand particles adhering to the surface by dusting, scraping and sandpapering.

(C8f2) Cut or score out all cracks that may have appeared and fill with plaster of paris or prepared patching plaster leveled smooth with a putty knife. When dry, sand smooth. Surface of crack shall match as closely as possible surrounding surface.

(C8f3) Where necessary, sand smooth ornamental plaster work, especially at joints and intersections.

(C8f4) Treat all plaster surfaces with a solution consisting of eight ounces of zinc sulphate to the gallon of clean water and allow to dry at least three (3) days. Remove all loose crystals from the surface before finishing.

Note: Advocated on all new plaster to neutralize alkali usually prevalent. Phenolphthalein applied by touching the walls at various points turns red if alkali is present.

(C8g) Old Plaster Work

(C8g1) Remove existing (kalsomine) (specify) finish.

(C8g2) Wash thoroughly with soap and water or benzine to remove all dirt and grease. When dry, remove all scale, flakes, blisters, etc., by scraping and sanding. Thoroughly sand smooth the entire surface.

Note: Use where new finish is applied over existing paint finish.

(C8g3) Cut or score out all cracks and abrasions and fill with plaster of paris or prepared patching plaster leveled smooth with a putty knife or trowel. When dry sand smooth and shellac. Surface of crack or patch shall match as closely as possible adjacent surfaces.

(C8g4) Touch up all abrasions with paint as specified for finish.

(C8h) New Metal Work

(C8h1) Remove all dirt, grease and rust with benzine. Use sandpaper or wire brush if necessary.

(C8h2) Where fluid solder flux has been used, clean thoroughly with benzole.

(C8h3) Galvanized work shall be thoroughly washed with acetic acid (vinegar).

(C8h4)—Touch up all abrasions with paint as specified for finish.

(C8i) Old Metal Work

(C8i1) Wash thoroughly with soap and water or benzine to remove all dirt and grease. When dry, remove all scale, flakes, blisters, etc., by scraping and sanding. Thoroughly sand smooth the entire surface.

(C8i2) Touch up all abrasions with paint as specified for finish.

(C9) GENERAL REQUIREMENTS

(C9a) Workmanship

(C9a1) All labor shall be performed in the best manner by skilled workmen.

(C9a2) All paint shall be thoroughly and smoothly brushed out to a uniform film without runs, sags or brushmarks.

(C9a3) Varnish and enamel shall be flowed on and carefully brushed out to a uniform film without runs, sags or brushmarks.

Note: A number of properly applied thin coats are much more desirable than a fewer number of heavy coats.

(C9a4) Each coat of finish shall be given sufficient time to dry hard before application of the succeeding coat.

(C9a5) Immediately prior to the application of each coat, thoroughly dust the surface clean.

(C9b) Knots, Sap, Etc.

(C9b1) Cover all knots and all sappy and resinous spots on woodwork to be painted with a coat of shellac, before priming.

(C9c) Staining

(C9c1) Stains shall be evenly applied in strict accordance with the manufacturer's specifications to produce the effect required to match in color the approved samples.

(C9c2) Before the application of acid stains, the wood shall be sponged with cold water to raise the grain. When dry, sandpaper smooth. Apply the acid stain and when dry sand lightly.

(C9d) Filling

(C9d1) All open-grain woods shall be filled to produce a level smooth surface. Allow the filler to set but before it has hardened, wipe off (across the grain) any surplus from the surface. When hard, sand lightly. Filler shall be of such color as to produce the effect required to match the approved samples.

Note: Open-grain woods are Ash, Butternut, Chestnut, Elm, Mahogany, Oak, Rosewood and Walnut. Birch, Gumwood, Maple and Cherry, classed as close-grain woods, will take a filler where desired to accentuate the grain of the wood.

Note: See particularly (A8) page 3 for filler used under lacquer.

(C9e) Puttying

(C9e1) All nail holes shall be carefully filled with putty after the first or priming coat of paint or stain. Putty on natural or stained woodwork shall be colored to match the wood or stain.

(C9f) Sanding

(C9f1) Each coat of interior finish except the last or finishing coat shall, when thoroughly dry and hard, be lightly sanded smooth with fine sandpaper (0, 00, 000 or 0000 as best adapted). Dust clean after each sanding operation.

(C9g) Rubbing

(C9g1) Where so specified, the last or finished coat of varnish, lacquer and enamel *when thoroughly hard* shall be uniformly rubbed to a dull finish with 3f powdered pumice stone and water or rubbing oil. Great care shall be exercised that the finished coat shall not be rubbed through on arrises and that there be no bright flecks in depressions of mouldings, carvings, etc.

(C9h) Storage, Mixing, Etc.

(C9h1) All material shall be stored and mixed in a clean room kept at a uniform temperature (70° F.) and locked when not in use. Access at all times shall be provided to the architect or his authorized representative.

(C9h2) A sufficient number of unlabeled, clean, covered mixing and storage receptacles shall be provided to properly carry out the work under this contract. All empty receptacles shall be kept scrupulously clean.

(C9h3) Varnish, enamels, etc., shall be kept in full, tightly sealed containers. Remnants from larger cans shall be poured into smaller cans for preservation, the object being to remove air-space.

Note: The formation of skin or crust on varnish in the can is due to surface oxidation from exposure to the air. Such exposure, even in partly filled sealed containers, permits evaporation of volatile ingredients and leads to deterioration.

(C9h4) All brushes shall be kept clean and in perfect condition when not in use.

(a) Paint brushes when not in use shall be provided with "brush keepers" and remain suspended with bristles immersed in Lionoil or Damar Varnish.

(b) Varnish and enamel brushes when not in use shall be provided with "brush keepers" and remain suspended with bristles immersed in "brush keeper varnish."

Note: Brush keeper varnish is a finishing varnish made without dryers and therefore practically non-drying. Varnish brushes should not be kept in linseed oil nor in turpentine nor washed with the latter. "Seedy" varnish (see (B30) page 7) is usually attributable to brushes washed or kept in turpentine. Proper care of brushes is of the utmost importance.

(C9i) Samples

(C9i1) Complete samples made in accordance with the specifications under the direction of the architect shall be furnished on all work.

(C9i2) Accepted final samples shall be of the size and number required by the architect.

(C9i3) The finished work shall match the accepted samples in color and finish.

(C10) MATERIALS**(C10a) General**

(C10a1) All material, unless otherwise specially mentioned, shall be of the brand designated as manufactured by Berry Brothers (hereinafter designated B. B.), or equivalent subject to the architect's approval.

(C10a2) Where specific brands are not named, materials in every instance shall be the best of their respective kinds.

(C10a3) All materials shall be delivered at the building in the original cans or containers with seals unbroken and labels attached.

(C10a4) All varnishes and enamels shall be used as they come from the manufacturer without reducing.

Note: Varnish is a product of chemical reactions at high temperatures. Mixtures of two varnishes or the addition of thinners "in the cold" may induce separations and precipitations certain to affect the quality.

(C10a5) No material shall be reduced except under the manufacturer's direction and then only with the stipulated reducer used in the quantity and manner recommended.

(C10a6) All paints and stains shall be of colors as selected by the architect. In all cases undercoats shall match the finished coat in color and shade. Only where specifically advocated by the manufacturer shall materials be purchased in the white for subsequent tinting or coloring.

Note: Coloring pigments all have chemical activity which vary in considerable degree. Normal endurance and appearance can best be assured by maintaining a chemical balance between pigments, oils, driers and other ingredients as well as the careful selection of the ingredients themselves. It is advocated that wherever possible paints of the color or shade required be obtained ready to apply from the manufacturer or of the general color and shade requiring the least addition of color pigments.

(C10b) Spraying Equipment

(C10b1) Spraying equipment shall be of type and capacity best adapted to the work, subject to the architect's approval.

(C10b2) Compressors shall be motor driven.

(C10b3) Compressor shall be set in location designated by the architect and temporary rigid piping shall be installed so as not to conflict with the work of other trades.

(C10b4) All paint carrying flexible hose, nozzles and equipment shall be thoroughly cleaned after each day's work and maintained in first class working condition.

(C10c) Brushes

(C10c1) All brushes shall be new and of the best grade, of sizes and types best adapted for the particular work.

(C10d) Apex Varnish Remover (B. B.)

Note: For application see (C8e1).

(C10e) Putty

(C10e1) Putty shall be of the best grade consisting of whitening and pure raw linseed oil.

(C10f) Linseed Oil

(C10f1) Linseed oil (raw or boiled as best adapted to the purpose) shall be pure and thoroughly settled, meeting fully the current specifications of the American Society for Testing Materials.

(C10g) Turpentine

(C10g1) Turpentine shall be pure gum spirits of turpentine meeting fully the current specifications of the American Society for Testing Materials.

(C10h) Shellac (B. B.)

(C10h1) Shellac shall consist of 4½ lbs. of Berry Brothers pure gum shellac (SDC orange or SDC white as so specified) to the gallon of pure (188 proof) denatured grain alcohol.

(C10i) Coloring Pigments (B. B.)

(C10i1) Coloring pigments shall be Berrycraft Pure Colors, ground in pure linseed oil.

(C10j) Lionoil (B. B.)

Note: See (A1) Page 2. A rust and corrosion preventive on metals. A moisture proof sealer for wood and for stopping suction on brick, cement or stucco surfaces to be painted. For application see (C11a, d & e) (C12d) (C13a & d) (C14a & d) (C15f) (C17b) (C18b3 & b5) (C18c6 & c7) (C18d3) (C18e1) (C19b1, b2 & b3) (C19h3) (C20b & d) (C22b1) (C22e) (C22c4 & c6).

(C10j1) Clear

Note: May be covered with spar varnish.

(C10j2) Colored

(A) Priming Coat—Add one quart of "clear" to the gallon of "colored."

BERRY BROTHERS' ACID OR WATER STAINS



Light Fumed Acid Stain
on Straight Oak



Dark Golden Acid Stain
on Birch



Light Oak Acid Stain
on Yellow Pine



Brown Mahogany Acid Stain
on Birch



No. 1 Hunter Acid Stain
on White Pine



Dark Mahogany Acid Stain
on Gumwood



Silver Gray Acid Stain
on Straight Oak



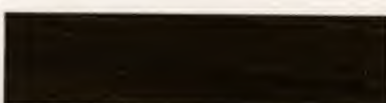
Dark Oak Acid Stain
on Yellow Pine



Antwerp Acid Stain
on Straight Oak



Light Walnut Acid Stain
on Gumwood



Dark Weathered Acid Stain
on Straight Oak



Circassian Walnut Acid Stain
on Gumwood



Filipino Acid Stain
on Straight Oak



Walnut Acid Stain
on Yellow Pine



Light Weathered Acid Stain
on Straight Oak



Mission Acid Stain
on Birch



English Oak Acid Stain
on Straight Oak



Light Silver Gray Acid Stain
on Birch



Dark Fumed Acid Stain
on Straight Oak



Walnut Acid Stain
on Walnut



Walnut Acid Stain
on Birch



Light Walnut Acid Stain
on Birch



Brown Mahogany Acid Stain
on Gumwood



Brown Mahogany Acid Stain
on Mahogany



Seal Brown Acid Stain
on Straight Oak



Mission Acid Stain
on Yellow Pine



Walnut Acid Stain
on Whitewood

Please do not detach color samples. Duplicate color cards will be furnished on request.

(B) Second Coat—Add one pint of "clear" to the gallon of "colored."

(C) Third Coat—Full body as it comes from the can.

Note: One-half pint of Lionoil Clear added to the gallon imparts an enamel-like gloss finish.

(C10k) Lionoil Floor Enamel Quick Drying (Gloss) (B. B.)

Note: See (A2) Page 2. For application see (C15e) (C17b & c) (C18b4) (C19d2) (C22b1).

(C10l) Lionoil Metal Trim Enamel (Semi-gloss) (B. B.)

Note: See (A3) Page 2. A moisture-proof rust preventive. For application see (C11c) (C12c) (C13c) (C14c).

(C10l1) Exterior

(C10l2) Interior

(C10m) Luxeberry Cement Coating (Flat) (B. B.)

Note: See (A5) Page 2. A flat exterior and interior moisture-proof finish for brick, stucco, concrete, plaster. For application see (C15d & e) (C17b & c).

(C10n) Berry Brothers Mill White (Gloss) (Eggshell) (Flat) (B. B.)

Note: See (A6) Page 2. A pure white gloss, semi-gloss or flat cleanable, interior wood, brick, concrete and plaster wall and ceiling paint, particularly for industrial use. For application see (C16).

(C10o) Lead and Oil Paint (for wood)

(C10o1) White lead shall be pure carbonate of lead as made by (state manufacturer) or equivalent ground to a paste in raw linseed oil. Lead and oil paint shall be mixed as follows:

(a) Priming Coat—100 lbs. white lead, 4 gals. raw linseed oil, 2 gals. turpentine, 1 pt. best grade dryer (state manufacturer), color pigment as required.

(b) Second Coat—100 lbs. white lead, 1½ gals. raw linseed oil, 1½ gals. turpentine, 1 pt. of dryer, color pigment as required.

(c) Third (Finish) Coat—100 lbs. white lead, 3½ gals. raw linseed oil, 1 pt. turpentine, 1 pt. dryer, color pigment as required.

Note: The addition of a quart of Lionoil (substituting this quantity for a like quantity of Linseed oil) in the priming coat adds effective penetration and sealing qualities. The addition of 1 pint of Lionoil to the gallon of finish coat imparts an enamel-like gloss and lessens the possibility of dusting or chalking.

(C10p) Berrycraft House Paint (for wood) (BB)

(C10p1) Prepared mixed paint shall be Berrycraft House Paint. The priming, second and third coats shall be applied in accordance with the directions on each can.

Note: See (A4) Page 2. Berrycraft House Paint is made of pure carbonate of lead and pure zinc oxide combined in the proper proportions with refined linseed oil and Lionoil Drier. All ingredients are carefully selected, are uniform in quality and machine mixed under ideal conditions assuring not only the maximum in protection, appearance and life, but economy. For application, see (C18b6) (C19b1, d3 & e1).

(C10q) Stains

(C10q1) Berrytone Penetrating Oil Stains (B. B.)

Note: See (A7a) Page 3. For application see (C18c1 & d1) (C19f1 & h1) (C22c1 & d1).

(C10q2) Berry Brothers Acid Stains (B. B.)

Note: See (A7b) Page 3. For application see (C18c1 & d1) (C19f1 & h1) (C22c1 & d1).

(C10r) Paste Wood Filler (B. B.)

Note: See (A8) Page 3. For application see (C18c2 & d2) (C19f2 & h2) (C22c2 & d2).

(C10r1) Use only Pyroxylin Paste Wood Filler or Paste Wood Filler reduced with lacquer thinner under lacquer finishes.

(C10s) Berrywax (B. B.)

Note: A high grade floor wax. For application see (C22d4).

(C10t) Lacklustre (B. B.)

Note: See (A9) Page 3. An economical combined stain and finish used in lieu of stain, shellac and wax. For application see (C19g2).

(C10u) VARNISHES

(C10u1) Berry Spar (Gloss) (B. B.)

Note: See (A10a) Page 3. A quick drying moisture-proof spar varnish for exterior and interior use. For application see (C18c5 & c6) (C19e3 & f5).

(C10u2) Luxeberry Wood Finish (Gloss) (B. B.)

(a) To produce Semi-gloss, mix Gloss (1 part) and Dull (3 parts).

Note: See (A10b) Page 3. A light colored interior rubbing varnish of highest quality. For application see (C19f7 & f11).

(C10u4) Liquid Granite Floor Varnish (Gloss) (Dull) (Quick Drying) (B. B.)

(a) To produce Semi-gloss, mix Gloss (1 part) and Dull (3 parts).

Note: See (A10c) Page 3. A floor varnish of the highest quality. Known as "The Million-step-test floor varnish." Use also for standing trim to take severe wear. For application see (C18c7) (C19e3, e4, f6, f8, f10 & g3) (C22c4 & c6).

(C10v) LACQUERS (CLEAR SPRAYING)

(C10v1) No. 364 Berryloid Clear (Gloss) (B. B.)

Note: See (A11a) Page 3. Clear gloss for interior cabinet finish. Can be rubbed. For application see (C19h6 & h7).

(C10v2) No. 502 Semi-gloss Berryloid Clear (B. B.)

Note: See (A11b) Page 5. Clear semi-gloss to save the cost of rubbing. For application see (C19h8).

(C10v3) No. 398 Flat Berryloid Clear (B. B.)

Note: See (A11c) Page 5. Clear flat to save the cost of rubbing. For application see (C19h8).

(C10v4) No. 507 Berryloid Clear Exterior (Gloss) (B. B.)

Note: See (A11d) Page 5. Clear gloss for exterior use and for interior use where there is severe wear or moisture is prevalent. Can be rubbed. For application see (C18d4) (C19h5).

(C10w) ENAMELS

Note: See (C10k) for Lionoil Floor Enamel and (C10l) for Lionoil Metal Trim Enamel.

(C10w1) Berry's Enamel Undercoat (B. B.)

Note: See (A12a) Page 5. An opaque interior enamel undercoat of highest quality. For application see (C18e3) (C19i1 & i7) (C20b).

(C10w2) Luxeberry Enamel (Gloss) (Eggshell) (B. B.)

Note: See (A12b) Page 5. An interior rubbing enamel of highest quality. For application see (C18e4 & e5) (C19i3, i6 & i7) (C20b).

**(C10w3) Berrycraft Quick Drying Enamel (Gloss)
(B. B.)**

Note: (A12c) Page 5. A quality enamel for use where time is the element. For application see (C19i4).

(C10w4) Berry's Radiator Enamel (Flat) (B. B.)

Note: See (A12d) Page 5. A special heat resisting flat radiator enamel. For application see (C21c).

(C10x) PLASTER PAINTS

(C10x1) Berryflat (Eggshell) (B. B.)

Note: See (A13a) Page 5. A high grade semi-flat wall paint. For application see (C20d).

(C10x2) Delitone and Delitone Thinner (Semi-gloss) (B. B.)

Note: See (A13b) Page 5. A semi-gloss wall paint of high quality. For application see (C20c).

**(C11) EXTERIOR AND INTERIOR PAINTING AND FINISHING
OF STEEL, IRON, ETC.**

(C11a) For previous painting at shop and in the field see (give paragraph and page references).

Note: Shop and field coats of Lionoil Colored provides exceptional protection.

(C11b) Over shop or field coats previously applied, all exposed surfaces of the following items shall be finished as specified below:

Note: Here list items such as exposed steel work columns, trusses, etc.; cast iron and steel stairs; fire escapes, wrought iron and pipe rails; exposed lintels, etc. Where there are a variety of classes or groups of work each requiring a different finish, precede each group with clause (C11b) and list separately followed by the particular specification which applies.

Note: Specifications are listed in the general order of desirability, the highest grade first. Select that adapted to the particular work.

(C11c) Two (2) coats of Lionoil Metal Trim Enamel (Exterior) (and) (Interior). Allow not less than 10 hours to dry hard between coats.

(C11d) Two (2) coats of Lionoil Colored. Allow not less than 12 hours to dry hard between coats.

(C11e) Verde Antique Finish—Two (2) coats of Lionoil Colored (Brown) over which apply a glazing coat of Lionoil Light Green, which when partially set shall be partly removed by wiping off or "patting" with a pad of knit cotton goods to imitate Verde Antique Bronze. Allow not less than 12 hours to dry hard between coats. Finish with one (1) coat of Liquid Granite Dull.

BERRYCRAFT HOUSE PAINT
14-color Assortment



Also Outside White (Gloss)—Inside White (Flat)—Jet Black.

Colors marked * are higher in price.

(C12) EXTERIOR AND INTERIOR PAINTING AND FINISHING OF STEEL WINDOWS

(C12a) For previous painting at shop (and in the field) see (give paragraph and page reference).

Note: Steel windows should be painted in the field after erection, before glazing. This frequently is done by the erector in which case specify the same material as specified for finish reducing the finish by one (1) coat.

(C12b) Over shop or field coats previously applied, the following items shall be finished as specified below:

Note: Here list items. Where there are a variety of classes or groups each requiring a different finish, precede

each group with clause (C12b) and list separately followed by the particular specification which applies.

Note: Specifications are listed in the order of desirability, the highest grade first. Select that adapted to the particular work.

(C12c) Two (2) coats of Lionoil Metal Trim Enamel, Exterior and Interior as adapted. Allow not less than 10 hours to dry hard between coats.

(C12d) Two (2) coats of Lionoil Colored. Allow not less than 12 hours to dry hard between coats.

(C13) EXTERIOR AND INTERIOR PAINTING AND FINISHING OF SHEET METAL WORK

(C13a) For previous painting at shop (and in the field) see (give paragraph and page reference).

Note: Shop and field coats of Lionoil Colored provides exceptional protection.

(C13b) All exposed surfaces of the following items shall be finished as specified below:

Note: Here list items such as roofing, flashing, ventilators, skylights, sheet metal windows, steel smoke stacks, etc. Where a variety of classes or groups of work each requiring a different finish, precede each group with clause (C13b) and list separately followed by the particular specification which applies.

Note: Specifications are listed in the general order of desirability, the highest grade first. Select that adapted to the particular work.

(C13c) Two (2) coats of Lionoil Metal Trim Enamel (Exterior) (and) (Interior). Allow not less than 10 hours to dry hard between coats.

Note: Particularly advocated for interior exposed sheet metal work and both exterior and interior of Sheet Metal Windows.

(C13d) Two (2) coats of Lionoil Colored. Allow not less than 12 hours to dry hard between coats.

(C14) EXTERIOR AND INTERIOR PAINTING AND FINISHING OF METAL DOORS AND TRIM

(C14a) For previous painting at shop (give paragraph and page reference).

Note: A shop coat of Lionoil Colored provides exceptional protection.

(C14b) Over shop coat previously applied, all exposed surfaces of metal doors (including tops and bottoms) and trim shall be finished as specified below.

Note: Here list items by numbers, reference to schedules, or otherwise.

Note: Specifications are listed in order of desirability, the highest grade first. Select that adapted to the particular work.

(C14c) Two (2) coats of Lionoil Metal Trim Enamel (Exterior) (and) (Interior). Allow not less than 10 hours to dry hard between coats.

(C14d) Two (2) coats of Lionoil Colored. Allow not less than 12 hours to dry hard between coats.

Note: Adapted to industrial and similar work.

(C15) EXTERIOR AND INTERIOR PAINTING AND FINISHING OF CEMENT, CEMENT STUCCO, CONCRETE AND BRICK

(C15a) Treat all wall surfaces of (cement) (concrete) (brick) with a wash consisting of 4 lbs. of zinc sulphate crystals to the gallon of water. After the walls are dry, all loose crystals must be removed with a brush.

Note: Advocated if alkali is especially strong.

(C15b) **Note:** If walls have been previously finished include clauses (C8g2) and (C8g4).

(C15c) The following surfaces shall be finished as specified below.

Note: Here list surfaces to be finished such as exterior stucco, cement or concrete work, brick, etc., in light courts and interior walls and ceilings.

(C15d) Two (2) coats of Luxeberry Cement Coating

applied with a (brush) (spray). Allow not less than 8 hours to dry hard between coats.

Note: Use where a flat finish is desired.

(C15e) One (1) coat of Luxeberry Cement Coating and one (1) coat of Lionoil Floor Enamel—Quick Drying each applied with a (brush) (spray). Allow not less than 8 hours to dry between coats.

Note: Use where a gloss finish is desired.

(C15f) Two (2) coats of Lionoil Colored, the first coat reduced with a gallon of Lionoil "Clear" to the gallon of Lionoil "Colored." Apply with a (brush) (spray). Allow not less than 12 hours to dry between coats.

Note: Use where a semi-gloss is desired.

(C16) (INDUSTRIAL BUILDINGS) INTERIOR PAINTING AND FINISHING OF WOOD, BRICK, CONCRETE AND PLASTER

(C16a) Treat all wall surfaces of (cement) (concrete) (plaster) (brick) with a wash consisting of 4 lbs. of zinc sulphate crystals to the gallon of water. After the walls are dry, all loose crystals must be removed with a brush.

Note: Advocated if alkali is especially strong.

(C16b) **Note:** If walls have been previously finished include clauses (C8g2) and (C8g4).

(C16c) The following surfaces shall be finished as specified below:

Note: Here list interior surfaces to be finished such as wood columns, beams and ceilings in mill construction; brick walls; concrete walls, columns, beams and ceilings; and plaster walls and ceilings.

(C16d) (One (1)) (two (2)) coats of Berry Brothers Mill White applied with a (brush) (spray). Allow not less than 24 hours to dry between coats.

(C17) FINISHING CONCRETE FLOORS AND BASES

(C17a) The following concrete floors shall be finished as specified below:

Note: List and locate.

Note: Specifications below are listed in the order of durability, the highest first.

(C17b) One (1) coat of Lionoil Clear, one (1) coat of Luxeberry Cement Coating finished with two (2) coats of

Lionoil Floor Enamel—Quick Drying. Allow not less than 12 hours to dry between all coats except last two where not less than 4 hours is required.

(C17c) One (1) coat of Luxeberry Cement Coating and (one (1)) (two (2)) coat (s) of Lionoil Floor Enamel—Quick Drying. Allow not less than 12 hours to dry between coats except Lionoil Floor Enamel—Quick Drying where not less than 4 hours is required.

(C18) EXTERIOR PAINTING AND FINISHING OF WOOD

(C18a) The following exterior woodwork shall be finished as specified below:

Note: Here list items such as exterior woodwork trim, siding, exterior wood window and door frames, exterior side of wood sash and doors, porch floors, etc., and name the wood to be finished. Where there are a variety of classes or groups of work each requiring a different finish, precede each group with clause (C18a) and list separately followed by the particular specification which applies.

(C18b) PAINT FINISH

(C18b1) Prime all woodwork to be painted with priming paint before or immediately after erection.

(C18b2) This shall include the priming of all backs or unexposed parts of window and door frames.

(C18b3) Prime the pulley stiles and parting beads of double hung wood window frames with a coat of Lionoil Clear only.

(C18b4) Finish exterior wood floors with one (1) coat of Lionoil Clear and two (2) coats of Lionoil Floor Enamel—Quick Drying. Allow not less than 12 hours to dry between first and second coats and not less than 4 hours between the last two coats.

(C18b5) Over the priming coat finish with

Note: Specifications below are listed in the general order of desirability, the highest grade first. Select that adapted to the particular work.

(C18b6) Two (2) coats of Berrycraft House Paint.

(C18b7) Two (2) coats of Lead and Oil Paint.

(C18c) VARNISH OR NATURAL FINISH

(C18c1) Stain with (oil) (acid) stain. Allow sufficient time to thoroughly dry.

Note: Omit on natural finish.

(C18c2) Fill with paste wood filler. Allow not less than 8 hours (more if necessary) to set hard.

Note: Omit ordinarily on close-grain wood (see C9d).

(C18c3) Over (stain) (and) (filler) apply a thin coat of (SDC-orange) (SDC-white) shellac and sand lightly.

(C18c4) Finish with

Note: Specifications below are listed in the general order of desirability, the highest grade first. Select that adapted to the particular work.

(C18c5) (Two (2)) (three (3)) coats of Berryspar. Allow not less than 8 hours to dry between coats.

(a) The last coat shall be rubbed to a dull finish.

(C18c6) One (1) coat of Lionoil Clear over which shall be applied (one (1)) (two (2)) coats of Berryspar. Allow not less than 8 hours to dry between coats.

(C18c7) Two (2) coats of Lionoil Clear and two (2) coats of Liquid Granite Floor Varnish (Quick Drying) Dull. Allow not less than 8 hours to dry between coats.

Note: An excellent finish for half timber work, and similar natural or stained exterior woodwork trim; porch ceilings, etc.

(C18d) CLEAR SPRAYING LACQUER FINISH

(C18d1) Stain with acid stain. Allow sufficient time to thoroughly dry.

Note: Omit on natural finish. Use only acid stains under lacquer.

(C18d2) Fill with paste wood filler. Allow from 24 to 36 hours to set hard.

Note: Omit on close-grain wood. Use only Pyroxylin Filler.

(C18d3) Over (stain) (and) (filler) apply a spray coat of Lionoil Clear. Allow not less than 12 hours to dry or completely oxidize before lacquer is applied.

(C18d4) Finish with (two (2)) (three (3)) coats of No. 507 Berryloid Clear Exterior, spray applied. Allow not less than 1 hour to dry between coats.

(C18d5) The last coat shall be allowed to dry for at least 5 hours and shall then be rubbed to a dull finish.

(C18e) ENAMEL FINISH

(C18e1) Prime all woodwork to be enameled with equal parts of Berryflat and Lionoil Clear priming coat.

(C18e2) **Note:** If exterior window frames and trim are enameled include clauses (C18b2) and (C18b3).

(C18e3) Over the priming coat, apply two (2) coats of Berry's Enamel Undercoat. Allow not less than 8 hours to dry between coats.

(C18e4) Over undercoats apply (two (2)) (three (3)) coats of Luxeberry Enamel Gloss. Allow not less than 3 days to dry between coats.

(C18e5) The last coat shall be rubbed to a dull finish.

(C18e6) Over undercoats apply (one (1)) (two (2)) coats of Luxeberry Enamel, Gloss, finished with (one (1) coat of Luxeberry Enamel Eggshell) (one (1) coat consisting of equal parts of Berry Enamel Undercoat and Luxeberry Enamel Gloss).

Note: Choose finish coat. Either produces an eggshell finish without rubbing.

(C19) INTERIOR PAINTING AND FINISHING OF STANDING WOODWORK

(C19a) The following interior woodwork shall be finished as specified below.

Note: Here list items of standing woodwork trim, etc., and name the wood to be finished. Where there are a variety of classes or groups of work each requiring a different finish, precede each group with clause (C19a) and list separately followed by the particular specification which applies.

(C19b) BACK PAINTING, SHELVING, INSIDE OF DRAWERS, CUPBOARDS, ETC.

(C19b1) The unexposed back of all standing interior wood-

work coming in contact with plaster shall be given (one (1)) (two (2)) coats of (Lionoil Clear) (Berrycraft House Paint priming coat) (Lead and oil priming coat).

(C19b2) The inside of all (drawers) (cupboards) and all shelving shall be given (one (1)) (two (2)) coats of Lionoil Clear.

(C19b3) After wood doors have been fitted and hung give the tops and bottoms two (2) coats of Lionoil Clear.

(C19c) PRIMING

(C19c1) Prime all wood work to be (painted) (and) (enameled) with priming paint before or immediately after erection.

(C19d) PAINT FINISH

(C19d1) Over the priming coat, finish with

(C19d2) Two (2) coats of Lionoil Floor Enamel (*Quick Drying*). Allow not less than 4 hours to dry between coats.

(C19d3) Two (2) coats of Berrycraft House Paint.

(C19d4) Two (2) coats of Lead and Oil Paint.

(C19e) GRAINING

Note: Particularly for the interior of soft wood sash to match hard wood interior trim.

(C19e1) Over the priming coat, give one coat of (*Lionoil (Colored)*) (*Berrycraft House Paint*) (*Lead and Oil Paint*) ground color over which, when thoroughly dry, apply one (1) coat of graining color combed to the desired effect.

(C19e2) Finish with

(C19e3) (*Two (2)*) (*three (3)*) coats of (*Berryspar*) (*Liquid Granite Floor Varnish [Quick Drying] Gloss*), the last coat rubbed to a dull finish. Allow not less than 24 hours (*4 hours for Quick Drying*) to dry between coats.

(C19e4) (*One (1)*) (*two (2)*) coats of Liquid Granite Floor Varnish Gloss finished with one (1) coat of Liquid Granite Floor Varnish (*Dull*) (*Semi-gloss*). Allow not less than 24 hours (*4 hours for "Quick Drying"*) to dry between coats.

(C19f) VARNISH FINISH

(C19f1) Stain with (*oil*) (*acid*) stain.^c Allow from 24 to 36 hours to dry.

Note: Omit on natural finish.

(C19f2) Fill with paste wood filler. Allow from 24 to 36 hours to set hard.

Note: Omit on close-grain wood.

(C19f3) Over (*stain*) (*and*) (*filler*) apply a thin coat of (*SDC-orange*) (*SDC-white*) shellac and sand lightly.

(C19f4) Finish with

Note: Specifications below are listed in general order of durability or desirability, the highest grade first. Select that adapted to the particular work.

(C19f5) (*Two (2)*) (*three (3)*) coats of Berryspar. Allow not less than 8 hours to dry between coats.

(C19f6) (*Two (2)*) (*three (3)*) coats of Liquid Granite Floor Varnish Gloss (*Quick Drying*). Allow not less than 12 hours (*4 hours for "Quick Drying"*) to dry between coats.

Note: Use the two above particularly where moisture must be guarded against. Use Liquid Granite wherever the hardest service is required.

(C19f7) (*Two (2)*) (*three (3)*) coats of Luxeberry Wood Finish Gloss. Allow not less than 12 hours to dry between coats.

Note: All of the above are in gloss varnish requiring rubbing for the finest finish.

(C19f8) (*Two (2)*) (*three (3)*) coats of Liquid Granite Quick Drying Varnish (*Gloss*) (*Dull*). Allow not less than 4 hours to dry between coats.

(C19f9) The last coat shall be rubbed to a dull finish.

Note: The gloss requires rubbing for the finest finish. The dull provides a semi-gloss or dull without rubbing.

(C19f10) (*One (1)*) (*two (2)*) coats of Liquid Granite Gloss finished with a coat of Liquid Granite Floor Varnish (*Dull*) (*Semi-gloss*) (*Quick Drying*). Allow not less than 12 hours to dry between coats.

(C19f11) (*One (1)*) (*two (2)*) coats of Luxeberry Wood Finish Gloss finished with one (1) coat of Luxeberry Wood Finish (*Dull*) (*Semi-gloss*). Allow not less than 12 hours to dry between coats.

Note: The above two provide a dull or semi-gloss finish without rubbing.

(C19g) COMBINED STAIN AND FINISH

Note: For Mission or Weathered effects.

(C19g1) The following interior woodwork shall be finished as specified below:

Note: Here list items.

(C19g2) Apply one (1) coat of Lacklustre with a pad of cheese cloth about the size of a hand sponge, or with a brush. Cover only a small section at a time, such as a panel, etc., then wipe off with a clean piece of cheese cloth, rubbing first across the grain, then with the grain leaving a dull polish.

(C19g3) Over the Lacklustre apply one (1) coat of Liquid Granite Floor Varnish Dull (*Quick Drying*).

Note: Use where severe wear is to be encountered.

(C19h) CLEAR SPRAYING LACQUER FINISH

(C19h1) Stain with acid stain. Allow sufficient time to thoroughly dry.

Note: Omit on natural finish. Use only acid stains under lacquer.

(C19h2) Fill with paste wood filler. Allow from 24 to 36 hours to set hard.

Note: Omit on close-grain wood. Use only Pyroxylin Filler.

(C19h3) Over (*stain*) (*and*) (*filler*) apply a thin spray coat of Lionoil Clear. Allow not less than 24 hours to dry or completely oxidize before lacquer is applied.

(C19h4) Finish with

Note: Specifications below are listed in general order of durability or desirability, the highest grade first. Select that adapted to the particular work.

(C19h5) (*Two (2)*) (*three (3)*) coats of No. 507 Berryloid Clear Exterior, spray applied. Allow not less than 1 hour to dry between coats.

Note: The above particularly where severe wear or moisture must be guarded against.

(C19h6) (*Two (2)*) (*three (3)*) coats of No. 364 Berryloid Clear, spray applied. Allow not less than 1 hour to dry between coats.

(C19h7) The last coat shall be allowed to dry for at least 5 hours and shall then be rubbed to a dull finish.

Note: The above two are in gloss finish requiring rubbing for the finest finish.

(C19h8) (*One (1)*) (*two (2)*) coats of No. 364 Berryloid Clear finished with one (1) coat of (*No. 502 Semi-gloss Berryloid Clear*) (*No. 398 Flat Berryloid Clear*) spray applied. Allow not less than 1 hour to dry between coats.

Note: Use where rubbing is impractical on carvings, mouldings, etc. Provides an eggshell or soft semi-gloss finish. Samples on request.

(C19i) ENAMEL FINISH

(C19i1) Over the priming coat, apply two (2) coats of Berry's Enamel Undercoat. Allow not less than 8 hours to dry between coats.

(C19i2) Finish with

Note: Specifications below are listed in general order of durability or desirability, the highest grade first. Select that adapted to the particular work.

(C19i3) (*Two (2)*) (*three (3)*) coats of Luxeberry Enamel Gloss.

(C19i4) (*Two (2)*) (*three (3)*) coats of Berrycraft Quick Drying Enamel.

(C19i5) The last coat shall be rubbed to a dull finish.

Note: The above two are in gloss enamel requiring rubbing for the finest finish.

(C19i6) (*One (1)*) (*two (2)*) coats of Luxeberry Enamel Gloss finished with one (1) coat of Luxeberry Enamel Eggshell.

(C19i7) (*One (1)*) (*two (2)*) coats of equal parts of Luxeberry Enamel and Berry's Enamel Undercoat.

Note: The above two provides an eggshell or soft semi-gloss finish without the expense of rubbing.

(C20) PAINTING AND FINISHING OF INTERIOR PLASTER WALLS AND CEILINGS

Note: See also (C15) and (C16).

(C20a) The following interior plaster walls and ceilings shall be finished as specified below:

Note: Here list items and state whether sand float or hard (putty coat) finish. Where there are a variety of classes or groups of work each requiring a different finish, precede each group with clause (C20a) and list separately followed by the particular specification which applies.

Note: Specifications below are listed in order of durability or desirability. Select that adapted to the particular work.

(C20b) One (1) sizing coat consisting of one (1) part of Lionoil Clear to one (1) part of Berry's Enamel Undercoat applied with a (brush) (spray), over which apply (one (1)) (two (2)) coats of Berry's Enamel Undercoat, finished with (two (2)) (three (3)) coats of Luxeberry Enamel (Gloss) (Eggshell). Allow not less than 12 hours to dry between coats. Recoat flat spots appearing after first coat before the application of second coat.

Note: For the highest class of enameled wall finish.

(C20c) One (1) coat consisting of equal parts of Delitone and Delitone Thinner applied with a (brush) (spray) over which apply with a (brush) (spray) a finish coat consisting of Delitone reduced with 1½ pints of turpentine and ½ pint of Delitone

Thinner to the gallon of Delitone. Allow not less than 24 hours to dry between coats. Recoat any flat spots appearing after first coat before the application of the second coat.

(C20d) One (1) sizing coat consisting of one (1) part of Lionoil Clear to one (1) part of Berryflat applied with a (brush) (spray), over which apply with a (brush) (spray) (one (1)) (two (2)) coats of full body Berryflat. Allow not less than 12 hours to dry between coats. Recoat any flat spots appearing after first coat before the application of the second coat.

(C20e) After the finish coat has set from 20 to 30 minutes, stipple with a stippling brush to a uniform mat finish.

Note: Either of the above finishes takes an excellent stipple.

(C20f) **Note:** Where desired over-glazes, sponge-stipples, etc., may be added. If required, specify here.

(C20g) (Two (2)) (three (3)) coats aluminum paint consisting of 1¼ lbs. of aluminum bronzing powder to the gallon of Berry Brother's Aluminum Paint Liquid No. 3 applied with a (brush) (spray).

Note: An especially durable, cleanable, light reflecting surface for use in elevator shafts, boiler and fan rooms, etc., and industrial buildings.

(C21) PAINTING AND FINISHING OF RADIATORS, ETC.

(C21a) The following radiation (and exposed piping) shall be finished as specified below:

Note: Here list items.

(C21b) Apply with a (brush) (spray) one (1) coat of aluminum paint consisting of 1¼ lbs. of aluminum bronzing powder to a gallon of Berry Brother's Aluminum Paint Liquid No. 3. Allow not less than 8 hours to dry.

Note: Advocated to produce a clean smooth surface for enamel finish. This is often included under the Heating Specification and if so, omit here.

(C21c) (Over the aluminum bronze coat) apply (one (1)) (two (2)) coats of Berry's Radiator Enamel. Allow not less than from 6 to 8 hours to dry between coats.

(C22) PAINTING AND FINISHING OF INTERIOR WOOD FLOORS

(C22a) The following interior wood floors shall be finished as specified below:

Note: Here list floors and name the wood to be finished. Where there are a variety of classes or groups of floors each requiring a different finish, precede each group with clause (C22a) and list separately followed by the particular specification which applies.

(C22b) PAINT FINISH

(C22b1) Prime the floors with Lionoil Colored priming paint over which apply two (2) coats of Lionoil Floor Enamel—Quick Drying. Allow not less than 8 hours to dry between the first and second coats and not less than 4 hours between the last two coats.

(C22c) VARNISH FINISH

(C22c1) Stain with (oil) (acid) stain. Allow sufficient time to thoroughly dry.

Note: Omit on natural finish.

(C22c2) Fill with paste wood filler. Allow not less than 8 hours (more if necessary) to set hard.

Note: Omit on close-grain wood.

(C22c3) Finish with

Note: Specifications below are listed in general order of durability or desirability, the highest grade first. Select that adapted to the particular work.

(C22c4) Apply one (1) coat of Lionoil Clear followed by (two (2)) (three (3)) coats of Liquid Granite Floor Varnish Gloss (Quick Drying).

(C22c5) The last coat shall be rubbed to a dull finish.

Note: The above is gloss varnish requiring rubbing for the finest finish.

(C22c6) Apply one (1) coat of Lionoil Clear followed by (one (1)) (two (2)) coats of Liquid Granite Gloss, finished with one (1) coat of Liquid Granite Floor Varnish (Dull) (Semi-gloss) (Quick Drying).

Note: The above provides a dull or semi-gloss finish without rubbing.

(C22d) WAX FINISH

(C22d1) Stain with (oil) (acid) stain. Allow sufficient time to thoroughly dry.

Note: Omit on natural finish.

(C22d2) Fill with paste wood filler. Allow not less than 8 hours (more if necessary) to set hard.

Note: Omit on close-grain wood.

(C22d3) Over the (stain) (and) (filler) apply a thin coat of (SDC-orange) (SDC-white) shellac and sand lightly.

(C22d4) Over shellac apply two (2) coats of Berrywax, each polished hard with a weighted floor brush.

(C22e) OIL FINISH

(C22e1) Apply (two (2)) (three (3)) coats of Lionoil Clear with a (brush) (mop). Allow not less than 12 hours to dry between coats.

Note: Floors finished with Lionoil Clear retain their natural color and will not darken as with linseed oil. It costs no more than the application of hot linseed oil and turpentine. It penetrates deeply, gives unusual service and is waterproof.

Berrycraft

FINISHES



Since 1858

BERRY BROTHERS INC.
Varnishes Enamels Lacquers
Detroit, U.S.A. Walkerville, Canada

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CERTAIN-TEED INTERIOR and EXTERIOR HOUSE OIL STAINS, SHINGLE STAINS, VARNISHES, LACQUERS
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CERTAIN-TEED PAINT, ENAMEL, STAIN AND VARNISH PRODUCTS

Certain-teed paints, enamels, stains and varnishes include finishes for practically every interior and exterior purpose. This line represents highest quality—the direct result of care exercised by experts in the selection of raw materials and in the process of manufacture.

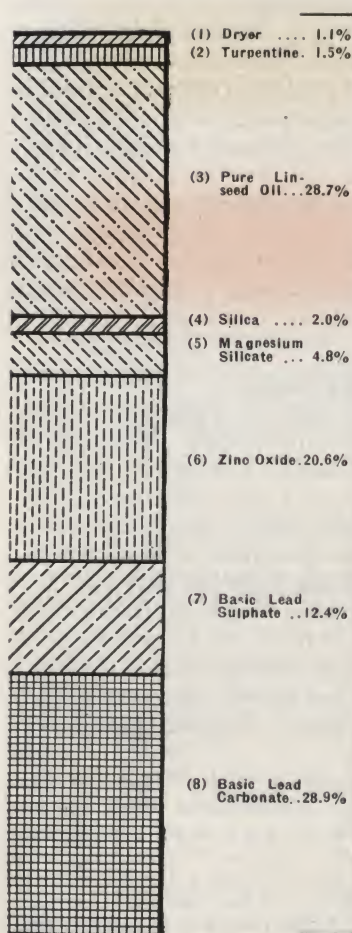


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Certain-teed paint and varnish products enjoy a country-wide reputation that has been built up through years of satisfactory service. Architects specify Certain-teed products because successful results bespeak good judgment in the wise selection of materials.

No. 448 Outside White

What is inside the paint can labeled No. 448 Outside White? In each can of No. 448 Outside White



(1) Just enough to dry the paint; not enough to burn it up.
(2) Pure distilled. Insures bonding between coats and prevents peeling.

(3) Aged and refined. Tested for absolute purity and freedom from the destructive "foots" found in cheaper linseed oils not aged. Enough used to thoroughly saturate and coat each particle of pigment. More oil would lower the cost, but sacrifice durability.

(4,5) A great deal of the durability comes from this small 6.8%. It adds "tooth" for bonding between coats, and helps prevent chalking and cracking because of the reinforcing action. Also prevents settling in the can.

(6) Finest American Process for durability. Just enough used to harden the film and retard chalking. A greater percentage would cause objectionable cracking. Mainly responsible for the extreme whiteness of No. 448.

(7) Practically the same properties as basic lead carbonate, except that it absorbs much more oil. If it were used altogether, there would be insufficient lead. The 12.4% brightens the color, increases the resistance to sulfur gases, and lessens settling.

(8) The "back bone" of No. 448 is the best Old Dutch Process Corroded White Lead Carbonate. Because of the protective and easy brushing properties of this pigment, as large a percentage as possible is used, compatible with durability and non-settling. All other ingredients are used to abet and protect it so that it will remain on the surface for the greatest length of time. That is one of the reasons why No. 448 is superior to a paint made entirely from keg white lead by the painter. An all-lead paint would cost less—but it would be inferior.

there are 18 lbs. of the finest, purest ingredients scientifically combined to form this extra heavy, highly superior house paint. There is a reason—and a good one—for each ingredient used in this paint. There is also a good reason for using an exact percentage of that ingredient.

Certain-teed House Paint (Exterior and Interior)

Exact combinations of the best ingredients, tested by expert chemists, precision in grinding and mixing, assure a superior product. It possesses durability, uniformity and permanence of colors. Spreads easily, covers generously, and keeps the ultimate cost of painting low when the expense of labor is compared with the cost of material over a period of years.

Certain-teed House Paint comes in liquid, paste and semi-paste form. The covering capacity is approximately 350 sq. ft. per gallon, two coats, depending on the surface.

Specifications—Exterior Paint—All exterior paint shall be Certain-teed House Paint and shall be delivered at the building in the manufacturer's original packages, unopened until inspected by the architect or his representative. Paint shall be of the colors selected. All paint from priming to finish coat shall be used and applied strictly according to the directions of the manufacturer on the container and thinned only as allowed.

New Work—Exterior finished woodwork shall be given coats well brushed on, sufficient time being allowed between coats to allow the paint to dry thoroughly. All knots and sappy places shall be given a coat of shellac before applying the priming coat.

Old Work—All old woodwork shall be given coats of paint of color selected. All old surfaces shall be thoroughly dusted and cleaned. Any loose particles of paint or bubbles shall be removed and surface rubbed with wire brush before applying first coat.

Certain-teed Flat Wall Paint

A practical beautiful flat wall finish of the very best quality. It is soft and restful to the eyes, and free from even a suggestion of gloss or glare. Widely used in public buildings, office buildings, schools, homes, etc. It may be used on wood, metal ceilings, wall boards, etc., as well as for plastered walls and ceilings. It is sanitary and germproof, and the painted surfaces may be washed with soap and water.

Widely used as an undercoating for enamel finishes.

Covering Capacities—The covering capacity will vary according to the condition of the surface.

One gallon will cover with one coat approximately as follows:

On smooth plaster, metal ceilings and painted smooth surfaces, 700 to 800 square feet.

On rough plaster, wall board and over wallpaper or burlap 500 to 600 square feet.

Where wall size is mixed with the paint, estimate about 500 square feet per gallon, one coat.

Application—No size is needed on unpainted woodwork or metal ceilings. Sizing is required for new plaster work and for wall board. For old plaster kalsomined, wash off kalsomine or if it is tight, give one coat of Certain-teed Wall Size.

Specifications—All wall paint shall be Certain-teed Flat Wall Paint used from the original containers and applied as per direction of manufacturer printed on the label of container.

All new plaster shall be clean and dry before applying one coat of Certain-teed Wall Size. All cracks in old work are to be filled with plaster of paris before applying size. All new plaster shall be given two coats of Flat Paint and old plaster shall be given one coat, unless undercoat is considerably darker than new color. The walls and ceilings of the following rooms shall be stippled in the second coat, which shall be Certain-teed Flat Wall Paint.

Certain-teed Mill White

A sanitary light reflecting finish for interior walls and ceilings of factories, shops, industrial plants, schools, office buildings, etc. Certain-teed Mill White is a durable oil paint, not a cold water paint, and will not wash off. It can be used on wood, plaster or brick surfaces. Has minimum of yellowing tendency and may be washed with soap and water. Made in flat and gloss finishes. The gloss finish has the greatest light reflecting properties, but does not produce a glare. Its smooth surface resists dust and dirt, and is more easily cleaned than the flat finish.

Soap or washing powder will not injure it. It is white when applied and stays white in use, thus overcoming the serious loss in lighting value encountered in finishes which yellow with age, readily catch dirt or rub off.

Specifications—The ceilings and walls of shall be painted with Certain-teed Mill White Paint. Where one coat is required, this shall be the gloss finish, but where two coats are required, the first coat shall be Certain-teed Mill White (Flat) Paint and the second coat shall be Certain-teed Mill White (Gloss) Paint. All paint shall be used from the manufacturer's original container and only as prescribed by the directions on the container. Old walls and ceilings painted white and not very soiled, shall be given one coat of gloss finish. New work shall be given two coats.

Certain-teed Decorative Enamel

A decorative enamel suitable for the very best architectural work. We have perfected this enamel to

meet the modern requirements for easy brushing, self-leveling and a high gloss porcelainlike finish. This is a long oil enamel and is much more satisfactory for every purpose than enamels made with a varnish base, which are difficult to apply—pulling under the brush, sagging and curtaining, and not very white in color.

Made from the finest quality ingredients, the very best and whitest zinc oxide (French Process White Seal) and specially prepared oils. It will stay white indefinitely.

One gallon will cover 600 sq. ft. of surface, one coat. It dries in 36 hours. Made in both gloss and eggshell finishes. For the most satisfactory results, Certain-teed Enamel First Coater should be used for the undercoats.

Specifications—

Priming Coat—Apply two coats of Certain-teed Enamel First Coater as directed on the label of container, sandpapering each coat lightly with 00 sandpaper before applying next coat. If enamel is to be tinted, the second coat shall be colored to about the same shade as the enamel.

Finishing Coats—Two coats of enamel shall be applied using enamel of kind selected or tinted, as directed. The first coat shall be sanded lightly with 00 sandpaper before applying the finish coat. The second coat to be left with glossy finish. Should a semi-gloss, sheen or an eggshell finish be desired, use Certain-teed Eggshell Enamels or rub glossy finish to an eggshell with pumice and water.

Certain-teed Quick Drying Enamel

This popular enamel is ideal for finishing and decorating because it dries within four hours—from surface to bottom. This means saving time on the job and a reduction in labor costs.

Certain-teed Quick Drying Enamel dries with a beautiful high gloss that is exceptionally durable. This product contains the best grades of material, and is manufactured under the supervision of skilled workmen. It is available in many attractive colors for interesting decorative effects.

One coat of the quick drying enamel is usually sufficient over surfaces previously enameled or painted. Two coats are needed over new surfaces. The second coat may be applied on the same day as the first, since this enamel dries hard in about four hours.

Certain-teed Penetrating Oil Stains

Highest quality penetrating oil stains for interior finishing on either hard or soft woods. They are in liquid form and penetrate deeply, but do not raise the grain of the wood. As they are clear and transparent, they show off the grain of the wood. Open grain woods must be filled over the stain and given time to dry before being shellacked. As the color of the stain will vary on different woods, because of the nature and color of the wood itself, samples of the stained finishes should be required before proceeding with the work. Covering capacity, 800 to 1000 sq. ft. per gallon, one coat, depending upon the wood to be stained. May be applied with a soft cloth or a brush.

Specifications—Apply one brush coat of No. . . . Certain-teed Penetrating Oil Stain. Allow stain to remain for one or two minutes, then wipe off with a rag. If not dark enough, apply second coat and wipe off. Stain to be equalized as the grain of the wood requires. Allow 24 hours for the stain to dry before filling and shellacking. Colors are to be selected by the architect and samples of finish shall have his approval before proceeding with the work.

Certain-teed Shingle Stain

For shingles, rough timber construction and for all wood surfaces not previously painted. This stain is a product of the highest quality in which the proper mixture of pigments and oils necessary to give a permanent color are added. Applied either by brushing or dipping. We recommend dipping and the application of one brush coat as soon as laid; this requires $3\frac{1}{2}$ gal. to cover 1000 shingles. For dipping 1000 shingles, $2\frac{1}{2}$ gal. are required. To brush-coat shingles on roof, 1 gal. covers approximately 150 sq. ft. on the first coat and approximately 300 sq. ft. on the second coat.

Specifications—

Shingles, Dipped—All shingles shall be dipped two-thirds their length in Certain-teed Shingle Stain No. Shingles shall be dipped in and out of the stain rapidly and then set to drain and the surplus stain allowed to run into the container. Shingles shall be permitted to absorb the stain. Shingles must be dry when dipped.

Shingles, Brush Coated—Shingles shall be given two brush coats of Certain-teed Shingle Stain No. Stain butts and edges carefully. Stain shall be applied only when the shingles are dry.

Certain-teed Varnishes

Certain-teed Varnishes are unexcelled for quality and service. They successfully meet all the "freak" tests and the more important test of actual service. Extensive manufacturing facilities, high standard of quality, ample resources and the most competent technical skill combine to make them the best that can be manufactured. Covering capacity, all varnishes, about 600 to 700 sq. ft. per gallon, one coat.

Certain-teed Universal Varnish No. 900—For both exterior and interior use. Certain-teed Universal Varnish is made from the best grades of Congo gum, China wood oil, specially treated linseed oil, etc. The formula for making Certain-teed Universal is based upon many years of experience in varnish manufacture—extensive laboratory research and every conceivable test in actual use.

Certain-teed Universal is very pale in color—is heavy bodied, brushes easily, is self-leveling and dries quickly. A quality varnish that is built for sturdy endurance under all kinds of rough usage. For all interior and exterior work. Dries dust free in from 4 to 6 hours—hard overnight.

Certain-teed Outside Spar Varnish—A pale, extremely durable, highly lustrous varnish for all outside purposes, such as store fronts, outside doors, marine work and similarly exposed surfaces. Flowing, working, and wearing qualities unsurpassed. Will dry dust free in from 4 to 6 hours and hard overnight.

Certain-teed Interior Spar Varnish—This is a highest grade interior varnish for general use. It is not affected by contact with water. Has a durable and permanent gloss which can be rubbed to a dull finish and polished, if desired. Dries dust free in about 4 hours, and hard in 18 to 20 hours; rubbed in about 72 hours.

Certain-teed Quick Drying Varnish—This varnish meets a growing demand for a durable varnish that dries rapidly. It requires only 3 or 4 hours to

dry hard, from surface to bottom, furnishing a long-wearing, high gloss finish.

Heretofore, varnishes that dried quickly were not durable and lacked elasticity. Certain-teed Quick Drying Varnish possesses the desirable feature of quick drying without sacrificing its durability. The use of a special gum in making this varnish has resulted in a product that stands great wear. Three or four hours after applying the first coat, the second coat may be applied without causing peeling or impairing of the film.

Certain-teed Stucco and Cement Paint

A decorative and protective coating for concrete, cement, stucco, stone or brick—outside or inside use.

In residence work Certain-teed Stucco and Cement Paint is especially effective. The harshness of the raw stucco is mellowed to a warm, velvety matt finish, dusting and crumbling are retarded, and the danger of dampness in the wall structure, and the collection of soot, dirt, and rain streaking are minimized.

Seals the pores of the surface and prevents the absorption of moisture by forming a waterproof coating. Covers 150 to 300 sq. ft. per gallon, two coats, and dries in from 24 to 48 hours.

Certain-teed Cement Floor Paint

For preventing dusting, crumbling and disintegrating of cement floors. Very durable and furnishes a glossy damp-proof and sanitary surface on cement floors, which is easy to keep clean.

Covering capacity, approximately 500 sq. ft. per gallon, one coat. Dries in about 12 hours.

Two coats are recommended, allowing the first coat to become thoroughly dry.

Specifications—All cement floors must be dry, clean and free from all loose particles and grease before applying the paint.

When cement floor paint is to be used on new floors (that is floors laid less than 3 months) they must be treated with a coat of zinc sulphate solution, in the ratio of 3 lb. of zinc sulphate to the gal. of water, to neutralize any excess alkali, and allowed to dry thoroughly. For the best results, apply a coat of boiled linseed oil, and when thoroughly dry, apply two coats of cement floor paint as per directions of manufacturer.



Industrial Paints and Varnishes

In addition to a complete line of standard paints, varnishes, enamels, and stains, we manufacture every kind of related industrial finishes. Specifications are rigidly adhered to, and when supplied, samples will be matched exactly for color, uniformity and durability. Our Industrial Department is devoted to problems of this nature. It is composed of men, expert in their field, who are anxious to co-operate along every line.

Architects' Specifications

Complete Architects' Specifications for the application of paint and varnish, covering the extensive Certain-teed line, will be supplied upon request. These specifications cover every phase of the architect's problems in specifying the proper paints and varnishes, the varying conditions which will affect his decisions, and their proper applications.

SAMUEL CABOT, INC.

Manufacturing Chemists

141 Milk Street, BOSTON, MASS.

NEW YORK, N. Y., 101 Park Avenue
 PHILADELPHIA, PA. KANSAS CITY, MO. LOS ANGELES, CAL. CHICAGO, ILL., 5000 Bloomingdale Avenue
 SAN FRANCISCO, CAL. SEATTLE, WASH. PORTLAND, ORE.

PRINCIPAL AGENCIES

NEWARK, N. J., INDUSTRIAL SALES COMPANY
 BALTIMORE, MD., NATIONAL BUILDING SUPPLY COMPANY
 RICHMOND, VA., R. MCBULLINGTON & CO.
 NORFOLK, VA., C. A. NASH & SON
 CHARLESTON, S. C., WILLIAM W. BIRD & COMPANY
 LOUISVILLE, KY., NATIONAL ROOFING & SUPPLY CO.
 CLEVELAND, OHIO, HARVARD LUMBER CO.
 SAVANNAH, GA., NEAL-BLUN CO.
 JACKSONVILLE, FLA., GILL & MULHOLLAND

PROVIDENCE, R. I., BELCHER & LOOMIS HARDWARE CO.
 TAMPA, FLA., KNIGHT & WALL CO.
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 HOUSTON, TEX., W. L. MACATEE & SONS
 TULSA, OKLA., BUILDERS SUPPLY CO.
 LITTLE ROCK, ARK., FISCHER CEMENT & ROOFING CO.
 DENVER, COLO., COLORADO BUILDERS SUPPLY CO.

CANADIAN AGENCIES

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VANCOUVER, B. C., WILLIAM N. O'NEILL CO., LTD.

Products

CREOSOTE and WOOD SHINGLE
 STAINS.

INTERIOR WOOD STAINS.
 SEMI-FLAT WATERPROOF COL-
 LOPAKES, including Old Virginia
 White.

GLOSS COLLOPAGES.
 DOUBLE-WHITE.
 INTERIOR FLAT WATERPROOF
 COLLOPAGES.

CLEAR BRICK and CLEAR
 CEMENT WATERPROOFING.

CONSERVO WOOD PRESERVATIVE.

DAMPPROOFING.

FLEXIBLAC PROTECTIVE PAINT.

LAMPBLACK.

MORTAR COLORS.

For Stained Shingles, and Cabot's Quilt and Build-
 ing Insulation, see Manufacturers' Index.

Cabot's Creosote Shingle and Wood Stains

The first shingle stains ever made were invented
 by Samuel Cabot in 1882. They are now made by the
colloidal process, patented under the name of the Cabot
 Collopping Process, and are carried in colloidal solu-
 tion in Cabot's Creosote.

Uses—For coloring and preserving shingles, sid-
 ing boards, wood trimmings of cement houses, etc.

Coloring Effect—Owing to the colloidal process
 by which they are combined, the colors of Cabot's
 Stains are carried into the pores of the wood like dyes,
 giving a soft and velvety effect of great depth and rich-
 ness.

The tones are clear and transparent—the texture
 and grain of the wood are not affected. There is no
 gloss or shine. Colors guaranteed fast.

Wood Preservation—Creosote approximately
 doubles the life of wood. This is why it is used by all
 leading railroads for treating ties, posts, etc. Creosote
 protects wood against decay and insects.

Cabot's Creosote Shingle and Wood Stains

Cabot's Collopakes

Samuel Cabot
 Inc.

Covering Capacity—One
 gallon covers 100 sq. ft., 2 coats,
 on rough wood, or 200 to 250 sq.
 ft. on smooth wood; $2\frac{1}{2}$ to $2\frac{3}{4}$
 gal. will dip 1000 shingles two-
 thirds their length; 3 gal. will dip
 and brush-coat.

Special Colors—Special col-
 ors and shades will be made for
 architects who wish to produce
 special effects. Send samples to
 match or suggestions to follow.

Specification—All shingles and exterior woodwork
 are to be stained with Cabot's Stains in original pack-
 ages—the stain to be used without dilution. Shingles
 are to be dipped before laying, or dipped and brushed
 once after laying or brush-coated twice after laying.
 Other woodwork is to have two brush coats (three for
 hard close-grained or smooth wood). Apply to dry
 wood only. Colors to be selected by architects.



Cypress Shingles, Brick Chimneys and Stonework Finished
 with Cabot's Double-White; Roof in Blended Brown of
 Cabot's Creosote Shingle and Wood Stain

CLARK & ARMS, Architects, New York

Cabot's Interior Stains

Colloidal pigments made by the Cabot Collopping
 process with a lighter oil base for interior work only.
 All of the beauty and lasting quality of Cabot's Creosote
 Stains.

Cabot's Semi-flat Waterproof Collopakes

More fluid than paints, flow on the surface more easily, cost about one-third less, are more beautiful, more waterproof and more durable. The finish when dry is a beautiful semi-flat surface, preserving the texture of the surface.

Where to Use Them—On all new or painted, rough or dressed woodwork, on stucco, brickwork, concrete, stone, metal or prepared roofings.

Cabot's Old Virginia White, the White Semi-flat Collopake

It is a colloidal compound which faithfully reproduces the peculiarly desirable and soft, cool qualities of whitewash; but is finer in tone and texture, simple and easy to apply, clean and lasting.

Cabot's Gloss Collopakes

Made of the strongest and most permanent earth and mineral colors colloiddally compounded, i.e., pigments of submicroscopic fineness in colloidal solution. Ideal for blinds, shutters, doors and trimmings because they do not fade or grow lifeless with age, but retain their gloss and always remain fresh and lively. Have remarkable wearing quality as floor paints on both wood and concrete.

Made in pure greens that stay green, and a wide range in other colors.

Cabot's Double-White

A heavy white non-gloss collopake. Whiter than white lead and oil, it spreads more evenly and weathers flat. Is not affected by gases and light and is waterproof.

Uses—On all kinds of surfaces, including wood, brick, cement, and stucco.



Pre-revolutionary Residence of F. H. Beckwith, Architect, Bridgeport, Conn., Finished with Cabot's "Double-White"

Cabot's Interior Flat Waterproof Collopakes

Made by the patented Cabot Collopaking Process to improve the art of interior decoration. Show no brush marks, have greater hiding power, are flatter, have better priming and sizing properties and show less suction,

have greater reflecting power for light, have no tendency to collect dirt, are washable.

Go equally well on wood, plaster, stone, glass, stucco, or metal of any kind including metal ceilings where there is a particularly large use for them, and for mill and factory interiors. Made in a wide variety of colors.

Cabot's Clear Brick Waterproofing and Cabot's Clear Cement Waterproofing

Transparent liquid waterproofings applied to the surface with a brush. They penetrate and seal the pores, making the surface completely and permanently rainproof.

The clear brick waterproofing should be used only on dark colored brick or stone. For light colored surfaces the clear cement waterproofing should be used.



Piers, Hoboken, N. J., Waterproofed with Cabot's Clear Brick Waterproofing

Cabot's Conservo Wood Preservative

For preserving all kinds of woodwork from decay, worms, and insects.

Apply with a brush, as heavily as possible, or dip the lumber before using. Conservo gives a butternut brown tone.

Cabot's Dampproofing

For direct plastering on brick and concrete walls and stonebacking on marble and other delicate stones.

A permanently waterproof and adhesive coating that forms a perfect bond between the plaster and the wall, making furring and lathing unnecessary. It penetrates both plaster and wall, knitting them firmly and permanently together. It may be used for exterior work below grade.

Cabot's Flexiblac Protective Paint

A chemically pure black bitumen paint.

Cabot's Flexiblac will not oxidize, is not affected by acids or electrolysis, will not crack nor peel. It is permanent and a perfect protection, and costs only one-third as much as linseed oil paint.

Cabot's Germantown Lampblack

Pure lampblack which gives a cool gray tone to concrete sidewalks, floors and walls, and is much used for black mortar color.

Cabot's Mortar Colors

For 35 years the strongest and most durable colors for mortar.

Made in pulp form to insure uniform mixing and to save labor.

CRAFTEX COMPANY

FACTORY AND EXECUTIVE OFFICES

37-39 Antwerp Street, Brighton Station, BOSTON, MASS.

BRANCH OFFICES

NEW YORK, N. Y.

CHICAGO, ILL.

For Craftex, Craftcoat, Craftexsize, etc., see Manufacturers' Index

AN INTERIOR FLAT WHITE PAINT WITH 90% LIGHT REFLECTION

Description

Sunflex—an inside flat white paint for undercoating and finish coats. A time-tested product used by more and more architects on work that involves unusual conditions of application, service or cost. The following characteristics show why Sunflex is unique among paints.

Light Reflection

Sunflex with better than a 90% reflection of the light, rates as high if not higher than any other paint on this important point. Owners of buildings with Sunflex walls and ceilings report savings in lighting bills as high as 30%. Sunflex gives the highly desirable "mat" or diffused reflection which distributes the light evenly throughout the room.

Never Yellows

Furthermore, this high percentage of light reflection falls off but little as time goes on. Sunflex is made with an absolutely non-yellowing binder. It stays white through exposure to air, light and heat.

Permanence

Sunflex has unusual resistance to heat, moisture, steam, acid fumes and other service factors that rapidly deteriorate most paints. It makes a permanent bond to any solid surface to which it is applied. Laundries, plants housing chemical processes and other buildings where such conditions obtain are using Sunflex in large quantities.

One-coat Coverage

The great hiding power of Sunflex saves a coat of paint on most work. Sunflex will do the ordinary 3-coat job with two coats and the 2-coat job with a single application, hiding wood, concrete, metal and other surfaces with a durable, unifying coat of opaque white. Probably 75% of all Sunflex used goes into one-coat work. The savings in material and labor that follow the elimination of one coat of paint are a worthwhile consideration when cost is a factor.

Pleasant Odor—Quick Drying

Sunflex dries dustfree in an hour with none of the disagreeable odor associated with paint. This feature makes Sunflex

SUNFLEX

ideal for use in plants manufacturing food and other products liable to contamination from paint odors, and hotels, stores, factories and other interiors where rapid repainting with minimum annoyance to occupants is desirable.



Application Over Green Concrete

Sunflex has the unusual characteristic of allowing damp surfaces to "breathe" and moisture to dry through without affecting the bond or appearance of the paint. Concrete can be painted with a permanent coat of Sunflex shortly after the forms are removed. By using Sunflex the architect is able to turn over a finished interior ready for immediate use and occupancy, an important advantage when money is running low. French plaster, green wood and other damp surfaces which will eventually dry out can be similarly painted with Sunflex.

Low Cost

There is practically no step in a painting job where Sunflex does not effect a substantial saving. It can be brushed or sprayed, flows easily, covers very well, is rapidly applied and dries without laps or brush marks. Coat for coat, Sunflex is a cost-cutter—and as already pointed out Sunflex usually eliminates one coat of paint with subsequent further savings in stock and labor.

Containers and Use

Sunflex is a white paste packed in 1, 5 and 10-gallon containers. It is quickly prepared for use by adding water and stirring smooth to painting consistency. It is easily tinted by mixing dry color with the paste or, where desired, we pretint lots of 50 gallons or over to specifications and ship ready for application.



Years of Successful Use

Sunflex was first put on the market in 1926. The best answer to its standing is shown by steadily increasing sales and use in such buildings as the following:

Representative Sunflex Installations

Wheatworth Company, New York, N. Y.
Packard Motor Car Co., Atlanta, Ga.
Brawley Steam Laundry, Brawley, Calif.
Brainerd High School, Brainerd, Minn.
Colonial Bakery, Des Moines, Iowa
Y. W. C. A., Manchester, N. H.
Telling Belle Vernon Co. (Dairy), Cleveland, Ohio
La Crosse Rubber Co., La Crosse, Wis.
Massachusetts Normal Art School, Boston, Mass.
Commonwealth Armory, Boston, Mass.
Boston City Garage, Boston, Mass.
Revere Sugar Refining Co., Charlestown, Mass.
City Hall, New Bedford, Mass.
Public Library, New Bedford, Mass.
Harvard University Dormitories, Cambridge, Mass.
Boston City Hospital, Boston, Mass.
Sacred Heart Church, Elizabeth, N. J.
U. S. Rubber Co., Detroit, Mich.
Reid Ice Cream Co., Brooklyn, N. Y.
Skating Rink, Casino, Rye Beach, N. Y.
B. F. Goodrich Rubber Co., Akron, Ohio
First M. E. Church, Charlotte, N. C.



Westchester County Community Center, White Plains, N. Y.
Showing one coat of Sunflex over bare wood

THE GLIDDEN COMPANY

MANUFACTURERS OF PAINTS VARNISHES LACQUERS ENAMELS

Executive Offices:

Madison Ave. and Berea Road
CLEVELAND - OHIO

MANUFACTURING PLANTS

Cleveland, Ohio, Madison Ave. and Berea Rd.	Reading, Pa., Third and Bern Sts.
Chicago, Ill., 1833 Seward St.	San Francisco, Calif., 1300 7th St.
Long Island City, N. Y., 209 14th St.	St. Louis, Mo., Main and Gratiot Sts.
Minneapolis, Minn., 1901 E. Hennepin Ave.	Toronto, Ont., 382 Wallace Ave.
New Orleans, La., 424 Josephine St.	

BRANCHES AND WAREHOUSES

Atlanta, Ga., 34 W. Peachtree St.	Knoxville, Tenn., 420 Union Ave.
Baltimore, Md., 13 N. Liberty St.	Los Angeles, Calif., 1601 W. 7th St.
Beaumont, Tex., 260 Crockett St.	Miami, Florida, 150 Southwest First St.
Binghamton, N. Y., 121 Court St.	Montreal, Quebec, 431 St. Dizier St.
Birmingham, Ala., 2016 First Ave.	Portland, Ore., 64 Grand Ave.
Boston, Mass., 44 Midway St.	San Antonio, Tex. 134 W. Commerce St.
Dallas, Texas, 1215 Elm St.	Scranton, Pa., 224 Wyoming Ave.
El Paso, Texas, 418 Mesa Ave.	Seattle, Wash., 2037 Westlake Ave.
Evansville, Ind., 1016 Main St.	St. Louis, Mo., Main and Gratiot Sts.
Ft. Worth, Tex., 708 Houston St.	West Palm Beach, Fla., 216 South Olive St.
Honolulu, T. H., 1245 S. Beretania	Wilkes-Barre, Pa., 142 So. Main St.
Houston, Texas, 700 Travis St.	Winnipeg, Manitoba, 44 Princess St.

The specifications shown on the following pages are definite and concise for architects' use. They are sufficiently detailed to give every architect all necessary information. In event that we have not included any material or failed to cover any condition, we shall be pleased to answer specific questions.

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The Glidden Company

The color chip samples shown here are the most popular shades in our line of architectural finishes. Color cards showing the complete range of colors for each product can be obtained upon request.

RIPOLIN



No. 53 IVORY



No. 47 LIGHT GRAY



No. 18 LIGHT BLUE



No. 2 CREAM



No. 10 PEARL GRAY

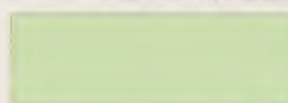


No. 44 SEA GREEN

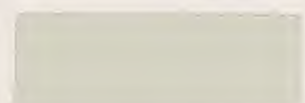
ENDURANCE FLAT WALL FINISH



IVORY



DELICATE GREEN



LIGHT GRAY



MEDIUM BUFF



LIGHT BLUE



ORCHID

ENDURANCE WOOD STAIN



LIGHT GOLDEN OAK



WALNUT



LIGHT MAHOGANY



DARK GOLDEN OAK



BROWN MAHOGANY



DARK MAHOGANY

CONCRETE FLOOR DRESSING



GRAY



TAN



TERRA COTTA

LIQUID CEMENT COATING



CREAM

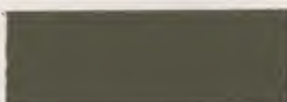


BUFF



CONCRETE COLOR

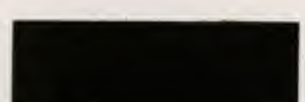
NEV-A RUST



GRAY



RED



GREEN

GENERAL INSTRUCTIONS

(1) Be it understood that the Instructions to Bidders and the General Conditions applying on the General Contract, also apply on the painting contract.

(2) **Work to Be Done**—The work required under a painting contract includes the furnishing of all material, labor and equipment of every nature which may be required for the proper painting and finishing of the building, that the work be complete in every respect unless definitely excepted by the architect.

(3) **Work Not Included in the Painting Contract**—A bill of exceptions should be made showing exactly the surfaces which do not come under the painting contract; i. e., the backs of interior wood trim, which will be shop primed by others.

(4) **Preparatory Work**—All surfaces to be painted shall be in proper condition before the work is begun. The surface shall be perfectly dry, clean and smooth. When work is defective or unsuitable for finishing, the painting contractor shall notify the architect in writing. If architect is not notified, painting contractor will be responsible for the finished condition of the work.

(5) **Workmanship**—All work under this contract shall be executed only by concerns of standing approved by the architect. All work shall be made perfect in material, workmanship and finish. All work shall be done by skilled mechanics. Work is not to be done under conditions of weather, or temperature, unsuited to good work.

(6) **Materials**—Material shall be delivered to the building in unbroken packages, bearing the brand and maker's name. Such material shall be used without any adulteration and only with such thinning as called for in the manufacturer's specifications. Sealed packages shall not be broken until the contents are to be used.

Material requiring mixing shall be mixed on the premises and must at all times be subject to the inspection and the approval of the architect.

(7) **Patching**—Carefully patch and finish all work injured or marred from whatsoever cause, to the satisfaction of the architect.

(8) **Cleaning**—When work is completed, all surplus materials, staging, rubbish, etc., shall be removed. All paint, varnish, stains, etc., shall be cleaned from the floors, glass, walls, hardware, etc., and the premises left in perfect condition acceptable to the architect.

(9) **Summary**—Paint, varnish or other finish is not to be applied to any surface containing moisture, bearing scale, rust, dirt, grease, or to any surface not clean and ready to paint.

Alkali in plaster, cement, or concrete surface must be neutralized.

Neutralize the alkali by giving the surface a wash coat with a solution of two pounds of zinc sulphate to a gallon of water.

All nail holes, cracks, etc., must be properly filled with linseed oil putty.



The Famous Three Men Trade Mark

RIPOLIN
THE ORIGINAL HOLLAND ENAMEL PAINT

Ripolin is made in America by European experts and American workmen who have been taught European methods. It is made under the direct supervision of "Ripolin, Limited." The trade-mark is the identification mark for genuine Ripolin Enamel. The secret process of making Ripolin was discovered in Holland thirty-five years ago. Since that time Ripolin has been used throughout the civilized world.



The Famous Ripolin Bending Tin Test

Finishes and Colors

Ripolin Enamel includes gloss, semi-gloss (egg-shell), flat white, and popular tints including ivory, cream, pearl gray, light gray, sea green, light blue, and pink; other tints are obtainable by addition of pure colors ground in japan, or will be manufactured for quantity orders.

Specification No. 1

For All Fine Grained Interior New Woodwork—(Including all fine grained woods, white pine, whitewood, bass wood, etc.)—

Coat No. 1: A priming coat of Ripolin Enamel Undercoating, thinned with 1 qt. of raw linseed oil and ½ pt. of pure turpentine to the gallon.

Coat No. 2: Full coat of Ripolin Enamel Undercoating.

Coat No. 3: Full coat of Ripolin Enamel Undercoating.

Economical

Ripolin has great covering capacity. Because of this fact and its outstanding opacity and also owing to its easy and even flow under the brush, it is economical.

Coat No. 4: Ripolin Enamel Undercoating re-enforced with 1 qt. of Gloss Ripolin added to the gallon to stop suction.

Coat No. 5: A good flowing coat of Ripolin. It is allowable to thin this coat with ½ pt. of pure turpentine to the gallon.

Coat No. 6: A good flowing coat of Ripolin as it comes from the can. Do not thin finishing coat of Ripolin.

Note: If expense is of prime importance, either Coat No. 3 or Coat No. 5 may be omitted. If still further economies are necessary and both Coats No. 3 and No. 5 are omitted increase the amount of Ripolin Enamel added to Coat No. 4.

RIPOLIN (Continued)**Specification No. 2**

For Interior New Woodwork—(Cedar, cypress, hemlock, yellow and Georgia pine, and other heavy-grained, sappy woods; also birch and maple.)—

Coat No. 1: A priming coat of Ripolin Enamel Undercoating thinned with 1½ pt. raw linseed oil and 1½ pt. pure turpentine to the gallon.

Note: After applying *Coat No. 1* all woodwork should be thoroughly rubbed down with fine sandpaper or steel wool. Give the whole surface a light coat of thin white shellac which has been strained through cheesecloth.

Coats Nos. 2, 3, 4, 5 and 6: Proceed as in Specification No. 1.

Specification No. 3

For New or Unpainted Plaster Walls—

Coat No. 1: A sizing coat of Glidden Oil First Coater.

Coat No. 2: A full coat of Ripolin Enamel Undercoating.

Coat No. 3: A coat made by mixing 2 parts Ripolin Enamel Undercoat and 1 part Ripolin Gloss White Enamel.

Coat No. 4: A full flowing coat of Ripolin Enamel of shade selected by architect.

Specification No. 4

For Imitation Tile on Keene's Cement, King's Windsor or Adamant Plaster—

Note: Any of the above plasters are especially good for this purpose. The plaster should be troweled as smoothly as possible, and while wet scored to the depth of ⅛ to ⅜ in. as desired.

Preparation: First wash the walls with weak vinegar or zinc sulphate to neutralize all free alkali present. Thoroughly dry before painting.

Coat No. 1: A coat of Ripolin Enamel Undercoating, thinned with 1 qt. linseed oil and 1 pt. turpentine to the gallon.

Coat No. 2: One coat of Flat Finishing Ripolin to be applied as it comes from the can.

Coat No. 3: One coat of Gloss Ripolin which may be thinned with 1 qt. of turpentine to the gallon.

Coat No. 4: A good flowing coat of Gloss Ripolin as it comes from the can. The joints should be lined up with Flat Ripolin to give a cement effect.

Specification No. 5

For Concrete or Portland Cement—

Note: Owing to the excess of free alkali and occasionally certain chemical conditions created by the process of manufacture of portland cement or concrete under various formulas, difficulty has been experienced in obtaining paints to adhere firmly to these surfaces.

Preparation: The concrete or cement must be thoroughly dry. All new concrete should be washed with a 30% zinc sulphate solution.

Coat No. 1: Liquid Cement Coating which may be thinned with about a quart of turpentine to the gallon.

Coat No. 2: The same approved cement coating.

Coat No. 3: A good full coat of Ripolin of the luster desired as taken from the can.

Notes: On a very rough laid cement an extra coat may be required to thoroughly cover the color of the surface, this being Ripolin Enamel Undercoating applied between coats Nos. 2 and 3.

For much exposed surfaces it is well to add one more coat of Ripolin as it comes from the can. In case two coats of enamel seem necessary it is well to make the first coat Semi-Gloss Ripolin, the finish coat to be of the luster desired.

EXTERIOR FINISHES**Glidden Endurance Paint (Prepared)**

The formulas are not theoretical, but conform with the best modern paint-making practice. Each formula has been put through the most rigorous tests, under adverse conditions, and has shown a permanence and durability which, as far as we know, no other formula for the same use can produce.

Glidden Endurance Paint (Prepared) works easily, covers well, resists wear and weather, has extreme durability, and leaves a good uniform surface for repainting.

Specifications**New Exterior Wood—**

Coat No. 1: As a priming coat, material should be prepared by adding one to two quarts of raw linseed oil to a gallon of Glidden's Endurance Paint (Prepared). On close grained woods, a pint of pure turpentine can also be added. Allow 24 hours for drying.

Coat No. 2: Glidden's Endurance Paint (Prepared) thinned with ½ pint to a pint of pure turpentine. Allow 72 hours for drying.

Coat No. 3: Glidden Endurance Paint (Prepared) as it comes in the container.

Repainting Old Exterior Wood—

Coat No. 1: Glidden's Endurance Paint (Prepared) thinned with one pint of raw linseed oil and one pint pure turpentine to the gallon. Allow 72 hours to dry.

Coat No. 2: Glidden's Endurance Paint (Prepared) as it comes in the container.

Titan-O-Zinc House Paint (White)

Titan-O-Zinc House Paint is a combination of Titan-O-Lith, and high quality zinc oxide, ground in specially treated linseed oil with just the right amount of dryer. It is the finest quality exterior house paint made today.

It covers and hides better than high quality paint, one coat is equal to two coats of ordinary material.

Titanium oxide chemically combined with Sun-proof lithopone gives Titan-O-Zinc House Paint its tremendous covering and hiding qualities. The fine quality zinc oxide gives it hardness of film, durability, and rich beauty. Specially treated oil adds to its whiteness and long life.

It is the latest development in outside paint formulating and manufacturing. Especially adapted for use in congested, smoky districts where fumes are prevailing.

Made in White only which can be tinted to any shade desired.

Specifications

Coat No. 1: Reduce Titan-O-Zinc House Paint to make a priming coat, with two quarts of linseed oil, except in those cases where the wood is unusually sappy and resinous. In these instances it is advisable to add as much as a pint of turpentine cutting the quantity of linseed oil similarly.

Coat No. 2: If but two coats are to be given the work, apply Titan-O-Zinc House Paint as it is furnished in the container. If it is to be a three-coat job, add a pint of turpentine to each gallon of Titan-O-Zinc House Paint for the second coat.

Coat No. 3: To be Titan-O-Zinc House Paint as it comes from the container.

Structural Coatings

Glidden Liquid Red Lead and Nev-A-Rust Structural Coatings are for use on all steel and metal structures. If applied as hereafter specified they will give the best results by inhibiting corrosion and protecting the vital parts of any structure from the destructive elements.

Specifications

Shop Coat: A coat of Glidden's Liquid Red Lead as it comes in the container. To be applied at the mill.

EXTERIOR FINISHES (Continued)

Field Coat No. 1: First patch with Glidden's Red Lead any parts that have been bared by scraping. After drying apply a coat of Glidden Nev-A-Rust as it comes in the container. To be applied by brush.

Field Coat No. 2: A coat of Glidden Nev-A-Rust of color selected by architect as it comes in the container. To be applied with brush.

Note: Before applying material, an absolutely clean steel must be obtained by either sandblasting or wire brushing.

Liquid Cement Coating

A product for dampproofing and uniforming the color of interior and exterior surfaces of concrete, cement, stucco, unglazed tile, brick, or stone. It is decorative, durable, and waterproof.

Specifications

Coat No. 1: Add to each gallon of Liquid Cement Coating shade selected, one pint of Stucolor Mixing Liquid. Apply liberally and brush well into the surface. Allow at least 24, preferably 48, hours to dry.

Coat No. 2: Liquid Cement Coating as it comes in the container, brushing out well and evenly.

Coat No. 3: If necessary; follow specifications for Coat No. 2.

Endurance Shingle Stains

A high grade creosote oil stain to be used on shingles. Prevents warping, curling, splitting and general decay of the wood and supplies the color required.

Specifications

Coat No. 1: Shingles shall be given one dip coat of Endurance Shingle Stain for two-thirds of their length, in the consistency supplied by the manufacturer, and of the color as selected by the architect. Pile shingles loosely to insure proper penetration while drying.

Coat No. 2: After being applied to the roof shingles should be given one full brushing of Endurance Shingle Stain as it comes in the container.

INTERIOR FINISHES**Glidden's Flat Wall Finish**

A durable and decorative finish for walls or ceiling. It is sanitary, washable, and can be used on rough or smooth plaster, wall board, metal ceilings, walls, etc. It is manufactured in a wide range of colors and any tint desired can be easily obtained.

Specifications

Coat No. 1: Either apply Glidden's Oil First Coater, or—Apply Glidden's Flat Wall Primer and Glidden's Flat Wall Finish, mixed in equal parts.

Coat No. 2: Glidden's Flat Wall Finish as it comes in the container allowing plenty of time to dry before Coat No. 3 is applied.

Coat No. 3: Same as Coat No. 2.

Ripol Stipple

This product is designed because it is known that the materials of the character used give a more permanent coating than can be secured with lead, oil and turpentine. Its composition allows much more time for application, so that larger surfaces can be stippled by the same painters, or a man inexperienced in stippling can secure excellent results. The finished surface has a mellow, flat texture suggestive of tapestry paper.

INTERIOR FINISHES (Continued)**Specifications****New or Unpainted Plaster or Cement—**

Coat No. 1: A coat of Glidden's Ripol Seal to stop suction and seal cracks.

Coat No. 2: Glidden's Ripol Stipple Undercoat. Allow 24 to 48 hours to dry.

Coat No. 3: Glidden's Ripol Stipple as it comes from the can—then stipple. If a fine stipple is desired a small amount of turpentine may be added as needed. If an egg-shell gloss is desired, about a pint of raw or refined linseed oil should be added to the gallon of Ripol Stipple to the final coat.

Painted Surfaces—

When surface is clean and ready to paint, apply Coat No. 2 and Coat No. 3 as for new work.

Titan-O-Zinc Flat White

Titan-O-Zinc Flat White is the new Titanium oxide flat for interior use. It is made from Titan-O-Lith (Titanium oxide and lithopone chemically combined under our own patent Nos. 1600772-3) and zinc oxide.

Titan-O-Zinc Flat White covers better than ordinary flat paint. Because of its extreme opacity it will give a solid hiding in one coat over all surfaces in fair condition. This extreme opacity gives a film which will remain white for a greater length of time than other material and gives a foundation for enamels with fewer coats than the average enamel undercoat. It carries a higher percentage of oil and gum than other high quality flat wall finishes and will, therefore, withstand washings to a much greater extent.

It is made in White only which can be tinted to any shade desired.

Specifications

Coat No. 1: Apply one coat of either Glidden's Oil First Coater or a mixture of one-half Glidden's Flat Wall Primer and one-half Titan-O-Zinc Flat.

Finishing Coats: One coat of Titan-O-Zinc Flat over the primer will produce satisfactory results. Where two coats are desired, use Titan-O-Zinc Flat just as it is found in the container for both coats.

Titan-O-Zinc Master Painter's Rapid Drying Enamel

Titan-O-Zinc Master Painter's Rapid Drying Enamel contains the same covering and hiding properties of Titanium oxide and lithopone together with the quick drying advantages of 4-hour enamel. It is the ideal enamel for master painter's use.

Easy brushing properties, greater covering and hiding properties, beauty of film and extreme durability together with quick drying are the unusual advantages found in Titan-O-Zinc Master Painter's Rapid Drying Enamel.

It is made in White only, which can be tinted to any shade desired.

Specifications

Coat No. 1: The preparation and application of this coat should vary depending upon the type of surface to be finished. Refer to Ripolin Specification 1, 2, 3, 4 or 5.

Coat No. 2: One full coat of Titan-O-Zinc Flat.

Coat No. 3: A good flowing coat of a mixture made up of three parts Titan-O-Zinc Flat and one part of Titan-O-Zinc Enamel.

Coat No. 4: Titan-O-Zinc Enamel as it comes from the container.

INTERIOR FINISHES (Continued)**Concrete Floor Dressing**

A decorative and serviceable coating for concrete or cement floors.

Its use unifies the color and beautifies the floor and has a sanitary value by preventing abrasion and dusting of the cement or concrete.

Note: All floors must be thoroughly seasoned. A wash with zinc sulphate is also advisable.

Specifications

Coat No. 1: Glidden's Concrete Floor Dressing reduced with one pint of turpentine to the gallon. After thorough mixing should be brushed well into the surface. Allow 36 to 48 hours to dry.

Coat No. 2 or Patch Coat: Spots showing unusual porosity will dry more flat than the balance of the floor and should be given a coat of Glidden's Concrete Floor Dressing as it comes in the container. Allow it to thoroughly harden and dry.

Coat No. 3: Glidden's Concrete Floor Dressing as it comes in the container. Should be applied and brushed evenly over the surface avoiding all laps.

Note: If additional coat is necessary due to the unusual porosity of the floor apply another coat following specifications for Coat No. 3.

Endurance Wood Stains

A color preparation for varnish finish. Contains a complete range of penetrating stains which greatly enhance the natural beauty of all woods. The colors are of the best quality and the stain does not raise, or cloud, the natural grain of the wood.

Specifications

Coat No. 1: A full coat of Endurance Wood Stain of the color selected.

Mahogany stains require a thin coat of pure shellac before filling. Fill all open grained woods with paste wood filler, removing excess by wiping across grain of woods with bur-lap.

Seal the filled surface with a thin coat of pure shellac. Finish as per varnish specifications.

VARNISHING**Glidden's Japspar (Exterior Varnishing)**

The most durable varnish for exterior use that we can make. It is absolutely waterproof and extremely elastic. Has excellent body and flowing properties. Can be used for interior trim. Can be rubbed to a dull finish in 4 or 5 days.

Specifications**For Close Grained Woods—**

Coat No. 1: If surface is to be stained, use Glidden's Endurance Wood Stain of the shade selected. Allow to dry thoroughly. (See specification on Endurance Wood Stains.)

Coat No. 2: Glidden's Japspar reduced with one pint of pure spirits of turpentine. Allow 36 to 48 hours for drying.

Coat No. 3: Sand second coat lightly with No. 00 sandpaper and apply a full flowing coat of Glidden's Japspar as it comes in the container. Allow 48 hours for drying. If fourth coat is necessary, follow specifications for Coat No. 2. If a rubbed finish is desired, use pumice stone and oil at the end of 5 days.

For Open Grained Woods—

Coat No. 1: Glidden's Endurance Wood Stain of the color selected by the architect.

VARNISHING (Continued)

Coat No. 2: When dry apply a coat of Glidden's Endurance Paste Wood Filler, thinned with naphtha to the consistency of cream. Remove all excess filler by rubbing the surface across the grain.

Finishing Coats: The succeeding coats are to be of Glidden Japspar. Follow specifications for Close Grained Woods.

Glidden's Floorette (Interior Varnishing)

A high grade varnish designed for the finishing of floors. Will not turn white from water, will not scratch or mar white, and its depth of gloss and paleness imparts an unusually beautiful finish to any floor.

Specifications

Coat No. 1: Glidden's Floorette thinned with one pint of pure spirits of turpentine to the gallon. Allow 24 hours to dry.

Coat No. 2: Glidden's Floorette thinned with ½ pint of pure spirits of turpentine to the gallon. Allow 24 hours to dry.

Coat No. 3: Glidden's Floorette applied full body as it comes in the container.

Glidden's Velvet Floor Varnish

A high grade, low lustre, or rubbed effect varnish designed for the finishing of floors. Will not scratch or mar white.

Specifications

Coat No. 1: Glidden's Floorette thinned with one pint of pure spirits of turpentine to the gallon. Allow 24 hours to dry.

Coat No. 2: Glidden's Floorette thinned with ½ pint of pure spirits of turpentine to the gallon. Allow 24 hours to dry.

Coat No. 3: Glidden's Velvet Floor Varnish applied full body as it comes in the container.

Glidden's Wearette

A high grade varnish for general interior use. Light in color, extremely elastic and durable. For finest interior trim in either gloss or rubbed effect. Will stand the most severe wear and rubs and polishes easily.

Specifications

Coat No. 1: Following staining, filling and sealing as covered by specifications under "Endurance Wood Stains," apply Glidden's Wearette thinned with one pint of pure spirits of turpentine to the gallon. Allow 24 hours to dry.

Coat No. 2: Glidden's Wearette applied full body as it comes in the container.

Note: Two coats are ordinarily sufficient. For rubbing, the second coat should be thinned with ½ pint of pure spirits of turpentine to the gallon and the third coat should be used as it comes in the container. Allow 36 to 48 hours for drying before rubbing.

Glidden's Lik-A-Rub

Lik-A-Rub dries with a rubbed or egg-shell effect. Contains no wax and can be varnished over at any time with additional coats of gloss varnish as desired.

Specifications

Coats No. 1 and 2: Follow specifications as given for Wearette.

Coat No. 3: Glidden's Lik-A-Rub as it comes in the container.

Note: For staining and filling, see Glidden's Endurance Wood Stains.

CREO-DIPT COMPANY, INC.

Manufacturers of Creo-Dipt Dixie White

GENERAL OFFICES

NORTH TONAWANDA, N. Y.

SALES OFFICES IN PRINCIPAL CITIES

FACTORIES

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KANSAS CITY, MO.

SEATTLE, WASH.

VANCOUVER, B. C.

CANADA: CREO-DIPT COMPANY, LTD., General Office, TORONTO, ONT.

Nature and Uses

Creo-Dipt Dixie White is a special brushcoat preparation that gives the true Colonial flat white effect—the soft velvety appearance of a wash, combined with wear-resisting qualities of Creo-Dipt long-lived stains. It can be used with equally good effect on shingles, brick, stone, cement and wooden siding.

Sold Everywhere by Leading Dealers

Leading paint, hardware, and lumber dealers throughout the United States sell Creo-Dipt Dixie White. Shipments are made from our plants at North Tonawanda, N. Y.; Cleveland, Ohio; Minneapolis, Minn.; Kansas City, Mo.; Seattle, Wash.; and Vancouver, B. C.

Qualities of Dixie White

Dixie White is a true architectural finish—it avoids that "painty" look, yet has the maximum hiding capacity. It remains white and resists the darkening effect of industrial gases. If you prefer Dixie White in tints, you can obtain it in ivory, cream, buff and similar shades.

Samples

Ask the Creo-Dipt representative or write for samples of Creo-Dipt Dixie White and its tints. There is a Creo-Dipt representative near you—look for the name Creo-Dipt in your telephone book. If you cannot find it, write the nearest factory shown on this page.

Application

If Dixie White is to be used on untreated siding,

lumber, brick, stone or stucco, the surface to which it is to be applied should first have a priming coat of white lead mixed with equal parts of raw and boiled linseed oil. Then after this is thoroughly dry, the Dixie White Stain is applied. Creo-Dipt Stained Shingles to be finished with Dixie White are furnished treated with No. 207, a priming coat. They are given two coats of Dixie White after they are applied. Detailed directions for the application of Creo-Dipt Dixie White are printed on the label of each can.

Covering Capacity

One gallon of Dixie White over No. 207 or a priming coat will cover about 150 square feet two brushcoats, or 225 square feet one brushcoat.

Creo-Dipt Stains

Creo-Dipt Brushcoat Stains—for renewing the colors and preserving old shingles—are supplied in a complete line of attractive shades. Many architects are now using Creo-Dipt Stains for siding or clapboards on new homes. For further details, ask the Creo-Dipt representative.

Other Creo-Dipt Products

In addition to Creo-Dipt Dixie White and Brushcoat Stains, we manufacture the widely known Creo-Dipt Stained Shingles, the Handi-Ironing Cabinet, and Creo-Dipt Weatherproofed Building Paper. For further information and pages on other Creo-Dipt products see Manufacturers' Index in this edition or ask nearest Creo-Dipt representative.



Dixie White on Shingle and Brick Home of Dean Mathey, Princeton, N. J.

Designed by ARTHUR C. HOLDEN

The two wings are Creo-Dipt Stained Shingles, brushcoated with Dixie White, after being dipped at the factory in No. 207, preparatory treatment. The brick chimneys and center portions of the house are brushcoated with Dixie White.

E. I. DU PONT DE NEMOURS & CO., INC.

Paints, Enamels, Varnishes, Duco

Public Ledger Building, Independence Square
PHILADELPHIA, PA.

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Products

DU PONT DUCO (Brush and Spray)
DU PONT PREPARED PAINT (for all Exterior Surfaces)
DU PONT FLOWKOTE ENAMEL
DU PONT FLAT WALL PAINT
DU PONT PRIMER SEALER
DU PONT WHITE ENAMEL UNDERCOAT
DU PONT KROMATE METAL PRIMER
DU PONT ANTIOXIDE (Rust Inhibitive)
DU PONT DU-LITE (MILL WHITE)
DU PONT FLOOR and DECK ENAMEL PAINT
DU PONT WHEELER'S PASTE WOOD FILLER
DU PONT PENETRATING STAIN
DU PONT ACID STAIN
DU PONT STAIN SEALER
DU PONT WONDERLAC
DU PONT PREPARED WAX
DU PONT SHIPOLEUM INTERIOR VARNISH
DU PONT SUPREMIS FLOOR VARNISH
DU PONT CHI-VO (to Approximate Rubbed Finish)
DU PONT NAVALITE VARNISH (Exterior)
DU PONT FOUR HOUR VARNISH



REG. U. S. PAT. OFF.

(1) **Specifications**—Filler to be reduced with turpentine or benzine at the rate of 8 to 10 lb. of filler to 1 gal. of reducer. Apply 1 brush coat of Du Pont Wheeler's () Paste Wood Filler. Allow work to stand until the filler has set or become dull, then rub the filler well into the pores of the wood, wiping off

the surplus with a cloth or sea moss, rubbing across the grain. Allow to dry at least 24 hours before finishing coats are applied.

Du Pont Architectural Varnishes

These varnishes, formerly sold under the Chicago "Yellow Can" label, have been specified by architects for the past 50 years, and are accorded first place in the varnish field.

Shipoleum Interior Finish—The very highest grade of interior varnish. Should be specified for use on fine residences, churches, schools, hospitals, asylums, public buildings, bathrooms. It stands heat and moisture, is very elastic and never cracks. May be rubbed and polished.

Supremis Floor Finish—The first varnish put on the market especially for floors, and one that has always retained its leadership. It is a remarkable wood preservative, dries hard and elastic, is extremely pale in color, is thoroughly waterproof and will not mar or scratch white.

When rubbed, it produces the soft eggshell luster of French polish.

Chi-Vo—Noted for its beautiful rubbed appearance without the labor and expense of rubbing. This is a distinctive varnish, made by a new process, and has a third more spreading capacity than ordinary varnishes.

Should be specified as a finishing coat over Shipoleum Varnish.

Navalite (Spar)—Especially adapted for use on front doors, vestibules and any exterior surface subject to all kinds of weather conditions. It will retain its luster and elasticity under severe conditions and meets every requirement of drying, appearance and durability.

Four Hour Varnish—The full gloss varnish which dries with convenient rapidity. It is designed for use on floors and all interiors. Du Pont Four Hour Varnish is elastic and will not mar white. The use of this product enables the painter to complete a two-coat job in a single day.

(2) **Specifications**—Apply 3 coats of Du Pont Architectural () Varnish. Each coat to be sanded (except Chi-Vo) when thoroughly dry, with No. 00



The Du Pont Line

The quality reputation enjoyed by the Du Pont line of Finishes has been built on two primary factors: the establishment of rigid standards of quality, and the setting up of machinery and methods to insure strict adherence to these standards. These two principles have established in the public mind a confidence in Du Pont products, and the strict adherence to these standards assures the architect of the best possible results.

To its unique technical and scientific experience, the Du Pont Company combines a practical paint manufacturing experience which dates back over a century—with the old Harrison paint line, the Yellow Can Varnishes of the Chicago Varnish Works, and the stains, fillers and finishes formerly manufactured by the Bridgeport Wood Finishing Company as antecedents of the present Du Pont line.

Du Pont Wheeler's Paste Wood Filler

The original silex wood filler, used by the leading piano and furniture manufacturers for over 40 years. It is specified by leading architects for all types of building construction, including the finest public and residential work. Forms a permanent, unshrinkable, transparent foundation in the pores of the wood for the support of the finishing coats.

Supplied in Transparent, Walnut or Light Antique, Golden Oak, Mahogany, Mahogany N (for dark mahogany effects), Ebony and Special White.

sandpaper, and dusted. Final coat to be rubbed to flat, eggshell or polish, as desired. If time or expense will not permit rubbing, the use of Chi-Vo is recommended.

Du Pont Penetrating Stain



For producing on practically all woods, with the possible exceptions of mahogany and walnut, clear toned stained effects.

These stains do not raise the grain of the wood or show laps. They penetrate the wood deeply, bringing out the full beauty of the grain.

Where economy of finish is a factor, the oak shades may be used as a 1-coat finish, but are generally finished over with stain sealer and wax; stain sealer and varnish; filler, stain sealer and wax; or filler and varnish. On close grained woods, the use of filler is not necessary.

The mahogany shades are generally used on such close grained woods as birch, gumwood, pine, fir, cypress and whitewood, and should be finished over with stain sealer and varnish coats.

Regularly supplied in the following colors:

Light Oak, Brown Oak, Golden Oak, English Oak, Flemish Oak, Walnut, Light Mahogany, Dark Mahogany, Brown Mahogany, Mission Green, and Circassian Walnut (for gumwood only).

(3) **Specifications**—Apply brush coat of Du Pont () Penetrating Stain. Allow work to stand for 4 or 5 minutes and wipe off surplus stain with a cloth to secure uniform effect. Allow to dry 24 hours before applying further finishing coats.

Du Pont Stain Sealer

A sealing coat for Penetrating Stains which also perfectly supports the varnish coats.

This product is much superior to shellac for the purpose, as it prevents the stain from "bleeding" through the varnish coats. Do not specify the use of Penetrating Stains without the use of Stain Sealer.

(4) **Specifications**—Apply 1 brush coat of Stain Sealer over Penetrating Stain; allow to dry 24 hours and sand or hair lightly. Dust work before applying varnish coats.

Du Pont Acid Stain

Intended for use on all types of wood in producing the delicate light gray and brown satiny effects not possible with any other type of stain.

The mahogany effects are generally used on genuine mahogany wood in connection with Wheeler's Paste Wood Filler, such effects being finished over with varnish coats. Use filler on all open grain woods. Grays and fumes are generally finished over with Wonderlac.

Regularly supplied in the following colors:

No. 1000 Dark Fumed Oak, No. 1314 Light Fumed Oak, Standard Gray, Satin Gray, Steel Gray, Smoked Pearl, Mahogany, Dark Mahogany, Brown Mahogany. Write for panels showing new gray and brown tones.

(5) **Specifications**—Apply 1 brush coat of Du Pont () Acid Stain. Allow work to dry thoroughly, about 12 to 24 hours, and sand surface smooth with No. 00 sandpaper. Dust work before applying further finishing coats.

Wonderlac

A dull lusterless finish adapted for use *only* over the Gray and Fumed Acid Stains. Does not change the

color of the most delicate shades and forms a damp-proof finish.

(6) **Specifications**—Apply 2 brush coats of Wonderlac over Standard Gray (or Fumed Oak) Acid Stain, allowing 8 hours between coats for drying.

Du Pont Prepared Wax

Used in producing the waxed effect on interior woodwork and floors.

(7) **Specifications**—Apply 2 coats of Prepared Wax. Apply with a cloth evenly over the entire surface; allow to stand 10 to 20 minutes and polish with a soft cloth. The second coat may be applied in the same manner 24 hours after the first coat has been polished.

Du Pont Enamel Undercoat (White)

This is the proper undercoat for an enamel finish. Possesses excellent spreading qualities presenting full body on the work. Forms a hard, smooth finish, causing the enamel to stand out with full gloss and luster.

(8) **Specifications**—Apply 2 brush coats of Du Pont Enamel Undercoat as follows:

First Coat—Thin with linseed oil at rate of 1 qt. of pure raw linseed oil to 1 gal. of Undercoat. For pine or cypress, substitute turpentine for linseed oil. Allow to dry 48 hours and sand with No. 00 sandpaper.

Second Coat—Apply Undercoat as it comes from the can. Allow to dry 48 hours and sand with No. 00 sandpaper.

FlowKote Enamel



A high grade strictly long oil, zinc pigment enamel that will not change color. Adapted for both interior and exterior work.

Supplied in White and Ivory, in both gloss and rubbed finish. The latter type gives the hand rubbed effect without the labor and expense of rubbing; and if rubbed finish is specified, no rubbing is necessary for the final coat.

(9) **Specifications**—In addition to the Enamel Undercoat mentioned above, specify 1 coat of equal parts, Undercoat and FlowKote Enamel, followed by 1 coat of Du Pont FlowKote Enamel. Sand first coat when thoroughly dry with No. 00 sandpaper. Dust work and apply second coat. Final coat to be (left in gloss or rubbed eggshell) as desired.

Du Pont Special Lab Enamel

Special Lab Enamel (or Fumeproof Enamel) is an intensely white product composed of specially prepared varnish and selected pigments, being designed to withstand extraordinary conditions, such as fumes, gaseous vapors, etc., which readily discolor usual enamel.

It dries with a hard, durable elastic film of either eggshell or high gloss effect and may be repeatedly washed. Although primarily prepared for use in hospitals, laboratories, bakeries, factories, etc., it is an exceptional general utility product.

Du Pont Lab Enamel is furnished in white only, gloss or eggshell, but may be easily tinted to any shade desired with Du Pont Oil Colors.

(10) **Specifications (New Work)**—*Preparation*—All surfaces must be perfectly dry and all loose or scaling particles removed by wire brushing. Grease or oil spots shall be removed by washing thoroughly with benzine or gasoline.

Specification No. 1, for New or Unpainted Plaster, Concrete, Wall Board or Brick—

Note: If the surface to which the coating is to be applied is green or particularly strong in alkali, use the following clause: "Apply a neutralizing coat of zinc sulphate crystals, using 3 to 4 lb. dissolved in a gallon of water. After applying solution, allow to dry and then brush off any loose crystals which may remain."

First Coat—Du Pont Enamel Undercoat to which has been added Du Pont Primer Sealer in equal proportions.

Second Coat—Du Pont Enamel Undercoat to each gallon of which has been added ½ gal. of Du Pont Special Lab Enamel.

Third Coat—Du Pont Special Lab Enamel—egg shell or full gloss.

Specification No. 2, for Woodwork—First Coat—Du Pont Enamel Undercoat thinned with pure spirits of turpentine to priming consistency.

Second Coat—Du Pont Enamel Undercoat to each gallon of which has been added ½ gal. of Du Pont Lab Enamel.

Third Coat—Du Pont Lab Enamel.

Specification No. 3, for Metal Walls and Ceilings—First Coat—Kromate Metal Primer.

Second Coat—Du Pont Enamel Undercoat without thinning.

Third Coat—Du Pont Enamel Undercoat to each gallon of which has been added ½ gal. of Du Pont Lab Enamel.

Fourth Coat—Du Pont Lab Enamel.

(11) Specifications (Old Work)—Preparation—Plaster, brick, or concrete surface shall be carefully wire brushed to remove scaling or loose particles. Holes or cracks shall be filled smooth with plaster of paris and such places treated with Primer Sealer and Enamel Undercoat, same as for new work as given in Specification No. 1.

Specification No. 4—First Coat—Du Pont Enamel Undercoat.

Second Coat—Du Pont Special Lab Enamel.

Note: Where the old film is not badly discolored, omit the first coat of Enamel Undercoat.

Du Pont Prepared Paint

An exceptionally durable house paint made to withstand extreme weather conditions. Has exceptional durability and covers well.

Color card on request, showing 30 attractive colors.

(12) Specifications—Preparation—Coat all knots and sappy streaks with shellac, to prevent showing through subsequent paint coats. Apply 3 coats Du Pont Prepared Paint () as follows:

On very resinous knots the resinous matter should be "pulled out" of the surface by the use of the blow torch, followed by a brush coat of turpentine or benzole just before application of the priming coat. Apply 3 coats of Du Pont Prepared Paint () as follows:

Priming Coat—Thin to priming consistency with equal parts linseed oil and turpentine. (For soft, open grained woods like white pine and poplar, thin with 3 parts oil and 1 part turpentine. On resinous woods, such as yellow pine, reduce with 1 part oil and 3 parts turpentine.) All nail holes to be puttied after first coat.

Second Coat—Thin to working consistency with a mixture consisting of 1 part raw linseed oil and 2 parts turpentine. Brush out well.

Third Coat—Apply without thinning, except when conditions warrant the use of a little turpentine.



Du Pont Flat Wall Paint

A ready-to-use interior wall finish, producing a soft, matte surface that can be repeatedly washed. Covers exceedingly well and does not show brush marks.

Supplied in 10 colors and white. Send for color card, showing these colors in various combinations.



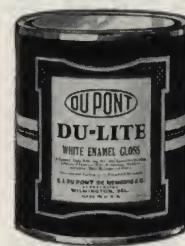
(13) Specifications—First

Coat—Du Pont Flat Wall Paint, to each gallon of which has been added from a quart to a half gallon of Du Pont Primer Sealer depending on porosity of surface.

Second Coat—Du Pont Flat Wall Paint of package consistency.

Third Coat—Same as second coat.

Du-Lite (Mill White) Enamel



Du-Lite is a mill white of lasting whiteness. In its manufacture the oils are treated by a unique and exclusive process called "thermostatic control." Du-Lite stubbornly resists discoloration—remains white over a long period of service.

Du-Lite is a white enamel made in the following finishes: Du-Lite Undercoater, Du-Lite Gloss, Du-Lite Eggshell and Du-Lite Flat.

Three coats recommended for all new or unpainted work.

(14) Specifications for Use Over Cement, Concrete, Brick and Plaster—Preparation—All surfaces must be thoroughly dry and free from grease and dirt.

(Caution: New or green surfaces, particularly green or strong in alkalis, should first be washed with a solution made by dissolving 3 to 4 lb. of zinc sulphate in 1 gal. of water.)

Finishing—First Coat—Du Pont Du-Lite Undercoater to each gallon, of which has been added an equal amount of Du Pont Primer Sealer.

Second Coat—Du Pont Du-Lite Undercoater to each gallon of which has been added ½ gal. of Du-Lite Enamel.

Third Coat—Du Pont Du-Lite Gloss, Eggshell or Flat.

Where only 2 coats are used, the following specification is recommended:

First Coat—Du Pont Du-Lite Undercoater.

Note: Where brick and concrete surfaces are very porous, 1 qt. of Du Pont Elastic Wall Primer should be added to each gallon of Du-Lite Undercoater for first coat.

Second Coat—Du Pont Du-Lite Gloss, Eggshell or Flat.

(15) Specifications for Use Over Wood and Wall Board—Preparation—All surfaces must be thoroughly dry and free from grease and dirt. Knots and sappy places in wood shall be shellacked before painting and all nailholes puttied after first coat.

Finishing—First Coat—Du Pont Du-Lite Undercoater reduced to priming consistency with equal parts of pure raw linseed oil and spirits of turpentine or turpentine substitute.

Second Coat—Du Pont Du-Lite Undercoater.

Third Coat—Du Pont Du-Lite Gloss, Eggshell or Flat.

Where only 2 coats are used, the second coat may be omitted.

(16) Specifications for Use Over Structural Iron

or Steel and All Metal Work (except Galvanized Iron)—Preparation—Metal surfaces shall be cleaned of all scale, dirt, rust and grease.

Finishing—First Coat—Du Pont Kromate Metal Primer.

Second Coat—Du Pont Du-Lite Undercoater.

Third Coat—Du Pont Du-Lite Gloss, Eggshell or Flat.

Where only 2 coats are used, the first coat may be omitted.

Note: When galvanized iron is used, apply a solution of copper sulphate, using 8 oz. in 1 gal. of warm water. When dry, priming coat, as above, may be applied.

Du Pont Primer Sealer

The proper foundation for Du Pont Flat Wall Paint and Du-Lite. Stops the suction in plaster walls and prevents plaster burns from showing through subsequent coatings.

(17) Specifications—See Du Pont Flat Wall Paint and Du-Lite Specifications.

Du Pont Old English Paint Oil

Old English Paint Oil is a specially prepared vehicle for general painting purposes. The oil is made on a China wood oil base, which is well known as one of the most complete oxidizing oils in existence. It has practically the same body as linseed oil, although much lighter in color, making it particularly well adapted for use with light colored paints. When Du Pont Old English Paint Oil is used no driers are required.

Furthermore, Old English Paint Oil does not "burn up" the life of the linseed oil generally incorporated in paints as driers are inclined to do. This product when used as a reducer of gloss or flat paints adds to their durability, makes them more washable and more easily applied.

It is unsurpassed as a wall size, being steamproof and waterproof. Old English Paint Oil is an exceptional floor dressing. It will not darken the wood nor bruise white, but dries with a hard, tough, elastic surface. Two coats give a good gloss finish. By the addition of turpentine Old English Paint Oil will give a beautiful satin gloss effect, or even a flat, dependent upon the quantity of turpentine used.

A few other general uses of this product are:

When added to shingle stain it binds the colors free from wash.

For tempering varnishes and glossing paints.

As a blender for raw oils.

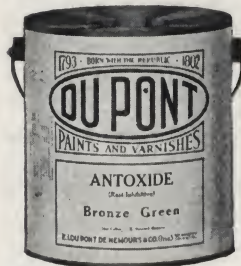
For dressing oil cloth and linoleum.

For application to exterior brick or cement surfaces as a waterproofing material.

Makes green and black paints dry quickly and hard.

Resists mildew.

Antoxide (Rust Inhibitive)



A rust inhibitive paint with a varnishlike vehicle, that completely covers the surface and prevents moisture from attacking the metal and causing rust. It prevents the formation of rust beneath the coating as well as progressive oxidation where it has already begun.

This paint withstands acid fumes to a most unusual degree, therefore is peculiarly adapted for use around smelters, acid plants, paper and other mills. It is also used on water towers, inside and out, as it does not foul water.

(18) Specifications—Preparation—Surface to be free from grease, dirt and dust. Wire brush to remove scale.

First Coat—Du Pont Kromate Metal Primer.

Second Coat—Du Pont Antoxide (), to each gallon of which has been added 1 pt. of turpentine.

Third Coat—Du Pont Antoxide (), as contained in package.

Du Pont Kromate Metal Primer

One of the latest developments in metal primers for structural steel or sheet metal, the principal pigment being basic lead chromate. Supplied in ready mixed form and is far superior to red lead in rust inhibitive properties.

(19) Specifications—See Du Pont Flat Wall Paint and Antoxide specifications.

Du Pont Floor and Deck Enamel

A hard drying, wear resisting, high gloss enamel paint for the preservation of exterior and interior wood and concrete floors. Supplied in 11 colors.

(20) Specifications (Wood Floors)—First Coat—Du Pont Floor and Deck Enamel Paint () to each gallon of which has been added 1 pt. pure turpentine.

Second Coat—Du Pont Floor and Deck Enamel Paint () as received in original package.

(21) Specifications (Concrete Floors)—First Coat—Du Pont Floor and Deck Enamel Paint () to each gallon of which has been added from 1/2 to 1 pt. pure turpentine.

Second Coat—Du Pont Floor and Deck Enamel Paint () as received in original package.

(Caution: Concrete floors should age for at least 30 days before painting. Refer Du-Lite Specification 12 for new concrete wall and ceiling surfaces.)

Du Pont Duco (Spray Application)

Information supplied on request.

Special Note

Realizing that the architects of today are constantly striving for uniqueness, economy and beauty, but not at the expense of quality or serviceability, the Du Pont Company, research leaders in the chemical field, is vitally interested in encouraging, assisting and promoting the architects' handiwork.

The Architectural Division of the Du Pont Company is maintained for the express purpose of co-operating with the architectural profession. Every attempt is made to study the problems pertaining to the profession, and the use of the service of one of the Du Pont architectural representatives or direct contact with any of the offices is cordially welcomed.

Supplementing the personal assistance available at all times, the opportunity of furnishing you with the specially prepared *Architectural Specification* manual would be appreciated. This manual is attractively bound in standard architectural file size, conveniently arranged so as to give ready reference to specifications covering the Du Pont line.

In addition to this, a selected list of finished panels, the result of exhaustive research with the architects, is kept on hand at all times awaiting your requests. Every panel carries a complete outline of the finishing procedure.

THE EAGLE-PICHER LEAD COMPANY

Manufacturers of Lead Pigments for Paints

BALTIMORE, MD., 359 Guilford Ave.
BOSTON, MASS., 11 Wharf Street
BUFFALO, N. Y., 66 Delaware Ave.
CHICAGO, ILL., 134 No. La Salle St.
CINCINNATI, OHIO, 1030 Broadway
CLEVELAND, OHIO, 1654 Union Trust Bldg.
DALLAS, TEX., Jefferson and Caruth St.
DETROIT, MICH., 7310 Woodward Ave.

JOPLIN, MO., 214 W. 3rd St.
KANSAS CITY, MO., 2801 Terrace St.
MINNEAPOLIS, MINN., 437 Harding St.
NEW ORLEANS, LA., 411 So. Peters St.
NEW YORK, N. Y., 420 Lexington Ave.
PHILADELPHIA, PA., 4th and Cherry St.
PITTSBURGH, PA., 1804 Arrott Bldg.
E. ST. LOUIS, ILL., 305 St. Claire Ave.

Eagle White Lead—For All Types of Painting

Pure lead paint (made from white lead carbonate ground in linseed oil) continues to be the most satisfactory answer to all general painting problems. In the hands of a good painter, it is quickly mixed to suit *exactly* all the requirements of each job. It readily fits into any color scheme or decorative plan, for the painter tints it to the desired shade on the job. There is no guesswork.

Pure lead paint expands and contracts with changes in temperature; the film is elastic and long wearing despite severe weather conditions. It wears away slowly, so that when repainting is necessary, the old film forms a perfect base for the new white lead coats. No burning or scraping off is required when pure lead paint is used.

Eagle White Lead comes in two forms: heavy paste and easily-mixed *soft paste*. Both are pure lead carbonate ground in linseed oil, but *soft paste* contains more oil per 100 lbs. This additional oil, ground in at Eagle factories, saves the painter time in preparing the mixture for the brush. Both heavy and *soft paste* Eagle White Lead are available in 100, 50, 25 and 12½-lb. air tight steel kegs.

For Interior Decoration—(a) Flat Effects and "Egg-Shell" Gloss Finishes—When pure white lead is thinned to brushing consistency with Eagle Flatting Oil, the resulting paint provides a durable finish which may be tinted to any color required by the decorative plan. The paint dries into a smooth washable surface showing no brush marks.

Before application, the wall surface should be thoroughly dry; if, for example, paint is applied on plaster walls which are still damp, cracking will develop. No amount of quality materials and skillful workmanship can avert it. Loose paint scales, if present, must be scraped and sandpapered off; oil or grease spots must be removed, for paint will not adhere to these surfaces. All dust must be wiped off; otherwise it is liable to mix with the paint and discolor it.

General Formulae (heavy paste only is considered):

New Inside Work Priming Coat

Eagle White Lead.....	100	lbs.
Pure Raw Linseed Oil.....	3	gals.
Pure Turpentine	1	gal.
Best Japan Drier.....	1½	pts.
Paint produced	7	gals.

Second Coat

Eagle White Lead.....	100	lbs.
Pure Raw Linseed Oil.....	1½	gals.
Pure Turpentine or Eagle Flatting Oil.....	1½	gals.
Best Japan Drier.....	1	pt.
Paint produced	5½	gals.

Third Coat—Oil Gloss

Eagle White Lead.....	100	lbs.
Pure Raw Linseed Oil.....	3-3½	gals.
Pure Turpentine or Eagle Flatting Oil.....	1	pt.
Best Japan Drier.....	1	pt.
Paint produced	6-6½	gals.

Third Coat—Flat

Eagle White Lead.....	100	lbs.
Turpentine or Eagle Flatting Oil.....	3	-3½ gals.
Paint produced	5¾-6¼	gals.

Old Inside Work First Coat

Eagle White Lead.....	100	lbs.
Pure Raw Linseed Oil.....	1	gal.
Pure Turpentine or Eagle Flatting Oil.....	2-3	gals.
Best Japan Drier.....	1	pt.
Paint produced	5¾-6¼	gals.



TRADE-MARK

Second Coat—Oil Gloss

Eagle White Lead.....	100	lbs.
Pure Raw Linseed Oil.....	3-3½	gals.
Pure Turpentine or Eagle Flatting Oil.....	1	pt.
Best Japan Drier.....	1	pt.
Paint produced	6-6½	gals.

Second Coat—Flat

Eagle White Lead.....	100	lbs.
Turpentine or Eagle Flatting Oil.....	3	-3½ gals.
Paint produced	5¾-6¼	gals.

Note: Eagle Flatting Oil, as recommended in the foregoing specifications, is obtainable in quart, gallon, and 5-gallon packages. A companion product to Eagle White Lead, Eagle Flatting Oil is indispensable in effecting the rich, tasteful wall finishes made from pure white lead paint.

In the foregoing formulae, no consideration has been made for color other than that of the natural gleaming whiteness of pure lead paint. Any oil colors of known quality effectively combine with Eagle White Lead; a tinting chart will be sent on request.

(b) Plastic Finishes from White Lead Paint—Dignified, low-relief textures can be secured with Eagle White Lead. Tones and shades are limitless, depending on the motif of the individual decorative scheme. Any skilled craftsman can quickly execute these tasteful plastic finishes; a detailed booklet on this subject will be sent without charge to any architect desiring it. General Formula:

Eagle White Lead (heavy paste).....	100	lbs.
Whiting	15	lbs.
Dental Plaster of Paris.....	10	lbs.
Eagle Flatting Oil (1½ gals.).....	11	lbs.
Makes about 5½ gals. of Plastic Paint.		

For Exterior Decoration—Pure lead paint has long enjoyed unequalled prestige for durability and beauty in outside painting work. The surface, prior to painting, must be prepared in general as suggested under "Interior Decoration." General Formulae (*soft paste* only is considered):

Old Outside Work

First Coat

Eagle Soft Paste White Lead.....	100	lbs.
Raw Linseed Oil.....	3	qts.
Turpentine	1¾	gals.
Best Japan Drier.....	1	pt.

Makes about 6 gals. of white paint.

Second Coat

Eagle Soft Paste White Lead.....	100	lbs.
Raw Linseed Oil.....	2½	gals.
Turpentine	1	pt.
Best Japan Drier.....	1	pt.

Makes about 6¼ gals. of white paint.

New Outside Work

Priming Coat

Eagle Soft Paste White Lead.....	100	lbs.
Raw Linseed Oil.....	2¾	gals.
Turpentine	1½	gals.
Best Japan Drier.....	1	pt.

Makes about 7½ gals. For very light-colored woods ½ gal. more of oil may be added.

Second Coat

Eagle Soft Paste White Lead.....	100	lbs.
Raw Linseed Oil.....	1	qt.
Turpentine	1½	gals.
Best Japan Drier.....	1	pt.

Makes about 5½ gals. For very light-colored woods ¼ gal. more of oil may be added.

Third Coat

Eagle Soft Paste White Lead.....	100	lbs.
Raw Linseed Oil.....	2½	gals.
Turpentine	1	pt.
Best Japan Drier.....	1	pt.

Makes about 6¼ gals. For very light-colored woods 1 pt. more of oil may be added.

Eagle Sublimed Blue Lead—for Metal Surfaces

9 reasons for rustproofing with sublimed blue lead:

- (1) Proper basicity, chemically stops corrosion.
- (2) Exceptional durability.
- (3) Elasticity and toughness in oil.
- (4) Extreme fineness and smoothness.
- (5) Easy brushing, spraying and dipping qualities, air dried or baked.
- (6) Remarkable opacity.
- (7) Pleasing color—the color being slate gray.
- (8) Exceptionally low cost per square foot finishing surface.
- (9) Will not harden in the keg.

The superiority of Sublimed Blue Lead in Oil as a rust preventive is no theory. It is a proven fact.

The American Society for Testing Materials tested the rustproofing value of all available rust inhibitive paints (about 50 in number) by actual exposure of 300 steel panels to which these paints had been applied. Most of them failed the first year. Of all the commercial paints tested, after the tests had extended over six years, the highest rating for rustproofing efficiency was awarded to Sublimed Blue Lead in Oil.

Every architect, engineer, builder, and industrial executive should know the facts about Sublimed Blue Lead. A booklet, "Rustproofing with Sublimed Blue Lead," will be sent free of charge upon request.

How Sublimed Blue Lead Inhibits Rust—It is known that corrosion can be retarded by the use of a paint containing a pigment which is "chemically basic." Sublimed Blue Lead is basic and retards the rusting of steel through these two functions of its film: exclusion and inhibition (chemical prevention) of rust formation.

Exclusion is accomplished by having a dense homogeneous film through which moisture, corrosive vapors, and oxygen of the air cannot penetrate. The excluding property of a Sublimed Blue Lead film is increased by these among other factors: proper relation between pigment and oil volumes; chemical bond between oil and pigment; uniformly fine pigment particles; and pigment unchanged by atmospheric contact. The surface is therefore protected from carbon dioxide, sulphur dioxide, sulphurous acid, carbon monoxide, soot, etc.; deterioration is prevented. Sublimed Blue Lead expands and contracts with the metal as changes in temperature occur. It does not sag when applied to perpendicular surfaces.

Some paints are practically neutral as rust inhibitors, and some paints actually "promote rust." The pigment is the deciding agent. The point is—the mere painting of steel will not necessarily prevent corrosion unless a rust inhibitive pigment is used.

Even when in time the vehicle has become permeable to moisture, Sublimed Blue Lead continues to function as a rust inhibitive pigment.

Sublimed Blue Lead is of impalpable fineness. Mixed with linseed oil, volatile thinners, and driers, it produces a paint of exceptional hiding power, together with remarkable brushing, spraying, and spreading qualities. It covers the surface uniformly, and will endure years of exposure without cracking, checking or peeling.

What Sublimed Blue Lead Is—Sublimed Blue Lead is a fine, slate-gray powder, produced by sublimating galena ore (lead sulphide) in special furnaces. The pigment is ground with pure linseed oil, accurately mixed in proper proportions. No other raw materials are employed. Sublimed Blue Lead is not only supremely efficient in rustproofing service, but is economical in original cost. It gives a maximum yield per pound in paint produced, in application, because of its easy spreading qualities; requires a minimum of labor, and its use assures protection of metal surfaces for an unusually long period. A gallon of properly mixed Sublimed Blue Lead will cover 700 to 800 sq. ft. of metal surface of average smoothness.

Sublimed Blue Lead is not a new product. It has been on the market many years, during which it has always demonstrated qualities that make it a leader among the rust-preventative pigments.

Where to Use Sublimed Blue Lead—Sublimed Blue Lead is an ideal pigment for every purpose requiring a metal protective paint. Its first use is as a priming coat (direct to the metal). Sublimed Blue Lead is equally as good for second and finishing coat work for metal or wood.

Sublimed Blue Lead is a pleasing slate-gray color and may be used just as well as White Lead tinted gray. All gray colored paints fade slightly, but no more so with Sublimed Blue Lead than any other gray. Sublimed Blue Lead makes an attractive trim on metal or wooden structures and adds to the appearance of buildings. When used as a priming coat it may be painted over with Eagle White Lead in oil or Eagle Sublimed White Lead, or mixed with either of them or with other combinations such as red lead, American vermilion, commercial chrome green or commercial chrome yellow. It can be brushed, sprayed, dipped, or air dried.

How to Use Sublimed Blue Lead—The removal of rust, mill scale and dirt should be done generally by sand blasting or the use of metal brushes, scrapers, chisels, hammers or other effective means. Bright steel should be exposed in all cases. If sand blasting is used, the first coat of paint must follow immediately.

Oil and grease may be removed by the use of gasoline or benzine. Do not apply paint on wet or damp surfaces and in no case until preceding coat is dry and hard. Allow two to four days before applying second coat for exterior work. For priming coat on interior allow one week before applying a second coat, and twenty-four hours between second and third coats.

Paint shall be evenly spread and shall be thoroughly brushed out. Where solder fluids have been used on metal surfaces, it shall be cleaned thoroughly with benzine before any paint is applied. All rivet heads and bolts, and all edges and corners shall be thoroughly covered with paint in painting structural steel or other metal work.

In exceptional instances pickling is advisable for small work and especially before painting galvanized metal, otherwise treat it with a solution of eight ounces copper sulphate to one gallon of soft water, allow to dry and brush off, follow by using Sublimed Blue Lead. Paint shall be thoroughly stirred before being removed from container and while it is being applied.

How to Secure Sublimed Blue Lead—Sublimed Blue Lead in Oil sells at the same low price as Eagle White Lead in Oil and may be had in the following sizes: 12½, 25, 50 and 100-lb. containers, or may be secured from a reliable paint manufacturer by specifying pure Eagle-Picher Sublimed Blue Lead mixed to paint consistency ready to apply.

In the container, the pigment remains perfectly in suspension; it will not harden or liver. It may be kept in the keg without deterioration.

Paint Formulas**Sublimed Blue Lead in Oil (paste)****First Coat**

Sublimed Blue Lead in Oil.....	100 lbs.
Raw Linseed Oil.....	2½ gals.
Turpentine or paint and varnish manufacturers' 49° naphtha	1½ gals.
Drier (rosin free).....	1 qt.

Second Coat

Sublimed Blue Lead in Oil.....	100 lbs.
Raw Linseed Oil.....	3 gals.
Turpentine	2 qts.
Drier (rosin free).....	1 qt.

Sublimed Blue Lead—Dry (powder)**First Coat**

Sublimed Blue Lead—Dry.....	90 lbs.
Raw Linseed Oil.....	4 gals.
Turpentine or 49° Naphtha.....	1½ gals.
Drier (rosin free).....	1 qt.

Second Coat

Sublimed Blue Lead—Dry.....	90 lbs.
Raw Linseed Oil.....	4½ gals.
Turpentine or 49° Naphtha.....	2 qts.
Drier (rosin free).....	1 qt.

To increase the permanence of the color, many users add about 3% lampblack to formulas for second and finishing coats.

49° naphtha represents the gravity known as the Baumé or hydrometer test for a liquid weight. The initial boiling point of this naphtha is 210° F. and the end point about 332° F.

The Raw Linseed Oil shall conform to the linseed oil specifications of the A.S.T.M. Standards, pages 655-658, Vol. 21.

The Japan Drier shall be pure unadulterated drier containing no rosin.

The Turpentine used shall be pure unadulterated turpentine and conform to the specifications of the Department of Commerce, Bureau of Standards, as given in Circular No. 86.

(Note: For painting metal surfaces that may become too hot to warrant the use of linseed oil, substitute fish oil.)

Eagle Red Lead—Dry and in Oil

While we recommend Sublimed Blue Lead as the most effective yet most economical rustproofing pigment on the market, we are also manufacturers of pure red lead. Eagle Red Lead in Oil is packed in 100, 50, 25, and 12½-lb. kegs. In dry form, it is put up in barrels of 500-600 lbs.

It possesses high "true" red lead content and is fine enough to insure splendid brushing qualities. It is impervious to water and unaffected by atmospheric gases. The rapid drying qualities of Eagle Red Lead make it decidedly advantageous for use where a hard surface, capable of withstanding abrasion, must be produced in a shorter time than usual.

HILO VARNISH CORPORATION

(MOLLER & SCHUMANN CO.)
ESTABLISHED 1863

Manufacturers Varnishes, Enamels, Fillers and Stains

Marcy and Flushing Avenues
BROOKLYN, N. Y.

BRANCH OFFICES

BOSTON, MASS., 102 Merrimac Street
CHICAGO, ILL., 2420 Washburne Avenue

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Products

QUALITY FINISHES for all surfaces—wood, metal, plaster, stone, concrete.

VARNISHES—Interior and Exterior; Staining Varnishes.

ENAMELS—Interior and Exterior; Colored Enamels; Floor Enamels.

PENETRATING OIL STAINS.

WOOD FILLERS.

PRIMERS.



TRADE MARK

Hilo Brands

Molmanite—a high grade white enamel for all surfaces, interior and exterior.

White Enamel Undercoat—well suited for all enamel foundation work.

Speed-Up Floor Varnish—a quick drying lustrous varnish. Durable and waterproof.

Speed-Up Floor Enamel—an exceptionally durable liquid coating for wood or concrete. Made in eight colors or special colors on order.

Speed-Up Spar Varnish—a tough, durable varnish for outside woodwork.

Speed-Up Interior Varnish—an unusually high class varnish for interior woodwork, trim, doors, etc.

Cabinet Finish—a rubbing and polishing varnish for woodwork and cabinet trim. Dries with a fullness which allows close rubbing.

Flat Finish Varnish—gives a rich rubbed effect without the labor and expense of rubbing.

Compo Tint—a quality flat wall finish made in eleven colors. Washable.

Flat White (Compo Coating)—an excellent wall finish which will tint to any color.

Hi Lite—Gloss, Eggshell, Flat—a white enamel for daylighting interiors of industrial plants, garages, etc.

P. W. M. Primer—a primer and sealer for plaster, wood, metal and porous surfaces.

Penetrating Oil Stain—made in seven standard shades.

Specialists in Fine Finishes

The HILO VARNISH CORPORATION has specialized in making fine architectural finishes since 1863.

Hilo products, each made for a specific purpose, have achieved fame for their honest quality. Their use assures satisfaction with the finished work.

Service

An experimental finishing laboratory, with experienced varnish chemists and wood finishers, is at the service of the architect. Sample finished wood panels and special varnished or enameled effects will be worked out and placed at the architect's disposal whenever requested.

We co-operate in drawing specifications to cover varnish, enamel and wall finishing work.

Specifications for Flat Wall Finishing on Plaster

New Work

No. 1 Priming Coat—Coat of Hilo P. W. M. Primer, reduced two parts P. W. M. Primer to one part turpentine or good turpentine substitute.

No. 2 Sealer Coat—Coat of a mixture of half P. W. M. Primer and half Hilo Flat White (or Compo Tint of color selected) reduced to brushing consistency.

No. 3 Body Coat—Coat of Hilo Flat White (or Compo Tint of color selected) as it comes in the can.

No. 4 Finishing Coat—Coat of Hilo Compo Tint of color selected, as it comes in the can.

Specifications for Gloss Wall Finishing on Plaster

No. 1 Priming Coat—Coat of Hilo P. W. M. Primer, reduced two parts P. W. M. Primer to one part turpentine or good turpentine substitute.

No. 2 Sealer Coat—Coat of a mixture of half P. W. M. Primer and half Hilo Flat White (Compo Coating), reduced to brushing consistency.

No. 3 Body Coat—Coat of Hilo Flat White (Compo Coating) as it comes in can.

No. 4 Finishing Coat—Coat of Hilo Hi Lite Gloss White Enamel as it comes in can. (Tint Hi Lite Gloss White to color selected.)

Specifications for White Enamel on Wood

New Work

Sand surface smooth and brush off clean.

No. 1 Priming Coat—Coat of Hilo P. W. M. Primer, reduced two parts P. W. M. Primer to one part turpentine or good turpentine substitute.

No. 2 Undercoat—Two coats of Hilo White Enamel Undercoat, allowing twenty-four hours between coats.

No. 3 Finishing Coat—One coat of Hilo Molmanite White Enamel as it comes in can.

(Note: If finishing coat is to be rubbed, sand lightly and apply additional coat. Allow three to four days between coats.)

Specifications for Daylighting Industrial Interiors

No. 1 Priming Coat—Coat of a mixture of half P. W. M. Primer and half Hilo Flat White (Compo Coating) reduced to brushing consistency.

No. 2 Body Coat—Coat of Hilo Flat White (Compo Coating).

No. 3 Finishing Coat—Coat of Hi Lite Gloss White Enamel.

For dado and wainscoting of wood, brick or concrete—two coats of Hilo Dado Enamel of color selected.

For floors of industrial interiors—two coats of Hilo *Speed-Up* Floor Enamel of color selected.

Varnish Specifications**New Exterior Woodwork**

Sand surface smooth and brush off.

Staining—Stain with Pigment Oil Stain.

Filler—Fill open grain wood with Hilo Paste Woodfiller. (Close grain wood requires no filler.)

Varnish Coat—Two coats of Hilo *Speed-Up* Spar Varnish, allowing six hours between coats and sanding lightly between coats. (If great depth of finish is desired specify third coat of Hilo *Speed-Up* Spar Varnish.)

New Interior Woodwork

Sand surface smooth and brush off.

Staining—Stain with Hilo Penetrating Oil Stain of color selected.

Filler—Fill open grain wood with Hilo Paste Woodfiller.

(Close grain wood requires no filler.)

Shellac Coat—Thin coat of shellac. Sandpaper smooth.

Varnish Coat—Two coats of Hilo *Speed-Up* Interior Varnish allowing six hours between coats. (Can be rubbed after twelve hours.)

(Note: On windowsills, store fronts and places exposed to strong sunlight omit shellac coat.)

Rubbed Effect without Rubbing

Follow specifications as for Interior Woodwork, omitting second coat of Hilo *Speed-Up* Interior Varnish and substitute coat of Hilo Flat Finish Varnish.

Specifications for Finishing Floors**New Work**

Sand surface smooth and brush off.

Filler—Fill open grain wood with Hilo Paste Woodfiller of color selected and sandpaper smooth. (Close grain wood requires no filler.)

Varnish Coat—Two coats of Hilo *Speed-Up* Floor Varnish allowing six hours between coats. (If great depth of finish is desired specify third coat of Hilo *Speed-Up* Floor Varnish.)

Specifications for Hilo *Speed-Up* Floor Enamel on Wood—Concrete—Composition Floors

Remove grease and oil spots and brush clean.

Apply two coats of Hilo *Speed-Up* Floor Enamel allowing six hours between coats.

Specifications for Enameling Iron Work

Clean surface removing all rust.

Apply two coats of Hilo *Speed-Up* Colored Enamel, of color selected, allowing six hours between coats.

General Specifications for Painting

General Conditions—The contracting painters shall be governed by the general conditions covering complete specifications for this building.

Specification of Work—Finishing all surfaces of wood, plaster, composition, concrete and unfinished metal throughout the interior of this building.

Materials—Materials shall conform exactly in brand as herein specified, and must be delivered at building in original containers with labels and seals intact.

Tint must have approval of architect for color, before applying.

Materials should not be thinned or changed in any way, except where specified or upon approval of architect.

Preparation of Surfaces—All surfaces shall be

thoroughly clean; free from dust and dry before applying finish.

Any surfaces to be finished which are not in satisfactory condition for finishing shall be reported to architect.

Nailholes, cracks, etc., shall be filled with putty of color to match the finish.

Workmanship—Workmanship shall be of the highest quality. All materials spread evenly and smoothly, flowed on without laps, sags or brushmarks.

During the finishing work, the contracting painter shall protect all adjacent work and materials by covering or other method. When finishing work is completed he shall clean all enamel and varnish spots from floor, glass and other surfaces.



S. C. JOHNSON & SON

Manufacturers of Interior Finishes

RACINE, WIS.

FACTORIES

RACINE, WIS.; BRANTFORD, CANADA; WEST DRAYTON, MIDDLESEX, ENGLAND; SYDNEY, AUSTRALIA

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ST. PAUL, MINN., 1930 St. Anthony Avenue
SAN FRANCISCO, CAL., 56 Twelfth Street
SEATTLE, WASH., 314 Bell Street

Products

JOHNSON'S WAX POLISH (Paste and Liquid).

JOHNSON'S ELECTRIC FLOOR POLISHERS:

Household Model

De Luxe Model

JOHNSON'S INTERIOR FINISHES:

Johnson's Floor Varnish

Johnson's Flat Varnish

Johnson's Sani-Spar Varnish

Johnson's Sani-Spar Varnish Stains

Johnson's Floor & Finishing Varnish

Johnson's Interior Trim Varnish

Johnson's Quick-Drying Varnish

Johnson's Perfectone Undercoat

Johnson's Perfectone Enamel

Johnson's Quick-Drying Perfectone Enamel

Johnson's Glo-coat Enamel

Johnson's No. 25 Enamel

Johnson's Paste Wood Fillers

Johnson's Crack Fillers

Johnson's Permacote (flat wall paint)

Johnson's Wood Dyes (oil stains—spirit stains)

Johnson's Liquid Wax Glaze

Johnson's Floor Lacquer

Johnson's Lacquer Stain (four colors)

Slogan

"The Interior Finishing Authorities"

Scope and General Information

S. C. JOHNSON & SON have been in business at Racine, Wisconsin, for nearly 50 years and occupy a unique position in the decorating industry. They do not attempt to cover the entire "paint" field but concentrate on a highly specialized line of Interior Finishes.

Each of these finishes is built on the old craftsman idea of doing one job 100% perfectly. Yet this old-fashioned plan is carried out in one of the most modern plants and finest laboratories in the country.

Johnson Finishes are standard in nine-tenths of American schools where manual training or vocational education are taught. And Johnson Specifications are the model for high grade construction.

Floor problems particularly have been a study of the Johnson organization. Johnson Electric Floor Polishers provide a modern and efficient adaptation of that ancient method of floor maintenance which has survived the test of centuries—*wax*. Write for the Johnson book, "The Proper Treatment for Floors."

Specifications for Finishing New Floors

Note: Specifications in italics are especially recommended.

(1) For Oak and Other Open Grain Woods

Preparation—Have the surface sanded smooth and thoroughly dusted. All nailholes and other defects shall be treated with Johnson's Crack Filler so as to render them unnoticeable.

First Coat—One coat of Johnson's Paste Wood Filler on bare wood. (Filler may be natural or colored any shade to suit client.) Wipe off with burlap or excelsior across the grain and allow 24 hours to dry.

Second Coat—One coat of Johnson's Floor Lacquer flowed on with a full brush.

Third and Fourth Coats—Two coats of Johnson's Prepared Wax (Paste). Apply wax in thin coat, allow to dry 20 minutes or more, then polish thoroughly with Johnson's Wax Electric Floor Polisher. Allow one hour or more between coats. Maintain thereafter with Johnson's Liquid Wax.

Or—Two coats of Johnson's Floor Varnish may be used in place of wax, allowing 24 hours between coats. Sandpaper first coat with No. 00 sandpaper and dust off before applying second coat.

(2) For Stained Effects on Open Grain Woods

Preparation—Have the surface sanded smooth and thoroughly dusted. All nailholes and other defects shall be treated with Johnson's Crack Filler so as to render them unnoticeable.

First Coat—One coat of Johnson's Wood Dye, shade to be selected by client.

Second Coat—One coat of Johnson's Paste Wood Filler—color selected by client.

Third Coat—One thin coat of pure shellac (2 lb. cut). Sandpaper very lightly with No. 00 sandpaper.

Fourth and Fifth Coats—Two coats of Johnson's Prepared Wax (Paste), allowing an hour between coats.

Or—Two coats of Johnson's Floor Varnish, allowing 24 hours to dry between coats. First coat to be sanded.

Note: Darkening floors through use of colored Paste Wood Filler is much easier than the use of stain unless very unusual color is desired.

Note: Do not use shellac or shellac substitute on floors except as absolutely necessary over oil stains.

Note: When varnish is used, apply one or two coats of Johnson's Liquid Wax subsequently, and maintain with the Liquid Wax, as cleaning will be greatly simplified and years added to the life of the varnish.

(3) For a Natural Finish on Maple, Pine, Birch, Gum, Poplar, Redwood, and Other Close Grain Hardwoods and Softwoods

Preparation—Have the surface sanded smooth and thoroughly dusted. All nailholes and other defects shall be treated with Johnson's Crack Filler so as to render them unnoticeable.

First Coat—One coat of Johnson's Floor Lacquer, flowed on with a full brush.

Second and Third Coats—Two coats of Johnson's Prepared Wax, allowing an hour between coats.

Or—Two coats of Johnson's Floor Varnish in place of wax, allowing 24 hours to dry between coats. First coat to be sanded.

(4) For a Stained Effect on Maple and Other Close Grain Hardwoods and Softwoods

Preparation—Have the surface sanded smooth and thoroughly dusted. All nailholes and other defects shall be treated with Johnson's Crack Filler so as to render them unnoticeable.

First Coat—One coat of Johnson's Lacquer Stain, shade to be selected by client.

Second and Third Coats—Two coats of Johnson's Prepared Wax.

Or—Two coats of Johnson's Floor Varnish, allowing 24 hours to dry between coats. First coat to be sanded.

Specifications for Finishing New Woodwork

(1) For a Natural Finish on Oak and Other Open Grain Woods

Preparation—Have the surface sanded smooth and thoroughly dusted. All nailholes and other defects shall be treated with Johnson's Crack Filler so as to render them unnoticeable.

First Coat—One coat of Johnson's Natural Paste Wood Filler No. 10. Wipe off across the grain with burlap or excelsior and allow 24 hours to dry. (Johnson's Paste Wood Filler also made in mahogany, golden oak, dark oak, and Antwerp.)

Second Coat—One coat of Johnson's Floor Lacquer, flowed on with a full brush.

Third and Fourth Coats—Two coats of Johnson's Prepared Wax, allowing an hour or more between coats. Each coat to be polished with soft rag or Johnson's Polishing Mitt.

Or—Two coats of Johnson's Sani-Spar Varnish, allowing 24 hours between coats. First coat to be sanded with No. 00 sandpaper, and dusted before applying second coat.

Or—Two coats of Johnson's Floor Varnish, allowing 24 hours between coats. First coat to be sanded.

Or—One coat of Johnson's Floor Varnish and one coat of Johnson's Flat Varnish if a dull finish is desired. First coat to be sanded. Allow 24 hours between coats.

Note: If a rubbed finish is desired over Johnson's Sani-Spar or Floor Varnishes use pumicestone and oil or pumicestone and water, allowing 72 hours for last coat of varnish to dry before rubbing.

Note: A well polished coat of Johnson's Liquid Wax over any of the above varnish finishes adds a richness of effect, makes cleaning easier, and preserves the finish forever.

(2) For a Natural Finish on Softwoods and Close Grain Hardwood as Maple, Birch, Pine, Gum, etc.

Preparation—Have the surface sanded smooth and thoroughly dusted. All nailholes and other defects shall be treated with Johnson's Crack Filler so as to render them unnoticeable.

First Coat—One coat of Johnson's Floor Lacquer.

Second and Third Coats—Two coats of Johnson's Paste Wax.

Or—Two coats of Johnson's Sani-Spar or Floor Varnish on the bare wood. (May be rubbed if desired.) Allow at least 24 hours between coats. First coat to be sandpapered with No. 00 sandpaper.

Or—One coat of Johnson's Sani-Spar Varnish and one coat of Johnson's Prepared Wax.

Or—One coat of Johnson's Floor Varnish and one coat of Johnson's Flat Varnish if a dull finish is desired. First coat to be sanded.

(3) For Stained Effects on Open Grain Woods

Preparation—Have the surface sanded smooth and thoroughly dusted. All nailholes and other defects shall be treated with Johnson's Crack Filler so as to render them unnoticeable.

First Coat—One coat of Johnson's Wood Dye, shade to be selected by client. Allow 12 hours to dry.

Second Coat—One coat of Johnson's Paste Wood Filler to match the stain. Wipe off across grain with burlap or excelsior to remove excess filler and allow 24 hours to dry.

Third Coat—One thin coat of pure shellac (2 lb. cut). Sandpaper lightly with No. 00 sandpaper.

Fourth and Fifth Coats—Two coats of Johnson's Prepared Wax, allowing an hour or more between coats.

Or—Two coats of Johnson's Sani-Spar Varnish or Johnson's Floor Varnish. Sand first coat with No. 00 sandpaper and allow 24 hours to dry. May be rubbed if desired.

Or—One coat of Johnson's Floor Varnish and one coat of Johnson's Flat Varnish for a dull finish.

Note: A simple stained effect on open grain woods can be most easily obtained by the use of colored paste wood filler just as specified for a natural finish under (1). The range of colors, however, is not as great as obtainable with the wood dyes as specified here.

(4) For Stained Effects on Close Grain Hard and Soft Woods

Preparation—Have the surface sanded smooth and thoroughly dusted. All nailholes and other defects shall be treated with Johnson's Crack Filler so as to render them unnoticeable.

First Coat—One coat of Johnson's Wood Dye, shade to be selected by client.

Second Coat—One thin coat pure shellac. Sand lightly with No. 00 sandpaper.

Third Coat—Two coats of Johnson's Prepared Wax. Allow an hour between coats.

Or—One coat of Johnson's Floor Varnish and one coat of Johnson's Flat Varnish for a rubbed effect.

Or—One or two coats (depending on body desired) of Johnson's Sani-Spar Varnish or Floor Varnish clear. May be rubbed if desired.

(5) For Interior Enamel Finish on Woodwork, Kitchens, Pantries and Bathrooms

Preparation—All nailholes and other defects to be puttied with lead and whiting putty. A light coat of white shellac should be applied on knots and all pitchy wood. Sand with No. 00 sandpaper and dust.

Priming Coat—One coat of Johnson's Perfectone Undercoat—thinned with 1 pint raw linseed oil, ½ pint pure spirits of turpentine, and 3 ounces white japan drier to 1 gallon of Undercoat. Brush out well and allow 24 to 36 hours for drying. Sand with No. 00 sandpaper and dust.

Second or Body Coat—One coat of Johnson's Perfectone Undercoat as comes in the can. If necessary to reduce, use pure spirits turpentine only. Apply freely, flowing it on, and allow 24 to 36 hours for drying. Sand with No. 00 paper.

First Enamel Coat—One coat of Johnson's Perfectone Enamel (Gloss or Satine) or Johnson's Glo-coat Enamel or Johnson's No. 25 Enamel. A flowing coat which has been reduced with ½ pint pure turpentine to the gallon. Allow this coat 4 or 5 days to harden. Sand lightly with No. 00 paper.

Finish Enamel Coat—Johnson's Perfectone Enamel or Johnson's Glo-coat Enamel or Johnson's No. 25 Enamel. A flowing coat as it comes in the can. This last coat may be rubbed with pumicestone and water if desired.

Note: For rush work use Johnson's Quick-Drying Perfectone Enamel.

Note: Care should be taken that building be well heated when applying material.

Note: If in any case only one coat of enamel is used, add one pint of enamel to each gallon of the preceding coat of undercoat.

Specifications for Finishing Walls

(1) For One-color Finish on Plaster

Preparation—Clean and dust off. Fill all cracks with paste made from equal parts of Permacote and plaster of paris.

First Coat—Johnson's Permacote (tinted to suit taste of client) reduced with equal parts Johnson's Wall Size Varnish or reduced with ½ gallon of pure boiled linseed oil to 1 gallon Johnson's Permacote. Allow 24 hours for drying. If suction or "hot spots" show through, touch up with above mixture.

Second and Third Coats—Apply Johnson's Permacote as it comes in the can (tinted to suit the taste of client). If thinning is necessary, use pure turpentine, not more than 1 pint to a gallon. May be stippled if desired.

(2) For One-color or Two-tone Finish on Textured Walls (over "Plastic Paints" or Sand-finish Plaster)

Preparation—Clean and dust off. Fill all cracks with heavy paste made from equal parts of Permacote and plaster of paris.

First Coat—Johnson's Permacote (tinted to suit taste of client) reduced with equal parts Johnson's Wall Size Varnish or reduced with ½ gallon of pure boiled linseed oil to 1 gallon Johnson's Permacote. Allow 24 hours for drying. If suction or "hot spots" show through, touch up with above mixture.

Second Coat—Apply Johnson's Liquid Wax Glaze (tinted with pure oil colors to suit client). "Pick up" glaze with soft cloth until desired effect is produced. Or for two-tone effect wipe off high spots until desired effect is produced. Allow to dry 24 hours and then polish thoroughly with bristle brush.

(3) For Two or More Colors on Textured Walls

Preparation—Clean and dust off. Fill all cracks with paste made from equal parts of Permacote and plaster of paris.

First Coat—Johnson's Permacote (tinted to suit taste of client) reduced with equal parts Johnson's Wall Size Varnish or reduced with ½ gallon of pure boiled linseed oil to 1 gallon Johnson's Permacote. Allow 24 hours for drying. If suction or "hot spots" show through, touch up with above mixture.

Second Coat—Apply base coat of Johnson's Liquid Wax Glaze (tinted with pure oil colors to suit client). Do not allow to dry before applying other colors.

Third Coat—Spot Johnson's Liquid Wax Glaze tinted to colors chosen by client, over the base coat. Then with clean soft cloth blend colors until desired effect is produced. Allow 24 hours to dry and then polish thoroughly with bristle brush.

Note: Gold and silver effects may be obtained by mixing small amount of gold or silver bronze powder in the natural Glaze and applying lightly with cloth on the high spots. Polish when dry.

Price List

Tell your painting contractor to write for the Johnson Wholesale Price List.

HOCKADAY, INC.

A DIVISION OF THE MORGAN COMPANY

MANUFACTURERS OF
Washable Interior Paint

GENERAL OFFICES

20 North Wacker Drive, CHICAGO, ILL.

FACTORY

200 Voris Street, PEORIA, ILL.

Products

HOCKADAY, a washable semi-gloss wall paint.

HOCKADAY No. 186 REDUCER.



Where Hockaday Gives the Best Results

Hockaday produces a semi-gloss wall finish of unusual toughness, fineness and remarkable durability. It is non-porous and elastic and readily expands and contracts with the surface on which it is applied, thus preventing breaking or checking.

Hockaday has no equal for use over plaster, cement, brick, wall board, and other porous surfaces, and equally good results can be had on wood or metal surfaces. Because it is non-porous and may be washed repeatedly, without ill effects, Hockaday is an ideal paint for hospitals, schools, theatres, hotels and office and public buildings where long life and low maintenance cost is required. Both as a finish and as an undercoater for all materials, it is unexcelled.

What Hockaday Washable Wall Paint Is

Hockaday Paint is a mixture of opaque pigments and liquids, used as a coating principally to protect and beautify. Hockaday comes in two parts, Body and Reducer, or thinner. The body of Hockaday Paint is composed of the highest grade of zinc oxide and lithopone; a combination of specially prepared varnishes and oils comprises the liquid for the body. The body is about the consistency of unchilled butter.

Hockaday Reducer is composed of materials similar to the liquid of the body and, in painting, it is mixed in different proportions with the body to meet varying individual job conditions.

10 EXCLUSIVE FEATURES OF HOCKADAY

(1) **No Lime Burning**—The binder (the liquid that binds particles of pigment together and holds them to the wall) is the only binder that lime in plaster will not burn and destroy. The action of lime is neutralized and entirely overcome. It works the same on old as well as on new walls.

(2) **No Air Checks**—Both coats are the same. They have the same rubber-like elasticity, therefore, unlike paints where different undercoats are used, they contract and expand together.

(3) **No Peeling**—Applied according to our instructions, Hockaday will not peel.

(4) **No Size or Primer Used**—Hockaday is complete in itself.

(5) **Only Two Coats Required**—The foundation coat, which is also a color coat, seals the pores and stops all suction. New work in light shades requires three coats, two coats with colors on color card. The elimination of size often saves one-third material and one-third labor.

(6) **Easier to Apply**—Hockaday levels itself. Our instructions

read: "Do not brush out—flow on." This may not appear to be a major advantage, but it is. Hockaday takes less time to apply. A painter can turn out more squares per day.

(7) **Spreads Further**—Careful tests over a period of years, under varied conditions, prove this. Hockaday can be relied upon to spread ten percent further than average gloss or semi-gloss paint.

(8) **Really Washable**—When washing is mentioned, "sponging off" is not implied. Hockaday is really washable. Repeated washings do not mar its original beauty. Hockaday is non-porous. Microscopically it seals the wall with an enamel-like finish. A washed Hockaday wall looks clean and is clean. There are no pores for bacteria to lodge in. Hospitals especially like this sanitary feature.

(9) **Lasts Longer**—Hockaday has unusual durability. In hundreds of jobs throughout the country, it has been in use for more than ten years and is still in good condition.

(10) **Reduces Maintenance Costs**—The washability and long life of Hockaday reduces upkeep costs.

SUGGESTIONS FOR ARCHITECTS SPECIFICATIONS

It is recommended that the following "note" be incorporated by architects in their specification of Hockaday. Its use will do two things: Make certain that Hockaday is used; assure best results.

Hockaday—Whenever the word "Hockaday" is mentioned in this specification, it shall be the trademarked product manufactured only by HOCKADAY, INC., of Chicago, and shall consist of a foundation and finish coat as recommended by the manufacturers. Hockaday is to be delivered in unbroken original containers.

Application—All plastered surfaces are to be given two coats when colors are no lighter than those on regular color card (white or delicate tints take three) of Hockaday. Hockaday is to be applied in strict accordance with the manufacturer's printed specifications. Said manufacturer's specification (attached) is made a part of this specification. The painter must follow it without any deviation. Positively no thinner other than the reducer supplied by HOCKADAY, INC., is to be used. The application of glue or any size, before or between coats, on new or old surfaces, is strictly prohibited.

Stippling—The mixture should be a trifle heavier

than material used for brush coat finish. Let stand 20 to 30 minutes or until tacky.

The following paragraph is optional. If you consider it advisable, it should be included. It is taken in part from the Government specification of Hockaday:

"Two coats, without a size, must produce a surface of such a nature that air cracks, water stains, suction spots and lime burns must be overcome and from which defacements caused by grease, ink, match scratches or pencil marks may be easily removed by the use of soap and water or an abrasive washing compound, without injury to the paint surface."

Write the Hockaday Service Department, 20 No. Wacker Drive, Chicago, for further details regarding the advantages of Hockaday Washable Wall Paint. Upon request, we will gladly send you a test panel, also a copy of our beautiful reference book, "Decorations," which contains illustrations of numerous nationally-known jobs on which Hockaday is used.

MARTIN VARNISH COMPANY

"Pioneers of 100% Pure Varnishes"

TELEPHONE
VICTORY 7000

HOME OFFICE
2520 Quarry Street
CHICAGO, ILL.

CABLE ADDRESS
"MARTIN-CHICAGO"

Products

MARTIN'S 100% PURE* VARNISHES: Floor, Interior, Outside Spar and Velour.

MARTIN'S ENAMELS and ENAMEL UNDERCOAT.

MARTIN'S AMBER-LYTE—a penetrating finish and first-coater.

MARTIN'S LIGHT LINOLEUM VARNISH, PURE SHELLAC, LIGHTNING DRYER, PAINT and VARNISH REMOVER, etc.

*Note: Martin's 100% Pure Varnishes contain only pure fossil gums, turpentine and vegetable oils. No benzine, no rosin. Formula on every can.



A Complete Specification Book

A complete specification book, practical and informative in character and prepared with the co-operation of architects, will be sent on request. Other booklets: "Finishing Methods of the Old Master Craftsman" and "The Martin Enamel Finishing System."

Our Architect's Service Department

Our Architect's Service Department is prepared to co-operate with the architect and contractor in connection with special finishing problems.



A Representative Group of Martin Products

Specifications: General

Surface to be smooth, clean and dry. Liquid filler should never be used. Shellac should never be used except to seal penetrating or spirit dye-stains or cover pine knots.

Allow 24 hours for drying between coats of Amber-Lyte or varnish; 48 hours for enamel undercoat.

Number of Coats—Amber-Lyte gives penetration and reduction of first costs, while 100% Pure Varnish gives more body and higher luster. This should be borne in mind in specifying a given number of coats of either.

Specifications for Floors

No. 1. Open-grained Woods, Such as Oak—

(a) **Paste Filler**—To be thinned to creamy consistency with naphtha and brushed on. Before dry, to be wiped across the grain. To be sanded when dry with No. "O" sandpaper. Dust to be removed.

(b) **First Coat**—To be choice of Martin's 100% Pure Floor Varnish, thinned with 1 pt. of turpentine to the gallon of varnish and flowed on, or Martin's Amber-Lyte straight, brushed out thin.

(c) **Second Coat**—To be choice of Martin's 100% Pure Floor Varnish, flowed on straight, or Amber-Lyte straight, brushed out thin.

(d) **Third Coat**—To be Martin's 100% Pure Floor Varnish, flowed on full body.

No. 2. Close-grained Woods, Such as Maple, Birch, Beech, White, Red or Yellow Pine, and Cypress—

(a) **First Coat**—To be Martin's Amber-Lyte straight, brushed out thin.

(b) **Second Coat**—To be choice of Martin's 100% Pure Floor Varnish, flowed on straight, or Martin's Amber-Lyte straight, brushed out thin.

(c) **Third Coat**—To be Martin's 100% Pure Floor Varnish, flowed on straight.

No. 3. Rubbed Effect—

(a) **To Secure Rubbed Effect Without Labor Cost of Rubbing**—First coat, as above; second coat in every case to be Martin's 100% Pure Floor Varnish; third coat to be of Martin's 100% Pure Velour Finish, flowed on straight.

(b) **Alternative**—Three days after applying last coat of floor varnish, finish to be rubbed with pumicestone and oil.

Specifications for Public Building Floors

No. 4. Application—Three coats of Martin's Amber-Lyte, should be brushed out thin, allowing 24 hours for drying between coats, before sanding the surface and having it cleaned of dust.

(Note: Paste filler should be applied first on open-grained wood, as specified in 1-a.)

Specifications for Interior Woodwork

No. 5.—Specifications identical with those for floors, substituting Martin's 100% Pure Interior Finish for Floor Varnish.

Specifications for Exterior Finishing

No. 6.—Specifications identical with those for floors, substituting Martin's 100% Pure Outside Spar Varnish for Floor Varnish.

Specifications for Enamel Finishing (Interior or Exterior)

No. 7. Priming Wood (All Kinds)—Priming coat to be Monarch 100% Pure Paint, or equal, thinned with ½ gal. of pure raw linseed oil and ½ pt. of pure turpentine to the gallon of paint. Allow at least 24 hours to dry.

No. 8. Priming Plaster, Concrete, Cement, Brick, Stone, Plaster and Substitutes—

(a) **Preparation**—First, apply a solution of 3 lb. zinc sulphate crystals dissolved in a gallon of water. 24 hours to be allowed for drying.

Note: This neutralizes the alkali or "hot spots."

(b) **Priming**—A priming coat of Martin's Amber-Lyte, to be brushed out thin. Allow ample time for drying.

No. 9. Finishing Coats (To Be Used on All Materials)—

(a) **Second Coat**—To be Martin's Enamel Undercoat, full body. To be sanded after 48 hours with No. "00" sandpaper. Dust to be removed.

(b) **Third Coat**—To be Martin's Enamel Undercoat, full body, or mixture of Martin's Enamel and Undercoat (for ivory finish some of the color should be used in this coat). To be sanded after 48 hours. Dust to be cleaned up.

(c) **Fourth Coat**—To be Martin's Full Gloss Enamel (white, gray or ivory), or Martin's Eggshell Enamel.

(d) **Final Coat**—Exteriors only—An additional coat of Martin's Full Gloss Enamel to be applied.

MINWAX COMPANY, INC.

A Complete Service for Waterproofing, Dampproofing and the Preservation of Wood and Masonry

11 West 42nd Street, NEW YORK, N. Y.

BRANCH OFFICE: 232 East Erie Street, CHICAGO, ILL.

FACTORY: DELAWANNA, N. J.

For Representatives Refer to Local Telephone Directory and Paragraph on Last Minwax Page

Products

MINWAX BRICK and CEMENT COATING;
MINWAX METHOD of WOOD FINISHING.

We also make a full line of Waterproof-



ing and Dampproofing Products, Caulking Compounds, etc., for all general building construction purposes, for which see Manufacturers' Index.

MINWAX BRICK AND CEMENT COATING

For Waterproofing and Decorating Exposed Surfaces of Cast Concrete, Brick or Stucco—This Minwax product is a pigment coating produced in a series of attractive flat color tones. It is a combination of the highest grade inert mineral pigments obtainable in a carrying vehicle based on Minwax Clear Waterproofing (one of the oldest, best known and most efficient mediums for exposed wall waterproofing).

This vehicle not only binds the coating on the wall surface so that it stays put, but it penetrates and eliminates the porosity factor and thus prevents the possibility of a dusty, loose coating.

The coating penetrates and becomes part of the concrete or brick, and the Minwax Clear Waterproofing vehicle penetrates far below the surface and permanently waterproofs it.

The effect produced is flat, without a painty sheen. It changes the texture of concrete or stucco but slightly and maintains the tone of the structural material and gives it the fresh, clean, uniform color selected. On masonry and brick, it gives a whitewash effect.

Applied with a brush or spray. Handles with unusual ease. Covers rapidly and effectively.

Uses—Because Minwax Brick and Cement Coating is primarily a waterproofing, it is a very efficient means of decorating and beautifying concrete, brick or stucco and of preserving them from the disintegrating effects of water and frost.

Recommended also as a coating for light courts where a durable, fadeproof, white surface is desired.

Colors—Finished in 11 standard colors: white, cream, yellow, cement gray, limestone gray, caen stone, green, brown-stone, terra cotta, water blue and brick red. Special colors extra.

Covering Capacity—Varies between 160 and 250 sq. ft. per gal. per coat, depending upon the roughness and porosity of the surfaces to be treated.

How Shipped—In 1, 5, 30 and 55-gal. containers.

Specifications

General—All surfaces shall be thoroughly dry, clean and sound subject to the approval of the painter before work proceeds. This contractor shall immediately before applying material, brush surface to remove dust, sandy and loose material. No work shall be carried forward at temperature below 45° F.

All exposed surfaces as directed shall receive two thorough coats of Minwax Brick and Cement Coating, color as selected, re-touching first coat, if required, for uniform color. First coat shall be thinned with Minwax Brick and Cement Coating Thinner only, as required to insure full penetration and obtain satisfactory coverage for second coat. Painter shall test surface to determine proper percentage thinner. When first coat is dry light spots shall be retouched as necessary to produce uniform color. Second coat shall be applied straight without thinning or adulteration.

Painters shall carefully point up all holes, cracks, or joints, after application of the first coat, rubbing them full of Minwax Pointing Paste in color to match the color of Minwax Brick and Cement Coating selected. After point painting the cracks shall be brushed to remove surplus and re-touched to uniform appearance.

Note: Especially important that parapets and horizontal surfaces should be done with the greatest care. Two coats are ample on average sound surfaces. On especially porous, or sandy or disintegrated masonry surfaces, three coats are recommended. First coat should be thinned 50% with thinner, second coat approximately 20%, final coat should be applied without thinner.

Newly Laid Brick Walls or New Cast Concrete Surfaces—Where the masonry is green and new and proper time for curing (heavy cast concrete sections 90 days, brickwork 60 days, stucco 30 days) cannot be allowed, apply one coat of neutralizer consisting of 2 lb. of zinc sulphate dissolved in 1 gal. of water. Saturate surface thoroughly using 1 gal. to 150 sq. ft. and allow to dry thoroughly before applying coating.

Old Work—A sound solid surface must be obtained to get satisfactory service from coating. Wire brush surface thoroughly and repair and repoint all loose mortar or concrete. Use Minwax Pointing Paste for filling small cracks and holes.

SUPPLEMENTARY MATERIALS

Minwax Brick and Cement Thinner

This product is a thin liquid, produced from the vehicle or liquid portion of Brick and Cement Coating, to be used for thinning or reducing the first coat to insure penetration and otherwise as necessary.

How Shipped—1, 5, 30 and 55-gal. containers.

Minwax Pointing Paste

This product is a special waterproof putty for filling cracks in concrete, stucco or brick surfaces which are to be coated with Brick and Cement Coating. This material should always be used only after the first coat has been applied and is of proper consistency so that it can be rubbed into small cracks. Where larger cracks occur a very stiff paste of neat portland cement and water should be mixed with Minwax Pointing Paste to bring it to the desired consistency.

Care should be exercised not to smear this material over the surface and all cracks should be cross-brushed with a stiff brush to remove all surplus. Large cracks and spalled places should be repaired with portland cement mortar.

Colors—Made in same colors as Brick and Cement Coating.

How Shipped—1-gal. and 5-gal. pails.

Covering Capacity—On stucco and concrete depends on amount of cracking. Always have some on scaffold. Average brick usually requires gallon to 1000 to 2000 sq. ft. surface.

Neutralizer

For neutralizing the alkalis in green concrete, stucco, and mortar, for preaging the surface and assuring a stable foundation for the Brick and Cement Coating, a solution of zinc sulphate in proportion of 2 lb. to 1 gal. of water should be used. We can furnish the ready mixed Neutralizer where desired. For best results neutralizer should be used on all surfaces less than 90 days old.

Minwax Transparent Waterproofing

Where the natural color of any masonry surface is to be preserved by waterproofing treatment, use Minwax Transparent Waterproofing. Full description and specifications for this product will be found in another section of this edition. See Manufacturers' Index.

MINWAX METHOD OF WOOD FINISHING

A Complete Preservative Finish for Wood Floors and Trim

Introduction—The Minwax Method of Wood Finishing differs from and offers real advantages over all other methods by simplifying procedure, reducing labor, and by applying to modern conditions the age-old principles by which those rich, soft, wax effects, associated with early English and early Colonial times, were obtained. The excellence of Minwax Method, equally applicable to floors, interior trim, or outside woodwork, and to all kinds of wood, is proven by nearly twenty years of use.

Advantages—The Minwax Method places the finish in and not on the wood and does so, generally, in two easily applied coats. It has been developed around a combination of special preservative oils, gums and waxes which penetrate together. By combining with this finish natural wood stain colors, those more mellow, deeper tones of brown which are so deservedly popular, are produced. The penetrative nature of the finish carries these colors intimately into, around and between the surface fibres, so that the color is an integral part of the surface.

This combination of penetrative finish and color is the Minwax Method's unique contribution to wood finishing, producing effects that are more natural, that more truly enhance the natural charm of the wood. Since by this method all is in the wood, a finish that more effectively resists abrasion and which is simpler to maintain is produced.

Materials—While in the Minwax Method there is generally but one material to use, Minwax Flat Finish, supplementary materials have been developed so that the advantages of the Method are available under all conditions regardless of the speed required, the color or degree of lustre desired, etc. So long as the wax type of finish is wanted, it can be efficiently and beautifully obtained by the Minwax Method.

Minwax Flat Finish

This material is a combination of certain carefully blended oils, gums and mineral waxes. It penetrates the wood and deposits tough mineral gums inside and up to the surface. It is produced in natural and in a series of seven stain colors, so that the complete result is created by two coats of one material, the color being determined by the particular shade selected.

Its mineral base is a distinctive characteristic and makes it resistant to all deteriorating agencies. Its efficiency as a protective and preservative treatment is proven by twenty years on industrial and school floors.

(See our catalogue in Manufacturers' Index.)

Being penetrative in character both as to color and finish, its curing is gradual and while the surfaces are usable almost immediately, it constantly improves in lustre, hardness and quality with age. Its penetrative character makes it possible to maintain worn spots to renew the finish by simple wipings with the same material and, as a result, a re-scraping should never be necessary.

Colors—No. 9 (natural); No. 11 (light oak); No. 12 (dark oak); No. 13 (walnut); No. 716 (dark walnut); No. 750 (Jacobean); No. 15 (green); No. 16 (mahogany).

Covering Capacity—500 to 800 sq. ft. per gal. per coat.

How Shipped—Quart, gallon, 5-gal., 30-gal., and 55-gal. containers.

Minwax Quick Drying Flat Finish

For some conditions, however, the construction schedule or the fact that the rooms must be lived in during refinishing, demand that the final ultimate results must be produced more rapidly than is possible even with Standard Minwax Flat Finish.

For these conditions, Minwax Quick Drying Flat Finish has been developed, and by its use the final complete high lustre can be had in twenty-four hours. It differs from standard Minwax Flat Finish in only one way: it carries preserving, binding gums deeply into the surface, but does not, as does Minwax Flat Finish, at the same time carry the wax into the surface, but with the Quick Drying Flat Finish the waxing operation must be carried on separately, using Minwax Finishing Wax.

Colors—No. 209 (natural); No. 211 (light oak); No. 212 (dark oak); No. 213 (walnut); No. 2716 (dark walnut); No. 2750 (Jacobean); No. 215 (green); No. 216 (mahogany).

How Shipped—Quarts, 1, 5, 30, 55-gal. containers.

Minwax Finishing Wax

Minwax Finishing Wax is a special wax, which is made in both paste and liquid form, and it is designed for those owners who prefer a high, lustrous polish to the soft, deep velvety finish produced by Minwax Flat Finish. Also, our paste wax is produced for use over our Quick Drying Flat Finish under all conditions—where its use is an integral part of the treatment. The Paste Type is the one to use for the first waxing operation. The Liquid Wax is the material to use for cleaning and general maintenance.

How Shipped—Paste: 1, 4, 8 and 35-lb. cans. Liquid: 1 qt., ½ gal., 1 gal. and 5-gal. cans.

Covering Capacity—Paste: 250 to 350 sq. ft. per lb. Liquid: 700 to 1000 sq. ft. per gal.

Minwax Acid Stain

Minwax Acid Stain is a true water stain, so that those owners who desire the weathered, fumed tones or those uniform colors that minimize the grain and pattern which can be produced in no other way, can obtain them by the use of a product scientifically designed to function with Minwax Flat Finish.

The Acid Stain produces simply the color effect, it adds no protection or finish, Minwax Flat Finish being applied over it for preservation and finish.

Colors—No. 120 (light fume); No. 122 (Flemish); No. 123 (dark fume).

Covering Capacity—300 sq. ft. per gal.

How Shipped—½, 1 and 5-gal. glass containers.

How to Specify the Minwax Method

For Average Conditions—Wood shall be clean, free from all shellac, varnish, or other finish, dry, and carefully sanded. Apply Minwax Flat Finish, color as selected, with a brush; wiping each coat thoroughly to remove surplus, in not less than two or more than six hours. Allow at least twelve hours between coats. On floors, polish with a weighted brush or electric polisher after the second coat has cured for four or five days, or just before occupancy. The final wiping is most important—the surface must be thoroughly rubbed to remove all surplus. The finished surface shall be dry and shall show a uniform sheen.

Where a high polish is desired, use Minwax Finishing Wax (Paste) but allow the second coat of Flat Finish to cure and harden at least ten days before waxing and polishing.

Where High Speed Is Necessary—Wood must be clean, dry, and prepared to receive the finish by sanding, and be free from wax, varnish, shellac, or other finish. Minwax Quick Drying Finish is designed to be used only on raw wood or over itself. Apply two coats of Minwax Quick Drying Finish (color as selected), spreading in a heavy, even coat well worked

in. Allow each coat to stand fifteen or twenty minutes, until the material has sufficiently penetrated the wood, and then with clean cloth remove the excess from the surface, at the same time rubbing out all laps or unevenly coated spots. Allow twelve hours between coats. Twelve hours after the final coat apply an even coat of Minwax Finishing Wax (Paste) as a final operation and polish with an electric polisher.

For conditions where only the shortest possible time may be allowed, omit second coat of Quick Drying Flat Finish and proceed as above.

Fillers—Fillers are not required with the Minwax Method. If desired they can be used in the usual way after the application of the first coat. The filler should be colored to match the stain color of Flat Finish selected.

Minwax Finishing Wax Specifications—Apply a thin even coat with a rag and polish when dry (15 to 30 minutes).

Minwax Acid Stain Specifications—Apply in even coats with a brush or sponge. Sand lightly with steel wool or 00 sandpaper, and when dry, finish with Minwax Flat Finish No. 9, or as necessary for the desired effect.

MURPHY VARNISH COMPANY

MEMBER OF THE PRODUCERS' COUNCIL

NEWARK, N. J.

CHICAGO, ILL.

SAN FRANCISCO, CAL.

MURPHY FINE FINISHES

Famous for 66 years among Architects, Master Painters, and Makers of Products Requiring a Fine Finish

Varnish and Enamel Products

Murphy Transparent Interior Varnish—

A fine transparent, lustrous varnish which brings out the grain of the wood, flows freely, covers a great deal of surface, rubs easily, and keeps in full beauty for many years.

Murphy Nogloss Interior Varnish—

This varnish, used for the final coat over Murphy Transparent Interior, gives a rubbed effect without the labor of rubbing. Beautifully shows the grain of the wood. Can be used alone by applying the proper number of coats.

Murphy Transparent Floor Varnish—

A fine free flowing varnish that rubs easily, producing a smooth, beautiful surface. Does not flake off; it is not affected by reasonable exposure to moisture, air or water. An extremely tough and long wearing floor varnish which has scored 100 in many tests.

Murphy Airplane Super Spar Varnish—

A spar varnish that dries for same day recoat. It dries out of dust in 2 hours and is tough and hard, ready for recoating in 4 to 6 hours. As to appearance of finish, we admit that it rivals the finest of our own long drying varnishes.

We recommend it highly for outdoor and indoor floor and trim work.

Murphy Murenic White Enamel—(Gloss or Semi-gloss)—

A pure white enamel of the finest grade and long life. Designed for use either indoors or outdoors. Also furnished in gray or ivory tints.

Murphy Quick White Enamel for Master Painters—

This product is a good appearing, good wearing and good working enamel which dries quickly. When used in conjunction with Murphy Velvet White Enamel Lacquer for Master Painters, a beautiful four-coat, gloss finish is possible in two days.

Murphy White Enamel Undercoating No. 37—

No. 37 White Undercoating is intensely white, and so deep in its hiding quality that on lesser important jobs all that is necessary is a single enamel finishing coat. It dries quickly.

Murphy Konkreto—

For the sanitary treatment of concrete or cement floors, walls, or ceilings. Gives smooth surface. Prevents them from wearing, dusting and getting moldy.



TRADE SYMBOL

Makes them as easy to clean and keep clean as tiling.

Murphy Waterproof Mixing

Shellac plus Murphy Waterproof Mixing makes a material of remarkable property—better than shellac in every way.

You mix Waterproof Mixing with shellac—equal parts of each or 2 parts shellac and 1 part Murphy Waterproof Mixing—according to the job. The mixture is applied the same as ordinary shellac.

Prevents the shellac from turning white; increases the elasticity of finish; has better flowing qualities; dries as quickly as shellac; builds a fuller finish; greatly increases durability; absolutely waterproofs; cuts sanding cost; seals as well as shellac; increases anchorage, due to better pore penetration; prevents shellac from scratching white; eliminates pinholing.

Pyroxylin Products

Murphy Velvet White Enamel Lacquer for Master Painters—

This material is essentially a combination of varnish, enamel, and lacquer. It may be tinted to any desired pastel shade with pure linseed oil colors, preferably Murphy Oil Colors. It is possible to secure three very desirable finishes with this product; namely, a velvet finish, a soft luster finish, and a gloss finish.

The finest work with this finish may be completed in two days, two coats a day.

Murphy Durable Floor Lacquer—

This material is an absolutely distinctive chemical combination of varnish and lacquer. It may be brushed or sprayed. When thinned with Murphy Lacquer Thinner for Master Painters, Murphy Durable Floor Lacquer is a very efficient sealer for porous surfaces, for use under pigmented lacquers. It may be tinted with Murphy Japan Color to secure almost any shade. It is tough and elastic, inoffensive in odor, dries quickly typical of lacquer, making it possible to apply three coats in one day.

Free Literature

The MURPHY VARNISH COMPANY has prepared the following booklets which will be sent free to architects upon request:

Twentieth Century Art
French Interiors and Their Modern Adaptation
Murphy Specification Manual

SPECIFICATION GUIDE FOR FINISHING WOOD, PLASTER AND CONCRETE SURFACES

For Wood Finishing with Varnish or Enamel**Interior Work—**

Mahogany, Oak, White Mahogany, Walnut, Ash, Butternut and All Open Grained Woods—To be properly filled with MURPHY VARNISH COMPANY'S Paste Filler, care being taken to have filler match the natural color of the wood or the color desired by owner or architect; to receive 1 coat of shellac (except on floors, in bathrooms and laundries) and 3 coats of Murphy Transparent Interior Varnish or Airplane Super Spar Varnish. Shellac coat, and first and second coats of varnish to be sandpapered with 00 sandpaper; the third coat of varnish to be carefully rubbed with pumicestone and water to a dead and even surface (finisher to use rubbing felt), then oiled and thoroughly wiped, where necessary. Where gloss finish is desired, omit rubbing on final coat.

Pine, Maple, Cypress, Whitewood, Cherry, Birch, Sycamore, Beech, Holly and All Close Grained Woods—To be finished same as above, except that the filler be omitted.

For a Dull Finish without Rubbing—Wood to be brought up same as above, except that 1 coat of Murphy Nogloss Interior Varnish be used in place of the final coat of Murphy Transparent Interior Varnish or Airplane Super Spar Varnish.

For a Semi-gloss Finish, without Rubbing—Wood to be brought up same as above, except that 1 coat of Murphy Semi-gloss Interior is to be used in place of the final coat of Murphy Transparent Interior or Airplane Super Spar Varnish.

Floors and Bathrooms—All open grained hardwood floors in bathrooms to be properly filled with MURPHY VARNISH COMPANY'S Paste Filler, and receive 3 coats of Murphy Transparent Floor Varnish, the last coat to be rubbed lightly with oil and pumicestone. Thin the first coat with turpentine in the proportion of 1 pt. to 1 gal. of varnish. Pine, maple, cherry and all other close grained woods, used for floors, to be finished precisely as above, except that filler is to be omitted.

For a Dull Floor Finish without Rubbing—Floors to be treated as above, except that 1 coat of Murphy Velvet Floor Varnish is to be used in place of the final coat of Murphy Transparent Floor Varnish or Airplane Super Spar Varnish.

Enamel Work—

Treatment of White Enamel Work—First, give the wood a thin coat of shellac, lightly sandpaper when dry, and follow with 2 coats of Murphy White Enamel Undercoating No. 37 and 2 coats of Murphy Muroic White Enamel, the last coat to be rubbed down to a fine surface with either pumicestone and water, or rottenstone and water. Omit rubbing on final coat, if gloss finish is desired. (Muroic Enamel is also supplied in gray and ivory.) If a special color is wanted, tint with MURPHY VARNISH COMPANY'S Japan Color.

For a Semi-gloss White Enamel Effect without Rubbing—Treat work as above except that 1 coat of Murphy Muroic Semi-gloss Enamel is to be used instead of the final coat of Murphy Muroic Enamel.

Exterior Work—

The surface of all woods must be sandpapered smooth and properly cleaned before finishing. No shel-

lac to be used on outside work, inside sash, window sills, floors or other surfaces exposed to great dampness. Use 3 coats of Murphy Transparent Spar Varnish or Airplane Super Spar Varnish for all the above work. The first coat to be applied directly on the wood, if it is close grained, or after the wood is filled, on open grained wood.

For Wood Finishing with Pyroxylin Materials**Lacquer Specifications for Open and Close Grained Woods—**

If the wood is to be stained apply one coat of Murphy Permanent Stain, sanding is not necessary; then two or more coats of Murphy Durable Floor Lacquer allowing three or four hours between coats. This finish is a soft gloss.

Open grained woods must be properly filled with Murphy Paste Filler.

For a dull finish go over the last coat of lacquer lightly with 00 steel wool.

An attractive and inexpensive lacquer finish is secured by applying 2 coats of Murphy Durable Floor Lacquer. The second coat should be steel woolled. The job may be finished in a day without hurry. This is not a filled job, but in such work where a low cost is important and a natural finish desired it will be found to give entire satisfaction.

Finest Enamel Lacquer Finish—

(1) Apply 4 coats of Murphy White Enamel Lacquer for Master Painters. Allow 3 to 4 hours between coats. This finish has a soft velvet gloss.

(2) Moss off the first coat with No. 00 steel wool.

(3) If a semi-gloss is desired, mix with the last coat of lacquer enamel equal parts of Murphy Durable Floor Varnish.

The finest work with this finish may be completed in 2 days, 2 coats a day. Where a high luster is necessary, proceed as above, substituting for the fourth coat of lacquer a coat of Murphy Quick White Enamel for Master Painters or Murphy Muroic White Enamel. Any tint of Enamel Lacquer may be secured by mixing with Murphy Velvet White Enamel Lacquer for Master Painters enough Murphy Oil Color to give it the desired tint.

For Finishing Plaster Walls

(1) Plaster walls should be thoroughly dry before the application of any finishing material.

(2) Apply one sizing coat of Murphy Murlox. Allow 24 hours to dry.

(3) Apply 2 or 3 coats of Murphy Flowell according to the nature of the surface, allowing overnight dry between coats.

Flowell is supplied in white only. It may be tinted with oil or japan colors to any desired shade.

For Finishing Concrete Surfaces

(1) All concrete must be thoroughly dry before the application of a finishing material, as no type of finishing material will adhere to damp walls successfully.

(2) Apply 2 coats of Murphy Konkreto allowing overnight dry between coats. Supplied in appropriate colors.

NATIONAL LEAD COMPANY

Paint Materials for the Protection and Decoration of Wood, Plaster, Masonry and Metal

NEW YORK, N. Y., 111 Broadway
BOSTON, MASS., NATIONAL-BOSTON LEAD Co.,
800 Albany Street
BUFFALO, N. Y., 116 Oak Street
CHICAGO, ILL., 900 West 18th Street
CINCINNATI, OHIO, 659 Freeman Avenue
CLEVELAND, OHIO, 820 West Superior Avenue

ST. LOUIS, MO., 722 Chestnut Street
SAN FRANCISCO, CAL., 2240 24th Street
PITTSBURGH, PA., NATIONAL LEAD & OIL Co.,
316 Fourth Avenue
PHILADELPHIA, PA., JOHN T. LEWIS & BROS. Co.,
Widener Building

Products

WHITE LEAD (Dry and in Oil); RED LEAD (Dry, in Oil, Liquid); WALL PRIMER; LINSEED OIL (Raw and Boiled); FLATTING OIL.

White Lead for General Painting

Gloss paint made of pure white lead and pure linseed oil has long been the standard protective and decorative coating for exterior wood, brick, stone, concrete and stucco. It forms a tough, tenacious film that does not crack and scale but wears down smooth and even, leaving the surface ready for repainting without expensive preparation. Being mixed to order, lead-and-oil paint can be adapted to meet all exposure, surface and weather conditions. It can also be varied in color from white to any desired shade or tint by the addition of the proper colors-in-oil.

Our Dutch Boy White Lead is guaranteed to be pure white lead ground in pure linseed oil. It is obtainable in the regular or heavy paste form and also in soft paste form. (The soft paste, known as Dutch Boy *soft paste* White Lead, contains three-quarters of a gallon more oil to the 100 lbs. of paste than does the heavy paste. This makes it softer or easier to thin, saving the user time and labor in mixing.)

Both the heavy paste and soft paste are sold in 100-lb. steel kegs and 50, 25 and 12½-lb. steel pails.

Dutch Boy Linseed Oil is pure, clear, carefully filtered and well settled. Sold in 1 and 5-gal. sealed cans bearing the Dutch Boy trade-mark. Our linseed oil is also obtainable in half barrels and barrels.

Flat Finishes for Interiors

Most inside painting nowadays is done in either flat or eggshell gloss finishes, such as are obtainable by reducing heavy paste white lead to brushing consistency with Dutch Boy Flattening Oil.

When white lead is thinned with flattening oil an interior paint results which possesses many points of excellence. It has good working and hiding qualities. It is easy to apply. It levels itself nicely, leaving no brush marks. It sets slowly, so that large areas can be worked without risk of laps or joints.

Some of the finest interior decorating jobs in the country have been done with white lead and flattening oil paint. The beauty and charm of the finish it gives, the all-around economy of this paint and its thorough washability recommend it for all types of interior work—plain wall finishes, mottled, figured and textured effects, the tiffany, etc.

The washability of a white lead and flattening oil finish is a point that should not be overlooked. This paint can be washed without injury not only a few months after it is applied but throughout its long life.



TRADE-MARK

Its pigment, white lead, is insoluble in water and remains so, not changing chemically under normal exposure indoors. Thus there is no unsightly streaking due to washing off of some of the pigment.

Dutch Boy Flattening Oil is sold in quart, gallon and 5-gal. cans sealed at the spout.

Wall Primer

There is a demand in interior painting with white lead for a primer that serves as both a sealer and a coat of paint. Dutch Boy Wall Primer meets these requirements.

Dutch Boy Wall Primer is a *paint* made with a special long oil vehicle of varnish type. It stops suction, seals fire cracks, and, at the same time, gives good hiding. It has the elasticity, adhesion and other qualities of an oil primer, combined with the recognized sealing property of a varnish primer, producing an ideal foundation for succeeding coats.

Dutch Boy Wall Primer brushes easily as it comes from the can and has a normal spreading rate of 800 square feet per gallon on smooth plaster surfaces. The ease in brushing and extremely high spreading rate of Dutch Boy Wall Primer effect a real economy on every job. Furthermore, the primer, because of its fine flowing and leveling qualities, leaves no laps, brush marks or other mechanical blemishes.

In full containers, Dutch Boy Wall Primer does not skin over or settle in the can. The pigment portion is always in suspension and the primer is ready for immediate use, requiring only the addition of tinting materials to form a ground of desired color.

Sold in 5, 1 and ½-gal. cans.

White Lead and Oil Plastic Paint

The trend is away from excessively rough surfaces as wall finishes but modified textures are gaining in popularity. This latter type of textural effect can be produced readily with a white lead and oil plastic paint. Such a paint is made with materials that the painter always has in his shop, is relatively low in cost and gives a finish that is durable and can be kept clean by washing.

The formula for white lead and oil plastic paint is 100 lb. Dutch Boy White Lead (heavy paste), 22 lb. dry whiting, 1½ gal. Dutch Boy Flattening Oil and ¼ pt. drier. This formula, making about 5¼ gal. of paint, will cover from 100 to 200 sq. ft. of wall surface when spread to a thickness about equal to two ordinary paint coats.

If soft paste white lead is used, mix the plastic paint as follows: 100 lb. Dutch Boy White Lead (soft paste), 44 lb. dry whiting, 1¾ to 2 gal. Dutch Boy Flattening Oil and ¼ pt. pure drier. This formula makes about 7¼ gal. of paint.

The resulting paint in both cases, although heavy, will brush out with comparative ease, after which it may be manipulated with a paint brush, whiskbroom, sponge, or any other means to give the texture desired.

The plastic paint prepared as described may be tinted prior to application, or may have colors-in-oil worked into it while it is still wet. The finish sets up overnight and can easily be glazed to lend additional color interest. No size coat is necessary to permit glazing.

When white lead and oil plastic paint is to be applied to new plaster walls, it is recommended that the walls first receive the customary priming coat. If the walls have been previously painted, and are in satisfactory condition for repainting, the plastic finish may be applied direct.

A booklet giving full information about white lead and oil plastic paint, and showing various textures in color, will be sent to any architect upon request.

Red Lead for Metal

Pure white lead, properly thinned to suit the special conditions under which the paint is to be used, gives the best protection for wood and other building materials except metal. When it comes to the painting of metal, white lead (though good for the purpose) must yield first place to pure red lead.

The chief requirements of a protective coating for metal are that it should have the ability to stick firmly to metal and that it should keep moisture which combined with air forms rust, from getting through. The paint must also be able to resist the destructive action of atmospheric gases, acid from the surface oil, and salt spray near the seacoast.

Paint made of pure red lead meets these requirements. It is insoluble in water, unaffected by ordinary atmospheric gases, adheres closely to metal, and is a true rust preventive.

A great advance in the quality of red lead was made when Dutch Boy Red Lead was perfected. It is a more highly oxidized product than old style dry red lead and is sold in paste form, ready for use after the addition of more linseed oil. Its exceptionally high true red lead content and the fineness of its pigment particles insure a paint of excellent brushing qualities, good coverage and extreme durability. Sold in 100-lb. steel kegs and 50, 25 and 12½-lb. steel pails.

The same highly oxidized red lead can also be had in liquid form. The liquid product is called Dutch Boy *liquid* Red Lead and is ready for use. It comes in natural red lead color, light and dark brown, light and dark green, and black. Sold in 1-gal. cans and 2½-gal. kegs.

We also make dry red lead of the highest grade.

General Painting Specifications

Following are general specifications for the painting of interior and exterior surfaces:

Preparation of Surface—(1) Woodwork—New woodwork shall be smoothed off with sandpaper where required and dusted clean before priming. From old woodwork which has been painted before, all loose paint, scale, dirt and dust shall be removed. Wash off with benzine or turpentine all parts where liquid paint remover has been used.

Before priming new woodwork, all knots and sappy streaks shall receive one coat of pure alcohol shellac, brushed out thin. After the priming coat is thoroughly dry, putty up all knot holes, dents, cracks, and other defects with putty composed of white lead and whiting.

(2) Plaster—Before applying any paint to plaster, either new or old, see that it is clean and smooth. Fill all cracks with approved patching plaster. Where new plaster to be painted is not properly aged, it shall be treated before priming with a solution made by dissolving 2 lbs. of zinc sulphate in 1 gal. of water.

(3) Brick and Stone—New brickwork shall not be primed

until dry. At least 2 or 3 days of dry weather should precede painting. If any mortar has become loose or washed out, repoint all such damaged places with mortar or portland cement before applying paint. After priming, correct small defects in the surface with putty.

(4) Stucco and Concrete—Stucco or concrete should be allowed to stand and dry a year before paint is applied. If painted within a year, it shall be aged artificially by washing with a solution made by dissolving 2 lbs. of zinc sulphate in 1 gal. of water, or with carbonic acid water.

(5) Metal Work—Iron, steel and other metal work shall be cleaned thoroughly of all loose paint, dirt, oil, grease, rust, scale and other foreign matter before paint is applied.

The Paint and Its Application—(6) Designation of Paint to Be Used—All woodwork, plaster, brick, stone, concrete and stucco which are to be painted, shall be painted with NATIONAL LEAD COMPANY'S Dutch Boy White Lead, Dutch Boy Flattening Oil, pure linseed oil, pure turpentine and pure drier mixed according to the formulas hereinafter designated for each kind of work. All metal shall be painted with NATIONAL LEAD COMPANY'S Dutch Boy Red Lead-in-oil, Dutch Boy liquid Red Lead, or pure dry red lead and pure linseed oil mixed according to formulas hereafter given for each specific purpose.

(7) Tinting Materials—In producing tints and shades, John T. Lewis & Bros. Co. colors-in-oil or those of equally high grade shall be used. If colors-in-oil are used in quantities large enough to affect the consistency of the paint, the quantities of thinners named in the formulas shall be increased in amount equal to one-half the weight of the tinting material.

(8) Applying the Paint—No exterior painting shall be done when rain or snow is falling, during fog, or until after dew or moisture which may be on the surface has completely disappeared. Painting done in winter weather shall only be done when the temperature is above 50° F. and when all surfaces are dry. All exterior work shall be allowed to dry from 2 to 4 days before the next coat is applied and at least 24 hours shall be allowed between coats on interior work.

Formulas—The following white lead formulas take no account of tinting materials. See Paragraph No. 7 when adding colors to the formulas.

It will be noted that the formulas for painting exterior wood are on the basis of Dutch Boy *soft* paste White Lead as well as heavy paste white lead. For flat effects inside, the heavy paste is to be preferred as the higher oil content of the soft paste will give more of a sheen to surfaces painted with it.

(9) New Woodwork Outside—Three coats of paint, mixed as follows, shall be applied to new unpainted woodwork outside:

	(a) Priming coat		(b) Second coat	
	Heavy Paste	Soft Paste	Heavy Paste	Soft Paste
Dutch Boy White Lead	100 lb.	100 lb.	100 lb.	100 lb.
Pure raw linseed oil	4 gal.	3¼ gal.	1½ gal.	¾ gal.
Pure turpentine	2 gal.	2 gal.	1½ gal.	1½ gal.
Pure drier	1 pt.	1 pt.	1 pt.	1 pt.
	(c) Third coat			
	Heavy Paste	Soft Paste		
Dutch Boy White Lead	100 lb.	100 lb.		
Pure raw linseed oil	3 to 4 gal.	2¼ to 3¼ gal.		
Pure turpentine	1 pt.	1 pt.		
Pure drier	1 pt.	1 pt.		

Note: The painter may exercise his discretion in using a larger or smaller quantity of oil according to whether the wood is oil absorbing, such as redwood, white fir, sugar pine, western red cedar and hemlock, or less absorbent, such as southern yellow pine, white spruce, Alaska cedar and cypress. The painter may, in rare cases, find it advisable to increase the quantity of turpentine for extremely sappy or resinous woods. Where this is done, a corresponding decrease should be made in the specified amount of linseed oil.

(10) Old Woodwork Outside—Two coats of paint as follows shall be applied in repainting old woodwork outside:

	(a) First coat		(b) Second coat	
	Heavy Paste	Soft Paste	Heavy Paste	Soft Paste
Dutch Boy White Lead	100 lb.	100 lb.	100 lb.	100 lb.
Pure raw linseed oil	2 gal.	1¼ gal.	3 to 4 gal.	2¼ to 3¼ gal.
Pure turpentine	2 gal.	2 gal.	1 pt.	1 pt.
Pure drier	1 pt.	1 pt.	1 pt.	1 pt.

(11) **New Woodwork Inside**—Three coats of paint, mixed as follows, shall be applied to new unpainted woodwork inside:

	(a) Priming Coat	(b) Second coat	(c) Third coat (Flat finish)	(d) Third coat (Eggshell gloss finish)
Dutch Boy white lead (heavy paste)	100 lb.	100 lb.		
Dutch Boy flatting oil	3 gal.	2 to 2½ gal.		
Pure raw linseed oil	3 gal.	None		
Pure drier	1 pt.	None		
Dutch Boy white lead (heavy paste)	100 lb.	100 lb.		
Dutch Boy flatting oil	2 to 2½ gal.	1½ to 2 gal.		
Floor varnish	None	¾ gal.		

Note: As on outside wood, the painter may exercise his discretion in the use of the thinners prescribed—thus on white pine, poplar and basswood, which more readily absorb oil, increase the quantity of linseed oil for the priming coat. On yellow pine, cypress, spruce and hemlock, use less linseed oil and more flatting oil.

(12) **Old Woodwork Inside**—Two coats of paint shall be used in repainting woodwork inside. For a flat finish, mix the paint for the first and second coats according to formula B in paragraph 11. For an eggshell gloss finish, mix the paint for the first coat according to formula B in paragraph 11 and according to formula D for the finishing coat.

(13) **Plaster Walls**—Three coats of paint shall be applied to plaster which has never been painted. The priming coat shall be Dutch Boy Wall Primer or the following:

Dutch Boy white lead (heavy paste)	100 lb.
Pure kettled-boiled linseed oil	7 gal.
Pure turpentine	1 gal.

Note: If boiled linseed oil can not be obtained, 7 gal. raw linseed oil with 3 pt. drier may be used instead, and will in most cases give satisfactory results. Boiled oil is much superior, however, and will obviate trouble when conditions are difficult. It seals pores in the plaster and prevents suction.

Mix the paint for the second coat according to formula B in paragraph 11 and according to formula C for the finishing coat if a flat finish is desired. If an eggshell finish is wanted, mix the paint for the finishing coat according to formula D.

In repainting plaster walls, follow the practice recommended for new plaster, except that the priming coat may be omitted.

(14) **Brick and Stucco**—Three coats of paint, mixed as follows, shall be applied to brick or stucco which has never before been painted:

	(a) Priming coat	(b) Second coat	(c) Third coat (gloss finish)	(d) Third coat (flat finish)
	Heavy Paste	Soft Paste	Heavy Paste	Soft Paste
Dutch Boy white lead	100 lb.	100 lb.	100 lb.	100 lb.
Pure linseed oil	7 gal.*	6¼ gal.*	4 gal.†	3¼ gal.‡
Pure turpentine	1 gal.	1 gal.	1 gal.	1 gal.
Pure drier	None	½ pt.	None	½ pt.
Dutch Boy white lead	100 lb.	100 lb.	100 lb.	100 lb.
Pure linseed oil	3½ gal.†	2¾ gal.‡	None	1 pt.‡
Dutch Boy flatting oil	None	None	2 gal.	None
Pure turpentine	1 pt.	1 pt.	None	2 gal.
Pure drier	None	½ pt.	None	½ pt.

*Boiled linseed oil is recommended but if it is not available use pure raw linseed oil and add pure drier not to exceed 1½ pints.

†Use ½ boiled and ½ raw linseed oil, or all raw oil. In latter case, add drier not to exceed 1¼ pints.

‡Raw.

Two coats of paint shall be applied in repainting brick and stucco. For the first coat, mix the paint according to formula B in paragraph 14 and for the finishing coat according to formula C or D.

(15) **Concrete and Stone**—Three coats of paint, mixed as follows, shall be applied to concrete and stone which have never before been painted:

	(a) Priming coat	(b) Second coat
	Heavy Paste	Soft Paste
Dutch Boy white lead	100 lb.	100 lb.
Pure linseed oil	5 gal.*	4¼ gal.*
Pure turpentine	1 gal.	¾ gal.
Pure drier	None	½ pt.

	(c) Third coat (gloss finish)	(d) Third coat (flat finish)
	Heavy Paste	Soft Paste
Dutch Boy white lead	100 lb.	100 lb.
Pure linseed oil	3½ gal.†	2¾ gal.‡
Dutch Boy flatting oil	None	None
Pure turpentine	1 pt.	1 pt.
Pure drier	None	½ pt.

*Boiled oil is recommended but if it is not available use pure raw linseed oil and add pure drier not to exceed 1½ pints.

†Use ½ boiled and ½ raw linseed oil, or all raw oil. In latter case, add drier not to exceed 1¼ pints.

‡Raw.

In repainting concrete and stone, apply two coats. Mix the paint for the first coat according to formula B in paragraph 15 and according to formula C or D for the second coat.

A semi-flat finish on brick, stone, concrete and stucco can be secured by applying over the second coat one or two coats of paint made with 100 lb. heavy paste white lead, 1½ to 2 gal. flatting oil and ¾ gal. spar varnish. For brick red finish on outside brick, thin the color with Dutch Boy flatting oil.

(16) **Metal Work, Exterior and Interior**—Three coats of paint, mixed as follows, shall be applied to exterior and interior metal work:

	(a) First coat	(b) Second coat
Dutch Boy red lead-in-oil	100 lb.	light brown
Raw linseed oil	2¾ gal.	100 lb.
Lampblack-in-oil	None	2¾ gal.
Pure turpentine	1 pt.	12 oz.
Pure drier	1 pt.	1 pt.
Pure dry red lead	100 lb.	or 100 lb.
Raw linseed oil	3¾ gal.	3½ gal.
Lampblack-in-oil	None	13 oz.
Pure turpentine	1 pt.	1 pt.
Pure drier	1 pt.	1 pt.
Dutch Boy red lead-in-oil		100 lb.
Raw linseed oil		3¾ gal.
Lampblack-in-oil		6 lb.
Pure turpentine		1 pt.
Pure drier		1 pt.
Pure dry red lead		or 100 lb.
Raw linseed oil		5 gal.
Lampblack-in-oil		6½ lb.
Pure turpentine		1 pt.
Pure drier		1 pt.

Note: If genuine boiled linseed oil is available, use one-third boiled and two-thirds raw oil, omitting drier.

If liquid red lead is to be used, specify Dutch Boy liquid red lead No. 1 (natural red lead color) for first coat, Dutch Boy liquid red lead No. 6 (light brown) for second coat and Dutch Boy liquid red lead No. 7 (dark brown) for third coat.

Where a dark color other than brown is desired for the finishing coat, one of the following formulas shall be used according to the color desired:

	Light green	Dark green
Dutch Boy red lead-in-oil	100 lb.	100 lb.
Raw linseed oil	5½ gal.	4 gal.
Medium chrome yellow	30 lb.	12½ lb.
Chinese or prussian blue	12 lb.	7½ lb.
Pure turpentine	1 pt.	2 pt.
Pure drier	1 pt.	2 pt.
Dutch Boy red lead-in-oil		Black
Raw linseed oil		100 lb.
Chinese or prussian blue		14 gal.
Lampblack-in-oil		16 lb.
Pure turpentine		52 lb.
Pure drier		½ gal.

If liquid red lead is to be used, specify Dutch Boy liquid red lead according to the finishing color desired, that is: No. 8—light green; No. 9—dark green or No. 5—black.

Printed Specifications Furnished

To any architect who desires, we will supply printed specifications in booklet form containing full and complete directions for the proper use of white lead in the painting of woodwork, plaster, brick, stone, concrete and stucco, and of red lead in the painting of metal.

Write our nearest branch office for "Standard Specification for the use of White Lead" or "Standard Specification for use of Red Lead."

PITTSBURGH PLATE GLASS CO.

Manufacturers of Glass, Paint, Varnish, Lacquer, and Brushes for All Purposes

GENERAL OFFICES—GRANT BUILDING, PITTSBURGH, PA.



Pittsburgh Proof Products are dependable as to quality and available at a nearby source of supply—through the distributing system of the Pittsburgh Plate Glass Co.

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Des Moines, Iowa
Detroit, Mich.
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PAINTING DIRECTORY

Nature of Surface and Finish Desired	Pittsburgh Proof Products manufactured expressly for the purpose	Succeeding pages contain details Please refer to specification	Nature of Surface and Finish Desired	Pittsburgh Proof Products manufactured expressly for the purpose	Succeeding page contain details. Please refer to specification
EXTERIOR SURFACES			Stippled Finish		
Metallic		Page	Velvet Flat....	"Velumina" Flat Wall.....D	
Galvanized iron, roofs, leaders, gutters, etc.....	"Ironhide" or "Sun-Proof" Paint.....C		Semi-Gloss.....	"Velumina" Flat Wall.....D	
Structural steel and general ironwork.....	"Ironhide".....C		Textured Finish.....	"Plastic Velumina".....D	
Stone			Woodwork		
Brick, concrete and stucco....	"Cementhide".....D		Enamelled		
Wood			Flat.....	"Banzai" Doublecover under- coater.....E	
Walls and trim—residences or industrial buildings.....	"Sun-Proof" Paint alternative—"Snolite".....C		Semi-Gloss.....	"Banzai" Eggshell Enamel...E	
Porch floors and decks.....	"Florhide" Enamel.....C		Gloss.....	"Banzai" Gloss Enamel....E	
Resinous woods or surfaces subject to spotting or peeling.	"Pitcairn Tector" and "Sun- Proof" Paint.....E-C		Natural Finish		
Shingles and exterior rustic effects.....	"Tor-on" Shingle Stain....C		Gloss and	"Pitcairn Woodstains" and Semi-Lustre...."Pitcairn Finish. Spar Varn."E	
			Flat.....	"Pitcairn Flat Finish".....E	
			Floors		
			Open Grain....	"Paste Wood Filler".....E	
			Close Grain....	"Pitcairn Tector" in conjunc- tion with "Pitcairn Floor- spar Varnish".....E	
			Industrial Interiors		
			Concrete, Brick or Wood (Walls and ceilings)		
			Washable Flat, Semi-Gloss or High Gloss.....	"Alba-Lux" (White Light)..H	
			Concrete Floors and Dadoes..	"Florhide" Enamel.....C	
INTERIOR SURFACES			QUICK-DRYING FINISHES		
Metallic			Four-Hour Drying Type		
Radiators and Pipes.....			(Non-pyroxylin base)		
Wrought Iron.....	"Pitcairn Tector"—finish to suit.....E		Clear Varnish film		
Plaster (hard white or sand finish)			Floors, wood trim, etc.		
Plain Finish	Velvet Flat.. "Velumina" Wallhide System D		Gloss Finish....	"Lavax" Gloss Interior.....G	
	Semi-Gloss.... "Sun-Glo" Finish.....D		Flat Finish....	"Lavax" Flat Interior.....H	
	High Gloss.... "Banzai" Gloss Enamel....E				

The Color Range of Pittsburgh Proof Products

The colors shown below match as nearly as possible the colors of the paint when dry. Color chips, when kept from the light, as when closed up in a book, slightly change their color, the change being more marked in some shades than in others. When color chips are exposed to the light, and the applied paint is allowed to dry, the paint and the sample will match. Color cards showing complete range of colors supplied on request.

Sun-Proof Paint



Jersey Cream 330



Milwaukee Brick 55



Straw 173



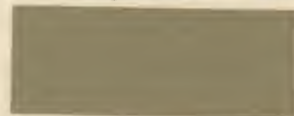
Naples 175



Deep Buff 308



Light Stone 331



Pearl Gray 14X



French Gray 302



Slate 310

Velumina Flat Wall Paint



8 Pearl Gray



15 Ivory



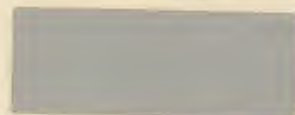
10 Silver Green



16 Light Cream



5 Pale Blue



17 French Gray



7 Light Buff



18 Nile Green



6 Pink

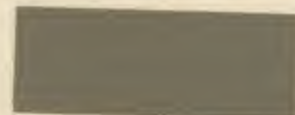
Florhide Enamel



9 Fawn



1 Light Yellow



11 Dixie Gray



7 Lead Color

Cementhide



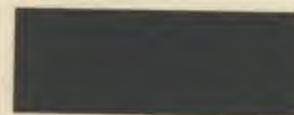
12 Light Cement



13 Buff



14 French Gray



6 Lime Stone

COMBINED DESCRIPTIVE DATA WITH SPECIFICATIONS

General

(a) Unless otherwise specified, the contractor or painter shall furnish all materials, provide labor, transportation, scaffolding and all other essential equipment and shall assume all liability of every character whatsoever in connection with the work.

(b) Care shall be taken that surface to be finished is thoroughly dry before applying any coating whatever.

(c) No ochre shall be used for priming.

(d) All finger marks, dirt, grease or other objectionable matter shall be carefully removed by the painter before commencing to fill, varnish or paint.

(e) The work shall be carried on continuously except for delays due to unfavorable weather and the time allowed for proper drying between coats.

(f) In painting new work, all knots and sappy places shall be coated with shellac before priming, care being taken to cover completely without spreading over more of the surrounding surface than is necessary.

(g) In painting new work, all cracks and nailholes shall be filled with putty after the priming coat.

(h) On a varnish job, putty shall match the wood after the coat of filler is applied.

(i) No painting or varnishing of outside work will be allowed in wet or freezing weather, nor inside work except where the building can be properly heated to at least 65° F.

(j) On old paint, the surface shall be first brushed with a wire brush and where it is scaling badly shall be scraped or burned off.

(k) All paint is to be well brushed out, and all paint, enamel, varnish, stain, and filler to be applied in a workmanlike manner, and as furnished by the manufacturer, without any thinning or addition whatever, except as noted on direction label, care to be taken to keep paint properly stirred.

(l) All materials shall be brought on the job in manufacturer's original package. Paints and enamel shall be thoroughly stirred before, and kept at a uniform consistency during application.

EXTERIOR PAINTING

Wood



"SUN-PROOF LIQUID PAINT" is the embodiment of "Save the Surface and You Save All." Made from pure carbonate of white lead, oxide of zinc, silica and coloring matter, Sun-Proof Paint contains the maximum quantity of strictly pure linseed oil to assure a tough, durable wear resisting paint film—a paint that can be spread uniformly and a paint suitable for all general purposes.

Specification No. 1

All exterior woodwork (except as otherwise specified) shall be painted with 3 coats of "Sun-Proof Liquid Paint" or "Snolite", color selected by the architect and applied as per directions on the can. Should a high gloss be desired, such as for portico of colonial residence, sand the finish and apply Banzai Enamel as the fourth coat.

Specification No. 2

Resinous woods such as cypress and cedar, as well as surfaces subject to spotting or peeling shall be primed with a mixture of "Pitcairn Tector" as indicated on directions.

Finish with "Sun-Proof Liquid Paint" or "Snolite."

"SNOLITE" is a semi-paste paint but so heavy that it requires thinning and manipulation by the master painter.

When thinned for painting, Snolite has fully one-half greater opacity than paints now considered standard. Produces a paint which is incomparably superior for spray painting because it can be applied thin.

Snolite dries with a smooth glossy surface of superior whiteness which does not discolor from hydrogen sulphide fumes prevalent around gas works or industrial areas.

"TOR-ON SHINGLE STAIN" is a highly preservative combination of Linseed Oil and Creosote combined in an assortment

of attractive new colors. Exceptional penetrating power makes it an ideal oil stain for outside surfaces.

Specification No. 3

Shingled roof, etc. to receive two coats of "Tor-On Shingle Stain", applied in accordance with directions.

"FLORHIDE ENAMEL" imparts a tough hide-like gloss that is unexcelled on either outside or inside floors. It is made to be walked upon.

Specification No. 4

Porch floors, decks, etc., shall receive two coats of Florhide Enamel applied in accordance with directions, allowing ample drying time between applications.

Metallic

"IRONHIDE STEEL PROTECTIVE PAINT" is made in two forms (Inhibitive Red for priming and Finishing Black.) Both come ready for use, either inside or outside, and are suitable for structural steel, bridges, gas holders, smokestacks, iron or steel wire or light poles, tank cars, air drafts, fire hydrants, etc.

Specification No. 5

After removing all traces of rust or grease, apply priming coat of Inhibitive Red Ironhide. Second coat shall be a mixture of the Red and Finishing material. Third coat shall be Ironhide Finishing Black.

Specification No. 6

Galvanized iron surfaces unless given time to weather shall be washed down with Ascectic Acid or Vinegar. Prime over the powdery deposit with "Pitcairn Tector" reduced according to directions. Second coat shall be Inhibitive Red Ironhide; finishing coat shall be Finishing Black Ironhide.

Stone

"CEMENTHIDE" is a flat drying liquid paint for painting cement, concrete, stucco, brick, stone or plaster; both interior and exterior. "Cementhide", used in connection with "Cementhide Priming Liquid" acts as a filler and waterproofing agent, as well as producing decorative effects. Cementhide dries hard and does not have a tendency to soften under water like ordinary paint. It is also affected to a much less extent by steam and alkaline vapors.

Specification No. 7

Stucco surfaces shall receive one coat of "Cementhide Priming Liquid" followed by two coats of "Cementhide", color to be selected by the architect.

INTERIOR PAINTING**VELUMINA WALLHIDE FIRST COATER**

THE application of paint on interior plaster surfaces has become increasingly difficult owing to inferior plaster work and the tendency to rush painting on wet or damp walls. These conditions offer a special handicap for all oil base flat wall paints. Practically every architect will agree that the use of varnish sealing coats is not the proper procedure for plaster walls. While the uneven suction effects on bad walls may be generally counteracted by using a varnish priming coat, the possibility of blistering and peeling of later paint coatings is very great. While a better looking job may be temporarily secured on wet or non-uniform plaster through the use of varnish base products, serious failures at a later date are always in prospect.

The Pittsburgh Plate Glass Company has always maintained the correctness of the principle of oil base flat wall paints and oil base primers; at the same time realizing that oil in its regular condition does not always meet the present type of surface and assure satisfactory two coat work.

With this thought in mind, development work has been carried on over a long period of time and has resulted in VELUMINA WALLHIDE FIRST COATER—a product which meets every requirement as a first coat material on plaster walls, giving the advantages of both an oil base and a varnish base paint without any of the disadvantages, and at the same time giving added properties possessed by neither.

VELUMINA WALLHIDE FINISHING FLAT

Velumina Wallhide Finishing Flat is manufactured with the same base liquid as Velumina Wallhide First Coater, and possesses all the unique properties of that product, although these are naturally modified somewhat on account of the higher pigment content. No product heretofore offered has had the unusual properties enjoyed in Wallhide Finishing Flat, and it is only necessary for the master painter to try the product under unusual conditions to immediately convince himself of this fact. It will demonstrate itself most effectively where everything else has failed.

It possesses unusual characteristics, the most outstanding of which are as follows:

- (1) Over Wallhide First Coater, Finishing Flat assures a perfect two-coat job on any kind of plaster surface.
- (2) The permanency of the work is guaranteed by its elasticity and high resistance to moisture and alkali.

- (3) It has excellent hiding, both because of its opacity and perfect flowing.
- (4) It has great economy because it spreads easily and further than most products.
- (5) For rush work, it may be applied over Wallhide First Coater within two hours after the application of the former and give a perfectly uniform finish.
- (6) It gives remarkable results as a one-coat refinishing paint because:
 - a. Its opacity and perfect flowing give excellent hiding.
 - b. Its ability to cover imperfections in the old finish results in a surface uniform in color and sheen, and free from suction spots.
- (7) Whenever the occasion demands, it may be recoated within four hours after application.

Plaster**"VELUMINA FLAT WALL PAINT"**

covers the walls with a tough, velvet-like film at once durable, washable and sanitary. An Interior decorated with "Velumina" adds refinement and distinction to the surroundings. Its pigments are smooth in texture, possessing extreme opacity or hiding properties and the liquids used are free from varnish or resinous substances. Having an oil base, it works easily, leaving no brushmarks or laps.

Specification No. 8**Plain Flat
or Stippled
Finish**

Wash or scrape off all calcimine, loose paint, dirt, grease, etc. Fill cracks with a putty made from Velumina stiffened with whiting. No painting shall be done until plaster is reasonably dry. One Coat of VELUMINA WALLHIDE FIRST COATER applied according to directions. Dry over night and follow with One Coat of VELUMINA WALLHIDE FINISHING FLAT.

While VELUMINA WALLHIDE FINISHING FLAT gives best results, (as do all other products) when used over Wallhide First Coater, it is also suitable for use over any other type of undercoater, assuring superior results to those obtainable with other products.

Where three coat work is specified the Wallhide system is extended as follows:

First Coat—Velumina Wallhide First Coater.

Second Coat—Mix equal volumes First Coater and Wallhide Finishing Flat.

Third Coat—Velumina Wallhide Finishing Flat, or mixture of Flat and First Coater to increase sheen.

Optional Specification

Prime with one coat of "Velumina Wallhide Firstcoater" after thinning in accordance with directions on the container. Follow with two coats "Velumina Flat Wall Paint." The final coat may be stippled after thirty minutes if such finish is desired.

Note: Because of its hiding qualities and extraordinary resistance to suction and alkali spots, "Velumina Wallhide Firstcoater" will frequently obviate the necessity of a third coat of Velumina.

Specification No. 9

*Semi-Gloss
or
Gloss Finish*

As first coat apply Velumina Wallhide Firstcoater, tinting it to approximate finish color. For semi-gloss the second and third coats (if a third coat is needed) shall be Sun-Glo Finish. For a high gloss the second coat should consist of "Banzai Double Cover Undercoater" thinned 25% with linseed oil. The third coat shall be "Banzai Gloss Enamel". A subdued gloss may be obtained by lightly rubbing the finish coat with pumice and water.

Specification No. 10

*Textured
Finish*

Surface to be treated shall be primed with "Velumina Wallhide Firstcoater." Plastic Velumina may be applied with a plasterer's trowel and textured to give any desired effect. Ten different treatments are illustrated and complete directions given in an attractive portfolio which will be sent architects on request.

Specification No. 11

Metallic

*Interior
Metal Surfaces*

Radiators, pipes, wrought iron, etc. shall be primed with "Pitcairn Tector" reduced with one quart of Leptyne or Turpentine to the gallon. It is recommended that radiators be finished with "Velumina Flat Wall Paint." The finish on other objects depend upon surroundings. "Waterspar Flat Black" imparts a pleasing dull enamel surface to wrought iron stair-railings, etc.

(Send for Book—Velumina Wallhide and its Application.)

Pitcairn Aged Finishing Spar for Finest Interiors

Rich and lasting. Use on new or old work, whether full gloss, rubbed dull or polished. It is unexcelled in brilliance, body, working qualities and durability. Insures style and individuality to the work. Dries dust free in 8 to 10 hours, hardens in 2 days and may be rubbed the third day.

One gallon covers 550 to 600 sq. ft.

Pitcairn Aged Floor Spar for Finest Floor Finishing

Withstands severest wear. Use on new or old work. It has wonderfully free, easy working qualities, extraordinary permanence, toughness, brilliance and elasticity. Dries dust free in 6 to 8 hours and hardens in 24 hours.

One gallon covers 550 to 600 sq. ft.

Pitcairn Aged Flat Finish for Artistic Interior Work

Produces a rich, silky dull rubbed effect. Use for mission finish and in place of hand rubbing. This varnish dries with an even flat finish that has the appearance of being rubbed. Has the body

of gloss varnish, protects perfectly the surface to which it is applied, and may be used on either new or old work. One coat is sufficient to produce a dull rubbed effect on old work or over an undercoater of gloss varnish for new work. Two coats applied to new wood over filler will produce a silky, soft mission effect. Works nicely under the brush; flows out well. Dries dust free in 2 hours and hardens in 24 hours. Contains no paraffin or beeswax and may be coated with a gloss varnish, or as many coats may be applied as are necessary.

One gallon covers 650 to 700 sq. ft.

Pitcairn Tector (the Right Foundation)

Pitcairn Tector practically provides one undercoater for all purposes, interior and exterior.

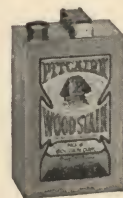
Tector has a greater range of usefulness than any other undercoater. It may be used as an undercoater on any surface, interior or exterior—wood, metal, cement, plaster, burlap, canvas; and under oil paints, enamels, varnishes, flat wall paint, calcimine and floor wax.

Pitcairn Tector is a discovery of far reaching importance, imparting durability under conditions where finishing materials have never been durable before, and greatly multiplying durability of paints, enamels, stains and varnishes under all circumstances.

Note: A book of Tector specifications, demonstration panels, and test tins will be furnished on request.

Pitcairn Wood Stains

Excel in penetrating qualities, clearness and richness. Used on all kinds of wood, whether soft, spongy or the hardest close grain.



They produce beautiful, deep, rich soft visual effects. They bring out the high lights and beauty of wood without obscuring the grain or causing cloudiness. They lend tone and impart an air of refinement to the surroundings. They do not raise the grain of wood nor affect thin veneers, being free from water, acid or alcohol. They may be mixed with the filler for tinting, or be reduced with turpentine or benzine. They set slowly, thus admitting of the surplus being removed from the surface with a cloth or sponge without showing cloudiness or laps. The work may be finished with wax or varnish as desired.

There are 14 beautiful colors in imitation of all popular woods and shades.

One gallon covers from 800 to 1000 sq. ft.

Note: Stain set, consisting of 20 wood panels, mounted on cloth, showing the color of Pitcairn Wood Stains on various kinds of wood, will be sent to all architects and their clients or to painters on request.

Pitcairn Banzai Enamel for All White Work

Rich and permanent. Used for all white work whether natural gloss, rubbed dull, polished or flat enamel finish. It is marvelously tough and elastic, approximately 50% more durable than ordinary enamels. Will not chip or crack, is stable in color and retains its immaculate, grainless surface regardless of frequency of washing or method of house heating.

The free flowing qualities of Banzai Enamel enable the work to be accomplished about 25% faster than with ordinary enamels.

Its splendid hiding qualities in many instances save the cost of work and time of an extra coat. Its great covering capacity and labor saving characteristics make it more economical to use than the cheaper ordinary enamels—not to consider its greater durability. Banzai Enamel furnishes a safety factor for the architect who demands flawless work, gives the decorator protection against blemishes, and reduces the labor costs; while the building owner gets a far greater durability than with the use of ordinary enamels. Dries dust free in 6 hours, and hardens in 48 hours.



One gallon covers approximately 500 sq. ft.

Note: Portfolio showing reproductions of 30 modern white enamel interiors will be sent to architects or their clients, on request.

Banzai Double Cover Undercoater

Banzai Double Cover Undercoater will cover as many square feet of surface as lead, zinc, or lithopone undercoaters and do the work from 50% to 100% better. Banzai Double Cover Undercoater is intensely white and possesses greater opacity than any other paint material. It spreads easily under the brush without pulling and flows out so smoothly as to require little or no sanding. The pigment used is inert and non-poisonous.

Distinctive Varnish Finishes

The Pitcairn label and trade-mark guarantee *quality as represented* and insure the economical securing of results that will be most satisfactory.

Pitcairn Aged Mast Spar for Exposed Work



Possesses the maximum of durability obtainable in exterior finishing varnish. Use on all surfaces subjected to severest exposures, whether marine finishing, outside doors, window casings, signs, etc., on new or old work. It has great elasticity and wear resisting qualities. Will not scratch or mar white, dries dust free in 10 to 12 hours and hardens in 48 hours.

One gallon covers 550 to 600 sq. ft.

Specification No. 12

OAK AND ASH

Varnish Finish—Four-coat Work—Standing Trim

All oak or ash wood (locations designated) shall receive a coat of natural paste wood filler, properly reduced with Leptyne, turpentine or benzine, and brushed well into the grain. (Excess of filler must be carefully and neatly cleaned from the surface by rubbing across the grain.)

Care must be taken that all grooves and corners are well cleaned with a hardwood stick. Fill all nailholes with putty tinted to match the wood.

The surface shall then receive a coat of Pitcairn Tector, reduced with Leptyne or turpentine, $\frac{1}{2}$ gal. to the gallon. After 24 hours, sandpaper carefully. Then apply 2 coats of Pitcairn Aged Finishing Spar Varnish, allowing at least 48 hours between coats for drying. Sand lightly between varnish coats with No. 0 paper.

For an extra fine job, apply a third coat of Pitcairn Aged Finishing Spar Varnish.

For dull finish, rub the last coat with fine pumicestone and rubbing oil. For dull finish without the expense of rubbing, substitute Pitcairn Aged Flat Finish for the last varnish coat.

Apply flat varnish freely with a badger-hair or black fitch flowing brush.

Specification No. 13

BIRCH AND MAPLE

Varnish Finish—Three-coat Work—Standing Trim

All birch or maple wood (locations designated) shall receive a coat of Pitcairn Tector reduced with Leptyne or turpentine, gallon for gallon. After 24 hours, sandpaper carefully. Fill all nailholes with putty tinted to match the wood. Apply 2 coats of Pitcairn Aged Finishing Spar Varnish, allowing at least 48 hours drying between coats. Sand lightly between coats.

If an extra fine job is desired, apply a third coat of Pitcairn Aged Finishing Spar Varnish.

If dull rubbed finish is desired, rub the last varnish coat. If a dull finish is desired without expense of rubbing, substitute Pitcairn Aged Flat Finish for the last varnish coat.

Apply flat varnish freely with a badger-hair or black fitch flowing brush.

Specification No. 14

GUM, PINE, FIR AND REDWOOD

Varnish Finish—Three-coat Work—Standing Trim

All gumwood, pine, fir or redwood (locations designated) shall receive 1 coat of Pitcairn Tector reduced with Leptyne or turpentine $\frac{1}{2}$ gal. to the gallon. After 24 hours sandpaper carefully. Fill all nailholes with putty tinted to match the wood. Apply 2 coats of Pitcairn Aged Finishing Spar Varnish, allowing at least 48 hours' drying between coats. Sand lightly between coats.

If an extra fine job is desired, apply a third coat of Pitcairn Aged Finishing Spar Varnish.

If desired, the last coat may be rubbed to a dull finish with fine pumicestone and rubbing oil. If a dull finish is desired without the expense of rubbing, substitute Pitcairn Aged Flat Finish for the last varnish coat.

Apply flat varnish freely with a badger-hair or black fitch flowing brush.

Specification No. 15

GENUINE MAHOGANY

Varnish Finish—Four-coat Work—Standing Trim

All mahogany wood (locations designated) shall receive 1 coat of mahogany paste wood filler, properly reduced with Leptyne, turpentine or benzine, and brushed well into the grain. (The excess of filler must be carefully and neatly cleaned from the surface by rubbing across the grain.) Care must be taken that all grooves and corners are well cleaned with a hardwood stick. Fill all nailholes with putty tinted to match the finish.

The surface shall then receive 1 coat of Pitcairn Tector reduced with Leptyne or turpentine, $\frac{1}{2}$ gal. to the gallon. After 24 hours, sand carefully.

Sand lightly between coats with No. 0 paper.

If an extra fine job is desired, apply a third coat of Pitcairn Aged Finishing Spar Varnish.

For dull finish, rub the last coat with fine pumicestone and rubbing oil. If a dull finish is desired without the expense of rubbing, substitute Pitcairn Aged Flat Varnish for the last Varnish coat.

Apply flat varnish freely with a badger-hair or black fitch flowing brush.

Stained Wood Finishes

Note: Soft, porous woods absorb stain more readily than hard, close grained pieces. Painters will use care and judgment to get uniform effects. When necessary, reduce stain with Leptyne, turpentine or naphtha.

Specification No. 16

OAK WOOD

Four-coat Work—Standing Trim

All oak wood (locations designated) shall receive a coat of color designated, the excess being removed with a cloth after sufficient time has elapsed for penetration. Fill all nailholes with putty tinted to match the finish. After 12 hours a thin coat of Pitcairn Spirit Lacquer or pure gum shellac shall be applied. Apply 2 coats of Pitcairn Aged Flat Finish, flowed on with a badger-hair or black fitch flowing brush to insure a smooth dull finish. Allow at least 24 hours between coats for drying.

Apply only enough lacquer or shellac to seal the stain. Avoid a heavy coating.

Specification No. 17

ALL SOFT WOODS

Varnish Finish

All soft wood (locations designated) shall receive a coat of color designated, the excess being removed with a cloth after sufficient time has elapsed for penetration. Fill all nailholes with putty tinted to match the finish. After 12 hours, a thin coat of Pitcairn Spirit Lacquer or pure gum shellac shall be applied. Apply 2 coats of Pitcairn Aged Finishing Spar Varnish, allowing at least 48 hours between coats for drying. Sand lightly between varnish coats with No. 0 paper.

If an extra fine job is desired, apply a third coat of Pitcairn Aged Finishing Spar Varnish.

If desired, the last coat may be rubbed to a dull finish with fine pumicestone and rubbing oil. If a dull finish is desired without the expense of rubbing, substitute Pitcairn Aged Flat Finish for the last varnish coat.

Apply flat varnish freely with a badger-hair or black fitch flowing brush. Apply only enough spirit varnish to seal the stain. Avoid a heavy coating.

White Enamel Finishes—Banzai System

Specification No. 18

OAK AND ASH WOODS

High Gloss Enamel Finish—Five-coat Work

All oak and ash woods (locations designated) shall receive a coat of natural wood paste filler, properly reduced with Leptyne, turpentine or benzine, brushed well into the grain. (The excess of filler must be carefully and neatly cleaned from the surface by

rubbing across the grain.) Care must be taken that all grooves and corners are well cleaned with a hardwood stick. Fill all nailholes with putty. Then apply 2 coats of Banzai Double Cover Undercoater as it comes in the can, allowing 24 hours between coats. Sand the last coat to a smooth surface.

For the next coat use a mixture of 2 parts of Banzai Enamel and 1 part Banzai Double Cover Undercoater. Sand lightly after allowing 48 hours for this coat to dry.

The last coat shall be flowed on freely—using Banzai Enamel as it comes in the can.

If an extra fine finish is desired, rub the enamel coat and flow on another coat of Banzai Enamel.

Specification No. 19

BIRCH, MAPLE, CYPRESS, GUM, WHITEWOOD, REDWOOD AND POPLAR WOOD—METAL AND PLASTER

High Gloss Enamel Finish—Five-coat Work—

All birch, maple, cypress, gum, whitewood, redwood and poplar wood, and metal and plastered surfaces (locations designated) shall receive 1 coat of Pitcairn Tector, reduced according to directions on the can, with Leptyne, turpentine or benzine. If desired, covering will be improved by use of a priming mixture of 1 gal. Pitcairn Tector reduced with 1 gal. Banzai Double Cover Undercoater and ½ gal. boiled linseed oil. After 24 hours, sandpaper carefully. Fill all nailholes with putty.

Then apply 2 coats of Banzai Double Cover Undercoater as it comes in the can, allowing 24 hours between coats. Sand between coats to a smooth surface.

For the next coat use a mixture of 2 parts of Banzai Enamel and 1 part Banzai Double Cover Undercoater. Sand lightly after allowing 48 hours for this coat to dry. The last coat shall be flowed on freely, using Banzai Enamel as it comes in the can.

If an extra fine finish is desired, rub the last enamel coat and flow on another coat of Banzai Enamel.

LAVAX ARCHITECTURAL FINISH

LAVAX is the name that has been adopted to designate a new type of finishing material having extremely novel properties. It combines the chief advantages of lacquer and varnish, and yet is distinct from either.

LAVAX contains ingredients which as a general class are common to varnish, but certain of these are entirely new and different from any material formerly used in varnish manufacture. These new materials impart certain distinct properties to the finished product which have not heretofore been characteristic of varnish.

LAVAX Architectural Finish possesses the following distinct advantages.

Rapid Drying Schedule—

The drying time of LAVAX Architectural Finish allows a finishing schedule approaching a pyroxylin lacquer system. For example, two coats of LAVAX Clear Interior may be applied in one day.

Ease of Application—

LAVAX possesses an ease of brushing superior to all lacquers and equal to the most freely flowing varnish.

THE GEO. W. REINHARDT CO., INC.

Manufacturers and Distributors of Titanium Stock White

GENERAL OFFICES AND WORKS
SOUTH BOSTON, MASS.

For All Surfaces

Clevo Titanox stock may be advantageously used to protect and beautify exterior or interior surfaces of wood, metal, masonry, plaster, gypsum, etc.

Clevo paint or enamel ages slowly and retains a clear, clean, durable finish. On exterior surfaces Clevo Titanox will chalk just enough to present a perfect base when repainting time arrives.



"Cleaves to the Surface"
TRADE-MARK

Covering Capacity and Durability

Clevo Titanox is used, tinted and applied in the same manner as white lead. It has, however, better hiding properties, absorbs more linseed oil, and also stays white longer. 120 lb. of Clevo equals 200 lb. of white lead in covering capacity.

The extra linseed oil content of Clevo Titanox insures great durability and lessens the labor cost of applying.

Labor Economy

Brush painting contracts are approximately 22% stock and 78% labor. Clevo Titanox saves one man's time in five or approximately 20% of the larger item of painting expense.

References

The American Society for Testing Materials, R. L. Hallett, Vol. 22, Part 2, 1922, shows the hiding power of Titanox over lead as 100%. This is of tremendous importance for obtaining better painting at less expense.

Specification Data

All surfaces must be clean, dry, and properly prepared to receive paint. Clevo Titanox may be applied with brush or spray. Linseed oil, turpentine, varnish, dryers, and colors shall be of first quality and approved by the architect.

Exterior Painting

Wood Surfaces, 3 Coats

Primer	Undercoat
5 gal. Clevo Extr. Stock	5 gal. Clevo Extr. Stock
4 gal. raw oil	3 gal. raw oil
3 gal. turpentine	3 gal. turpentine
1 qt. japan dryer	1 qt. japan dryer

Finish Coat

5 gal. Clevo Extr. Stock	<i>Note:</i> Heat bodied linseed oil is recommended by U. S. Bureau of Standards
4½ gal. raw oil	
½ gal. heat bodied oil	
1 qt. japan dryer	

For old work, omit primer coat

Metal Surfaces, 2 Coats

First Coat	Second or Finish Coat
5 gal. Clevo Extr. Stock	5 gal. Clevo Extr. Stock
2 gal. raw oil	4½ gal. raw oil
3 gal. turpentine	2 qt. spar varnish
1 qt. japan dryer	1 qt. japan dryer

Brick, Stucco, Concrete, 3 Coats

Primer*	Undercoat
5 gal. Clevo Extr. Stock	5 gal. Clevo Extr. Stock
3 gal. Clevo N.B. Oil	4 gal. Clevo N.B. Oil
3 gal. turpentine	2 gal. turpentine
1 qt. japan dryer	1 qt. japan dryer

Finish Coat

5 gal. Clevo Extr. Stock	<i>Note:</i> Spar varnish may be used in place of heat bodied linseed oil.
4½ gal. raw oil	
2 qt. heat bodied oil	
1 qt. japan dryer	

*For old work omit primer coat.

Interior Painting

Wood or Metal Surfaces, 1 or 2 Coats

Primer, 1 Coat	<i>Note:</i> If a second coat is desired, it should be exactly like primer coat.
5 gal. Clevo Intr. Stock	
3 gal. raw linseed oil	
3 gal. turpentine	
1 qt. cobalt dryer	

Brick, Plaster, Concrete Walls and Ceilings

Primer, 1 or 2 Coats

5 gal. Clevo Intr. Stock
10 gal. Clevo N.B. Size
1 gal. turpentine
1 qt. cobalt dryer (white or tinted)

Flat Finish, All Surfaces (1 or 2 Coats)

5 gal. Clevo Intr. Stock
4½ gal. turpentine or flat oil

Enamel Finish, All Surfaces (1 or 2 Coats)

5 gal. Clevo Intr. Stock
6 gal. enamel oil or clear varnish

Semi-enamel Finish, All Surfaces (1 or 2 Coats)

5 gal. Clevo Intr. Stock
4 gal. enamel oil or clear varnish
3 qt. turpentine
1 pt. cobalt dryer

Mill White Gloss

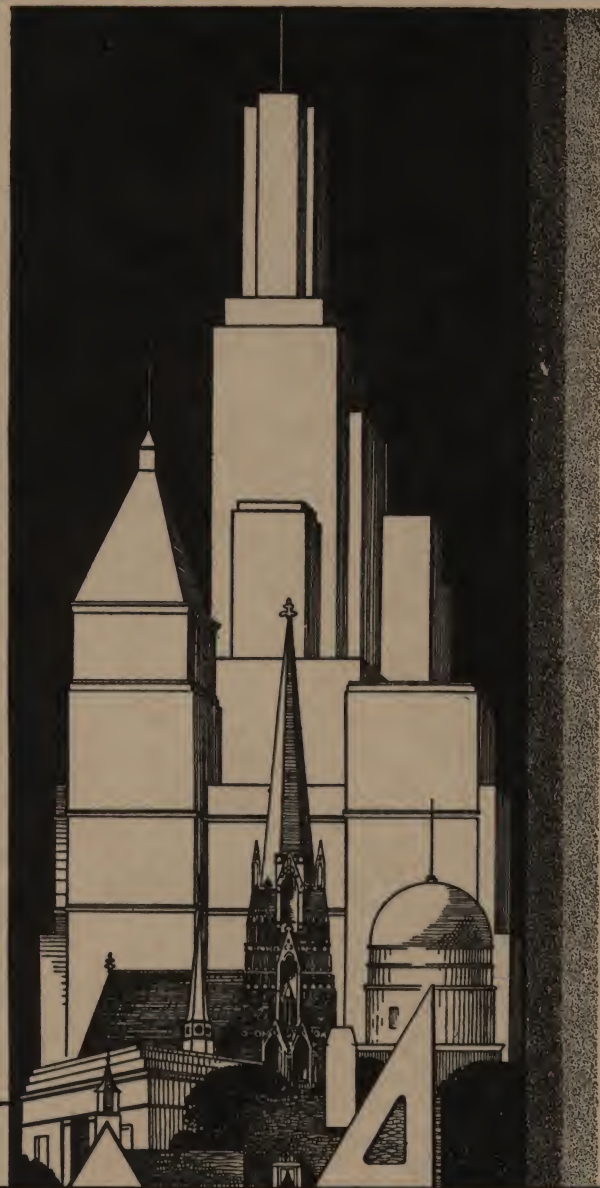
5 gal. Clevo Intr. Stock
6 gal. Clevo M.W. Enamel Oil

Clevo Bonding Protects Architect and Owner

To architects and owners we furnish, without obligation, names and addresses of reliable painters and decorators in any part of the United States and Canada.

A bond for the amount of the paint contract is

offered without charge on any bonding company selected by the architect, guaranteeing Clevo against fading, checking, cracking or blistering, provided it is applied by professional painters who are of good repute and who have been established not less than five years.



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LARGEST PAINT AND VARNISH MAKERS
IN THE WORLD

DEPARTMENT
OF
ARCHITECTURAL
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CLEVELAND

A BOOK OF
PAINTING,
VARNISHING AND
LACQUERING
SPECIFICATIONS

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WAXES, DAMPPROOFING, PLASTER BOND,
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 BINGHAMTON, N. Y., Store, 162 Washington Street
 BIRMINGHAM, ALA., Store, 2016-18 Third Avenue No.
 BOSTON, MASS., Office and Warehouse, 19-23 Pittsburgh Street
 EAST BOSTON, MASS., Factory, 266 Border Street
 BOUND BROOK, N. J., Factory
 BROWNSVILLE, TEX., Warehouse, 706 Fronton Street
 Store, 1240 Elizabeth Street
 BRIDGEPORT, CONN., Store, 86 Cannon Street
 BUFFALO, N. Y., Office and Warehouse, 37 Pearl Street
 CANTON, OHIO, Store, 422-424 Tuscarawas Avenue
 CHARLESTON, S. C., Warehouse, 267 E. Bay Street
 CHARLOTTE, N. C., Store, 426 S. Tryon Street
 Warehouse, 212 W. First Street
 CHATTANOOGA, TENN., Store, 826-28 Broad Street
 CHICAGO, ILL., Factory and Offices, 115th Street and Cottage Grove Avenue
 City Office and Warehouse, 2001 Pershing Place
 CINCINNATI, OHIO, Office, Store and Warehouse, Sixth and Main Streets
 CLEVELAND, OHIO, Factory and Offices, 601 Canal Road, N. W.
 COLORADO SPRINGS, COLO., Store, 129 E. Bijou Street
 COLUMBIA, S. C., Store, 1713 Main Street
 COLUMBUS, OHIO, Store, 60 E. Gay Street
 COLUMBUS, GA., Store, 1038 Broadway
 DALLAS, TEX., Office and Warehouse, 1621 Wall Street
 Stores, Pacific and Harwood Streets—300 So. Beckley Street
 DAVENPORT, IOWA, Office and Store, 129 E. Second Street
 DES MOINES, IOWA, Store, 923 Locust Street
 DENVER, COLO., Office and Store, 1632 Arapahoe Street
 DETROIT, MICH., Stores, 134 Cadillac Square—9341 Grand River Avenue
 Office and Warehouse, 1950 Milwaukee Ave. E.
 EL PASO, TEX., Store, 216 Stanton Street
 EVANSVILLE, IND., Store, 211 Main Street
 FT. WORTH, TEX., Store, 208 W. 3rd Street
 GALVESTON, TEX., Store, 23rd and Post Office Streets
 GRAND RAPIDS, MICH., Warehouse, 25 So. Ionia Street
 HARTFORD, CONN., Store, 230 Trumbull Street
 HIGHLANDTOWN, MD., Store, 3500 Eastern Avenue
 HOUSTON, TEX., Warehouse, 2108-12 Preston Avenue
 Office and Store, Main Street and Clay Avenue
 HUNTINGTON, W. VA., Store, 1018 4th Avenue
 INDIANAPOLIS, IND., Office and Warehouse, 318 W. Georgia Street
 JACKSON, MISS., Store, 219 E. Capitol Street
 JACKSONVILLE, FLA., Office and Warehouse, 2320 Liberty Avenue
 Store, 22 W. Monroe Street
 JOHNSON CITY, N. Y., Store, 256 Main Street
 JOPLIN, MO., Store, 623 Main Street
 KANSAS CITY, MO., Office and Warehouse, 1400 St. Louis Avenue
 KNOXVILLE, TENN., Store, 421-23 Wall Avenue
 LITTLE ROCK, ARK., Store, 720 Main Street
 LOS ANGELES, CALIF., Office and Warehouse, 652 Mateo Street
 LOUISVILLE, KY., Warehouse, 315-17 W. Jefferson Street
 MANSFIELD, OHIO, Store, Corner Third and Walnut Streets
 MEMPHIS, TENN., Store and Warehouse, 121 Union Avenue
 MEXICO CITY, MEX., Store, Apartado 2240
 MIAMI, FLA., Store, 269 W. Flagler Street
 MILWAUKEE, WIS., Warehouse, 128 W. Water Street
 MINNEAPOLIS, MINN., Office and Warehouse, 701 Third Street No.
 MONROE, LA., Store, 109 Catalpa Street
 MONTGOMERY, ALA., Store, 33 Commerce Street
 NASHVILLE, TENN., Offices, Stores and Warehouse, 5th Avenue and Union Street
 NEWARK, N. J., Offices and Factory, Brown Street and Lister Avenue
 NEW HAVEN, CONN., Warehouse, 441 Chapel Street
 Store, 166 Temple Street
 NEW ORLEANS, LA., Office and Warehouse, 870 Fulton Street
 329 Baronne Street
 NEW YORK, N. Y., Warehouse, 52 Thompson Street
 Offices, 292 Madison Avenue
 OAKLAND, CALIF., Offices and Factory, 1450 Sherwin Avenue
 OKLAHOMA CITY, OKLA., Warehouse, 223 E. Grand Avenue
 Store, 211 W. First Street
 OMAHA, NEB., Offices and Warehouse, Corner Tenth and Dodge Streets
 PHILADELPHIA, PA., Office and Warehouse, Delaware and Chestnut Streets
 PHOENIX, ARIZ., Warehouse, 512 W. Jackson Street
 PITTSBURGH, PA., Office and Warehouse, 55-56 Water Street
 PORTLAND, ORE., Office and Warehouse, 484 Everett Street
 PROVIDENCE, R. I., Warehouse, 64 Traverse Street
 RICHMOND, VA., Store, 515 Grace Street
 Office and Warehouse, 1315 E. Main Street
 ROCHESTER, N. Y., Store, 44 South Avenue
 Store, 53 State Street
 SALT LAKE CITY, UTAH, Warehouse, 53 West Broadway
 SAN ANTONIO, TEX., Store, 135 W. Commerce Street
 SAN FRANCISCO, CALIF., Warehouse, 466 Second Street
 SAVANNAH, GA., Warehouse, 725 Wheaton Street
 SCHENECTADY, N. Y., Store, 128 Jay Street
 SEATTLE, WASH., Warehouse, 512 First Avenue So.
 SPARTANSBURG, S. C., Store, 247 E. Main Street
 SPOKANE, WASH., Warehouse, 157 So. Post Street
 SPRINGFIELD, ILL., Store, 512 E. Monroe Street
 SPRINGFIELD, MASS., 323 Bridge Street
 ST. LOUIS, MO., Office and Warehouse, 515 Spruce Street
 SYRACUSE, N. Y., Warehouse, 214-16 W. Jefferson Street
 Store, 127 E. Water Street
 TAMPA, FLA., Store, 713 Florida Avenue
 TEXARKANA, TEX., Store, 309 Pine Street
 TRENTON, N. J., Store, 119 E. Hanover Street
 TULSA, OKLA., Offices and Warehouse, 118 So. Cheyenne Avenue
 WACO, TEX., Store, 720 Austin Street
 WARREN, OHIO, Store, 202 Main Street S. W.
 WASHINGTON, D. C., Offices, 422 Munsey Building
 WHEELING, W. VA., Store, 22 Twelfth Street
 WICHITA FALLS, TEX., Store, 818 Scott Street
 WORCESTER, MASS., Store, 24 Mechanics Street, Corner Norwich
 YOUNGSTOWN, OHIO, Store, 271 W. Federal Street

FOREWORD TO SPECIFICATIONS

The following specifications, unless otherwise stipulated, are intended to cover the entire field of finishing walls, floors and woodwork. They are in reality three sets of specifications, covering as they do the usual paint, varnish, stain, or enamel finish, as well as Opex Architectural Lacquer finish, either spray or brush application.

Before using the specifications it is necessary to refer to the index, which will be found to be cross-referenced, wherever either paint or varnish, or lacquer might be possible. For additional information, address THE SHERWIN-WILLIAMS Co., Department of Architectural Service, 101 Prospect Avenue, N. W., Cleveland, Ohio, or any of the branch offices listed on the preceding page.

METAL PROTECTIVE COATINGS

*Specification No. 1***Exterior Exposure**

Discussion—In the following specification, which applies to buried or exposed steel alike, Sherwin-Williams Kromik Metal Primer and Sherwin-Williams Metalastic are called for. Kromik Metal Primer is specified because of its particular suitability for use as a protective coating to be applied directly to metal. Metalastic is specified on account of its particular suitability as a final protective coating which will staunchly guard against danger to the undercoats.

In the manufacture of Sherwin-Williams Kromik Metal Primer, chromates play a highly important part. Authorities are agreed that the use of chromates is a very wise procedure in a metal protective primer intended to be applied direct to the metal surface for the prevention of rust. In tests extending over a period of five years or more, all paints containing chromates have made a uniformly excellent showing. Chemists explain the function of chromates as having the tendency to render the surface of steel passive, or in other words, chromates reduce the tendency of the metal surface to set up galvanic action or electric currents within itself. An interesting application of this principle is found in the use of ferro chromes in the manufacture of so-called stainless steel cutlery. Another interesting test is the well-known Sherwin-Williams razor blade test in which the razor blade—submerged in water carrying a certain percentage of chromates—remains bright a year after the razor blade submerged in untreated water has been reduced to rust.

Kromik Metal Primer has the following advantages for use on structural steel as compared with red lead, which is recognized as a standard material with many years standing for this type of work and which is a most excellent paint in itself: Kromik is noticeably easy to apply, especially in difficult and inaccessible members; it is not affected by sulphur compounds in the air and shows markedly greater durability where it lies unprotected on the job for any period of time. Kromik inhibits corrosion and shows a very favorable lower material cost. Kromik is Sherwin-Williams' standard recommendation for a priming coat on all metal work.

Sherwin-Williams Metalastic is our standard specification for finishing coats on structural steel work. It is specified for the second and third coats and is a protective coating of the graphite type. Metalastic is a full oil paint which dries to a tough, durable and exceedingly impervious film with high water shedding properties. It is particularly fitted for use over Kromik Metal Primer because these two products have the same degree of elasticity and expand and contract with the metal to the same degree. Where this relationship does not hold, there is a decided tendency in the finishing coat to break, thereby ending its usefulness as a metal protective coating.

Sherwin-Williams has no particular type of paint or pigment to exploit. We make a complete line of metal protective paints and our specification of Kromik Metal Primer with Metalastic for finishing coats has been recommended as standard because we believe it embodies the best painting practice considered from every side of the question.

Specification—Before applying the priming coat or shop coat, all rust, mill scale, grease or foreign matter of any kind shall be completely removed from the surface to be painted. No painting shall be done in wet or freezing weather, nor shall paint be applied to any wet or damp surface. Paint shall be used in the consistency received from the manufacturer. No thinner shall be added without the written approval of the architect or engineer.

The priming or shop coat shall be applied before steel is shipped to site. All riveted and bolted connections, as well as parts inaccessible after erection, shall receive two coats of Kromik Metal Primer. The second coat (first field coat) shall consist of Sherwin-Williams Metalastic Brown. Any portions of the surface which have been abraded in transit shall be "spotted" with Kromik Metal Primer prior to the application of the second coat. When the second coat is dry, a full coat of Sherwin-Williams Metalastic, Black, shall be applied.

*Specification No. 2***Iron or Steel Surfaces Exposed to Acid Fumes**

Before applying the priming coat or shop coat, all rust, mill scale, grease or foreign matter of any kind shall be completely removed from the surface to be painted. No painting shall be done in wet or freezing weather, nor shall paint be applied to any wet or damp surface. Paint shall be used in the consistency received from the manufacturer. No thinner shall be added without the written approval of the architect or engineer.

A priming or shop coat of Sherwin-Williams Kromik Metal Primer shall be applied before steel is shipped to site. All riveted and bolted connections, as well as parts inaccessible after erection, shall receive two coats of Kromik Metal Primer. Any portions of the surface which have been abraded in transit shall be "spotted" with Kromik Metal Primer prior to the application of the second coat (first field coat). The second and third coats shall consist of Sherwin-Williams Non-Corrodible Acid Resisting Paint, Black.

*Specification No. 3***Hot Surfaces (Stacks, Flues, Pipes, etc.)**

Before applying paint, all rust, dirt and grease shall be thoroughly cleaned off the surface to be painted. Paint shall be applied as it comes from the package. The priming coat shall consist of Sherwin-Williams Salamander Black, which, when dry, shall be second coated with the same material.

*Specification No. 4***Exterior Ornamental Iron Work (Flat Black Finish)**

Before applying the priming coat, all rust, mill scale, grease and other foreign matter shall be completely removed from the surface to be painted. No painting shall be done in wet or freezing weather, nor shall paint be applied on wet or damp surfaces. The first two coats shall be applied in the consistency supplied by the manufacturer.

The priming or shop coat shall consist of Sherwin-Williams Kromik Metal Primer and shall be applied prior to shipment of metal to the site. The second coat shall consist of Sherwin-Williams Metalastic Black. Any portions of the surface which

METAL PROTECTIVE COATINGS (Continued)

have become abraded in transit shall be "spotted" with Kromik Metal Primer prior to the application of the Metalastic paint. The third coat shall consist of Sherwin-Williams Quick Drying Color Black, thinned with turpentine, and when thoroughly mixed, raw linseed oil shall be added. The mixture shall be in proportion of two parts of black by bulk to one part of turpentine and one part of linseed oil by bulk.

Specification No. 5**Verde Antique Finish on Exterior (or Interior) Metal Work**

Before applying any paint, all rust, grease, resin, dirt, etc., shall be removed from the surface of the metal. The priming coat shall consist of Sherwin-Williams Kromik Metal Primer, to be applied in the consistency supplied by the manufacturer.

The priming coat shall be applied prior to the shipment of the metal to the site. Any portions of the surface which have been abraded in transit, shall be "spotted" with Kromik Metal Primer prior to the application of the second coat. The second coat shall consist of SWP (Sherwin-Williams Prepared Paint) shade No. 393. The third coat shall consist of a brush-stipple coat of SWP No. 355, tinted with Sherwin-Williams First Quality Oil Color Paris Green, to the shade desired by the architect.

Specification No. 6**Painting of Galvanized Iron**

All galvanized iron surfaces to be painted, such as gutters, down-spouts, etc., shall receive a priming coat of Sherwin-Williams Galvanized Iron Primer prior to the application of any paint.

DAMP-PROOFING OF FOUNDATIONS**Specification No. 7**

Discussion—Sherwin-Williams Antydamp is applied to the exterior of concrete or masonry foundations below grade, to prevent the penetration of moisture through foundation walls, and thereby making dry basement walls possible. Antydamp is a damp-resisting, alkaliproof, acidproof, black paint of asphalt type. It is very heavy in body, and will remain in a semi-tacky and elastic condition indefinitely, thereby preventing the cracking of the film with the resultant penetration of dampness into the foundation walls.

Sherwin-Williams Antydamp will cover approximately 25 to 40 square feet, two coats to the gallon. It comes ready for application and is applied cold, except in very cold weather when it is necessary to heat slightly before applying.

Antydamp should be applied in full coats without endeavoring to brush the material out too much, because

the heavier the coating is, the more protection it affords. In applying Antydamp, it is recommended that a three or four-knot roofing brush be used.

Where there is a presence of hidden springs or marshy land, or hydrostatic pressure in any form around the foundation, the use of two coats of Antydamp is not sufficient. Under these conditions, it will be necessary to alternate at least two layers of cheap burlap or felt paper with Antydamp. Special instructions regarding procedure to be followed will be supplied upon request.

Specification—The exterior of all foundation walls below grade, prior to any backfilling, shall be dampproofed by the application of two full coats of Sherwin-Williams Antydamp Foundation Damp-Proofing in the consistency supplied by the manufacturer. Twenty-four hours shall be allowed for drying between the first and second coats, and at least 24 hours shall be permitted to elapse after the second coat has been applied, before backfilling. This dampproof material shall be applied with a three or four-knot roofing brush.

Note: Sufficient space shall be provided, in digging the excavations, for men to have room to apply Antydamp to all parts of the foundation surface.

WOOD PRESERVATIVE**Specification No. 8**

Discussion—Sherwin-Williams Carbolic-oil, specified as a wood preservative, is as strong, penetrating and permanent a wood preservative as can be produced. It is a non-volatile oil, obtained through coal-tar distillation, which may be applied to the wood either by

the brush or dip method and will remain permanently in the pores of the wood, thereby preserving it for the longest possible time.

Specification—All wood which is to be buried in the ground shall be treated with one coat of Sherwin-Williams Carbolic-oil, which shall be applied in the consistency supplied by the manufacturer.

PAINTING AND STAINING OF EXTERIOR SURFACES**Specification No. 9****Wood Surfaces (New) to Paint**

Discussion—SWP (Sherwin-Williams Prepared Paint) represents the best of technical knowledge in the production of paint for general outside use today. The architect may specify SWP for outside painting on wood buildings or for finishing coats on outside metal work where special colors are required not found in our Metalastic line and may have a definite feeling of assurance that SWP will present a better appearance and wear for a longer time than any paint possible to mix by hand. A man is not able to purchase raw materials and mix the paint himself that will equal SWP. Mechanical efficiency and handwork cannot be compared; the painter's facilities for measuring proportions of pigments accurately cannot be compared with factory equipment; hand stirring can never equal machine grinding; and the certainty of uniformity in the various ingredients is decidedly in favor of factory production.

Sherwin-Williams honestly believe that no finer paint can possibly be made for painting outside buildings than SWP.

SWP is made in 32 colors and white. It is a combination of strictly pure carbonate of lead, sulphate of lead, zinc oxide and a small amount of magnesium silicate. The liquids are strictly pure linseed oil and turpentine. SWP is a *perfectly balanced* paint from the standpoint of scientific paint manufacture and will render the greatest satisfaction from the standpoint of beauty, economy and years of service.

For Color Samples, see S-W Pages 5 and 7.

(Note Specification No. 10.)

Specification—Before commencing work on exterior painting, the contractor shall make sure by careful inspection that the surface to be painted is thoroughly dry and shall continue this vigilance throughout the time during which the exterior painting is being done, so that no painting shall be done under unfavorable conditions, such as immediately after a rain or during wet or frosty weather.

Different kinds of lumber, however, require different treatment, and we have, therefore, suggested special treatment for certain kinds as mentioned. The greatest care should be taken in following the directions.

Where the wood shows pitchy spots, these spots and all knots should first be coated with the best orange shellac after the priming coat is applied.

S W P**SHERWIN-WILLIAMS PAINT PREPARED**

	Cream 462	Suitable Trimmers 388 355 393 498		Sea Green 354	Suitable Trimmers 355 461 Gloss White
	Ivory 496	355 461 499 486		Apple Green 460	461 Gloss White
	Canary Yellow 387	Gloss White 461 499		Pea Green 383	496 498 354
	Colonial Yellow 375	461 Gloss White 499 498		Sage Green 355	498 354 360
	Straw 385	496 393 388		Willow Green 461	496 460 354 498
	Golden Yellow 470	393 486 499 388		Moss Green 498 *	For Doors, Sash, Store Fronts, etc.
	Primrose Yellow 394	496 Gloss White 498		Fr. Crown Green Medium 362 *	
	Golden Brown 486	375 388 387 393		Bronze Green 475	382 Gloss White 496
	Sky Blue 464	For Porch Ceilings, etc.		Pearl Gray 479	Gloss White 353 355
	Blue 369	For Inside Use		Silver Gray 357	Gloss White 355 353

(See also S-W Page 7)

Please do not detach color samples. Complete color cards sent upon request.

PAINTING AND STAINING OF EXTERIOR SURFACES (Continued)

New Wood (Outside)—First Coat—On new soft wood or old weathered lumber a gallon of SWP should be thinned with one gallon raw linseed oil and one quart pure turpentine.

For resinous woods, such as yellow pine or cypress, add two quarts turpentine and one quart raw linseed oil to each gallon of paint.

After the priming coat has been permitted to dry, all nail-holes, cracks, and other defects shall be filled in with linseed oil and whiting putty.

Second Coat—For soft woods add one pint pure turpentine.

Third Coat—Apply SWP as it comes from the can. If thinning seems necessary, thin slightly, using pure raw linseed oil.

Repainting Work (Outside)—Same as above, except omit first or priming coat.

Specification No. 10

(Alternative to Specification No. 9)

Wood Surfaces (New) to Paint

Discussion—Where the architect desires to leave the mixing of the paint for use on exterior wood surfaces to the discretion of his painting contractor, the specification of Sherwin-Williams Zilo is advised in preference to straight white lead. It is a generally recognized fact that a definite percentage of zinc oxide added to a white lead paint is greatly beneficial to the paint. It tends to eliminate objectionable chalking, thereby lengthening the life of the paint; it increases its whiteness and improves the gloss and spreading power of the paint.

The U. S. Government and the majority of State Governments and railways insist upon a percentage of zinc oxide in paints specified for the painting of exterior surfaces because of the fact that white lead, when used alone, shows a marked tendency to objectionable chalking and necessitates repainting at a much earlier date than paints which include a proportion of zinc oxide.

Zilo is a 100% pure product and every pound is guaranteed pure. Zilo is offered not as a lead substitute, but as superior to white lead, when used alone.

THE SHERWIN-WILLIAMS Co. will be very glad to provide specifications on the amount of linseed oil, turpentine and drier for any purpose desired upon request.

Specification No. 11

White Lead

In all specifications requiring the specification of white lead when used alone, specify Sherwin-Williams ODP White Lead, which is a strictly pure white lead (lead carbonate), and ground in strictly pure linseed oil. ODP Lead is extremely fine and very white. Each keg of the material bears the following strong guarantee of quality:

"This package is warranted to contain nothing but Strictly Pure White Lead, ground in Strictly Pure Linseed Oil, and we will pay one ounce of gold for every ounce of adulteration that it may be found to contain."

Specification No. 12

Exterior Wood Surfaces (Old) to Paint

Discussion—The following specification deals with the refinishing of previously painted exterior wood surfaces. One of the main features which the architect should watch is that, before applying the first coat of paint, all loose paint is removed from the surface by wire-brushing, scraping, or burning, that the surface is thoroughly dry, and that all knots and pitchy places which are evident through the old film are properly

sealed with pure Orange Shellac. The advisability of using SWP (Sherwin-Williams Paint) is discussed under Specification No. 9.

See Color Samples on S-W Pages 5 and 7.

Specification—Before commencing the painting of exterior surfaces, the contractor shall make sure, through careful inspection, that the surface to be painted is thoroughly dry and in proper condition for refinishing, and shall continue his vigilance throughout the time during which the exterior painting is being done. The first coat shall consist of SWP (Sherwin-Williams Paint) thinned with one pint of pure raw linseed oil and one pint of turpentine added to each gallon. After sufficient time has been allowed for drying, a second coat consisting of SWP, thinned with one pint of raw linseed oil to the gallon, shall be applied.

Specification No. 13

Wood Surfaces (New) to Stain

(For Staining Shingles, see Specification No. 15.)

Discussion—Where the architect desires to stain and preserve exterior wood surfaces without hiding the grain of the wood, Sherwin-Williams Preservative Shingle Stain, described in Discussion under Specification No. 15, is recommended for the purpose.

The stain is made of light-fast colors and a wood preservative of which refined creosote oil is an important ingredient.

Specification—The exterior woodwork indicated shall be finished with two brush coats of Sherwin-Williams Preservative Shingle Stain, which shall be applied in the consistency supplied by the manufacturer.

Specification No. 14

Concrete, Cement or Stucco Walls to Paint

Discussion—The architect appreciates the advisability of painting exterior concrete or stucco walls. This is advisable for two reasons: first, the control of the decorative effect in color, as required by the type of building, which paint affords, and the ease in which the building can be cleaned up in appearance and the change of color scheme effected. Second, painting a concrete wall renders it watertight and prevents the appearance of hair line cracks and chipping off caused by the penetration of moisture and frost.

Sherwin-Williams Stucco and Concrete Paint is an oil paint designed for outside exposure, but which dries to a velvety finish without objectionable gloss. It does not destroy the interesting texture of the stucco wall as does a gloss finish, but retains the effect for which stucco is specified.

Specification—All exterior concrete wall surfaces shall receive two coats of Sherwin-Williams Stucco and Concrete Paint in the color selected by the architect. Before proceeding with the painting, the painting contractor shall make sure through careful inspection that the surface to be painted is thoroughly dry and free from dirt.

Any salts or efflorescence on the surface to be finished, shall be carefully scraped off and the surface washed with a solution of zinc sulphate (1½ to 2 pounds to the gallon of water). Let dry thoroughly.

The first coat shall be thinned with pure turpentine in proportion of one quart of turpentine to the gallon of paint. At least 48 hours shall be allowed for the first coat to dry, after which the second coat, thinned with one pint to one quart of raw linseed oil, shall be applied. This produces a slight sheen. If objectionable, apply just as it comes from the package.

Specification No. 15

Wooden Shingles (New) to Stain

Discussion—Sherwin-Williams Preservative Shingle Stains are called "preservative" because they contain creosote, a well-known preservative of all vegetable

SWP**SHERWIN-WILLIAMS PAINT PREPARED**

	Tobacco Brown 393	Suitable Trimmers 375 385 387		Cream Gray 360	Suitable Trimmers 496 355 Gloss White 499
	Antique Brown 499	375 391 496		Quaker Drab 391	496 360 498 393
	Modern Brown 388	387 391 393		Warm Drab 485	496 388 498
	Red 367	475 391 496 Very durable for Brick work		Stone 351	496 360 Gloss White
	Rich Maroon 382	For Doors, Sash, etc.		Light Lead 353	Gloss White 360 363
	Bottle Green 484	498 391		Slate 363	Gloss White 357

(See also S-W Page 5)

Please do not detach color samples. Complete color cards sent upon request.

PAINTING AND STAINING OF EXTERIOR SURFACES (Continued)

tissue. Creosote fills the wood with a fatty substance and unites with the sappy part in forming a peculiar compound which resists organic decomposition. It also has the property of preventing the formation of fungus growths.

Sherwin-Williams Preservative Shingle Stains are penetrating and exceedingly permanent, both as to color and preservative value. Since refined creosote oil is used in these stains, which is free from the rank odor of crude creosote, Sherwin-Williams Shingle Stains do not have the unpleasant odor many times found in products of this type.

Specification—All wooden shingles shall receive one dip coat of Sherwin-Williams Preservative Shingle Stain in the consistency supplied by the manufacturer and in the color selected by the architect. The shingles shall be dipped two-thirds their length in Shingle Stain and thrown aside in loose piles until dry. After the shingles have been laid, one brush

coat of Sherwin-Williams Preservative Shingle Stain of like color shall be applied as it comes from the original container.

Specification No. 16**Metal Roofs (to Paint)**

Discussion—The architect has a choice of specifying Metalastic or SWP (Sherwin-Williams Prepared Paint), the merits of which are covered in the discussion in Specifications Nos. 1 and 9, respectively. The two points which should be watched particularly are that the roof must be dry and free from grease, rosin, etc., and second, that if roof is of galvanized iron, the primer shall be Sherwin-Williams Galvanized Iron Primer. Any finishing coat desired may be applied over Galvanized Iron Primer. Where Galvanized Iron Primer is used, this takes the place of the first coat, and two subsequent coats of paint in the desired color will be sufficient.

PAINTING AND STAINING OF EXTERIOR SURFACES (Continued)

Specification—Before beginning painting of the roof the contractor shall make sure that the roof is free from all grease, rosin, acid and dirt, and that the surface is perfectly dry. Three brush coats of Sherwin-Williams Metalastic, or where a lighter shade is desired, SWP (Sherwin-Williams Paint) shall be applied to the metal roofing in the consistency supplied by the manufacturer. (See Discussion where roof is of galvanized iron.)

Specification No. 17

Woodwork—Stained and Varnished Finish

Discussion—For the staining and varnishing of exterior woodwork, the use of Sherwin-Williams Oil Stain is recommended in preference to other types of stains, such as Sherwin-Williams Acid Stain, Sherwin-Williams Handcraft Stain (spirit penetrating). The reason for this is that varnish may be applied directly over oil stains, whereas the other types mentioned require sealing with a thin coat of shellac to prevent bleeding of the stain into the finishing coat of varnish which interferes with proper drying.

Varnish may be applied directly over any and all of the Sherwin-Williams Oil Stains with the exception of Rich Mahogany and Brown Mahogany. These require the use of a sealing coat of shellac before varnishing and are not recommended for exterior use.

It is preferable not to use shellac in exterior finishing, where avoidable, for the reason that this material is not sufficiently elastic to withstand the extreme expansion and contraction produced by changes in temperature. In many instances when open grain woods are used, such as oak, chestnut, walnut, and mahogany, the color of the wood can be modified sufficiently through the use of Sherwin-Williams Paste Wood Fillers, the dark colors of which carry a certain amount of staining power.

See Color Samples on S-W Pages 11 and 15.

Specification—All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

Apply one coat of Sherwin-Williams Oil Stain in the shade selected by the architect. Let dry thoroughly.

Open grain woods require filling with Sherwin-Williams Paste Wood Filler. This is furnished in paste form to be reduced to brushing consistency with benzine. Apply in the color selected by the architect and when the material is partly set, wipe off across the grain of the wood with burlap or excelsior, then wipe clean with a soft cloth. Allow 24 hours for the filler to dry. Apply three coats of Sherwin-Williams Rexpa Varnish as follows:

First coat to be thinned with pure turpentine in the proportion of one pint to the gallon. Second and third coats are to be applied in the consistency supplied by the manufacturer. Allow sufficient time for drying between coats and sand first two coats lightly with No. 00 sandpaper. Leave last coat in full gloss or for rub finish, specify: "When sufficiently dry, rub the varnish to a dull finish with powdered pumicestone and water."

Note: Where acid stains or handcraft stains are specified, a thin coat of pure shellac shall be applied in place of the first coat of Rexpa Varnish.

Specification No. 18

Porch Floors and Canvas Decks (New) to Paint

Discussion—Sherwin-Williams Porch and Deck Paint is made for porch floors, decks and similar heavy duty surfaces. It dries hard to withstand the scuffing of feet. Porch and Deck Paint has a good gloss and will give complete satisfaction in service and appearance.

Specification—Three coats of Sherwin-Williams Porch and Deck Paint in the color selected by the architect shall be applied. The first coat shall be thinned with one quart of pure turpentine to the gallon of paint. The second coat shall be thinned with one pint of pure turpentine to the gallon of paint, and the third coat shall be applied as it comes from the container. Sufficient time for thorough drying shall be allowed between coats.

Specification No. 19

Porch Ceilings—Natural Varnish Finish

Discussion—A spar varnish is recommended for all varnish surfaces exposed to the weather. A spar varnish contains a high percentage of oil in relation to the gums. This gives it elasticity to accommodate itself to expansion and contraction caused by changing temperature, and provides the power to resist weathering. We recommend Sherwin-Williams Rexpa made originally for use on airplanes and unsurpassed for exterior finishing.

Specification—All porch ceilings shall be finished with three coats of Sherwin-Williams Rexpa Varnish. The first coat shall be thinned in the proportion of one pint of pure turpentine to one gallon of Rexpa. The second and third coats shall be applied without thinning. Forty-eight hours shall be allowed between coats for drying and the first and second coats shall be lightly sanded with No. 00 sandpaper before applying the succeeding coat.

Specification No. 20

Enamel Finish on New Wood and Metal Surfaces

Discussion—Old Dutch Enamel Gloss is unreservedly recommended by Sherwin-Williams for exterior enamel finishing. The architect may depend upon this specification and have full confidence that the finish obtained with this enamel will last for years under the most severe tests.

A most convincing proof of the endurance of Old Dutch Enamel exposed to climatic conditions is found in the fact that leading railways of the country have been using "Old Dutch" for years for the exterior finishing of coaches with complete satisfaction. These cars are exposed to every conceivable climatic condition, ranging from the arid heat of sun baked deserts to the piercing cold of the mountain regions.

Old Dutch Enamel is classed as a long-oil enamel, due to the fact that there is a much larger percentage of specially treated linseed oil in Old Dutch than is possible to incorporate in enamels of the varnish type, hence the life of this enamel is naturally much longer than that of enamels of other types. Old Dutch Enamel has a fine texture, splendid gloss and depth of tone which it retains even after years of exposure.

Where the surface to be finished is of galvanized iron, one coat of Sherwin-Williams Galvanized Iron Primer should be applied as the priming coat.

See S-W Page 9 for Color Samples of Old Dutch Enamel.

Specification—The contractor shall determine through careful inspection whether surface to be finished is dry and in proper condition for finishing. After the priming coat is applied, all knots and pitchy places must be given a coat of pure Orange Shellac.

First Coat—Apply SWP Flat White, reduced in the proportion of one pint raw linseed oil and one pint turpentine to the gallon of paint.

Second Coat—Apply SWP Flat White just as it comes from the can. If it seems too heavy for certain work, thin slightly with equal parts pure raw linseed oil and pure turpentine.

SHERWIN-WILLIAMS
CONCRETE WALL FINISH COLORS



WHITE



EXTRA LIGHT GRAY



CREAM



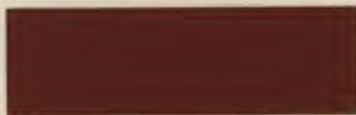
LIGHT GRAY



BUFF



GREEN STONE



VENETIAN RED



DARK GRAY

Old Dutch Enamel



WHITE (Gloss)



IVORY WHITE (Gloss)



FRENCH GRAY (Gloss)

Please do not detach color samples. Complete color cards sent upon request.

Third Coat—Apply S-W Old Dutch Enamel and SWP Flat White mixed in equal parts.

Fourth Coat—Apply S-W Old Dutch Enamel just as it comes from the package.

Note: S-W Old Dutch Enamel Dull Finish is not designed for exterior use. Old Dutch Enamel Gloss only is recommended for exterior exposure.

Note: The fifth or final enamel coat is to be applied as soon as the fourth coat is sufficiently dry to permit. If, for any unforeseen circumstances, the fourth coat becomes hard before the fifth coat is applied, the fourth coat shall be "mossed" before applying the final coat.

For best results, sand the first and second coats to a smooth surface with No. 0 sandpaper. The third coat shall be sanded smooth with nothing coarser than No. 0000 sandpaper.

FINISHING OF INTERIOR FLOORS

General Discussion

Floors get peculiarly severe wear. It is essential that if satisfaction is to be secured from a floor of any kind, the proper type of finish must be selected and applied in a manner which will insure the right kind of results.

Preparation of the Surface—No floor finish can make up for lack of care in proper preparation of the floor to receive the finish. The surface, whether it be of wood or cement, should be thoroughly dry. Finishing over floors containing dampness is certain to result in the peeling off of the finish later on. After scraping wood floors, sweep out shavings and dirt, and sandpaper to perfectly clean, smooth surface. All spots should be removed before finishing the room. Sweep broom-clean. It is considered a good practice to pick up loose dust by wiping with a cloth dampened with gasoline.

Priming Coat—Under no circumstances should a liquid filler or shellac be used as a first coater on a wood floor that is to be varnished. It is a common saying that a chain is no stronger than its weakest link. Certainly, no varnish finish is any stronger than its grip upon the floor. Varnish applied directly to the wood penetrates into the wood, obtaining a bond with it. Where shellac or liquid filler is used, these finishes prevent varnish from obtaining this bond with the wood, and they themselves have little or no penetration, lying practically entirely on the surface of the wood. No matter how tough or elastic the varnish, a blow that will loosen the shellac or liquid filler and break its hold upon the wood, will bring off the varnish finish with it.

Mar-not Fast-Dri Varnish is specified for the finishing of hardwood floors because we honestly believe it possesses the most desirable qualifications for the purpose. Mar-not Fast-Dri is a varnish made to walk on. It dries with a real luster that wears and continues to look well under service. It retains a refined appearance which harmonizes with fine furniture.

Try your favorite test on Mar-not Fast-Dri Varnish. Take a hammer and dent the wood as deeply as you wish—Mar-not Fast Dri will still cling. Try scratching it—it will not powder or chip. Of course Mar-not Fast-Dri Varnish is water-resisting. Leaky radiators, wet umbrellas and raining in at the windows cause no damage to the Mar-not Fast-Dri floor.

Staining and Filling Floors—The three woods in most general use for flooring in the United States are oak and maple for hardwood floors and edge-grain pine for softwood floors. Maple and pine are close-grain woods and require no filler. Oak is an open-grain wood and paste wood filler is required to fill the pores of the wood, both for appearance and for service.

Sherwin-Williams Paste Wood Filler is made of high grade siliceous color pigment, varnish, oil and a slight amount of drier. It is furnished in paste form and is to be reduced with benzine to a consistency of thick cream for brushing. It is then brushed over the surface of the wood and allowed to stand until partly set, indicated by a partial dulling down of the wet gloss. The surplus

filler is then wiped off across the grain of the wood, using burlap or excelsior, which forces the filler into the pores of the wood, leaving the surface level and ready for the varnish. Wipe clean with a soft cloth.

A very practical method of darkening the tone of an oak floor consists in using Sherwin-Williams Paste Wood Filler in one of the dark colors which will fill the pores of the wood and darken it in one operation. For a natural oak finish, transparent paste filler should be specified.

In order to stain maple or pine, specify Sherwin-Williams Oil Stain, as a paste filler cannot be used on close-grain woods, due to the absence of pores. Such shades as Silver Gray or exceedingly dark shades are not possible to obtain with an oil stain. For this purpose specify Sherwin-Williams Handcraft Stains which, however, will require sealing with shellac before finishing.

Note: These finishes are rarely specified where a full varnish finish is desired, and in this case, a straight shellac finish would be in order, finishing with wax.

Finishing of Stair Treads

The finishing of stair treads is a problem in itself, especially where the stairs are not to be carpeted or protected from the characteristic scraping and scuffing of climbing feet.

Where stair treads are to be finished in an oak color or left in the color of the natural wood, they may be finished in the same manner as recommended for floors, but in much of the modern residential work the scheme of interior decoration calls for staining the stair treads a dark mahogany or walnut color. The type of stain used to produce this effect is such that a floor varnish should not be applied directly over the stain. A spirit penetrating stain or an acid stain used to produce these darker effects reacts on the varnish if applied directly over the stain, resulting in poor drying, so that the finish frequently remains "tacky" or sticky.

In a case of this kind there is no choice but to use a coat of thin pure white shellac to seal the stain into the wood before applying the varnish. Only just enough shellac should be used to seal the stain effectively. For this purpose specify Sherwin-Williams Pure White Shellac (cut four pounds to the gallon), reduced equal parts with denatured alcohol. This will result in a shellac of the proper consistency. After the shellac is dry, three coats of Sherwin-Williams Mar-not Fast-Dri Varnish should be applied, sanding lightly between coats when dry. For a dull finish, rub with powdered pumice and oil, or apply a finishing coat of Mar-not Satin Finish.

Specification No. 21

Natural Varnished Finish on New Floors

See Opex Lacquer Specification No. 21-A

The floors shall be perfectly smooth before any varnish is applied, and shall be thoroughly cleaned of all dust, stains, etc. (For open-grain wood only. The wood shall then be filled with Sherwin-Williams Paste Filler, Transparent, which before becoming hard shall be wiped off across the surface with burlap or excelsior. After allowing twenty-four hours for drying, the

SHERWIN-WILLIAMS STAINS



SILVER GRAY HANDCRAFT STAIN
On Quarter Sawed White Oak
(With White Toner)



NUT BROWN HANDCRAFT STAIN
On Southern Pine
Formerly Brown Oak



SILVER GRAY OIL STAIN
On Southern Pine



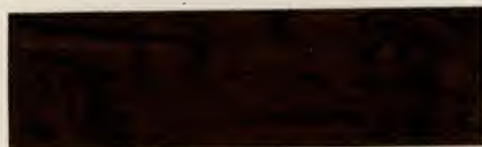
IVY GREEN HANDCRAFT STAIN
On Southern Pine
Formerly Bog Oak



WEATHERED HANDCRAFT STAIN
On Quarter Sawed White Oak
Formerly Weathered Oak



EXTRA DARK MAHOGANY HANDCRAFT STAIN
On Birch



WALNUT HANDCRAFT STAIN
On Gum



COLONIAL OAK OIL STAIN
On Southern Pine



FUMED OAK HANDCRAFT STAIN
On Quarter Sawed White Oak



NUT BROWN HANDCRAFT STAIN
On Quarter Sawed White Oak
Formerly Brown Oak



EARLY ENGLISH HANDCRAFT STAIN
On Southern Pine



DARK COLONIAL MAHOGANY ACID STAIN
On Mahogany



ADAM BROWN HANDCRAFT STAIN
On Mahogany



LIGHT MAHOGANY ACID STAIN
On Mahogany

(Continued on S-W Page 15)

Please do not detach color samples. Color cards sent upon request.

by brush with reasonable liberality. When dry, sand lightly. Two coats of Sherwin-Williams Prepared Wax (Paste) shall then be applied and rubbed to a hard, polished surface with a polishing brush or polishing machine. (Prior to using the floor for dancing, sprinkle Sherwin-Williams Dancing Floor Wax over the surface.)

Specification No. 33

Hardwood Floors (Old) to Revarnish

Discussion—This specification is intended for floors where only the varnish finish is in bad condition, but the floor itself is in good condition. The old varnish finish should be thoroughly sanded and the floor washed with a strictly pure linseed oil soap, such as Sherwin-Williams Flaxoap. No floors should be washed with cheap soaps or cleansers which abound in free alkali as the wood may absorb the alkali during the process of cleaning, which in time cannot help but cause injury to the varnish film. All stains and spots should be thoroughly removed with a solution of oxalic acid. Where the floor is too worn to permit a clear varnish finish, we recommend Flo-Lac Varnish Stain, Specification No. 34, or Floor Enamel, Specification No. 35.

Specification—The floors which are to be refinished shall be thoroughly sanded to remove the gloss of the old finish and then washed with Sherwin-Williams Flaxoap, a 100 per cent pure linseed oil soap. Rinse thoroughly to remove all trace of soap from floors. All spots shall be removed by bleaching with oxalic acid or sanding and scraping. When the floor is thoroughly dry, two coats of Sherwin-Williams Mar-not Fast-Dri Varnish shall be applied. The first coat shall be reduced in proportion of one pint of pure turpentine to one gallon of varnish. The second coat shall be applied as it comes from the original container. Sufficient time for drying be allowed and the surface should be sanded lightly with No. 00 sandpaper between coats.

Note: Where the old varnish finish is in bad condition and the floors in good condition, it may be advisable to remove the old varnish from the surface with Sherwin-Williams Taxite, paint and varnish remover. If

this is done, the floor should be wiped off thoroughly with waste saturated with benzine. When dry, the floor can then be refinished, following the specification for refinishing of new floors.

Specification No. 34

Discolored Hardwood and Softwood Floors—Grained, Stained and Varnished

The floors shall be thoroughly scrubbed with warm water and Sherwin-Williams Flaxoap (a 100% pure linseed oil soap). Rinse thoroughly and let dry. After all grease and dirt have been removed and the surface thoroughly dry, apply two coats of Sherwin-Williams Flo-Lac Ground Color. When dry, grain surface with Sherwin-Williams Graining Preparation, using a regular half round graining tool, a steel graining comb, an old whisk broom, or simply stippling with a cloth, depending upon the texture desired. Apply one coat of Sherwin-Williams Flo-Lac (Varnish Stain) in the color selected, reducing slightly with turpentine if required for easy brushing.

Note: If deeper tone found desirable, apply second coat of Flo-Lac.

As a protective finish, which will prevent the color varnish coat from wearing thin and causing the floor to look spotty, apply a coat of Sherwin-Williams Mar-not Varnish in the consistency supplied by the manufacturer. Sufficient time should be allowed for thorough drying between coats, and all coats except the last should be lightly sanded with No. 00 sandpaper.

Specification No. 35

Old Floors, to Paint

Discussion—Sherwin-Williams Floor Enamel is made for floors. It will stand up under service and continue to look well under hard wear. This paint dries well and hard and does not become sticky or tacky in warm weather.

Specification—All old floors shall be thoroughly cleaned with warm water and Sherwin-Williams Flaxoap (a 100 per cent pure linseed oil soap) before painting. When the floor is thoroughly dry, two coats of Sherwin-Williams Floor Enamel, in the color selected by the architect, shall be applied, thinning the first coat in the proportion of one pint of pure turpentine to one gallon of paint.

PAINTING AND DECORATING OF INTERIOR WALLS

Specification No. 36

Washable Flat Finish—Smooth, Sand Finish and Textured Plasters, Composition Board, Canvas Covered Walls

Discussion—Sherwin-Williams Flat-Tone is a washable oil paint for interior use which dries with a dull, flat finish of exquisite visual texture. Flat-Tone was the pioneer of the modern wall and ceiling decoration. Today it is probably the best known wall finish in the world. It will be found adorning the walls of public buildings in not only this country, but better classes of buildings in Canada, Mexico, Philippine Islands, China, Australia, England and the Argentine as well.

Its beauty of finish is probably the leading characteristic of Flat-Tone, but of almost equal importance is its durability, its sanitary qualities and its economy. The painter likes Flat-Tone because of its ease of application, strong hiding power, property of leveling out well, with freedom from brush marks. Of equal importance to the painter is its unusual wet edge which permits him to get back into it long after other flats have set to the point where brushing is impossible. Even with this slow early drying, it still dries hard over night under average drying conditions. It can be stippled if desired to eliminate any trace of brush marks, but for regular stipple work we recommend Wall Paint No. 96 (Heavy Body) (See Specification No. 41) which is similar to Flat-Tone except it has been bodied up to produce a more pronounced stipple.

Satisfactory finishing of walls is only possible where the surface has been sealed tight to prevent the

finishing coat from striking in, thereby giving a spotty or non-uniform effect. Sherwin-Williams Wall Primer and Sealer is made especially for first coat work on walls and should be used according to specifications. (See Specification No. 40.)

The following specifications are recommended as being the most practical where Flat-Tone is applied on new walls and ceilings.

Specification—The contractor shall inspect the walls and ceilings before starting work to make sure that the surfaces to be painted are dry and in proper condition for finishing.

First Coat—Apply Sherwin-Williams Wall Primer and Sealer according to Specification No. 40. (If hot spots or suction are evident in the plaster after the first coat has been applied according to specifications, the architect should be notified at once as they will need touching up with another coat of Wall Primer and Sealer.)

Second Coat—Apply Sherwin-Williams Flat-Tone.

Note: Allow to dry thoroughly between coats. Twenty-four hours is usually sufficient. When three-coat work is planned, the addition of two quarts of Wall Primer and Sealer to the gallon of Flat-Tone for the second coat will present a tighter and improved surface on which to apply the third coat.

Special Note: Painting Newly Plastered Surfaces—THE SHERWIN-WILLIAMS Co. never advocates the painting of plastered walls which have not been given an opportunity to dry out thoroughly. If "green" plastered walls are painted, there is always danger. However, there are certain occasions where walls which have not been given sufficient time to dry out thoroughly must be painted for commercial reasons; apply one coat Wall Primer and Sealer (see Specification No. 40). Where indications point to the presence of alkali (hot spots), we recommend washing the surface with a solution of 1½ to 2 pounds of zinc sulphate in a gallon of water.

This should be brushed on the surface and sufficient time should then be allowed for drying before the first coat of Sherwin-Williams Wall Primer and Sealer is applied. We, of course, do not guarantee that this procedure will prevent dis-

SHERWIN - WILLIAMS SEMI - LUSTRE



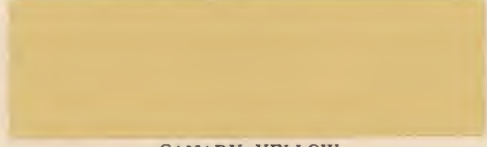
IVORY WHITE



CREAM



CREAM GRAY



CANARY YELLOW



SILVER GRAY



BUFF



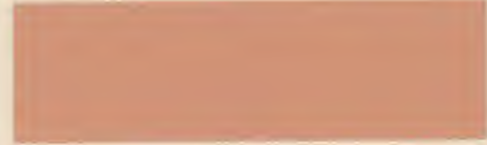
TAUPE (New)



POUDRE BLUE



PALE GREEN



LIGHT PINK



BRIGHT SAGE



ORCHID

SEMI-LUSTRE COLOR BLENDS



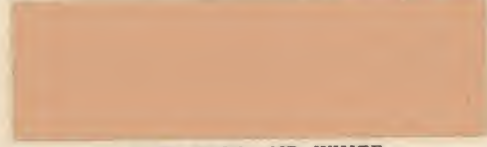
POUDRE BLUE AND WHITE



POUDRE BLUE AND CREAM GRAY



BRIGHT SAGE AND WHITE



LIGHT PINK AND WHITE

Please do not detach color samples. Color cards sent upon request.

PAINTING AND DECORATING OF INTERIOR WALLS (Continued)

solving of the finish nor that it will not peel. This danger is always present when "green" plaster must be painted.

Specification—Repainting—Remove all soot, dirt, grease or loose paint. Apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches. If the surface is porous apply one coat of Wall Primer and Sealer over the entire surface. On surfaces in fairly good condition or where portions of the wall are fairly tight, add two quarts Sherwin-Williams Flat-Tone to the gallon of Sherwin-Williams Wall Primer and Sealer.

For the second coat Sherwin-Williams Flat-Tone should be applied as it comes in the package.

Allow to dry thoroughly between coats. Twenty-four hours is usually sufficient under normal drying conditions.

Specification No. 36Y

Semi-Lustre Finish—Smooth, Sand Finish and Textured Plasters, Composition Board, Canvas Covered Walls

Discussion—Sherwin-Williams Semi-Lustre has a soft, mellow lustre and is used where the glare of a gloss finish is objectionable and where it is necessary to have a more durable and more washable surface than is possible with a flat wall paint. The following specifications are recommended as being the most practical where Semi-Lustre is used on walls and ceilings:

Specification—The contractor shall inspect the walls and ceilings before starting work to make sure that the surfaces to be painted are dry and in proper condition for finishing.

First Coat—Apply Sherwin-Williams Wall Primer and Sealer according to Specification No. 40. (If hot spots or suction are evident in the plaster after the first coat has been applied according to specifications, the architect should be notified at once as they will need touching up with one coat of Wall Primer and Sealer.)

Second Coat—Apply Sherwin-Williams Semi-Lustre, using it just as it comes from the package.

Notes: Allow to dry thoroughly between coats. Twenty-four hours is usually sufficient. Where three-coat work is planned apply Semi-Lustre just as it comes from the package.

Note Special Note: "Painting newly plastered surfaces" under Specification No. 36.

Specification—Repainting—Remove all soot, dirt, grease or loose paint. Apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches. If the surface is porous apply one coat of Wall Primer and Sealer over the entire surface. On surfaces in fairly good condition or where portions of the wall are fairly tight, add two quarts Sherwin-Williams Semi-Lustre to the gallon of Sherwin-Williams Wall Primer and Sealer.

For the second coat Sherwin-Williams Semi-Lustre should be applied as it comes in the package.

Allow to dry thoroughly between coats. Twenty-four hours is usually sufficient under normal drying conditions.

Specification No. 37

Flat-Tone Multi-Color Effects on New Walls—Rough or Smooth Plaster, Canvas Covered Walls, or Plaster Board

See *Opex Lacquer Specification No. 37-A*

Discussion—Flat-Tone Multi-Color Effects make it possible for the decorator to produce an endless variety of color and texture effects with Flat-Tone through the simple means of stippling the color with a sponge. (See samples of Flat-Tone Multi-Color Effect on S-W Page.) This is a development in interior decoration introduced to the architects of this country by THE SHERWIN-WILLIAMS Co. The process has been used effectively in all types of buildings, ranging from residences to clubs, hotels, theaters and public buildings. Flat-Tone Multi-Color Effects have the very practical advantage of not showing finger marks or soil as readily as plain colors, although they are of course every bit as washable as Flat-Tone.

The colors to be used in securing the various Flat-Tone Multi-Color Effects are specified for each effect and may be used as they come from the original container, although for best results the addition of Flat-

Tone Mixing Size to each stipple color is recommended, in the proportion of one part of size to three parts of Flat-Tone. (Except in certain instances where a particular effect is required as specified.)

Multi-Color Effects are applied over a foundation color of Flat-Tone. (See specification.)

For stippling, use a sponge of good, even, open texture. A large sponge is desirable for plain surfaces, although the decorator will find smaller sponges very helpful for use in corners and inaccessible areas. Stippling the wall with the top of the sponge produces a speckled print while the bottom of the sponge yields a lacy print of a very interesting texture and is recommended. Wash the sponge out in warm, clean water and trim the bottom with large shears to a smooth printing surface, clipping out any large solid chunks which would be likely to make a daub. Test the sponge on the window pane or a piece of dry newspaper to determine the kind of print it will give.

When ready to stipple—which can be done as soon as the foundation coat is flatted out fairly hard—pour out a small quantity of the first stipple color on a piece of board or tin, as convenient. Use the sponge fairly damp in stippling and rub the bottom of it into the paint so as to thoroughly cover the surface. Tap the sponge once or twice on a dry paper to remove surplus paint and stipple directly on to the wall. Use a straight firm stroke. Do not use a twisting or turning motion. Apply each print of the stipple next to the preceding one until the surface is entirely covered. Reload the sponge as often as necessary.

Where two or more stipple colors are specified, the next color may follow immediately if convenient. It is not necessary to wait until the first coat is dry or hard. Clean the sponge out in gasoline and rinse in water after finishing stippling or before changing to another color.

A painter of average ability and intelligence can, with very little practice, turn out a most suitable job of Flat-Tone Multi-Color work by following the brief directions given here. The cost of Multi-Color work using two coats for the foundation color should not exceed three-coat straight work because of the rapidity with which the Multi-Color stipple is applied. The amount of material required for applying a stipple coat is negligible. A quart of stipple color is easily enough for a fair sized living room.

Specification—After the contractor has inspected the wall surfaces to be painted to insure that they are perfectly dry and in proper condition for finishing, apply one coat Sherwin-Williams Wall Primer and Sealer according to Specification No. 40, tinted to the shade of Flat-Tone selected with S-W First Quality Oil Colors. (If hot spots or suction are evident in the plaster after the first coat has been applied according to specifications, the architect should be notified at once as additional spotting coat will be necessary.)

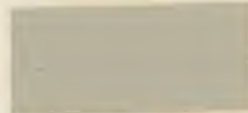
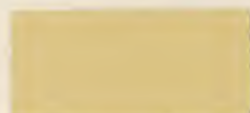
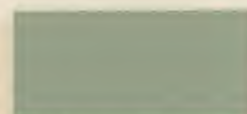
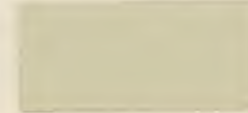
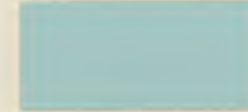
Allow to dry thoroughly before recoating. Twenty-four hours is usually sufficient under normal drying conditions.

The second coat should be Sherwin-Williams Flat-Tone in the color selected by the architect for the ground color and should be applied just as it comes in the package. As soon as this ground coat has been applied and approved by the architect, the surface shall be sponge stippled with the color of Flat-Tone specified as the stipple color following detailed printed directions issued by THE SHERWIN-WILLIAMS Co. for producing Flat-Tone Multi-Color Effects.

Specification No. 38

Flat-Tone System Finish on New Walls (Glazed or "Tiffany" Effects)—Rough or Smooth Plaster, Canvas Covered Walls, or Wall Board

Discussion—Flat-Tone System Effects, frequently designated as Tiffany Effects, are produced over a foundation color of Flat-Tone or S-W Semi-Lustre.

SHERWIN-WILLIAMS*Flat Tone*IVORY
76 PER CENTCAEN STONE
72 PER CENTFLAT-TONE CANARY YELLOW
72 PER CENTPALE GREEN
51 PER CENTSILVER GRAY AND CAEN STONE
56 PER CENTCREAM
74 PER CENTIVORY TAN
60 PER CENTBRIGHT SAGE AND IVORY TAN
51 PER CENTSHELL PINK AND CREAM
60 PER CENTBUFF
53 PER CENTSILVER GRAY AND CREAM
54 PER CENTBRIGHT SAGE
43 PER CENTSHELL PINK
48 PER CENTOLIVE TAN
38 PER CENTOLIVE TAN AND SKY BLUE
43 PER CENTSILVER GRAY AND PALE GREEN
47 PER CENTSILVER GRAY AND SKY BLUE
46 PER CENTTAN AND SILVER GRAY
31 PER CENTBRIGHT SAGE AND SHELL PINK
45 PER CENTFOREST GREEN AND SKY BLUE
22 PER CENTSHELL PINK AND SILVER GRAY
45 PER CENTFLAT-TONE ORCHID
64.4 PER CENTSILVER GRAY
42 PER CENTFOREST GREEN AND OLIVE TAN
21 PER CENTFLAT-TONE CREAM GRAY
60 PER CENTCOCOANUT BROWN AND TAN
21 PER CENTOLIVE TAN AND IVORY TAN
44 PER CENTFOREST GREEN
20 PER CENTSKY BLUE
52 PER CENTCOCOANUT BROWN
16 PER CENT

Percentages indicate light reflection factors

Please do not detach color samples. Complete color cards sent upon request

PAINTING AND DECORATING OF INTERIOR WALLS (Continued)

The finishing glaze coat is produced with Flat-Tone Glazing Liquid which is tinted to the desired color with S-W First Quality Oil Colors. This coat is stippled as applied, using a cloth, sponge, or brush depending upon the texture or kind of print or pattern desired. The translucent quality of this glaze coat permits the color of the ground coat to show through to a certain extent resulting in a luminous depth of color not possible to produce with a flat paint alone. This form of decoration costs more both in material and labor than three-coat flat work, but possesses decorative and architectural characteristics indispensable for certain treatments, such as "antique plaster," Tiffany work, etc. Flat-Tone Glaze System Effects are easy to wash and do not show soil readily.

See Color Samples on S-W Page 19.

Specification—After the contractor has inspected the wall surfaces to be finished to insure that they are perfectly dry and in proper condition for finishing, apply one coat Sherwin-Williams Wall Primer and Sealer according to Specification No. 40 tinted to the shade of ground color selected, with Sherwin-Williams First Quality Oil Colors. (If hot spots or suction are evident in the plaster after the first coat has been applied according to the specification, the architect should be notified at once as spotting coat will be necessary.)

Second coat shall consist of Sherwin-Williams Wall Paint No. 96 (Heavy Body), stippled when desired. This should be thoroughly dry and hard before glazing.

If heavy texture is not desired, use Flat-Tone instead of Wall Paint No. 96.

Note: Sherwin-Williams Wall Paint No. 96 (Heavy Body), when used as it comes in the package, produces, when stippled, a beautiful pebble round stipple so much desired under glazing. Also produces a different, entirely new wall effect when tinted and stippled on plain walls, paneled walls above new colored tiles in bath rooms, etc. (see Specification No. 41).

As soon as the ground coat is approved by the architect, the surface shall be coated with Sherwin-Williams Flat-Tone Glazing Liquid, tinted with the glaze color specified for the effect desired—the depth of color or the intensity to be approved by the architect (Optional: The glaze coat shall be applied so as to graduate in tone, from a dark color at the base of the wall to a mere tint at the top).

Specification No. 39**Flat-Tone and Plastic Pigment**

Discussion—Sherwin-Williams Flat-Tone and Plastic Pigment is a paint product with which painters are familiar. It is really Flat-Tone, brought up to the consistency desired by the painter himself, made by simply stirring Plastic Pigment into the Flat-Tone.

Plastic Pigment dries hard, and with it rough effects in any design are possible. Real textured walls result—low relief, so frequently to be desired. The great saving over rough plaster is something that bears consideration. Flat-Tone and Plastic Pigment can be applied over nearly any variety of wall surface. When applied, you have a *painted* wall—not one that needs painting.

Specification—New Unpainted Surfaces—Plaster and wood, or any porous material, such as wall board, canvas, etc., require sealing with a coat of S-W Wall Primer and Sealer. Let this dry hard.

Previously Painted Surfaces—This refers to surfaces painted with an oil paint. Loose or scaly paint should be scraped off and these bare spots sealed as for new work. Flat-Tone Plastic Pigment may then be applied.

Walls painted with water paint should be washed clean, allowed to dry, then sealed in the same manner as for new work.

Glossy finishes should be sandpapered dull to provide a tooth and assure proper adhesion.

Portion of Plastic Pigment Required—For medium textures, mix in the proportion of twenty-five pounds of Plastic Pigment to five gallons of Flat-Tone. To a gallon of this mixture add from one-half to one pint of S-W Japan Drier.

It is recommended that this mixture be allowed to stand overnight before using. In this proportion the material will be easily applicable with a brush, and will hold its form or print

on the surface perfectly. More Plastic Pigment may be added for higher relief.

If the surface is to be glazed, it is important that it be absolutely tight. In this case it is recommended that one coat of Wall Primer and Sealer, tinted to the desired shade, be applied before glazing.

The various shades of Flat-Tone will be only very slightly changed by the addition of Plastic Pigment. Any shade may be used successfully.

Specification No. 40**Wall Primer and Sealer**

Discussion—Wall Primer and Sealer is just what the name implies, a primer and sealer for all types and kinds of walls in mills, public and office buildings and homes.

The first coat must stop suction, it must seal the surface. It must have tightness with sufficient tooth to permit satisfactory bonding of the succeeding coat. This matter was given careful consideration in the development of Sherwin-Williams Wall Primer and Sealer as was also, easy working, which would allow the painter to get over a large area. Sherwin-Williams Wall Primer and Sealer is so balanced in pigment, oil, gum and thinner as to get the maximum in all of these essentials that are so important to the painter as well as to make possible highly satisfactory finished results.

Specification—Apply Wall Primer and Sealer as it comes from the package except on a hard, tight, putty-coat plaster, particularly where it has been troweled to a high glaze. In this case it is sometimes desirable to add from a pint to a quart of Flat-Tone, Wall Paint No. 96, or XXX Enamel Undercoater (whichever is being used on the next coat) to the gallon of Wall Primer and Sealer. (For tinting, use only Sherwin-Williams First Quality Oil Colors.)

Before the wall paint is applied, the surface should be carefully inspected by the contractor, and if any flat spots appear as a result of incomplete sealing, or if flat streaks show over a crack or patch, all such surfaces should be given another coat of Wall Primer and Sealer.

Allow sufficient time for thorough drying before applying succeeding coat. Under normal conditions 24 hours will be sufficient.

On such surfaces as sized muslin, sanitas or primed metal, use equal quantities of Wall Primer and Sealer and Flat-Tone for the first coat.

Specification—Repaint Work—Remove all soot, dirt, grease and loose paint. Apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches.

Spongy porous surfaces (applies particularly to surfaces previously painted with a number of coats of flat wall paint) should be given a coat of Sherwin-Williams Wall Primer and Sealer. (This is necessary even though the paint film is in good condition since a surface on which a number of coats of flat wall paint have been applied is as porous or more so than the original plaster.)

Specification No. 41**Wall Paint No. 96 (Heavy Body)**

Discussion—This is practically Flat-Tone with added pigment to give it a heavier body. This product works very satisfactory under the brush despite its heavy body and is an ideal product for stippling, giving that soft round pebbly effect now so much in demand in place of the sharp stipple effects obtained with lead and oil or other flat wall paints. (The sharp effects can also be obtained with Wall Paint No. 96 when desired, by simply extending the length of time before stippling.)

It is especially desired by some painters for use on old surfaces with dark colors which are difficult to cover. One coat Sherwin-Williams Wall Primer and Sealer and one coat Sherwin-Williams Wall Paint No. 96 (Heavy Body) produces a very satisfactory two-coat job over such surfaces. It carries a trifle more sheen than regular Flat-Tone which is desired by some painters who use it in large office buildings, hotels, etc.

Specification—Apply one coat Sherwin-Williams Wall

TEXTURE EFFECTS IN

SHERWIN-WILLIAMS FLAT-TONE

FLAT-TONE MULTI-COLOR



MULTI-COLOR EFFECT No. 48



MULTI-COLOR EFFECT No. 78



MULTI-COLOR EFFECT No. 25



MULTI-COLOR EFFECT No. 34



MULTI-COLOR EFFECT No. 47



MULTI-COLOR EFFECT No. 57



MULTI-COLOR EFFECT No. 79

FLAT-TONE SYSTEM



SYSTEM EFFECT No. 29



SYSTEM EFFECT No. 36



SYSTEM EFFECT No. 79



SYSTEM EFFECT No. 69



SYSTEM EFFECT No. 67



SYSTEM EFFECT No. 75



SYSTEM EFFECT No. 68

Please do not detach color samples. THE SHERWIN-WILLIAMS Co.
will be glad to supply you with as many as you require upon request.

PAINTING AND DECORATING OF INTERIOR WALLS (Continued)

Primer and Sealer according to Specification No. 40. Follow with one coat of Sherwin-Williams Wall Paint No. 96 (Heavy Body) applied just as it comes in the package for stipple work.

Note: Where surface is not to be stippled the coat of Sherwin-Williams Wall Paint No. 96 should be applied, first reducing each gallon with about $\frac{1}{2}$ pint turpentine.

Tiffany Effects—See Specification No. 38.

Specification No. 42

Enamelastic Enamel Finish for Walls

Discussion—Sherwin-Williams Enamelastic is a full oil enamel that is exceptionally easy working with good flowing, fullness and covering and unusual staying white qualities.

Specification—Three Coat New Work on Walls—See that the surface to be finished is perfectly dry and free from all loose plaster dust. Apply one coat Sherwin-Williams Wall Primer and Sealer according to Specification No. 40.

For the second coat apply Sherwin-Williams XXX Enamel Undercoater reduced with one pint pure turpentine and one quart Enamelastic to the gallon.

For the third and final coat apply Sherwin-Williams Enamelastic Gloss or Satin Finish reduced with $\frac{1}{4}$ pint pure turpentine to the gallon.

For satisfactory two coat enamel work on walls omit the second coat. On such work apply Enamelastic over Wall Primer and Sealer. (First and third coats as above.)

Allow to dry thoroughly between coats.

Specification—Refinishing Walls with Enamelastic—Remove all soot, dirt, grease and loose paint and apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches. Porous surfaces such as walls previously painted with a number of coats of flat wall paint (which are often more porous than the original plaster) should be coated with Sherwin-Williams Wall Primer and Sealer applied according to Specification No. 40.

The second coat should consist of XXX Enamel Undercoater reduced with one quart Enamelastic and one pint pure turpentine to the gallon.

For the third coat apply Enamelastic Gloss or Satin Finish reduced with $\frac{1}{4}$ pint pure turpentine to the gallon.

Note: If surface is in good condition and tight, omit the coat of Wall Primer and Sealer.

Allow to dry thoroughly between coats.

To match special shades submitted by the architect, tint with Sherwin-Williams First Quality Oil Colors.

Specification No. 42X

Enamelo-Enamel Finish for Walls

Discussion—Sherwin-Williams Enamelo is intended for interior use where time will not permit the use of the slower drying Enamelastic which is a full oil enamel. Enamelo dries dust free in one and one-half hours, hard in six to eight hours and very hard in twenty-four hours.

Although it is a varnish enamel, it has easy working, flowing, fullness and covering which qualities are quite unusual in this type of enamel.

Specification—Three Coat New Work on Walls—See that the surface to be finished is perfectly dry and free from all loose plaster dust. Apply one coat Sherwin-Williams Wall Primer and Sealer according to Specification No. 40.

For the second coat apply Sherwin-Williams XXX Enamel Undercoater reduced with one pint pure turpentine and one quart Enamelo to the gallon.

For the third and final coat apply Sherwin-Williams Enamelo just as it comes from the package.

For satisfactory two coat enamel work on walls omit the second coat. On such work apply Enamelo over Wall Primer and Sealer. (First and third coats as above.)

Allow to dry thoroughly between coats.

Specification—Refinishing Walls with Enamelo—Remove all soot, dirt, grease and loose paint and apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches. Porous surfaces such as walls previously painted with a number of coats of flat wall paint (which is often more porous than the original plaster) should be coated with Sherwin-Williams Wall Primer and Sealer applied according to Specification No. 40.

The second coat should consist of XXX Enamel Under-

coater reduced with 1 pint of turpentine and 1 quart Enamelo to the gallon.

For the third coat apply Enamelo just as it comes from the package.

Note: If the surface is in good condition and tight, omit the coat of Wall Primer and Sealer.

Allow to dry thoroughly between coats. To match special shades submitted by the architect, tint with Sherwin-Williams First Quality Oil Colors.

If Enamelo is too heavy for certain work thin slightly with pure turpentine only.

Specification No. 43

Old Dutch Enamel Finish

Discussion—For the best grade of enamel finish on walls, the following specification is recommended.

On New Walls—

Specification—(4 Coat Work)—Care should be taken to see that the surface to be finished is perfectly dry and free from all dust and grease. Apply a first coat of Sherwin-Williams Wall Primer and Sealer according to Specification No. 40.

For the second coat apply Sherwin-Williams XXX Enamel Undercoater thinned with one pint pure turpentine to the gallon.

The third coat should consist of XXX Enamel Undercoater and Old Dutch Enamel mixed in equal parts and thinned with one pint pure turpentine.

For the fourth and last coat apply Sherwin-Williams Old Dutch Enamel reduced with about $\frac{1}{4}$ pint pure turpentine to the gallon.

Allow to dry thoroughly between coats.

Where special shades are made to match sample submitted by architect, Sherwin-Williams First Quality Oil Colors should be used for tinting.

Old Walls—

Specification—Refinishing Walls with Old Dutch Enamel—Remove all soot, dirt, grease and loose paint and apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches. Porous surfaces such as walls previously painted with a number of coats of flat wall paint (often more porous than the original plaster) should be coated with Sherwin-Williams Wall Primer and Sealer applied according to Specification No. 40.

The second coat should consist of Sherwin-Williams XXX Enamel Undercoater reduced with one pint pure turpentine and one quart of Old Dutch Enamel to the gallon.

For the third coat apply Sherwin-Williams Old Dutch Enamel reduced with about $\frac{1}{4}$ pint pure turpentine to the gallon.

Allow to dry thoroughly between coats.

Note: For three coat work omit the second coat.

Specification No. 44

XXX Enamel Undercoater—New Walls

Discussion—Unquestionably the best enamel undercoater on the market today. It is easy brushing and flows out smoothly when directions are followed. It has very easy sanding almost as easy as shellac. In its manufacture special consideration has been given to tightness of surface. XXX Enamel Undercoater seals tight, which is responsible for the satisfactory way in which it holds out enamel.

Specification—See Specifications No. 42, and 43.

Specification No. 45

Enamel Finish on Keene's Cement

Opex Lacquer Specifications No. 46A.

Follow Specification No. 43 for Old Dutch Enamel finish or Specification No. 42 for the more economical Enamelastic finish, following same instructions as are given for new plaster.

Specification No. 46

Interior Brick, Tile or Concrete Walls to Paint—Dull Finish

Follow Specifications No. 36 or No. 41.

If special shade is used tint with Sherwin-Williams First Quality Oil Colors to color selected by architect.

Note: For semi-gloss finish specify Sherwin-Williams Semi-Lustre Wall Paint in place of either Flat-Tone or Wall Paint No. 96 (Heavy Body).

PAINTING AND DECORATING OF INTERIOR WALLS (Continued)

Specification No. 47

Save-Lite for Mill Walls

Discussion—Save-Lite is furnished in three types of finishes: Flat White, Gloss White, and Eg-Shel White.

Sherwin-Williams Save-Lite Eg-Shel Finish is our standard recommendation for the painting of walls and ceilings in mills, loft buildings, service corridors, printing establishments and in all workrooms where it is of the utmost importance to provide the maximum amount of working light with proper diffusion so as to avoid eye strain which results from the use of glossy paints which reflect the light and in fact even produce hard shadows as well as high lights. A room finished in Save-Lite Eg-Shel White will be found on accurate measurement to be lighter than a similar room finished in gloss white.

Save-Lite Eg-Shel White provides all the ease of cleaning found in the gloss finishes. It washes easier and retains its whiteness longer than a flat wall finish. Save-Lite is enjoying a remarkable success and is being used in many of the most prominent manufacturing plants in the country as a standard upkeep product.

Specification—Before painting walls and ceilings, the contractor shall make certain through careful inspection that the surfaces to be painted are in proper condition. New surfaces, such as plaster, wood, composition, etc., should be properly sealed with Sherwin-Williams Wall Primer and Sealer. One or more spray coats, or not less than two brush coats of Save-Lite should be applied, to within five feet of the floor. Old surfaces may not need the sealer, but the same painting specifications apply.

For hand brushing; Save-Lite Eg-Shel White can be used as it comes in the package. If it seems too heavy for certain work, thin slightly with S-W Reducer No. 74 or Pure Turpentine.

For spray application; material should be thinned using from one pint to one quart of S-W Reducer No. 74 or Pure Turpentine to the gallon of Eg-Shel White. Air drying time to recoat, 24 hours.

A dado five feet in height with a three-inch strip of different color at the top shall be painted with two coats of S-W Dado Enamel in the color selected by the Architect.

Specification No. 48

Save-Lite Fume-Resisting White Finish for Interior Walls and Ceilings

Discussion—Architects and Engineers have occasion frequently to specify a wall finish for laboratories and manufacturing plants where it is essential to use Fume-Resisting Paints for finishing walls and ceilings.

Through continuous research and experimenting in rubber mills and manufacturing plants, Sherwin-Williams has developed a White Paint which will resist the action of sulphur fumes and other acid fumes without turning color badly. This White Paint is furnished in three degrees of gloss: Save-Lite Fume-Resisting Flat White; Save-Lite Semi-Gloss White; Save-Lite Gloss White.

In developing each one of these products, THE SHERWIN-WILLIAMS Co. have arrived at a formula which we believe represents material that will meet the requirements of the maintenance engineer for the painting of interior walls and ceilings in industrial plants where considerable acid fumes are present. In manufacturing these finishes we have incorporated the proper combination of pigments and especially prepared vehicles which make it possible for these products to retain their whiteness under heat and ordinary chemical fumes.

Save-Lite Fume-Resisting White Finishes are resistant to the ordinary types and concentrations of fumes arising from sulphur, chlorine, ammonia and tobacco, such conditions as prevail in rubber plants, laundries, bakeries, dye and starching rooms in textile mills and cure rooms in cigar factories.

Specifications—Before proceeding with the painting of all walls, ceilings, etc., contractor shall inspect the surfaces to be painted to insure the fact that they are in proper condition for finishing. New surfaces such as plaster, wood, composition board, etc., should be properly painted with S-W Wall Primer and Sealer. One or more spray coats or not less than two brush coats should be applied. Old surfaces may not need the Sealer but the same painting specifications apply.

For hand brushing, Fume-Resisting Finishes should be

applied as they come from the package. If too heavy for certain work, thin slightly with S-W Reducer No. 74 or Pure Turpentine. For spraying these materials should be thinned, using from one pint to one quart of Reducer No. 74 or Pure Turpentine to the gallon of Fume-Resisting White. Air-drying time to recoat, 24 hours.

Specification No. 49

New Plaster Walls—Water Paint Finish

A first coat consisting of Sherwin-Williams Wall Primer and Sealer or Sherwin-Williams Flat-Tone Mixing Size, reduced one-third with turpentine or benzine, shall be applied to the wall to stop suction and seal the wall.

After sufficient time has been allowed for drying, a second coat consisting of Sherwin-Williams Decotint, in color selected by the architect, mixed with water in accordance with the manufacturer's directions for application, shall be applied with a wide kalsomine brush, care being taken to secure perfect covering.

Specification No. 50

Washable Flat Painted Finish for Walls Previously Finished with an Oil Paint

All cracks, holes, etc., shall be carefully filled with plaster or plaster of paris, as the case requires, to a level surface. All loose plaster, paint, dirt, grease, etc., shall be removed from the surface before any paint is applied. All newly plastered sections shall receive a priming coat consisting of Sherwin-Williams Wall Primer and Sealer applied according to Specification No. 40. Then follow specifications given for repainting under Specification No. 36 or Specification No. 41.

Specification No. 51

Dampproofing Interior Walls Above Grade (Plaster Bond)

Discussion—Sherwin-Williams Plaster Bond is a specially prepared paint of the asphalt type which is applied, *without heating*, on inside brick, tile or concrete walls above grade before plaster is applied, to serve as a dampproofing and to do away with the necessity for furring or lathing.

Sherwin-Williams Plaster Bond may be applied by either brush or spray method. If the brush method is to be used, a three or four-knot roofing brush is recommended, although a Tampico brush may be used, if desired. Sherwin-Williams Plaster Bond dries slowly, and twenty-four hours after it has been applied, it is in the tacky condition which is ideal for the application of plaster. As the plaster dries out, the Plaster Bond also dries, resulting in a tenacious bond. Sherwin-Williams Plaster Bond covers 400 to 500 square feet to the gallon, one coat—varying with the porosity of the wall.

The outstanding features of Sherwin-Williams Plaster Bond are as follows:

Dampproof walls.

Prevents staining of plaster.

Makes furring or lathing unnecessary; thereby saving space in rooms and reducing construction costs.

Eliminates space between plaster and wall and thus does away with breeding spaces for vermin.

Aids in fireproofing by eliminating wood and spaces between walls and plaster.

Note: This material is not designed or intended for use on ceilings or coves and should never be used for anything but perpendicular wall work.

Specification—The inside surfaces of the brick, tile or concrete exterior walls above grade which are to be plastered, shall be dampproofed with Sherwin-Williams Plaster Bond. All surfaces to be treated shall be dry and clean, and free from frost. One full coat of Plaster Bond shall be applied in the consistency supplied by the manufacturer. Care shall be taken that the entire surface is thoroughly covered. A retouching or "spotting coat" shall be applied to those sections where any voids or pinholes appear after the Plaster Bond has been absorbed into the walls. When complete, the surface shall have a uniform black appearance.

First coat of plaster shall be applied between twenty-four and seventy-two hours after the Plaster Bond has been applied.

FINISHING OF INTERIOR WOOD TRIM

General Discussion

No one appreciates more than the architect the decorative value of properly finished woodwork. This section, therefore, is offered to provide information in the simplest and most useful form which will enable the architect to specify the definite procedure necessary to produce the desired effect.

Open and Close Grain Woods—The majority of hardwoods, with the exception of maple, are open grain; i. e., have open pores which follow the figure at the grain. The decorator turns this characteristic to advantage when it is desirable to emphasize the character of the grain. For example, mahogany finishes are improved through emphasizing the grain with a black or red-black paste filler. Silver gray finishes are improved by using a light colored toner, either white or gray, which usually is lighter than the general color of the wood. Several years ago the mission finish was popular. This consisted of a stain and a light coat of shellac and dull varnish. It left the pores of the wood unfilled and served only to protect the wood, retaining a sort of craftsman quality. The same idea is used in so-called open pore finishes for walnut furniture and woodwork.

Close-grain woods have no open pores and do not require the use of a paste filler. Needless to say, a paste filler is an additional coat in the finishing process and naturally adds to the cost of the finish. Architects should bear this in mind when selecting wood trim, where cost of finishing is an important factor.

In order to differentiate readily between open-grain and close-grain woods, so that architects may know which of these woods require paste wood filler in the finishing process and which do not, a list of the better known American building woods under each type is given hereunder:

Open-Grain Woods			
Ash	Chestnut	Mahogany	Rosewood
Butternut	Elm	Oak	Walnut
		Hickory	
Close-Grain Woods			
Basswood	*Cherry	Hemlock	Redwood
Beech	Cypress	Maple	Spruce
*Birch	Fir	Pine	Sycamore
Cedar	Gumwood	Poplar	Whitewood

*Will take a paste filler where desired to emphasize the grain.

Varnishes for Interior Finishing—Sherwin-Williams offers two varnish leaders for interior woodwork trim—Scar-not Varnish for a full varnish, and Sherwin-Williams Velvet Finish Varnish 1044 for a dull rubbed effect.

Scar-not Varnish has the following characteristics. It is full in body to provide a rich varnish film that will enhance the grain of the wood and afford body enough to permit rubbing down to a high polish, where required. Scar-not dries to an exceedingly hard film, does not chip easily and does not powder white when scratched. It will not soften to print under ordinary heat of warm dishes. Scar-not is an exceedingly rugged finish, but can be rubbed to a beautiful, soft dull finish with powdered pumicestone and oil.

Velvet Finish Varnish is a finishing varnish only, intended to eliminate the necessity of hand rubbing for a dull finish. It is intended to be used either over Scar-not for a final coat or over shellac for a dull or mission effect. Velvet Finish Varnish is water-resisting and will not spot white. It works easily and satisfactorily.

To Produce an Imitation Rubbed Effect on Interior Wood Trim (Flat Drying Varnish)—Where

the architect does not care to go to the expense of a genuine rubbed varnish job, an effect can be secured by using Sherwin-Williams Velvet Finish Varnish, which so closely imitates the genuine rubbed effect that frequently experts, at first glance, mistake work done with this varnish for a genuine rubbed finish.

Velvet Finish is applied as the finishing coat over one or two coats of Sherwin-Williams Scar-not Varnish. This varnish is water-resisting and will not spot white. A highly satisfactory job of finishing can easily be secured with Velvet Finish Varnish. This varnish does not show any laps or brush marks, as is the case with many varnishes on the market which were designed to sell in competition with this famous Sherwin-Williams product.

Even where Scar-not Varnish is specified to be rubbed in the final coat, it is advisable to use Sherwin-Williams Velvet Finish Varnish on any finely carved sections of wood, as it is difficult for the finisher to get into all of the tiny crevices when rubbing down a gloss varnish used on carved woodwork.

A Few Things to Watch in the Application of Varnish—When varnishing is being done and while the varnish is drying, the premises should be kept as free from dust as possible.

No varnishing should be done in a room in which the temperature is below 70 degrees Fahrenheit, or the resulting finish may appear to be full of specks. This action of the varnish is called "pitting."

Varnish should always be stored in a warm place. If applied when cold, the resulting finish may be the same as when varnish is applied in a cold room. Varnish takes on a "specky" appearance and these tiny specks are plainly visible in the finished surface. When a varnish is in this condition, it is said to be "chilled" and should be placed in a warm room, until the temperature of the varnish is approximately that of the room, when the varnish will again return to normal condition.

Drafts in rooms in which varnish is drying, many times cause the varnish to "pit" or "flat."

A Few Words About Stains—THE SHERWIN-WILLIAMS Co. manufactures three types of stains, namely, Oil Stains, Handcraft Stains (Spirit Penetrating) and Acid Stains. Each type of stain has its own definite mission.

Specification No. 52

New Interior Open Grain Woodwork (Stained and Varnished Finish)

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork, which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

Apply one coat of Sherwin-Williams Stain in the shade selected by the architect. After sufficient time has been allowed for drying, one coat of Sherwin-Williams Paste Filler, in the color selected by the architect, shall be applied, and before the filler has become hard the surface shall be wiped off across the grain with burlap or excelsior. Twenty-four hours shall be allowed for drying, after which a thin coat of Sherwin-Williams Marvelac, or pure shellac, shall be applied, and lightly sanded when dry. Two coats of Sherwin-Williams Scar-not Varnish shall then be applied. Sufficient time for drying shall be allowed between coats.

(For a dull finish: The last coat of varnish, when thoroughly hard, shall be rubbed to a dull finish with powdered pumice stone and oil. Or one coat of Sherwin-Williams Velvet Finish No. 1044 shall be used in place of the final coat of Scar-not Varnish for producing an imitation rubbed effect.)

FINISHING OF INTERIOR WOOD TRIM (Continued)

Note: Silver Gray Stain is not recommended for use over woods other than light toned woods such as white oak, white birch and maple. Pure white shellac, only, should be used as a sealing coat over Silver Gray Stain.

Specification No. 53**New Interior Close Grain Woodwork (Stained and Varnished Finish)**

See Opex Lacquer Specification No. 53-A.

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork, which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

One coat of Sherwin-Williams Stain in the shade selected by the architect shall be applied. When dry apply one very thin or wash coat of pure white shellac or Sherwin-Williams Marvelac and sand lightly when dry with No. 0 sandpaper. Two coats of Sherwin-Williams Scar-not Varnish shall then be applied. Sufficient time for thorough drying shall be allowed and the surface sanded between coats with No. 00 sandpaper.

(For a dull finish: The surface shall be rubbed, when hard, with powdered pumice stone and oil to a dull finish. Or an imitation rubbed effect can be obtained by substituting Sherwin-Williams Velvet Finish No. 1044 for the final coat of Scar-not Finish.)

Specification No. 54**New Interior Open Grain Woodwork (Natural Varnished Finish)**

See Opex Lacquer Specification No. 53-A.

All woodwork shall be dry, clean and smooth, before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork, which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

One coat of Sherwin-Williams Transparent Paste Filler shall be applied, but before the filler has become hard, shall be wiped off across the grain with burlap or excelsior. After allowing forty-eight hours for the filler to dry, the surface shall be sanded smooth with No. 0 sandpaper. One coat of Sherwin-Williams Scar-not Varnish, thinned with one pint pure turpentine to each gallon, shall then be applied. A second and third coat of the same varnish shall also be applied in the consistency supplied by the manufacturer, allowing sufficient time for thorough drying and sanding lightly with No. 00 sandpaper between coats.

(For a dull finish: The surface, when thoroughly hard, shall be rubbed with powdered pumice stone and oil or water to a dull finish. Or an imitation rubbed effect may be obtained by substituting Sherwin-Williams Velvet Finish Varnish No. 1044 for the final coat of Scar-not Varnish.)

Specification No. 55**New Interior Close Grain Woodwork (Natural Varnished Finish)**

See Opex Lacquer Specification No. 53-A.

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

Three coats of Sherwin-Williams Scar-not Varnish shall be applied. The first coat shall be thinned in proportion of one pint of pure turpentine to each gallon of varnish. The second and third coats shall be applied as the material comes from the original container. Sufficient time for thorough drying shall be allowed and the surface shall be lightly sanded with No. 00 sandpaper, between coats.

(For a dull finish: The surface, when sufficiently hard, shall be rubbed to a dull finish with powdered pumice stone and oil or water. Or an imitation rubbed effect finish can be obtained by substituting Sherwin-Williams Velvet Finish Varnish No. 1044 for the final coat of Scar-not.)

Specification No. 56**New Interior Open Grain Woodwork (Stained and Waxed Finish)**

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and

other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

A coat of Sherwin-Williams Stain, in the shade selected by the architect, shall be applied. When the surface is sufficiently dry, one coat of Sherwin-Williams Paste Wood Filler, in the color selected by the architect, shall be applied, but before the filler is hard, the surface shall be wiped off across the grain with burlap or excelsior (where mission effect is desired, paste filler coats may be omitted). One coat of Sherwin-Williams Marvelac, or pure shellac, shall be applied, which when sufficiently dry shall be sanded lightly with No. 00 sandpaper. Two coats of Sherwin-Williams Prepared Wax shall then be applied, wiping off the surplus wax and bringing the surface to a high, hard polish by brisk rubbing.

Specification No. 57**New Interior Close Grain Woodwork (Stained and Waxed Finish)**

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

One coat of Sherwin-Williams Stain, in the shade selected by the architect, shall be applied. When dry, one thin coat of Sherwin-Williams Marvelac, or pure shellac, shall be applied, which when dry shall be lightly sanded with No. 00 sandpaper. Two coats of Sherwin-Williams Prepared Wax shall then be applied, wiping off the surplus wax from the surface and bringing same to a high, hard polish by brisk rubbing.

Specification No. 58**Old Dutch Enamel Finish on Interior Wood Trim****New Interior Wood Trim—**

Discussion—Old Dutch Enamel is an enamel of the long oil type, manufactured after formulae similar to those used by the most famous of Dutch enamel makers, with certain improvements which over sixty years' experience in enamel making has enabled us to accomplish. It is impossible to obtain an enamel of better quality than Old Dutch Enamel or which will give more satisfactory results. It is very white, has a splendid gloss and is so full in body that very satisfactory results can be obtained with one coat of Old Dutch Enamel on the usual number of undercoats.

Old Dutch Enamel is made in the popular tints of Ivory and French Gray. Should an architect desire to secure some other tint, this can easily be done by the painting contractor or decorator, by tinting Old Dutch Enamel with Sherwin-Williams First Quality Oil Colors, or in the case of very delicate tints, Sherwin-Williams Quick Drying Colors Ground in Japan can be used. In tinting, the color should be broken up in a small amount of Old Dutch Enamel which, after thorough mixing, should be added to the rest of the enamel, a little at a time, until the desired tint is obtained. Where the enamel is tinted, the undercoater should likewise be tinted to a similar color.

Probably the most important feature to watch in an enamel job is the building up of the undercoating. Each coat of enamel undercoater, except the last, should be carefully sanded to a smooth surface with No. 0 sandpaper. Nothing coarser than No. 0000 sandpaper should be used on the final undercoat, as a very fine scratch is noticeable in subsequent enamel coats in high class enamel work. The enamel may then be flowed on as specified below.

See Color Samples on S-W Page 9.

Specification—Before proceeding with the work, the contractor shall make sure that the surface to be finished is perfectly dry and free from dust and dirt.

The first coat shall be Sherwin-Williams XXX Enamel

FINISHING OF INTERIOR WOOD TRIM (Continued)

Undercoater thinned (for porous soft wood) with one quart pure raw linseed oil and $\frac{1}{2}$ pint pure turpentine to the gallon. (For hard woods thin with one pint pure turpentine and one pint pure raw linseed oil to the gallon of undercoater.) When dry sand thoroughly with No. 0 sandpaper.

For the second coat (on all woods) apply Sherwin-Williams XXX Enamel Undercoater thinned with one pint pure turpentine to the gallon. When dry sand with No. 0 sandpaper. (Note: Where lead and oil primer has been used, the second coat should be thinned with $\frac{1}{2}$ pint pure turpentine and $\frac{1}{2}$ pint pure raw linseed oil to the gallon.)

For the third coat apply Sherwin-Williams XXX Enamel Undercoater thinned with one pint pure turpentine to the gallon. When dry, sand carefully to smooth surface with No. 0000 sandpaper.

The fourth coat should consist of equal parts Sherwin-Williams Old Dutch Enamel and Sherwin-Williams XXX Enamel Undercoater thinned with one pint pure turpentine to the gallon of the mixture. When dry, sand lightly with No. 0000 sandpaper.

The fifth coat should be Sherwin-Williams Old Dutch Enamel applied in the consistency supplied in the package. (Rubbed Finish: Where desired, the final coat of Old Dutch Enamel, when sufficiently hard, shall be rubbed to a dull finish with powdered pumice stone and water.)

Where the architect does not care to go to the expense of rubbing the final coat, Old Dutch Enamel, Dull Finish can be substituted for the fifth coat as specified above.

Note 1: On open-grain woods, such as Oak, Walnut and Chestnut, the first coat of the above specification should be changed so as to call for one coat Sherwin-Williams Paste Wood Filler, Transparent, wiping off surplus filler before same has become set on the surface. Then proceed with specifications as above.

Note 2: Where expense is a consideration the third coat as specified above may be omitted.

Previously Finished Interior Wood Trim—

Specification—The surface to be finished shall be thoroughly cleaned, preferably with Sherwin-Williams Flaxoap (pure linseed oil soap) and warm water. When dry, sand thoroughly with No. 0 sandpaper to remove any gloss which may be on the old finish.

For the first coat apply Sherwin-Williams XXX Enamel Undercoater mixed with one quart of Sherwin-Williams Old Dutch Enamel and one pint pure turpentine to the gallon of undercoater.

The second coat should be Sherwin-Williams XXX Enamel Undercoater and Sherwin-Williams Old Dutch Enamel mixed in equal parts and the mixture reduced with one pint pure turpentine to the gallon. When dry sand lightly with No. 0000 sandpaper.

Third coat to be Sherwin-Williams Old Dutch Enamel (gloss or dull) in consistency supplied in the package.

Note: Where finish is badly cracked or chipped remove down to the bare wood with Sherwin-Williams Taxite (Paint and Varnish Remover) and after cleaning the surface thoroughly, proceed as for new wood.

Specification No. 59

Enamelastic—Enamel Finish on Interior Trim

Discussion—Sherwin-Williams Enamelastic is an easy working, good flowing interior enamel of the oil type. Its use is recommended where the more expensive Old Dutch Enamel system cannot be used.

Best results are obtained when enamels are applied over a tight surface. Sherwin-Williams XXX Enamel Undercoater has been especially developed to produce the desired tightness. It has unusual flow and sands remarkably easy although it is exceptionally tough.

New Interior Wood Trim—

Specification—Before proceeding with the work, the contractor shall make sure that the surface to be finished is perfectly dry and free from dust and dirt. Each coat must be thoroughly dry before a succeeding coat is applied.

For the first coat apply Sherwin-Williams XXX Enamel Undercoater reduced with one quart pure raw linseed oil and $\frac{1}{2}$ pint of pure turpentine to the gallon on soft woods. (On hard woods reduce each gallon with one pint pure turpentine and one pint pure raw linseed oil.)

Second Coat—Apply Sherwin-Williams XXX Enamel Undercoater reduced with one pint pure turpentine. (In the event that a lead and oil primer has been used reduce the undercoater with $\frac{1}{2}$ pint pure turpentine and $\frac{1}{2}$ pint pure raw linseed oil to the gallon.)

Third Coat—Apply Sherwin-Williams Split-Coat or a split coat made up of equal parts Sherwin-Williams Enamelastic and Sherwin Williams XXX Enamel Undercoater, reducing each gallon of the mixture with one pint pure turpentine.

Fourth Coat—Apply Sherwin-Williams Enamelastic Gloss or Satin Finish as it comes in the package.

Note 1: Where economy permits only three coats, omit the second coat above.

Note 2: Where special shades are desired, Sherwin-Williams First Quality Oil Colors should be used to tint to the shade approved by the architect.

Previously Finished Interior Wood Trim—

Specification—The surface to be finished shall be thoroughly cleaned, preferably with Sherwin-Williams Flaxoap (pure linseed oil soap) and warm water. When dry, sand thoroughly to remove any gloss which may be on the old finish.

First Coat—Apply Sherwin-Williams Split-Coat or a split coat made up of equal parts of Sherwin-Williams XXX Enamel Undercoater and Sherwin-Williams Enamelastic reduced with one pint pure turpentine to the gallon of the mixture.

Second Coat—Apply Sherwin-Williams Enamelastic, Gloss or Stain Finish in the consistency in which it comes in the package.

On surfaces in bad condition, all loose paint should be scraped off and the surface sanded thoroughly. Bare spots should be primed with Sherwin-Williams XXX Enamel Undercoater reduced with one quart pure raw linseed oil and $\frac{1}{2}$ pint pure turpentine for soft, porous woods or one pint pure turpentine and one pint pure raw linseed oil to the gallon for hard woods. Then proceed as above. When surface is badly cracked, the paint should be removed with Sherwin-Williams Taxite, a paint and varnish remover—then follow specifications given for new work.

Specification No. 59X

Enamelo—Enamel Finish on Interior Trim

Discussion—Sherwin-Williams Enamel is intended for interior use where time will not permit the use of the slower drying Enamelastic which is a full oil enamel. Enamelo dries dust free in one and one-half hours, hard in six to eight hours and very hard in twenty-four hours.

Although it is a varnish enamel it has easy working, flowing, fullness and covering which qualities are quite unusual in a varnish enamel.

New Interior Wood Trim—

Specification—Before proceeding with the work, the contractor shall make sure that the surface to be finished is perfectly dry and free from dust and dirt. Each coat must be thoroughly dry before a succeeding coat is applied.

First Coat—Apply Sherwin-Williams XXX Enamel Undercoater reduced with one quart raw linseed oil and $\frac{1}{2}$ pint pure turpentine to the gallon on soft, porous woods. On hard woods reduce each gallon with one pint pure turpentine and one pint pure raw linseed oil.

Second Coat—Apply Sherwin-Williams XXX Enamel Undercoater reduced with one pint pure turpentine to the gallon. (In the event a lead and oil primer has been used reduce the undercoater with $\frac{1}{2}$ pint pure turpentine and $\frac{1}{2}$ pint pure raw linseed oil to the gallon.)

Third Coat—Apply equal parts Sherwin-Williams XXX Enamel Undercoater and Sherwin-Williams Enamelo, reducing each gallon of the mixture with one pint pure turpentine.

Fourth Coat—Apply Sherwin-Williams Enamelo as it comes in the package.

Note 1: Where economy is desirable, omit the second coat and a very satisfactory three-coat job is obtained.

Note 2: Where special shades are desired, Sherwin-Williams First Quality Oil Colors should be used to tint to the shade approved by the architect.

Previously Finished Interior Wood Trim—

Specification—The surface to be finished shall be thoroughly cleaned, preferably with Sherwin-Williams Flaxoap (pure linseed oil soap) and warm water. When dry, sand thoroughly to remove any gloss which may be on the old finish.

First Coat—Apply Sherwin-Williams Split-Coat or a split coat made up of equal parts of Sherwin-Williams XXX Enamel Undercoater and Sherwin-Williams Enamelo reduced with one pint pure turpentine to the gallon of the mixture.

Second Coat—Apply Sherwin-Williams Enamelo in the consistency in which it comes in the package.

FINISHING OF INTERIOR WOOD TRIM (Continued)

On surfaces in bad condition, all loose paint should be scraped off and the surface sanded thoroughly. Bare spots should be primed with Sherwin-Williams XXX Enamel Undercoater reduced with one quart pure raw linseed oil and 1/2 pint pure turpentine to the gallon on hard woods. Then proceed as above.

When surface is badly cracked, the paint should be removed with Sherwin-Williams Taxite, a paint and varnish remover. Then follow specifications given for new work.

*Specification No. 59Y***Semi-Lustre Finish on Interior Trim**

Discussion—Sherwin-Williams Semi-Lustre is an economical finish for interior trim and gives excellent results where the more expensive enamel finish isn't practical. It is easy working and flows out to a soft velvety finish.

New Interior Wood Trim

Specification—Before proceeding with the work the con-

tractor shall make sure that the surface to be finished is perfectly dry before a succeeding coat is applied.

First Coat—Apply Sherwin-Williams Semi-Lustre, reducing each gallon with one quart pure turpentine.

Second Coat—Apply Sherwin-Williams Semi-Lustre just as it comes from the package.

Third Coat (if desired)—Apply Sherwin-Williams Semi-Lustre as it comes from the package.

Previously Finished Interior Trim

Specification—The surface to be finished shall be thoroughly cleaned, preferably with Sherwin-Williams Flaxoap (pure linseed oil soap) and warm water. When dry, sand thoroughly to remove any gloss which may be on the old finish.

First Coat—Apply Sherwin-Williams Semi-Lustre as it comes from the package.

Second Coat (if desired)—Apply Sherwin-Williams Semi-Lustre as it comes from the package.

Notes: If any thinning is necessary use pure turpentine only. If any special shades are desired use Sherwin-Williams First Quality Oil Colors for tinting.

Allow sufficient time for drying between coats. Twenty-four hours is usually sufficient.

MISCELLANEOUS SPECIFICATIONS

*Specification No. 60***Priming Galvanized Iron Surfaces**

Discussion—Palm oil used in metal galvanizing processes many times affects paint applied over galvanized surfaces, with the result that the paint will peel or flake off and present a highly unsatisfactory finish. Architects recognize the painting of galvanized metal as a real problem and will be glad to know of Sherwin-Williams Galvanized Iron Primer for the priming of surfaces of this type to insure good results.

Specification—All galvanized metal surfaces, whether interior or exterior, shall be primed with one coat of Sherwin-Williams Galvanized Iron Primer. Care shall be exercised by the contractor before painting, to insure the fact that the surfaces which are to be painted are in good condition—all dirt, rust, grease, acid or rosin being removed before priming. The best way to clean the surface is by washing thoroughly with a solution of copper acetate consisting of a solution of about six ounces to one gallon of water.

(Subsequent coats will depend entirely upon the architect's own selection of finish. The surface can either be painted with a regular lead, oil and zinc paint, flat wall finish or enamel finish.)

*Specification No. 61***Painting Radiators**

See Opex Lacquer Specification No. 62-A

Discussion—Tests made by the American Society of Heating and Ventilating Engineers and also by the Paint Manufacturers Association of the United States indicate that paints made from bronze powders retard the radiation of heat approximately 25%, while paints and enamels made from zinc oxide or lithopone do not appreciably affect radiation one way or the other.

Recent tests prove that the use of the lighter tints of Sherwin-Williams Flat-Tone Wall Finish will produce a highly satisfactory finish on radiators and will not affect the efficiency of the radiation. This paint tends to bake to a hard film on radiator surfaces and tests made by the Paint Manufacturers Association of the United States upon radiators in their laboratories

indicate that such a finish has a life of as high as nine to ten years without showing defects.

Regardless of what types of paint are used in painting radiators, there is bound to be a slight change in color. White Damar Enamels will yellow slightly, while flat finishes, like Flat-Tone and colored enamels, will likewise change color slightly.

This is a condition for which a remedy has not been found up to the present, but the results all in all are highly satisfactory.

Specification—Before applying paint clean off dust, dirt and rust from radiators by wire brushing. Also remove any grease which may be present. Radiators must not be painted while they are hot. Allow paint to dry thoroughly before turning on heat.

Where a white finish is desired on radiators specify two coats of Sherwin-Williams Flat-Rite and one coat of Sherwin-Williams Enameloid.

For a colored enamel finish on radiators, specify two coats of Sherwin-Williams Flat-Rite and one coat of Sherwin-Williams Enameloid in the color selected.

For a flat finish on radiators specify two coats of Sherwin-Williams Flat-Tone in the color selected.

Oil Colors—The selection of the highest grade of oil colors for tinting purposes is really an important matter. Inferior colors, not fast to light, have ruined many painting jobs which otherwise were perfect. Specify Sherwin-Williams First Quality Colors Ground in Oil. These colors are fast to light and are ground in strictly pure refined linseed oil.

*Specification No. 62***Metal Trim (Enameled Finish) to Be Finished on Job**

See Opex Lacquer Specification No. 62-A

All metal trim to be finished on the job shall receive a coat of Sherwin-Williams Metal Trim Primer before leaving the shop. After the trim has been installed it shall be thoroughly cleaned from all dust, dirt, grease, etc., and sanded lightly with No. 00 sandpaper, after which two coats of Sherwin-Williams Enameloid in the color selected by the architect shall be applied. When the first coat of enamel is thoroughly dry it shall be lightly sanded with No. 00 sandpaper before the second coat is applied.

Note: Where an especially high grade enamel finish is desired in light tints or white, use the standard Sherwin-Williams Old Dutch Enamel specification No. 58 for the finishing of wood trim.

OPEX ARCHITECTURAL SPECIFICATIONS

Foreword

Positive proof that architects are convinced of the desirable properties of Opex Architectural finishes is found in the following list of imposing buildings which are being finished or have been finished in 1930 with Opex:

Michigan Square Building, Chicago, Ill.
Buckingham Building, Chicago, Ill.
Board of Trade Building, Chicago, Ill.
No. 1 LaSalle Building, Chicago, Ill.
Midland Bank Building, Cleveland, Ohio
Alamo Bank Building, San Antonio, Tex.
Aurora Apartment Hotel, San Antonio, Tex.
450 Sutter Building, San Francisco, Calif.
Paducah Bank Building, Paducah, Tex.
LaSalle-Wacker Building, Chicago, Ill.

The following products make up this Opex line:

Opex Brushing Interior Clear Gloss
Opex Brushing Floor Clear Gloss
Opex Spraying Interior Clear Velvet
Opex Brushing Interior Clear Velvet
Opex Spraying Floor Clear Gloss
Opex Sealer Binder Clear

Brush Application

Flow Opex Interior Brushing Lacquers on with a full brush. If it is necessary to go back into a portion that has started to set up, be sure that a partially full brush is used, thus giving better reflow and eliminating any tendencies towards "piling up." If any thinning is necessary, use Opex Brushing Lacquer Thinner only.

Spray Application

Use eight pounds on the pressure tank, and forty pounds on the line. If lower pressure or a cup gun is used, some thinning may be necessary. On new work, this reduction should not exceed twenty-five per cent, using Opex Thinner No. 10.

Specification No. 21-A

New Floors—Open Grain—Natural Finish

The floors shall be perfectly smooth before any lacquer is applied, and shall be thoroughly cleaned of all dust, dirt, stains, etc. The floor shall then be filled with Sherwin-Williams Paste Wood Filler Transparent which before becoming hard shall be wiped off across the grain of the wood with burlap or excelsior. After allowing twenty-four hours for drying, the surface shall be sanded to a smooth finish with No. 1/2 Sandpaper. Apply a wash coat of Opex Sealer Binder Clear, reducing each gallon with two quarts of denatured alcohol. Let dry two hours; sand lightly with 0000 sandpaper. Apply one coat Opex Floor Clear Gloss without reduction. Let dry two hours where sprayed, three hours where brushed, before putting into service.

Specification No. 22-A

New Hardwood Floors—Open Grain—Stained Finish

The floor shall be scraped and sandpapered smooth and perfectly dry before any finish shall be applied. Thoroughly sweep out all shavings, dust and dirt. Remove any stains or discolorations by bleaching or scraping.

Apply one coat of Sherwin-Williams Acid Stain in the color selected by the architect. Allow to penetrate and wipe off surplus stain before drying. Let dry overnight before applying further finishing coats.

Note: This method is required where dark effects are desired and also for close-grain woods which cannot be filled.

Open-grain woods can be frequently modified sufficiently in tone through the use of Sherwin-Williams Paste Wood Fillers in the dark colors. Paste Wood Fillers come in paste form and are to be thinned with benzine to the consistency of thick cream for brushing. Brush over the surface of the wood and let stand until partly set, indicated by partial flattening out of the wet gloss. Then wipe across the grain of the wood with burlap or excelsior, removing all excess filler. Wipe clean with a soft cloth. Allow twenty-four hours for drying before applying further finishing coats. Apply a wash coat of Opex Sealer Binder Clear, reducing each gallon with two quarts of denatured alcohol. Let dry two hours; sand lightly with 0000 sandpaper. Apply one coat Opex Floor Clear Gloss without reduction. Let dry two hours where sprayed, three hours where brushed, before putting into service.

Specification No. 23-A

New Hardwood Floors—Close Grain—Stained Finish

The floors shall be perfectly smooth before any finish is applied and shall be thoroughly cleaned of all dust, dirt, stains, etc. One coat of Sherwin-Williams Acid Stain in the color selected by the architect shall then be applied. Allow to penetrate and wipe off surplus stain before drying. Let dry overnight before applying further finishing coats.

Apply a wash coat of Opex Sealer Binder Clear, reducing each gallon with two quarts of alcohol. Let dry two hours, sand lightly with 0000 sandpaper. Apply one coat Opex Floor Clear Gloss without reduction. Let dry two hours where sprayed, three hours where brushed before putting into service.

Specification No. 27-A

New Softwood Floors—Stained Finish

The floors shall be perfectly smooth before any finish is applied and shall be thoroughly cleaned of all dust, dirt, stains, etc. A coat of Sherwin-Williams Acid Stain in the color selected by the architect shall then be applied. Let dry overnight before applying further finishing coats.

Apply a wash coat of Opex Sealer Binder Clear, reducing each gallon with two quarts of alcohol. Let dry two hours, sand lightly with 0000 sandpaper. Apply one coat Opex Floor Clear Gloss without reduction. Let dry two hours where sprayed, three hours where brushed before putting into service.

Specification No. 28-A

New Softwood Floors—Enamel Finish

The floors shall be thoroughly dry and free from all dust, dirt, grease, etc., before any finish is applied.

Apply one coat of Sherwin-Williams White Oil Primer No. 12 followed by two coats of Sherwin-Williams Opex Lacquer Enamel of the color chosen by the architect.

Allow one hour for drying between coats except for the primer which should dry twelve hours.

Specification No. 53-A

New Interior Woodwork—Stained and Natural Finish

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable by filling with a putty made of whiting, white lead, glue and water. If any defects are found in the woodwork which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied. On open-grain woods such as walnut and mahogany, stain and fill; let dry forty-eight hours. On close-grain woods such as birch or gum, or for open pore effect on open-grain woods, use any S-W Stain. (On soft woods, Oil Stain is advisable.) Let dry twenty-four hours. Apply a thin coat of Opex Sealer Binder Clear without reduction. Let dry at least two hours, sand lightly with 0000 sandpaper, and apply one coat of Opex Interior Clear Gloss or Velvet. For a fuller finish, a second coat may be applied after two hours. For a gloss-rubbed job, let dry two hours. Then apply a second coat of the gloss. As soon as the film is dried hard, it may be rubbed. Under normal drying conditions, this may be done in eight hours after the last coat of lacquer has been applied. However, twenty-four hours is recommended.

Note: Sherwin-Williams Acid Stain should be applied as follows:

Sponge the wood with clear, cold water and allow to dry. Sandpaper smooth and apply one full coat of Sherwin-Williams Acid Stain, first testing the strength of the stain for depth of color and shade on sample of same kind of woodwork. Let dry and sandpaper carefully to a smooth surface with No. 00 sandpaper. If necessary, restain with Acid Stain reduced 100% with water. Let dry and sandpaper very lightly, if necessary, for a smooth finish with No. 0000 sandpaper. Apply Sherwin-Williams Paste Wood Filler in the shade required for the stain effect. Let stand for a few minutes until partly set, indicated by partial flattening out of the wet gloss of the material. Wipe off surplus filler by wiping across the grain of the wood. Wipe clean with a soft cloth. Clean out all corners and crevices carefully with a pointed wood stick and cloth. Allow twenty-four hours for drying.

Specification No. 59-A

New Interior Wood Trim—Enamel Finish

The contractor shall make sure that the surface to be finished is perfectly dry and free from dust and dirt.

The surface shall then be sanded down to a smooth surface, after which apply one coat of Sherwin-Williams Opex Sanding Sealer No. 98. After at least two hours dry, sand lightly and follow with two coats of Sherwin-Williams Opex Enamel, thinned 75% with Opex Thinner No. 10 in the shade selected by the architect, allowing one hour for drying between coats.

Note: On open grained woods such as oak, chestnut and walnut, the specifications should call for a coat of Sherwin-Williams Opex Wood Filler White No. 611 between coats of No. 98 Sealer and the finishing enamel.

ARCHITECTS' GUIDE

FOR PAINTING, VARNISHING, STAINING AND ENAMELING

IMPORTANT: EACH OF THE PRODUCTS SPECIFIED BELOW BEARS OUR NAME AND TRADE-MARK

SURFACE	TO PAINT <i>Use product named below</i>	TO ENAMEL <i>Use product named below</i>	TO STAIN <i>Use product named below</i>	TO VARNISH <i>Use product named below</i>
BRICK WALLS (Exterior)	<i>S-W Concrete Wall Finish</i>	<i>S-W Old Dutch Enamel, Gloss</i>		
CONCRETE WALLS (Exterior).....	<i>S-W Concrete Wall Finish</i>	<i>S-W Old Dutch Enamel, Gloss</i>		
CEMENT FLOORS	<i>S-W Floor Enamel</i>	<i>S-W Floor Enamel</i>	To Harden— <i>S-W Concrete and Cement Hardener</i>	
EXTERIOR WOOD SURFACES	<i>S W P (Sherwin-Williams Prepared Paint)</i>	<i>S-W Old Dutch Enamel, Gloss</i>	<i>S-W Preservative Shingle Stain</i> <i>S-W Acid or Oil Stain</i>	<i>S-W Rexpar Varnish</i>
EXTERIOR METAL SURFACES	<i>Kromik Metal Primer Metalastic (for finishing coats)</i>	<i>S-W Old Dutch Enamel, Gloss</i>		
FACTORY WALLS (Interior)	<i>S-W Save-Lite Eg-Shel White</i> <i>S-W Save-Lite Fume Resisting White</i>	<i>S-W Enamelastic or Save-Lite Gloss White</i>		
FLOORS (Interior Wood)	<i>S-W Floor Enamel</i>	<i>S-W Floor Enamel</i>	<i>S-W Oil Stain or Flo-Lac Varnish Stain</i>	<i>S-W Mar-Not Floor Varnish</i>
GALVANIZED IRON SURFACES	<i>S-W Galvanized Iron Primer (finish with any paint)</i>	<i>S-W Galvanized Iron Primer and Old Dutch Enamel</i>	<i>S-W Oil Stain</i>	<i>S-W Rexpar Varnish</i>
INTERIOR WALLS AND CEILINGS....	<i>Flat-Tone Wall Finish</i> <i>S-W Semi-Lustre Wall Finish or Wall Paint No. 96 (heavy body)</i>	<i>S-W Enamelastic</i>		
INTERIOR WOOD TRIM	<i>S W P (Sherwin-Williams Prepared Paint)</i>	<i>S-W Old Dutch Enamel or Enamelastic</i>	<i>S-W Acid Stain</i> <i>S-W Handcraft Stain</i> <i>S-W Oil Stain</i>	<i>S-W Scar-Not Varnish Velvet Finish Varnish (for imitation rubbed effect)</i>
PORCH FLOORS AND DECKS	<i>S-W Porch and Deck Paint</i>	<i>S-W Porch and Deck Paint</i>		
RADIATORS AND PIPES	<i>S-W Flat-Tone Wall Finish or</i> <i>S-W Gold Paint</i> <i>S-W Aluminum Paint</i>	<i>S-W Old Dutch Enamelastic or Enameloid</i>		
ROOFS (Metal)	<i>S W P or Metalastic (if galvanized, prime with S-W Galvanized Iron Primer)</i>			
ROOFS (Wood Shingle)...	<i>S W P</i>		<i>S-W Preservative Shingle Stain</i>	
STACKS AND HOT SURFACES	<i>S-W Salamander Smoke-Stack Black</i>			
STRUCTURAL STEEL	<i>S-W Kromik Metal Primer Metalastic (for finishing coats)</i>			
TO DAMPPROOF FOUNDATIONS ...	<i>S-W Antydamp</i>			
TO DAMPPROOF INTERIOR WALLS ABOVE GRADE....	<i>S-W Plaster Bond</i>			
WOOD PRESERVATIVE			<i>S-W Carbolic-ol</i>	Copyright, 1927, by The Sherwin-Williams Co.



SEIDLITZ PAINT & VARNISH COMPANY

Manufacturers of Paints, Varnishes, Enamels and Lacquers

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Manufacturers of a complete line of PAINTS, VARNISHES, STAINS, FILLERS, UNDERCOATERS and LACQUERS including:

- Long Oil Spar Varnish.
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- Long Oil Finishing Varnish.
- Long Oil Flat Varnish.
- 4-Hour Floor and Finishing Varnish.
- Long Oil White Enamel.
- Long Oil Undercoat.
- Seid-Lac, 4-hour Enamel.
- Half Tone, Subdued Gloss Finish.
- Oiltone Flat Wall Finish.
- Wall Sealing Primer
- Litho Lite Mill-white.
- B Lacquer (Brushing Lacquer).
- Penetrating Stains.
- Paste Fillers.

Specification Manual

We will be glad to send you our Specification Manual, giving specifications for Seidlitz Long Oil Paint and Varnish Products, for use on walls, woodwork, floors, etc. Made to fit standard specification files.

Should information be desired on any wood finishing problem we would welcome the opportunity to be of service. Address letters to main office—18th and Garfield Streets, Kansas City, Mo.

Seidlitz Long Oil Quick Drying Floor Varnish

The very highest type of floor varnish that it is possible to produce, using nothing but pure vegetable oils, hard fossil gum and thinners. Being long in oil it is very lasting and wear resisting. Has a satisfying richness and depth. Stands up longest under the pounding, grinding wear that floors receive.

Specify same as for any first class floor varnish.

Seidlitz Long Oil White Enamel

A heavy snow white enamel which produces an almost porcelainlike finish. Made of the finest grade of French process zinc oxide, especially refined and treated linseed oil, the palest possible drying agents, pure turpentine, and nothing else. There is no varnish gum of any kind used in producing it; this, together with the treatment we give the oil, leaves nothing to lessen its elasticity, or cause it to discolor or to become brittle with age or exposure. Neither does moisture affect its brilliance or film—hence it is equally adaptable for the finest grade of interior enameling, or for outside and exposed surfaces.

Is made in either gloss or eggshell finish, also the following colors: white, ivory, cafe au lait and gray.

Specify same as any first grade enamel.



TRADE-MARK



Original Container

Seidlitz Long Oil Undercoat

Produces a smooth, hard, opaque surface, a perfect foundation for all enamel work. Enamel does not perish into this hard drying undercoat but is held on the surface where you can appreciate its beauty, richness and brilliance. Has great hiding power.

Specify same as for any first grade enamel undercoat.

Seidlitz Half Tone

A subdued gloss paint made on an oil base for interior walls and woodwork where a rich half gloss is desired. Has exceptional hiding or covering power. Washes readily. Produces a much richer appearing wall than is possible with any flat paint. Recommended for hotels, hospitals, public buildings, etc.

Comes in white and eight beautiful tints.

For specifications see Seidlitz Specification Manual.

Seidlitz Oiltone Flat Wall Finish

The finest quality of wall finish that can be produced. Dries with a rich velvety sheen that is washable. Covers a maximum number of square feet per gallon. Made in white and tints.

For specifications see Seidlitz Specification Manual.

Seidlitz Wall Sealing Primer

A pigmented, special oil base primer and first coater that will be found as nearly perfect as possible to manufacture for the priming or first coating of new plaster walls. One coat of Wall Sealing Primer and one coat of Oiltone Flat Wall Finish will produce the equal of the average three-coat job.

Specify same as any first grade wall size.

Seidlitz Litho Lite Mill-white

Stays white and reflects light. A satin-smooth, snow white interior finish of exceptional luster, made of treated oils, which, when combined with the pigment, produce a true white that is permanent and will not turn yellow. Made particularly for walls and woodwork. It can be either brushed or sprayed. Its great spreading capacity, its durability and ease of cleansing make Litho Lite economical to apply and to maintain. Recommended for factories, schools, public buildings, bakeries, laundries, institutions, residences, office buildings and hotels.

Specify same as for any first grade mill-white.

Seidlitz Long Oil Surfer

An elastic undercoat, primer or filler for wood, metal, plaster, galvanized iron, glass, etc. It prevents or stops checking, alligating, or peeling of paints, varnishes, enamels, etc. Will increase the elasticity of any paint, varnish, or enamel either for inside or outside use.

For specifications see Seidlitz Specification Manual.



Original Containers for Seidlitz Long Oil Enamel, Oiltone, Half Tone and Litho Lite

STANDARD VARNISH WORKS

443 Fourth Avenue, NEW YORK, N. Y.

CHICAGO, ILL., 2600 Federal Street
LOS ANGELES, CAL., 116 East Jefferson Street

ENGLAND, Park Royal, London, N.W. 10
GERMANY, Berlin

Varnishes, Paints, Enamels, Lacquers and Allied Products for All Architectural Requirements

These Standard Products embody the most advanced skill and knowledge in the manufacture of paints, varnishes and enamels, based on over 60 years' experience.

The architectural profession can specify their use with complete confidence in the performance under normal or exceptional conditions.

Satinette White Enamel

The world-wide reputation which Satinette enjoys is convincing proof of its quality and character as a white enamel of ultra-durability and economy in use.

Gloss White—Adaptable for interior or exterior use. It may also be rubbed with pumicestone and water for semigloss finish.

Flat White—For interior use requiring a dead white enamel finish.

White Rubbed Effect—For interior use where a rubbed effect is desired, without the labor and expense of hand rubbing.

Satinette Undercoat—For preparatory coats on woodwork, to be finished with Satinette Enamel.

Satinette Cement Undercoat—For preparatory coats on cement, concrete or plaster.

Standard Kleartone Oil and Acid Stains

These stains are safe and economical to use. They produce artistic and lasting effects. Kleartone Oil Stains penetrate as deeply as acid stains, but require no sponging of the wood before use, or sandpapering after use. Kleartone Acid Stains are provided to produce certain effects not possible to obtain with oil stains.

Standard Elastica Varnishes

While there are other high grade varnishes available, there are none which provide more lasting results, or give greater satisfaction in use than Elastica Varnishes.

Elastica Floor Finish—Combines hard drying properties, without sacrificing elasticity or durability; protects floors and linoleum under the most severe wear and frequent washing; does not mar, scratch white or spot; dries dust free in 4 to 6 hours and hardens overnight; may be rubbed in 48 hours.

Elastica Interior Varnish—A varnish of extreme pale-ness and durability for interior woodwork. It produces a permanent gloss finish, dries dust free in 4 to 6 hours, will rub to a dull finish in 3 to 4 days.

Elastica Spar Varnish—This varnish is manufactured to meet the needs of those requiring an ultra-durable waterproof spar varnish for exterior or interior use of any kind. It is resistant to hot, cold, fresh or salt water. Dries free from dust in from 5 to 6 hours and hardens overnight with a brilliant gloss. It should not be applied over shellac, liquid fillers or patent first coats.

Elastica Dull Finish—For final coat work on floors and interior woodwork where a dull or flat effect is desired. It is durable and waterproof, and creates an effect similar to that produced by wax or by rubbing a gloss varnish.

Elastica Seat Varnish—A very hard drying varnish for church and school seats, porch furniture, chairs, etc. Dries free from dust in from 2 to 3 hours, and hard overnight. May be rubbed in from 3 to 4 days.

S.V.W. Klean-Kote Wall Finish (Medium Gloss)

Interior wall and ceiling surfaces of hotels, hospitals, theaters and other institutions and large or small buildings require the type of decorative protection afforded through the use of S.V.W. Klean-Kote.

A medium gloss finish. Its smooth even film insures sani-

tary surroundings, as dirt, grease, smoke and grime cannot successfully adhere to its surface. It is easily and simply cleaned—washing not affecting the smoothness or color of the film.

It will serve equally well on plaster, wood, metal, wall board, canvas or burlap. The decorative and harmonious colors are fast and unaffected by fumes or moisture. Two coats will provide ample covering under all average conditions. Its spreading and covering qualities insure economy from its use.

S.V.W. Flattine Washable Wall Paint

A non-glossy oil paint for interior decoration. Can be used with entire safety on plaster, wood, metal, concrete and other surfaces. A washable, sanitary finish insuring durable and permanent results.

In addition to the 16 soft tone colors, the possibilities for distinctive decorative finishes through the use of the Mottle Effect System invites consideration. Because S.V.W. Flattine is an oil flat, containing no varnish, it spreads easily and dries without laps or brush marks.

S.V.W. Pigmented Wall Sealer

A first or priming coat for new plaster walls and ceilings, preparatory to using S.V.W. Flattine Washable Wall Paint or S.V.W. Klean-Kote. It is also suitable for priming wall board.

Its advantages are that it overcomes the alkalinity of the plaster, prevents suction and provides an excellent foundation for the finishing coats. It may be mixed with a small quantity of the color of the finishing coats, or tinted with a good grade of colors in oil.

Elastica Metal Trim Enamel

Interior Enamel—A metal trim enamel developed especially for all interior metal surfaces—doors, door bucks, windows, radiators, base and stairs. A semigloss, washable, durable finish in colors to meet interior decoration needs.

Exterior Enamel—Recommended for use where extreme exposure to water, sun and other elements is met with—outside metal trim, doors, frames, windows, window sills.

Two coats of Elastica Metal Trim Enamel should be used for finest results.

It should always be applied over a dependable shop coat metal primer, of known character, such as S.V.W.A.D. Metal Primer.

Supplied in various shades of grays, greens, browns, etc., special colors and shades will be provided when the quantity required justifies doing so.

S.V.W. All Oyl Enamel and Enamel Undercoat

Enamel—A medium grade enamel possessing valuable characteristics. Designed specially for master painter use, it has maximum covering and spreading properties. It can be worked for 5 minutes without danger of sagging in corners or on rounded surfaces. It sets dust free in 3 hours and dry for handling in 12 to 18 hours, insuring economy of time and labor through its use. Supplied in white, ivory or gray, in either gloss or rubbed effect.

Undercoat—This undercoat should be used under All Oyl Enamel to insure the best results. The dense covering pro-

vided, coupled with its easy working and leveling properties, will insure a thoroughly satisfactory two-coat finish. It sets dust free and flattens in 1½ hours, has no tendency to rope, and can be sanded in 12 hours without gumming the sandpaper.

Standard Koverflor

For inside or outside floors of wood or cement. It is a definite and dependable liquid floor covering which seals any floor surface against the destructive effects of water, oil and grease, as well as hard or severe wear. When applied over cement it does not "pit," maintaining its smooth and tilelike surface to an extraordinary degree.

Supplied in 13 appropriate floor colors and black and white, it will provide a sound and scientific floor treatment, decorative and extremely serviceable.

Clear Koverflor has all of the desirable qualities of Koverflor in colors. It should be specified wherever a varnish effect is desired, such as on hardwood floors, decks of yachts, vessels and for linoleum.

S.V.W. 4-Hour Quick-drying Finishes

Modern conditions, in many instances, require increased speed in finishing operations. To meet this demand, we have provided the following products. The architect may safely rely on the satisfactory durability as well as serviceability of S.V.W. 4-Hour Finishes.

2-2-4 Kwickwork Enamel—A durable gloss decorative enamel for general use either for inside or outside. Designed for woodwork, walls, furniture, etc., it spreads easily, has maximum covering capacity, leaves no brush marks and is extremely waterproof. Drying in 4 hours, two coats may be applied in one working day. Supplied in 24 modern colors and white and black.

4-Hour Floor Varnish—A durable, elastic, waterproof varnish of excellent body and lustric. It is thoroughly dependable for floors and linoleum. Pale in color it can be used with entire satisfaction over the finest of floors.

4-Hour Interior Varnish—Designed for interior trim and woodwork. A lustrous and durable finish which may be rubbed to a satin finish.

GENERAL INSTRUCTIONS

To achieve the fine finish and the durable results Standard Products are designed to provide, it is essential that the surface should be adequately prepared to receive the finish.

In enameling, varnishing or painting, ample light and ventilation are necessary to insure proper drying and hardening. The surface should be clean of dirt, oil, grease and moisture—the surface should be dry. Finishes should never be applied in damp, wet or freezing weather. Best results are obtained at a temperature of 70° F. Varnishes which have been chilled may be warmed by standing the container in a pan of warm water.

Application of Enamels

S.V.W. Satinette; All Oyl; 2-2-4 Kwickwork—Since the finish depends so much on the proper foundation, the undercoats should preferably be those designed for the particular enamel. Ample time for drying should be allowed between coats and each coat when dry should be sandpapered with 0 or 00 sandpaper. On new wood, all sappy places should be given a coat of pure white shellac.

After application of the proper coat or coats of undercoat, the desired number of finishing coats of either gloss, flat or rubbed effect enamel should be flowed or brushed on. If a hand rubbed effect is desired, after the enamel (gloss finish) is thoroughly dry, it may be rubbed with felt, pumicestone and water in the conventional manner.

Surfaces previously finished may be enameled over, provided the old coating is not cracked or chipped. Clean up the surface and apply one or two coats of enamel as desired. If it is necessary to remove the old finish, use Standard Klenza Paint and Varnish Remover; wash up thoroughly; permit surface to dry out; then proceed as for new work.

Application of Wall Finishes

S.V.W. Klean-Kote; S.V.W. Flattine—New plaster walls should have a priming coat of S.V.W. Pigmented Wall Sealer, to neutralize the hot spots and prevent suction. When it is dry, apply one or two coats of the wall finish as desired, allowing sufficient time between each coat for drying. Do not permit the use of cheap sizing or glue on plaster walls. Calcimine must be washed off completely and the wall surface should be thoroughly dry before recoating with an oil wall finish.

Old walls of plaster, and new or old wood or metal surfaces do not require the use of a priming coat of S.V.W. Pigmented Wall Sealer.

Application of Varnishes

Elastica Varnishes; 4-Hour Varnishes—For finest results on new work we recommend the use of three coats, the first coat to be thinned with about 1 pt. of pure spirits of turpentine to the gallon of varnish. Sandpaper lightly with 00 sandpaper between coats, after each coat is dry.

Elastica Floor Varnish should never be applied over shellac, liquid filler or patent first coaters when the service and

durability, which this varnish will provide, is desired. Open grained wood should have the grain filled with Standard Kleartone Paste Wood Filler before applying the first varnish coat. If the wood is to be stained first, follow the customary procedure in the application of stains.

Application of Stains

S.V.W. Kleartone Oil and Acid—It is important to keep in mind that the effect produced by a stain will vary somewhat, dependent on the type of wood used. A walnut stain on gumwood will have a different tone than on yellow pine. Hardwoods will also take a stain somewhat differently than soft or porous woods.

SPECIFICATIONS

For Close Grain Woods—Stain with STANDARD VARNISH WORKS' Kleartone Oil or Acid Stain (shade selected). After stain is thoroughly dry apply one coat of STANDARD VARNISH WORKS' Kleartone Sealer or Kleartone Coater, as required for shade of stain specified.

For Open Grain Woods—Stain with STANDARD VARNISH WORKS' Kleartone Oil Stain (shade selected). After stain is thoroughly dry apply one coat of STANDARD VARNISH WORKS' Kleartone Sealer or Kleartone Coater, as required for shade of stain specified.

After sealer or coater is thoroughly dry fill with STANDARD VARNISH WORKS' Kleartone Paste Wood Filler (suitable shade) to be wiped off across the grain of the wood with excelsior or burlap before the filler becomes hard.

For Open Grain Woods—Stain with STANDARD VARNISH WORKS' Kleartone Acid Stain (shade selected). After stain is thoroughly dry sandpaper with 00 sandpaper and fill with STANDARD VARNISH WORKS' Kleartone Paste Wood Filler (suitable shade) to be wiped off across the grain of the wood with excelsior or burlap before the filler becomes hard.

After 24 hours apply one coat of STANDARD VARNISH WORKS' Kleartone Sealer or Kleartone Coater, as required for shade of stain specified.

Note: In every case, after the Sealer or Coater is dry, proceed with the varnish coats as desired. For shades of stains, paste wood fillers and sealers and coaters, consult S.V.W. Kleartone Color Card furnished on request.

Application of Standard Koverflor

Two coats are recommended for finest results. On cement surfaces, thin the first coat with at least 3 pt. or 2 qt. of pure spirits of turpentine to the gallon of Koverflor. Brush in well and allow to dry at least 12 hours. Follow with second coat in body as received in container, permitting at least 24 hours for drying. On wood surfaces, thin first coat with 1 qt. of turpentine then follow foregoing directions. Never apply Koverflor over wet or damp surfaces.

New cement floors should be washed with a 10% muriatic acid solution, i.e., 90% water and 10% muriatic acid, to neutralize the free lime. Permit the solution to stand for 5 minutes, then wash up with clean water and allow the floor to dry out for at least 10 days, after which the first coat of Koverflor can be applied.

Surfaces which have been waxed or oiled should be thoroughly cleaned off prior to applying Koverflor; using a mixture of one-half turpentine and one-half benzine.

THE TRUSCON LABORATORIES

Paints, Varnishes, Enamels and Maintenance Products

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Products

BAR-Ox (Inhibitive Steel Paint).
FUME-SAF (Chemical Resistant White Enamel).

ASEPTICOTE (Washable Wall Coating).
ALKABAR (Wall Sealer under Asepticote).
TRUSCON WOOD FLOOR PRESERVATIVE.
WALL-LITE (Mill White, Enamel, Eggshell, or Flat).

LUMETEX (Aluminum Liquids for paint).

TRUSCON WATERPROOF VARNISH.

STONETEX (Dampproof Concrete Coating).

Also Super-Por-Seal (Transparent Dampproof Masonry Coating), Truscon Floor Sealer, Agatex (Chemical Floor Hardener), Granitex, Truscon Oil Stain.

For our pages on Integral Waterproofings and Floor Hardeners, see Manufacturers' Index.

Architectural Service

THE TRUSCON LABORATORIES manufacture a complete line of waterproofings and paint coatings formulated to meet each individual requirement. The representatives of THE TRUSCON LABORATORIES are technically trained men whose duty it is to assist architects, engineers and owners in the selection of the proper material to meet their protective and decorative problems, by making a complete study of the requirement and furnishing detailed recommendations as desired and without obligation.

Truscon Bar-Ox, Inhibitive Steel Paint

A metal protective coating, embodying a scientific combination of inhibitive pigments and waterproof oils, in accordance with the most advanced principles of iron and steel protection. The oils used in Bar-Ox are especially heat-treated so as to remove all moisture and impurities which might cause pin-holes to form in the paint film. Thus, Bar-Ox produces a waterproof, elastic film which effectively insulates iron or steel surfaces from contact with moisture. Actual service records under severe exposures in damp, tropical countries, as well as in the cold of the extreme northland, have definitely proved the superiority of Bar-Ox as a weather-protective coating for metal.

Bar-Ox is furnished in black and 14 standard colors. It is suggested that the shop-coat be specified as Bar-Ox Red, No. 142, and the field-coat as either Bar-Ox Black, No. 143 or Dark Green No. 144. These colors are recommended because of their economy and also because of their contrast, which makes the job of inspection for complete field-coat coverage easier and more certain.

Specifications for Painting Structural Steel

Remove all scale, dirt and foreign matter from structural steel before any painting is done in the shop.

Covered surfaces, surfaces in contact and all parts of riveted members shall receive 1 coat of Bar-Ox (color and number) before assembling. All finished members shall receive 1 coat of Bar-Ox (color and number) before being exposed to the weather. All bolts used in erection and remaining in the structure shall be dipped in Bar-Ox. All surfaces accessible after



erection shall have all abraded spots touched up with Bar-O followed by a thorough coating over the entire surface of Truscon Bar-Ox (color and number).

Other Truscon Bar-Ox Steel Paints

Bar-Ox Smokestack Coating, Boiler Front Coating, Acid Coating, Alkali Coating, Embedded Coating, Conduit Coating, Gas Holder Coating, Aluminum Coating.

Truscon Asepticote, Washable Wall Coating

Asepticote is non-porous, sanitary, washable wall coating combining decoration with durability to an unusual degree.

Asepticote has proved in actual service and in tests conducted by institutions and building managers throughout the country, that its waterproofed, decorative film will withstand the abuse of repeated washings or scrubbing with alkaline washing compounds. Our representative will gladly demonstrate these unusual qualities of Asepticote to any architect or engineer.

Only 2 coats are necessary to secure a uniform, decorative and washable wall surface, by the use of Truscon Asepticote over Truscon Alkabar as the priming and sealing medium.

Truscon Alkabar, Wall Sealer

Alkabar is a specially developed alkali resisting wall primer or sealing medium that effectively overcomes the action of free lime and moisture in green plaster. Its use eliminates wall painting troubles such as suction, lime burn, etc., that are so often caused by failure of the "foundation" coat.

Specifications for Washable Wall Coating

Repair all cracks and damaged places. Before painting be sure the surface is free from dirt, grease, or other foreign deposits.

First Coat—1 qt. of Truscon Asepticote of the same color as finish coat shall be added to each gallon of Alkabar. The resulting mixture shall be thoroughly agitated before being applied and care shall be taken to see that it is brushed thoroughly into the surface to present a uniform even coating, and allowed 24 hours for thorough drying. Should any flat spots develop, due to unusual porosity, they shall be touched up with a spot coat of Truscon Alkabar before applying Asepticote.

Second Coat—After the above sealing coat has been allowed at least 24 hours' drying time, apply the finish coat of Truscon Asepticote flowed on to the surface and brushed out lightly to a uniform even finish. If on continued exposure to the air in an open package, Asepticote becomes thick and heavy, it shall be thinned with the minimum amount of turpentine to give a body of the original consistency.

Note: In exceptional cases it may be desired to specify a three-coat application, the third application shall be Truscon Asepticote applied as it is received in the package.

Truscon Wall-Lite, Mill White Paint

A long oil pure white paint for walls and ceilings of industrial interiors, etc., where light reflection is desired.

Wall-Lite Finishing is furnished in enamel, egg-shell and flat. It presents a dense, pure white film that is extremely durable and, when soiled, may be washed and renewed to its original whiteness.

Specifications for Mill White Paint

Surfaces to be painted shall be free from all dust and loosely attached matter, and oil or grease spots shall be touched up with a spot coat of Truscon Bitubar, or a thin coat of shellac.

New Construction—First coat shall be Wall-Lite Primer, applied as it is received in the package. Care shall be taken to see that the material is thoroughly brushed into the surface to insure proper penetration.

Second Coat: After the first application has been given 36 to 48 hours for drying, apply 1 coat of Truscon Wall-Lite Undercoater, and allow 36 to 48 hours' drying time before applying the final coat of Wall-Lite Finishing (Enamel or Eggshell). If to be applied by spray, thin to proper consistency with Truscon Wall-Lite Reducer. If by brush, no thinning is necessary.

Truscon Wood Floor Preservative

For preserving wood floors against dry rot and decay. Different from ordinary floor oils in that Truscon Wood Preservative is absorbed into the wood and dries, binding the fibers into a tough, wear-resisting mass. Truscon Wood Floor Preservative darkens the floor slightly (usually a desirable feature), but leaves no slippery film.

Truscon Floor Enamel

Truscon Floor Enamel is a material developed for the express purpose of enameling cement floors above grade. Truscon Floor Enamel is easy to apply, and thereby assures complete application being made. It dries to a tough elastic film with a subdued gloss that does not easily mar nor show scratches. Truscon Floor Enamel is furnished in 6 standard colors.

Specifications for Floor Enamel

The floor to be coated shall be absolutely dry and free from dust, grease, etc., before beginning work. Surface shall receive 1 application of Truscon Floor Sealer to uniform the surface.

Truscon Floor Enamel shall be applied directly to the dried surface with a good stiff 4-in. brush. Special care shall be taken to exert sufficient pressure during application so as to force the enamel thoroughly into the surface pores. 48 hours shall be allowed as drying time before subjecting enameled surface to light traffic.

Note: Where it is not desired to enamel concrete floors, it is recommended that they be treated with Truscon Agatex Chemical Floor Hardener, or Truscon Granitex, so as to eliminate dusting and disintegration of the surface.

Truscon LumeTex (Aluminum Coating)

Owing to the fact that freshly mixed aluminum paint has greater lustre, light reflecting value and "leafing" than ready mixed aluminum paint—Truscon LumeTex is put up in a special 5-gal. double compartment container in which the aluminum powder is kept separate from the liquid. The paint is thereby freshly mixed for the job.

LumeTex is obtainable in three types, namely: *LumeTex "A,"* for interior surfaces, walls, ceilings, including radiators; *LumeTex "B"* for exteriors, such as tanks, gas holders; *LumeTex "C"*—heat resisting, intended for metal smokestacks, ovens and other such surfaces where the temperature ranges fairly high.

Quantity Required—Metal—600 sq. ft. per gal. 1 coat; 350 sq. ft. per gal. 2 coats.

Concrete or brick—400 sq. ft. per gal. 1 coat; 250 sq. ft. per gal. 2 coats.

Truscon Fume-Saf

White enamel. (Also obtainable in eggshell finish.)

Intended for chemical exposures, such as hydrogen sulphide, aniline and similar fumes which darken ordinary white enamel quickly.

Truscon Fume-Saf is recommended for use wherever a white enamel or eggshell finish is required in chemical laboratories, bleacheries, rubber storage plants, bakeries, etc.

Quantity Required—Fume-Saf Undercoating: concrete and masonry—200 sq. ft. per gal. 1 coat; wood 250 sq. ft. per gal. 1 coat.

Fume-Saf Eggshell or Enamel: about 300 sq. ft. per gal. 1 coat.

Varnishing Interior Floors (Specifications)

Preparation—The floors shall be sanded to a perfectly smooth surface and cleansed of all dust, dirt, grease and oil stains, before any application is made.

First Coat on Open Grain Woods—Truscon Paste Wood Filler (color desired) shall be applied to the entire surface. When the filler has started to set, it should be wiped across grain, with burlap or excelsior.

First Coat, Varnish—Shall be Truscon Waterproof Varnish, Finest, thinned with pure turpentine in the proportion of 1½ pt. to 1 gal. of varnish. When dry, this coat shall be sanded lightly with 00 sandpaper.

Second and Third Coats, Varnish—Shall be applied without thinning allowing 24 to 48 hours as drying time between coats. Second coat shall be sanded with 00 sandpaper and all dust removed before applying final coat.

Varnishing and Staining Interior Trim

Truscon Waterproof Varnish, Finest, is especially adaptable for interior trim. It is not affected by steam, cold, or water and presents a finish of the utmost depth and lustre with the fewest number of coats. It will not mar white nor chip when scratched. Truscon Waterproof Varnish, Finest, may be safely specified for exterior as well as interior use. It is extremely durable even under severe exposure.

Specifications for Interior Trim

Preparation—All wood shall be clean, dry and smooth before any filler or varnish is applied.

First Coat—Truscon Oil Stain (color desired).

Second Coat—For open grain woods only—Truscon Paste Wood Filler of same color as stain shall be applied and wiped off to remove excess filler, with burlap or excelsior.

Third Coat—A thin application of shellac shall be applied after the filler has been allowed 12 to 24 hours for thorough drying.

Fourth and Fifth Coats—Truscon Waterproof Varnish, Finest, applied as received in the package.

Note: Second coat shall be eliminated on close grain woods.

Truscon StoneTex for Exterior Masonry

Truscon StoneTex is a specialized masonry coating combining decoration with durability. StoneTex effectively protects masonry from disintegration, by eliminating the absorption of moisture into brick, concrete and stucco. Moisture absorbed into such surfaces, contracts and expands with temperature changes, causing checking, cracking, and finally complete disintegration. From the viewpoint of decoration and protection, it is equally applicable to old and new masonry structures. It is supplied in 10 attractive shades that dry with a finish that closely resembles masonry.

Specifications for Coating Exterior Masonry

All surfaces must be absolutely dry and free from loosely attached matter—dirt, dust, grease, etc.

Application—Unpainted Surfaces—First Coat—Truscon StoneTex thinned in proportion of 1 gal. of StoneTex liquid to 5 gal. of StoneTex brushed out to a uniform even coating. Care shall be taken to stipple StoneTex into all uneven surfaces so as to insure complete application. 48 to 72 hours shall be allowed as drying time before applying final coat.

Second Coat—Truscon StoneTex applied as it is received in the package without thinning. If due to exposure in an open package, it becomes necessary to thin StoneTex, it may be reduced with a minimum amount of turpentine.

Painted Surfaces—The surface to be painted must be firm, clean and dry. All loose, blistered or scaly paint shall be removed down to a firm base, by wire brushing or scraping, before any StoneTex is applied. All bare spots shall receive a spot coat of StoneTex, reduced with 1 qt. of StoneTex Liquid to 1 gal., and allowed 48 hours as drying time.

To the thoroughly dry surface, apply a uniform application of StoneTex as it is received from the package. Care shall be taken to see that StoneTex is brushed well into the surface to insure bonding to the old paint.

BAY STATE BRICK AND CEMENT COATING

Manufactured and Distributed by
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DETROIT, MICH., Brandt Street and Wyo-
ming Road
HOUSTON, TEX., White and Winter Streets
KANSAS CITY, MO., 2115 Grand Avenue
MINNEAPOLIS, MINN., 605 Marquette Street

NEW ORLEANS, LA., 924 Canal Street
NEWARK, N. J., 213 N. J. R. R. Avenue
OMAHA, NEB., 413 South 10th Street
PHILADELPHIA, PA., 1654 Ridge Avenue
ST. PAUL, MINN., 721 Pillsbury Avenue
TULSA, OKLA., 212 So. Boulder Street
WICHITA, KAN., 127 No. Market Street

PEASLEE GAULBERT PAINT & VARNISH CO.

ATLANTA, GA., 362 Fair Street, S. W.
LOUISVILLE, KY., 223 No. 15th Street

DALLAS, TEX., Earl and Logan Streets
SAN ANTONIO, TEX., 1501 So. Alamo Avenue

HOUSTON, TEX., 1601 White Street

Other Distributing Agents in Principal Cities in the United States

Bay State Brick and Cement Coating

Defects in Concrete, Brick and Porous Masonry—For over a quarter of a century, Bay State Brick and Cement Coating has been successfully used to overcome the principal defects of brick and concrete construction—porosity, hair-cracking and monotony of color.

Porosity—Which directly or by capillary attraction admits water and dampness is the chief cause of deterioration in surfaces of which cement or other clay products is the base.

Hair-cracking—The formation of tiny hairline cracks is often apparent, soon after completion, in the surface of concrete and stucco construction. This cracking of the surface steadily increases with the life of the building and, unless arrested, absorbs moisture which freezes, expands and enlarges the cracks, thus accelerating disintegration and decay not only of the surface itself but of the metal lath and steel re-enforcing which supports it.

Salt—The formation of salts on the surface of porous brick is a common characteristic that causes unsightly discoloration on the front of many buildings.



THE BAY STATE
TRADE-MARK
(Reg. U. S. Pat. Off.)

Correction of Defects—These common defects in cement, stucco, concrete and porous clay products can be corrected and further destruction eliminated by coating the surface with Bay State Brick and Cement Coating. The pores and hairline cracks are sealed from moisture and heat, thus waterproofing the entire surface above grade, at ordinary atmospheric pressure. Care must be taken to see that moisture does not reach the interior of the concrete, cement or stucco from other sources.

Characteristics

Bay State Brick and Cement Coating is a paint of medium consistency, very easy working under the brush and dries to a very hard, absolutely flat finish, quite rough in texture. It does not change the texture of the surface to which it is applied but penetrates well into the pores and becomes an integral part of the surface itself. The life of this surface coating is extremely long, averaging at least 5 years, while many exterior applications are today 10 or 15 years old and still retain their protective and decorative qualities. It may be washed or cleaned without damage either to itself



For Public Institutions



For Residences

or to the surface which it covers. One coat equals in opacity two coats of lead and oil or ordinary cement paints, which represents a true economy in the saving of labor and material.

Color

The monotonous color of most cement, concrete and stucco work, as well as the wide variety of colors in common brick, is satisfactorily overcome by a surface coating which will supply a wide variety of colors and will allow the architect a wide choice in which to exercise his own artistic preference.

Bay State Brick and Cement Coating is manufactured in white and twelve colors that have been selected as of greatest service to the architect. All colors may be intermixed with white so that there is a wide range for the expression of individual taste.

The color is not affected by steam or gases when used for interior work.

Uses

Bay State Brick and Cement Coating may be used on either interior or exterior surfaces of cement, plaster, poured concrete, troweled concrete, stucco (either sand finish, spatter dashed or troweled), brick, porous stone (as limestone), or in fact any absorbent masonry material.

Do not recommend Bay State Brick and Cement Coating over old dead coats of paint, over whitewash or kalsomine, on vitreous or non-porous surfaces, or surfaces saturated with moisture, over efflorescence or other indications of excessive alkalinity, over hard finish white plaster (without first priming—as for flat wall paints) below grade on an inside surface—without first making sure the outside surface has been waterproofed. On an inside wall, to correct leaking walls, use it on the surface exposed to the moisture.

Covering Capacity

The following table shows the covering capacity of the coating for the first coat, under ordinary conditions; subsequent coats cover about 10 per cent more surface.

	Sq. ft. per gal.
Smooth troweled concrete.....	200 to 250
Sand finish concrete, stucco or cement plaster.....	175 to 200
Common brick	160 to 180
Rough troweled stucco, etc.....	150 to 175
Spatter dash stucco (mud spatter).....	125 to 150
Spatter dash stucco (extra rough).....	90 to 100

Specifications for Bay State Brick and Cement Coating

Cement, Stucco, Cement Tile, Concrete—For interior or exterior surfaces of cement, stucco, concrete, artificial stone or cement tile where designated, apply 1 coat (2 coats if necessary) of Bay State Brick and Cement Coating of the color specified.

Preparation of Surface—New Work—The surface to be coated shall be reasonably dry, and all dust, dirt, or loose particles removed.

Salts or alkalis that appear on the surface shall be removed with a wash of sulphate of zinc, 4 pounds dissolved in 1 gallon of water. Grease or oil from forms or other causes shall be removed with a wash of benzine.

The surface shall be coated as soon thereafter as it is sufficiently dry.

Old Work—The surface to be coated shall be reasonably dry, and all dust, dirt or loose particles removed.

Salts or alkalis that are present on the surface shall be removed with a wash of sulphate of zinc, 4 pounds dissolved in 1 gallon of water. All grease or oil shall be removed with a wash of benzine.

The surface shall be coated as soon thereafter as it is sufficiently dry.

Exterior surfaces previously coated shall be sand-blasted, wire brushed, or otherwise properly prepared to permit coating to bond directly with uncoated surface.

Application—For one-coat work the coating shall be applied as it comes in the original package. For two-coat work the first coat shall be thinned with 1 pint of Bay State Brick and Cement Coating Reducer to the gallon of Coating. The second coat shall be applied as it comes in the original package.

Allow 48 hours between coats for drying.

The coating shall be applied freely from a full 3½ to 4-inch clean bristle brush.

The coating as it comes to the job shall be stirred thoroughly before and during application.

If thinning is necessary at any time, only Bay State Brick and Cement Coating Reducer shall be used.

Pneumatic Spray Gun—If the coating is applied with a pneumatic spray gun, the air pressure shall be kept at minimum, and the nozzle held close enough to the surface to insure the coating a perfect bond.

Porous Brick and Other Porous Clay Products—Specifications the same as above, except that salts or alkalis that appear on the surface shall be removed with a wash of muriatic acid, 1 part to 10 parts of water followed by a wash of clear water.



For Industrial Plants

U. S. GUTTA PERCHA PAINT COMPANY

FACTORY AND MAIN OFFICES

PROVIDENCE, R. I.

BRANCH OFFICES

NEW YORK, N. Y., 420 Lexington Avenue

CHICAGO, ILL., 659 Washington Boulevard

SAN FRANCISCO, CAL., 301 Mission Street

DISTRIBUTORS IN ALL PRINCIPAL CITIES

Products

BARRELED SUNLIGHT FINISHING COATS (GLOSS, SEMI-GLOSS, EGGSHELL, FLAT).

BARRELED SUNLIGHT PRIMING COATS (UNDERCOAT and GRANOLITH).

BARRELED SUNLIGHT CHEMIC ENAMEL.

OUTSIDE BARRELED SUNLIGHT.

RICE'S ACOUSTOLIGHT.

RICE'S FLOW-ON.



TRADE-MARK

(4) **Easy to Tint**—Being an all-oil product, with its pigments ground to the finest degree, Barreled Sunlight is admirably adapted to tinting. The simple addition of ordinary colors-in-oil produces clear, sharp, lasting tints. For attractive tints to specify, see our "Suggestions for Tinting" color card. In quantities of 5 gal., or over, we tint to order at the factory without extra charge.

Barreled Sunlight Enamel Finish—for Interior Walls and Trim



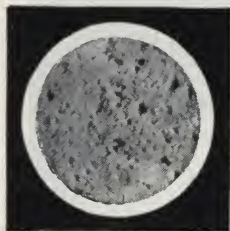
Because of its outstanding advantages, Barreled Sunlight highly recommends itself for use in hotels, apartment houses, schools, office buildings, institutions, etc., where the chief objects of painting are durable beauty, cleanliness and adequate lighting.

These definite advantages which have led to the widespread use of Barreled Sunlight, we list below:

(1) **Unique Beauty**—There is something distinctive and unmistakable about the appearance of any surface finished with Barreled Sunlight. It has a pleasing rich depth of finish peculiar to itself. This is due largely to the extreme care and thoroughness exercised in the special methods by which the pigments are ground and mixed with an all-oil base.

(2) **Lasting Whiteness**—Barreled Sunlight, the Rice Process White, is guaranteed to remain white longer than any oil gloss paint or enamel, domestic or foreign, applied under the same conditions. If it does not do so, we will give, free, enough Barreled Sunlight to repaint the job.

(3) **Resistance to Dirt—Washability**—The actual photographs below show why Barreled Sunlight resists dirt and is so easy to keep clean. Its surface is absolutely smooth, even and non-porous, offering dust and dirt no foothold. It washes like tile and is so durable that repeated washing will not injure the surface or mar its beauty.



Ordinary Flat Finish
White Paint



Barreled Sunlight Gloss
Finish

Photomicrographs Taken Through a Powerful Microscope,
Each Paint Surface Being Magnified to the Same Degree

Barreled Sunlight Finishes

Barreled Sunlight is made in four finishes—Gloss, Semi-Gloss, Eggshell and Flat—to suit the taste of the individual architect and owner.

The gloss should not be confused with the hard, glaring gloss of ordinary paint or enamel. Rather it has a soft, satinlike luster peculiar to itself—an appearance which has brought about a widespread use of this finish in places where formerly the architect specified flat or eggshell.

Barreled Sunlight for Industrial Interiors

The gloss white idea for interior painting was introduced by Barreled Sunlight many years ago. And since that time we believe it has held the leadership as the pioneer product for plant interior painting.

Its combination of intense whiteness (see guarantee in opposite column), easy washability, hiding power, ease of flow (brush or spray), all tend to make it the ideal finish for industrial interiors, from the standpoint of cleanliness, adequate light-reflection and reasonable cost.

Interior Barreled Sunlight Specifications

General Precautions—No painting should be done until the building is enclosed and heated, except in dry summer weather.

For best results with any paint, time should be allowed for plaster, concrete, cement, and unseasoned lumber to become as dry as possible before painting.

At all times have room well ventilated where paint is being applied in order to prevent condensation.

Apply the paint, especially the finishing coat, when the air is free from moisture.

Always allow each coat of paint to dry *hard* before the application of each succeeding coat.

When applying on cold surfaces it has been found that warming the paint assists in ease of spreading.

Stir thoroughly before using.

Never use linseed oil, varnish or drier, as a thinner for finishing coats.

If the Gloss or Semi-Gloss has thickened a little on standing, reduce with a trifle of turpentine or mineral spirits.

The Flat and Eggshell finishing coats are extremely heavy in body. They should be thinned very liberally with turpentine or mineral spirits until they flow out evenly, free from brush marks.

Wood and Similar Surfaces—Clean from all surfaces mildew, mortar, grease, or anything else detrimental to paint.

First Coat: Barreled Sunlight Undercoat. This may be reduced to a proper brushing or spraying consistency with turpentine (or mineral spirits).

Continued on next page

Second Coat: If knots or sappy spots show through priming coat, shellac these well with pure white shellac and apply second coat of Barreled Sunlight Undercoat. Reduce, if necessary, as above.

Third Coat: Barreled Sunlight (Gloss, Semi-Gloss, Eggshell, or Flat). Keep brush well filled with paint when applying. See "General Precautions" preceding page for reducing.

Concrete, Brick and Cement-Plaster—Clean from all surfaces excess mortar, grease, oil, etc. To assist in neutralizing alkaline conditions, we recommend the application of a zinc sulphate solution (2 lb. of zinc sulphate crystals per gallon of water). Allow to dry thoroughly and proceed as follows:

First Coat: Barreled Sunlight Granolith. This coat should be reduced with Rice's No. 65 Reducing Oil or boiled linseed oil, using liberal quantities according to the porosity of the surface. Rice's No. 65 Reducing Oil acts as a "sealer" to insure uniform appearance of succeeding coats.

Second Coat: Barreled Sunlight Granolith. This may be reduced to a proper brushing or spraying consistency with turpentine (or mineral spirits).

Third Coat: Barreled Sunlight (Gloss, Semi-Gloss, Eggshell, or Flat). Keep brush well filled with paint when applying. See "General Precautions" for reducing.

Hard Finish Lime and Gypsum Plaster—Prepare surfaces as under heading "Concrete, Brick, and Cement-Plaster."

First Coat: Barreled Sunlight Granolith. This coat should be reduced with at least 2 gal. of Rice's No. 65 Reducing Oil to 1 gal. Granolith. To this mixture add sufficient turpentine (or mineral spirits) so that the material will flow and level without brush marks. If this Reducer is not available, boiled linseed oil may be used, but best results are obtainable with Rice's No. 65 Reducing Oil.

Second Coat: Barreled Sunlight Granolith. This may be reduced properly with turpentine (or mineral spirits). Reduce sufficiently so that no brush marks appear.

Third Coat: Barreled Sunlight (Gloss, Semi-Gloss, Eggshell or Flat). Keep brush well filled when applying.

Iron, Steel and Metal Work—Remove all scale, rust, or grease by scraping. Apply a coat of Rice's Red Oxide Anti-Corrosive Primer or Pure Red Lead Paint.

First Coat: Barreled Sunlight Undercoat. This may be properly reduced with turpentine (or mineral spirits).

Second Coat: Barreled Sunlight Undercoat. Reduce if necessary as above.

Third Coat: Barreled Sunlight (Gloss, Semi-Gloss, Eggshell, or Flat). Keep brush well filled with paint when applying. See "General Precautions" for reducing.

Two-coat Work—By reason of the intense opacity of Barreled Sunlight, and where economy is desired, it will be found possible to obtain a solid white finish with two-coat work. Proceed as instructed for three-coat work simply omitting the intermediate coat.

Repainting Over Oil Paint—On surfaces previously painted with a white oil paint in fairly good condition, generally a single coat of Barreled Sunlight (Gloss, Semi-Gloss, Eggshell or Flat) is sufficient. See "General Precautions" for reducing. Where two-coat work is necessary as over another color or where the white now on is in poor condition specify Barreled Sunlight Undercoat as a primer thinned down as recommended.

Repainting Over Cold Water Paint or Whitewash—Scrape all loose scale and dirt from surface, using wire brush. Brush off with brooms. Apply Barreled Sunlight Undercoat liberally thinned with boiled linseed oil.

If there are from one to three applications of cold water paint now on, the proportion of thinner should be about 1 qt. of boiled linseed oil to the gallon of Barreled Sunlight Undercoat. Where there are more than three coats on the surface to be painted, the oil should be increased to a proportion of equal parts boiled linseed oil and Undercoat. Allow three or four days for drying, then apply finishing coat of Barreled Sunlight (Gloss, Semi-Gloss, Eggshell or Flat). See "General Precautions" for reducing.

Spreading Capacity of Barreled Sunlight

On any primed or previously painted surface, Barreled Sunlight finishing coats and undercoat will cover about 400 sq. ft. per gallon. On new wood or metal, Barreled Sunlight Undercoat somewhat less.

Over new brick, concrete or plaster, Barreled Sunlight Granolith from 200 to 300 sq. ft. per gallon, depending on the porosity of the surface.

Barreled Sunlight Chemic Enamel (for Interior Use)

For use where unusual conditions prevail, such as in hotel and restaurant kitchens, engine rooms, labora-

tories, etc., where fumes and excessive heat exist. It provides a smooth, white, washable finish as does Barreled Sunlight, but has the added properties of resistance to fumes and heat.

Specifications—Follow regular first coat Interior Barreled Sunlight specifications.

Second Coat: Barreled Sunlight Flat. This must be reduced to a proper brushing or spraying consistency with turpentine (or mineral spirits).

Third Coat: Barreled Sunlight Chemic Enamel (Gloss, Eggshell or Flat). Where two-coat work is desired omit the intermediate coat.

Rice's Acoustolight

Architects in their employment of acoustical materials have long desired a finish that would permit the application of the color scheme without sacrificing the acoustical properties. As the use of acoustical materials has increased, the need for such a finish has become even more pronounced. Foreseeing this need we have developed a material to meet it.

Rice's Acoustolight makes it possible for the architect employing acoustical materials (acoustical plasters, felts, boards, etc.); to apply by either brush or spray, a washable paint finish in white or any color desired—without greatly impairing surface porosity. These peculiar properties of Rice's Acoustolight are due to its special binder and the fineness of its pigments.

On request, our representative will demonstrate the application of Rice's Acoustolight.



Outside Barreled Sunlight

This unique paint represents the very last word in the technology of paint for exterior use. The formula developed combines the proper pigments necessary for outdoor exposure and an adaptation of the Rice Process of treating the oil—the process which has so greatly contributed to the high quality and reputation of Interior Barreled Sunlight.

Whiter than the average outside white, Outside Barreled Sunlight is also free-flowing, has great hiding power, and dries with a good gloss. Durable and even wearing, it is in good condition when repainting becomes desirable.

Note: Outside Barreled Sunlight is actually the crowning achievement of over twenty years' specialization on white paint, exclusively. The gratifying result of our fixed determination to produce the very finest exterior white paint that we could make.

Sold primarily in the white, Outside Barreled Sunlight is easy to tint with ordinary oil colors. On quantity orders, we will tint at the factory without extra charge, matching any color sample submitted. Ask for "40 Color Suggestions" sample card.



Rice's Flow-On (for Interior Use)

A practical and lasting oil paint that is rapidly replacing "flat wall paint" for ceilings and walls of office buildings, schools, hotels, institutions and public buildings of all kinds. Its advantages are:

(1) **Simplicity**—Made in semi-paste form to be reduced by the painter according to the finish required. Flow-On is used for every



coat from primer to finish. Its semi-paste form enables the master painter to adapt it to almost any interior job. Can be tinted to desired color right on the job or supplied ready tinted.

(2) **Hiding Power**—Standard specification is three-coat work, but two-coat work can be successfully done, *even in the white*. Makes a lasting stippled job in two coats.

(3) **Real Washability**—Not just spots, but a whole room can be washed and come out uniform, especially in the stipple finish.

(4) **Stipple Finish**—The most practical finish for office walls—has the appearance of a flat finish and the washability of a gloss finish. Unsurpassed for length of *useful life*.

Rice's Flow-On Specifications

General Precautions—No painting should be done until the building is enclosed and heated, except in dry summer weather. At all times have room well ventilated where paint is being applied in order to prevent condensation. Always allow each coat of paint to dry *hard* before the application of each succeeding coat.

For best results with any paint, time should be allowed for plaster, concrete, cement and unseasoned lumber to become as dry as possible before painting.

Hard Finish Plaster, Cement Plaster, and Gypsum Work—Scrape excess mortar from all surfaces. To assist in neutralizing free lime or alkaline conditions, we recommend the application of a zinc sulphate solution (2 lb. zinc sulphate crystals per gallon of water). Allow to dry thoroughly and proceed as follows:

First Coat: Rice's Flow-On. Reduce liberally with Rice's Flow-On Reducing Oil (a high grade long oil size) at least

2 gal. (or even more for extremely porous surfaces when not interfering with opacity) to 1 gal. Flow-On.

Second Coat: Rice's Flow-On. Reduce with about $\frac{1}{2}$ gal. turpentine (or mineral spirits) to 1 gal. Flow-On.

Third Coat: Rice's Flow-On. For plain flat finish, reduce with from $\frac{1}{2}$ gal. to $\frac{3}{4}$ gal. of turpentine (or mineral spirits) to 1 gal. Flow-On. For stipple finish reduce with Rice's Flow-On Reducing Oil, in place of turpentine or mineral spirits, thinning to suit the stipple desired.

Two-coat Work—By reason of the intense opacity of Rice's Flow-On, and where economy is desired, it will be found possible to obtain a satisfactory finish with two coats of Flow-On tinted. Proceed as instructed for three-coat work, simply omitting the intermediate coat.

Spraying

Barreled Sunlight products can be applied with the spray gun just as well as with the brush. Their free flowing qualities do not allow them to gum the gun nozzle.

Packages

Interior and Outside Barreled Sunlight are put up in churn-equipped steel drums of 55 and 30 gal. each, 5-gal. steel buckets, and in cans from 1 gal. down to $\frac{1}{2}$ pt. size. Rice's Flow-On and Acoustolight are put up in steel drums of 30 gal. each, 5-gal. steel buckets, and single gallon cans.

All material is to be delivered on the job in the original packages bearing the name and brand of the manufacturer.

References

We shall be glad to furnish both national and local references. A few representative users are featured below.



Camden County Vocational School, Camden, N. J.
LACKEY & HETTEL, Architects
Finished throughout with *Interior Barreled Sunlight*



New Medical School, University of Virginia Hospital, Charlottesville, Va.
COOLIDGE, SHEPLEY, BULFINCH & ABBOTT, Architects
Painted with *Interior Barreled Sunlight*, in white and light tints



Monticello, Historic Residence of Thomas Jefferson
Recently painted with *Outside Barreled Sunlight*



Industrial Trust Building, Providence, R. I.
WALKER & GILLETTE, Architects
STARRETT BROS., General Contractors
H. NEWTON MARSHALL CO., Painting Contractors
Finished with *Rice's Flow-On* and *Interior Barreled Sunlight*



Los Angeles Down Town Shopping News Corp., Los Angeles, Cal.
MORGAN, WALLS & CLEMENTS, Architects
ARENZ-WARREN CO., Painting Contractor
Finished throughout with *Rice's Flow-On*



New Jersey Bell Telephone Building, Newark, N. J.
VOORHEES, GELIN & WALKER, Architects
TURNER CONSTRUCTION COMPANY, General Contractors
BARKER PAINTING COMPANY, Painting Contractors
Finished with *Rice's Flow-On* and *Interior Barreled Sunlight*

ARTSTONE PRODUCTS

INCORPORATED

Specialists in the Manufacture of Colored Finish Coat Materials

EXECUTIVE SALES OFFICES

52 Vanderbilt Avenue, NEW YORK, N. Y.

The Products of Artstone

The products described here are STONEITE, a portland cement paint, and ARTSTONE BRUSH-KOAT, a somewhat similar product but especially suited for application over extremely rough surfaces.

For Artstone Portland Cement Stucco, Tuckahoe Colored Interior Finish, Tint-Koat Polychrome Washes, Chinawall Colored Keene's Cement Plaster, Decotex Textural Plastic, Mothite Plaster, Artstone Handball Plaster, Flooring and Mortar and Audicoustone Acoustical Plaster, see Manufacturers' Index under ARTSTONE PRODUCTS.

Stoneite Cement Paint

STONEITE CEMENT PAINT



Stoneite is a colored waterproofed portland cement paint for brush, spray or gun application. It is delivered as a dry powder in 25 and 100-lb. drums, ready for use with the addition of clean water only.

The Why and Where of Stoneite

Stoneite is an economical means of adding permanent beauty to the permanent utility of concrete, concrete block, common brick, or hollow tile structures.

It is also the solution for the problem presented by banks, stores and apartment buildings whose common brick sidewalls greatly mar the beautiful effect of their attractive front facades of limestone, marble or face brick.

Stoneite conceals unattractive walls under a permanent colored waterproof non-fading coat of portland cement which will last as long as the wall itself. Used in the light wells of apartment houses and office buildings, and in damp and musty cellars, basements, tunnels, vaults and subways, Stoneite surfaces can be readily and regularly cleaned with soap and water without injury.

The Stoneite "800" Color Line

801—Snow White	804—French Grey	808—Grey Buff
802—Nepera Buff	805—Yorkshire Brown	809—Deep Cream
803—Limestone Grey	806—Golden Yellow	810—Warm Yellow
	807—Brick Red	

Color Charts—Color charts, dry material for sample experimentation, etc., will be sent upon request.

Specifications for Stoneite Cement Paint

Preparation of Surfaces—All surfaces of (indicate) shall be covered with two coats of Stoneite Cement Paint as manufactured by ARTSTONE PRODUCTS, 52 Vanderbilt Avenue, New York, N. Y., and shall be applied in accordance with manufacturer's directions.

All masonry surfaces shall be cleaned of all dirt, grease, paint, efflorescence, whitewash or calcimine before Stoneite is applied.

Note: Stoneite depends on suction for bond and cannot be applied on enameled or oil painted surfaces. Oil paint, whitewash or calcimine must first be removed. Washing with a 20% solution of commercial muriatic (hydrochloric) acid in most cases will remove old oil paint. The acid solution should remain on the surface from 3 to 4 hours and then washed off with plenty of clean water from an open hose. Do not apply Stoneite until all paint has been removed and the wall has become thoroughly dry.

Grease or efflorescence remaining on concrete surfaces after forms are removed can be cleaned by acid washing as described above. Used on proper surfaces, Stoneite will bond perfectly and permanently.

Mixing—Use clean water, clean pails and clean tools. To each pound of Stoneite add one pint of clean, drinkable water. Mix vigorously until the material is of an even color and let stand for 15 minutes. Thereafter, stir regularly while using.

Note: Only sufficient Stoneite shall be mixed as can be used in 3 hours. The same quantity of water as was used in the first mix must be used in each subsequent mix if an even color is to be obtained. For spray or gun application a thinner mix may be used.

Wetting Down—The surface to be covered shall be uniformly wet down with water from a fog spray to cut suction

and if the surface becomes dry in spots, these areas shall be dampened again.

Application—Stoneite shall be applied in two coats of the same consistency. The second coat shall be applied after the first coat has set firm and hard.

Brush Application—Clean 4 to 6-in. brushes only shall be used. Laps and joinings shall be avoided.

Machine Application—Clean spray machine thoroughly before and after use. Material must not be left in hose or pump for more than 30 minutes. If Stoneite is applied by a machine which hydrates the material at the nozzle, care must be taken to insure proper hydration.

Note: Do not apply Stoneite during freezing weather.

Curing—While not always necessary, particularly in moist climates, we urgently recommend that all surfaces covered with Stoneite be cured with water whenever possible. Give the second coat 24 hours to dry and bond and then wet down once daily for two or three days with fog spray attachment on hose.

Coverage

The coverage of 1 lb. of Stoneite will vary from 8 to 12 sq. ft. for two coats, depending on the porosity and evenness of the surface to be covered.

Polychrome and Antique Effects

Polychrome effects are produced while second coat is being applied. One or more colors are brushed on here and there and blended together with a damp brush. Over brick, the appearance of age can be obtained by pasting wrapping paper (use flour paste) over bricks and removing paper after work is finished.

Distribution

Stoneite Cement Paint may be obtained from leading building supply dealers and paint stores in the United States and in foreign countries.

Artstone Brush-Koat

Similar in composition to Stoneite. Contains an aggregate and is particularly suited for application over rough surfaces. It is particularly recommended for outdoor concrete swimming pools because of its density.

Specifications—While the same general specifications apply as for Stoneite, Brush-Koat covers approximately 15% to 20% less per pound for two coats and is mixed 10 lb. of Brush-Koat to three quarts of water.

Colors and Coverage—Obtainable on order in all regular Artstone Stucco colors (see Artstone Stucco Color List). Shipped in 80-lb. bags only. One bag covering approximately 500 sq. ft. for two coats.

General Note

Neither Stoneite nor Brush-Koat should be used over wood, gypsum plaster, magnesite or any masonry surface in the process of disintegration. For special uses write for details.

THE REARDON COMPANY

Manufacturers of Cement Paint, Cold Water Paint and Kalsomine

GENERAL OFFICES
2200 North Second Street
ST. LOUIS, MO.

SALES OFFICES

CHICAGO, ILL., 2415 W. 24th Place
SAN FRANCISCO, CAL., 383 Brannon Street

DALLAS, TEX., 919 North Bishop Street
PORTLAND, ORE., 8 Front Street

LOS ANGELES, CAL., 526 So. Alameda Street
SEATTLE, WASH., 124 R. R. Avenue, So.

FACTORIES: ST. LOUIS, MO., CHICAGO, ILL., LOS ANGELES, CAL.

For our pages on Plastic Texture Paint, see Manufacturers' Index

Bondex Waterproof Cement Paint, the Perfect Stucco Finish

Bondex is a decorative material designed especially for use on stucco, concrete and cinder block and building tile, brick, stone, hollow tile, and other masonry wall surfaces. While described as a waterproof cement paint, it is much more than a paint for it imparts color, waterproofs and preserves in one operation. It comes in the form of a dry powder and is made ready for use by mixing with cold water. Furnished in white and sixteen tints, which may be intermixed to produce an endless variety of shades. Bondex is applied with a brush or spray. Bondex bonds with the surface and forms an integral part of the wall itself. It has been styled "The Paint Eternal."

Warning: As Bondex adheres and bonds to porous masonry surfaces only it cannot be used on wood, wall board of any kind, metal, glass or other non-porous surfaces.

Directions for Mixing and Applying Bondex

Preparation of Surface—Bondex is suitable for use on masonry wall surfaces only. Its action is a *bonding* one and, consequently, the surface to be painted must be porous and have suction.

Unpainted Surfaces—It is simply necessary to cleanse the surface of all dirt, grease or efflorescence.

Oil Painted Surfaces—As Bondex requires suction to adhere or bond, the oil in previous undercoatings must be destroyed. Old coats of paint should be entirely removed by sandblasting, but if only one or two coats have been applied, an acid wash usually serves to destroy any remaining oil present in the film and create sufficient suction for Bondex to adhere. Use a 15% solution of muriatic (hydrochloric) acid and allow the acid solution to remain on the surface three hours before removing. Wash clean with clear water and allow to dry before applying Bondex.

Whitewashed or Calcimined Surfaces—Thoroughly remove all old scaling whitewash or cold water paint with a wire brush. Wash with a sponge. If undersurface has been sized with a gloss oil or varnish size, follow directions in preceding paragraph.

Poured Concrete—In pouring concrete during winter months it is the custom to grease the forms, or moulds. If Bondex is to be applied over such a surface, treatment outlined under caption "Oil Painted Surfaces" is necessary.

Mixing—Use clean metal pails. To each 10 lb. of Bondex add 3 qt. of water; stir until smooth. Add 2 qt. of water; stir thoroughly and allow to stand 15 minutes. It is then ready for use. Correct proportions for use on average surfaces are 1 pt. of water to 1 lb. of Bondex. A slightly thinner mix may be used on extremely porous surfaces and for spray application—5 lb. of Bondex makes approximately 1 gal. of liquid paint. Always use same proportions of Bondex and water. Different amounts will not produce uniform colors. Bondex must first be mixed to a paste thickness before reducing; otherwise the ingredients do not all dissolve.

Caution: Do not mix more Bondex than is required for one-half day's use. It will set if allowed to stand overnight and be worthless the next day. Mix just enough for four hour's use. Keep containers tightly closed as Bondex is affected by exposure to air or moisture.

Blending Colors—All tints and white may be intermixed to form an endless variety of shades. Tints must be mixed with water separately and then intermixed in the liquid state. Do not attempt to tint Bondex by adding dry colors, because for uniform results the colors should be *milled* in, not just mixed. In extreme cases where tinting is necessary, use only limeproof mineral or metallic colors. Avoid the use of chemical or aniline colors, as they will fade.



Application—Bondex relies upon moisture to complete its setting process. Moisture in the air frequently suffices but in dry climates and on interiors, artificial moisture must be furnished. It is sometimes necessary to wet down the surface with water before applying Bondex. This

makes Bondex work easier, helps to avoid laps and hastens its setting process.

Two coats of Bondex are necessary for a thoroughly waterproof job. One coat will not effectually seal the surface against moisture penetration. Always be safe and apply two coats; the second from 4 to 24 hours after the first.

Use a clean wide calcimine brush or spray machine. If a spray is used, *do not allow the mixed Bondex to remain in the pump or hose* when not using for more than a half-hour, as it will set up and ruin the hose and pump. Avoid laps when applying as the second coat dries out lighter than the first. Do not apply Bondex during freezing weather or when there is frost in the surface. Bondex may appear soft after drying but it will become as hard as flint after a few days' exposure.

On Magnesite Stucco—First prepare surface by filling all cracks with a suitable mixture of magnesite plaster. (Bondex will not serve as a crack filler on magnesite.) Surface must be perfectly dry before first coat is applied. After first coat is thoroughly dry, apply second coat, using Bondex for second coat at as heavy a consistency as possible.

Caution: Bondex must not be applied to a wet magnesite stucco surface or wet surface between coats. Moisture will be sealed in, resulting in dripping between inner and outer walls or water stains appearing on inside walls. Unless two coats of Bondex are applied, invariably a heavy efflorescence forms on the surface which is almost impossible to remove.

Blended and Multi-toned Effects—Blended effects are obtained by applying a base coat of the desired color and immediately spotting on the other colors to be blended and working together with a dampened brush. Highlighting effects are obtained by applying Bondex in the usual way and wiping with a dampened cloth or brush, working to produce a uniform effect.

Covering Capacity—Ten pounds of Bondex will cover from 80 to 125 sq. ft., two coats, depending on the porosity and texture of the surface.

Packing—Bondex is packed in 5-lb. cans and 100-lb. fiber drums for domestic shipment, and in 100-lb. steel drums for export.

Lumnite Factory White Cold Water Paint

For interiors of mills, factories and other industrial plants. It is intensely white and adheres perfectly to wood, brick, plaster, cement, stone, metal or tile.

Alfresco Exterior (Dampproof) Cold Water Paint

For temporary exterior work on barns, fences, county fair buildings, race tracks, amusement resorts, etc., and as a happy medium between mill white oil paint and ordinary interior cold water paint for interior work. Will last a year or a year and a half outside.

Solarite Wall Coating

"The Peer of All Cold Water Wall Coatings" for interior wall and ceiling decoration in residences, apartments, hotels, etc. Furnished in white and a variety of tints.

Cresto Wall Finish

Same as Solarite except that it must be used with boiling water. Produces a velvety surface, rich and beautiful in tone.

ARTSTONE PRODUCTS

INCORPORATED

Specialists in the Manufacture of Colored Finish Coat Materials

EXECUTIVE SALES OFFICE

52 Vanderbilt Avenue, NEW YORK, N. Y.

The Products of Artstone

The products described here are DECOTEX, a textural plastic, TINT-KOAT, a colored wash material for polychromes, and MOTHITE, a moth repellent plastic.

For Artstone Portland Cement Stucco, Artstone Handball Material, Artstone Mill-mixed Mortar and Flooring, Tuckahoe Colored Interior Finish, Chinawall Colored Plaster, Stoneite Cement Paint and Artstone Brush-Koat, see Manufacturers' Index under ARTSTONE PRODUCTS.

Decotex Textural Plastic

Decotex is the result of long, patient, scientific research in the laboratory and in the field. It is a true textural plastic and possesses every advantage in spread, adhesion, ease of application, hiding power and—color!

Delivered as a fine powder in white and five standard colors, the addition of only clean, drinkable water produces a material of remarkable plasticity, quality and strength. Decotex adheres perfectly and permanently to any properly treated firm surface and sets without shrinkage.

The Why of Decotex

Decotex is self-decorating and though it may be waxed, glazed or colored after application, such treatment is not necessary. This use of color, integrally mixed at the mill, makes Decotex an economical, all-purpose material for interiors in either old or new buildings.

Decotex is adapted to brush, sponge or trowel application and permits the architect to include it under either paint or plaster specifications.

While Decotex is essentially a true plastic and its ease of brush application makes it a highly prized material with painters, the architect frequently finds it to his advantage to include Decotex in the plaster specifications.

Color

Colored Decotex possesses animation without gloss. The character of the pigments used prevents that anæmic appearance which so frequently mars an otherwise attractive wall finish.

The pigments used are absolutely permanent and are unaffected by the actinic rays of the sun.



DECOTEX

TEXTURAL PLASTIC

STANDARD DECOTEX COLORS

901—Snow White	904—Golden Tan
902—Travertine Buff	905—Ivory
903—Deep Cream	906—Golden Yellow

Note: Where the size of the job does not warrant the manufacture of special colors, mineral pigments may be mixed with white or colored Decotex to produce other colors.

Color Charts—The Decotex Color Chart will be sent upon request.

Textural and Color Possibilities—An almost limitless variety of textural effects and color combinations is possible with Decotex. Stipple, sponge, swirls, brush and all types of decorative textures are readily obtainable.

Specifications for Decotex

General—All surfaces shall be clean and dry and free of dust, dirt, grease, wax and efflorescence.

Note: Decotex may be applied to all unpainted plaster surfaces that are hard and set without further treatment. Greater spread and ease of application result when a size of shellac or shellac substitute is used before Decotex is applied. Extremely smooth or glossy surfaces are oftentimes difficult to properly cover in which case a size of shellac or shellac substitute should be used.

Finish Coat—The finish textural surface shall be produced with Decotex as manufactured by ARTSTONE PRODUCTS, 52 Vanderbilt Avenue, New York, N. Y., color and texture to be selected by the architect. Decotex shall be applied in accordance with the manufacturer's directions.

Note: Include in Paint or Plaster Specifications as desired.

Coverage

Decotex is packed in 10 and 50-lb. waterproof, paper-lined cloth bags and will cover from 10 to 1½ yd. to each pound, depending entirely upon the type of texture selected and the evenness and nature of the surface to be covered.

Tint-Koat Polychrome Washes

Many beautiful and striking polychrome effects can be produced with the use of Tint-Koat. Tint-Koat is a semi-glaze and its use will not destroy the soft color value which is an inherent property of Decotex. Tint-Koat is mixed with clean water and is thinly applied with sponge or calcimine brush after the Decotex has set. All excess is sponged off within a few minutes after application. After it has dried and set, Tint-Koat becomes a part of the wall and does not peel or flake off.

TINT-KOAT POLYCHROME WASHES		
T-1—Brown	T-5—Blue	T-8—Buff
T-2—Travertine	T-6—Orange	T-9—White
T-3—Green	T-7—Black	T-10—Red
T-4—Yellow		

Coverage of Tint-Koat

Tint-Koat comes in 1, 5 and 25-lb. packages.

One pound will cover from 10 to 30 sq. yd., depending upon the texture and water content used to regulate depth of color.

Note: Tint-Koat cannot be used as a paint. The material is only designed to produce multi-tone effects and has very little hiding power. Water content has an important bearing on depth of color, and if darker tones are required, less water should be used. Material should be stirred constantly while in use and will not spoil if left mixed overnight. Tint-Koat colors may be mixed with one another to produce other colors and white Tint-Koat may be used to lighten colors when necessary.

Mothite Plastic

Mothite is a plastic moth-repellent. The characteristic pleasant aroma of cedar is an inherent property of the material. The presence of other scientific moth-repellent factors increases the efficiency of Mothite, assuring greater protection. Mothite can be economically and effectively used in closets and storage rooms, in old and new buildings. With Mothite, protection is secured at low cost.

Mothite completely seals the surface. In old buildings, its application will seal cracks and openings caused by the shrinkage of door frames, baseboards, shelving, etc. It may be applied over the gypsum brown coat and on almost any type of interior surface properly prepared for its reception. It can be applied by brush or trowel and, therefore, can be included in either paint or plaster specifications.

Note: The odor of Mothite lasts indefinitely, except when continually exposed to light and air. With Mothite Liquid, a special preparation for brush or spray application, the odor may be renewed at periodic intervals. The use of the liquid is recommended and insures the permanency of protection. Mothite Liquid

Moth-Repellent

can also be used effectively to renew the cedar aroma of cedar closets in old buildings.

Color—In cedar red only.

Specifications for Mothite

All closets (indicate) shall be finished with Mothite as manufactured by ARTSTONE PRODUCTS, 52 Vanderbilt Ave., New York, N. Y., and shall be applied in accordance with manufacturer's directions.

Note: Mothite can be included in either paint or plaster specifications. Trowel application is preferred on new work, particularly where the hard white coat is to be omitted. For application to old painted surfaces, special specifications will be sent.

Coverage

Mothite is shipped in 10 and 50-lb. sealed containers. One pound will cover from ½ to 1 yd., depending upon the type of surface to be covered.

ARTWALL WATERALL COMPANY

INCORPORATED

Manufacturers of Muro-Roc Wall Texture Finish, Surfacer and Glaze
Muro-Lac Cold Water Paint

770 South Schuylkill Avenue, PHILADELPHIA, PA.

Products

MURO-ROC WALL TEXTURE FINISH (Plastic Paint) for interior decoration.

MURO-ROC SURFACER, a liquid size or sealer for preparing surfaces for wall texture finish.

MURO-ROC GLAZE, a waterproof glazing and coloring compound for wall texture finish.

MURO-LAC, a cold water paint.

Muro-Roc

A white powder, which, when mixed with water, becomes a wall texture finish (plastic paint). Any desired texture may be developed with a brush, stippler, sponge, trowel, etc. Muro-Roc may be applied to practically any interior surface, such as plaster, wall board, wood, masonry, glass, etc. Dry color may be mixed with Muro-Roc before it is applied, or a colored effect may be obtained by adding color to the glaze applied to the textured surface.

Muro-Roc Advantages—Muro-Roc is a mixture of various clays and binders, which, when mixed with water, sets up without chemical reaction. It is absolutely inert and will not burn the most delicate colors. It contains no injurious chemicals to harm the hands or injure finished woodwork. There is no disagreeable odor. Muro-Roc is easily mixed and applied, spreads and textures easily. It may be applied over any surface that can be painted.

Covering Capacity—This is dependent on the surface to which it is applied and the type of texture desired. An average of 1 lb. of Muro-Roc should be figured to cover 1 sq. yd.

Muro-Roc is sold in 5, 25 and 50-lb. packages and 300-lb. barrels. Full directions for mixing and applying are found in each package.

Muro-Roc Over Various Surfaces

Best results with Muro-Roc are obtained when applied to a dry surface having a uniform surface and rough enough to give a tooth or bond. It is generally recommended that any dry surface be given a size coat of Muro-Roc Surfacer. For smooth surfaces it is advisable to pigment this Surfacer with Muro-Roc in the proportion of 5 lb. of Muro-Roc to 1 gal. of Muro-Roc Surfacer. Briefly for:

Smooth finish plaster, old or new, when dry, use Pigmented Surfacer.

Smooth finish plaster, old or new, when damp, use no Surfacer.

Sand finish plaster, old or new, when dry, use Surfacer without pigment.

Sand finish plaster, old or new, when damp, use no Surfacer.

MURO-ROC

TRADE-MARK

Smooth wall board, use Pigmented Surfacer. Rough wall board, use Surfacer without pigment.

Note: Cover all joints in wall board with strips of fly screen about 2½ to 3 in. wide. With a broad knife cover the screen with a thick mixture of Muro-Roc, feathering down the edges.

Painted surfaces, use Pigmented Surfacer.

Note: Remove cracked or checked paint with sandpaper. For a sound coat of paint wash down with a solution of sal-soda or good paint remover to cut the surface, following with a wash of clean water before using surfacer.

Wall paper, use Pigmented Surfacer.

Note: Ordinary wall paper must be removed and the wall thoroughly washed with clean water before using Surfacer. Waterproof paper such as Sanitas, etc., need not be removed when it is well pasted to the wall.

Muro-Roc Specifications

All wall and ceiling surfaces shall be textured with Muro-Roc, manufactured by ARTWALL WATERALL COMPANY, Philadelphia, Pa., and shall be applied in accordance with the manufacturer's directions for mixing and applying.

All surfaces are to be properly prepared by sizing with Muro-Roc Surfacer in accordance with manufacturer's directions.

(a) For a one-coat application—The textures are to be in color as per approved sample. Mix dry colors in the Muro-Roc before applying, and texture, similar to approved sample.

(b) For a two-coat application—The textures are to be glazed in color as per approved sample. Apply Muro-Roc "in the white" and texture similar to approved sample. When dry size the textured surface with Muro-Roc Surfacer. When dry, apply a coat of Muro-Roc Glaze colored with Wipe down to match color of approved sample.

Muro-Roc Surfacer

A liquid surfacer for use as a size or suction stop, which is recommended before the application of Muro-Roc. It is also ideal for sizing the textured wall coat of Muro-Roc before glazing. It is packed in 1-qt. and 1-gal. cans. A gallon covers approximately 50 sq. yd.

Muro-Roc Glaze

This glazing compound is used to produce a colored effect to a textured coat of Muro-Roc. The glaze may be tinted with oil colors to get the desired shade. Glazed Muro-Roc is washable.

Packed in 1-qt. and 1-gal. cans. A gallon will cover approximately 50 sq. yd. of Muro-Roc.

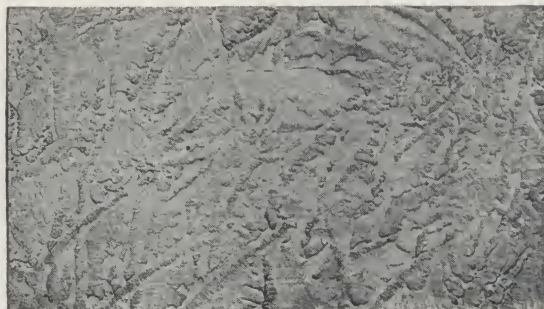
Muro-Lac

An easily mixed and applied cold water paint giving a beautiful finish of exceptional durability for exterior and interior surfaces. Packed in 2, 6, 25, 50 and 100-lb. packages. A pound covers approximately 75 sq. ft. Made in white and various colors.

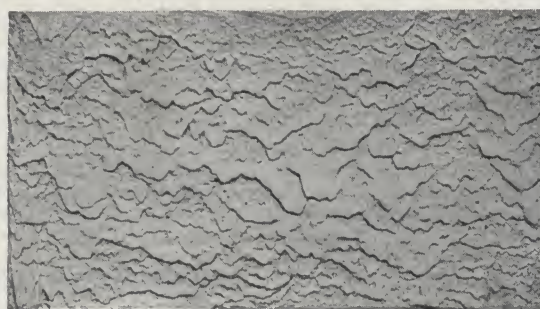
Samples, Service, etc.

Samples of various textures possible with Muro-Roc together with complete information regarding all products, will be gladly furnished by our service department.

A list of representative applications of Muro-Roc in various cities will be gladly furnished upon request.



Novelty Texture



Brush Float Texture

CRAFTEX COMPANY

Manufacturers of Craftex, a Water Mixed Plastic Paint for Reproducing Texture Surfaces

FACTORY AND EXECUTIVE OFFICES
37-39 Antwerp Street, Brighton Station
BOSTON, MASS.

Other Products of the Craftex Company

CRAFTESIZE, a water mixed size of unusually high grade—for general use as a film size; CRAFTCOAT, a glaze for use over Craftex and Craftesize, and for general glazing purposes.

Also Shadowall, a low priced plastic paint for textured walls.

For Sunflex, a white paint for industrial use, see Manufacturers' Index.

CRAFTEX



lasts indefinitely, practically ending redecorating expenses. Detailed specifications for the application of Craftex over wallboard, plaster, water color, concrete, brick, cinder blocks or any other surface will be supplied by the CRAFTEX COMPANY upon request.

One-coat and Glaze Coat Craftex

One-coat—An application of Craftex alone, without sizing or glazing. Craftex is applied already tinted and then textured as desired.

Glaze Coat—A Craftex texture base, sized with Craftesize and glazed with Craftcoat, which is mixed with one or more colors.

Craftex Reputation

Craftex, the *first* plastic paint, has been used by architects since 1911. It should always be remembered that Craftex is a registered trade name and applies *only* to the plastic paint made by CRAFTEX COMPANY.

Architectural Service

CRAFTEX COMPANY maintains architectural exhibits in New York, Boston, Cleveland, Detroit, where a complete range of textures and finishes may be inspected. An Architectural Service Department is ready at all times to co-operate with architects in developing new texture effects and submitting samples to meet specific requirements.

Put Up in Heavy Bags with the Label and Amount by Weight of Craftex Printed on Every Bag

Only Genuine Craftex carries the Craftex name and trade-mark (shown above)

The panel at right shows the successive steps in Craftex application. First the dry white powder is mixed with cold water, then applied to surface with a brush. It is next textured or moulded with sponge or other suitable object. Then sized and colored as desired.

Modernistic Wall Finishes

Architects find Craftex invaluable not only in reproducing hand-palmed, water-floated, troweled and stone effects, but in creating entirely new and distinctive effects in color and texture.

Craftex water float and other smooth type finishes are suitable for almost every type of building.

Stencils, sgraffito or modeled low relief work make Craftex specially suited for use in modernistic decoration.

Preparation of Surfaces for Craftex

Craftex can be applied over any surface that can be painted. It bonds permanently with the surface and

Assistance in developing designs and textures for modernistic finishes will gladly be given on request to the company.



Examples of Modern Craftex Finishes

BRADLEY STUC-O-TINT COMPANY, INC.

Manufacturers of Plastic Paints for Texture Work

133 West Brookline Street
BOSTON, MASS.

Products

BRADLEY STUC-O-TINT, a Plastic Paint.

BRADLEY STUC-O-GLAZE, a Prepared Finishing Liquid.

BRADLEY ONE-COTE-WITE, an Industrial White paint for concrete, stone, brick, rough plaster or wood.

BRADLEY CRACK FILLER.

Bradley Stuc-O-Tint

Description—Bradley Stuc-O-Tint was invented in 1922 by C. E. Bradley, a practical painter and contractor. He saw the need for a plastic material that could be applied easily with a brush to any surface without sizing, that could be textured easily, producing a hard, durable surface.

Bradley Stuc-O-Tint is such a plastic paint for interior texture work. It consists of a white powder which, when mixed with water, can be applied with brush or trowel or moulded into various textures. Dries with a hard, tough, reasonably elastic body. Can be sandpapered and finished with Stuc-O-Glaze, oil paint, water color or lacquer.

Advantages—Not necessary to size surface before applying.

Does not contain lime, plaster or cement.

Will not injure furniture or trim finishes.

Taping is unnecessary.

Will not injure hands.

Mixes readily with hot or cold water.

Does not rot; mixture can be kept indefinitely without hardening if covered with water.

Spreads easily; does not sap; is not sticky.

Does not crack when drying; nor peel, nor flake off.

Dries thoroughly in 6 to 24 hours, depending upon conditions.

Material can be colored in the mix with dry color. After Stuc-O-Tint has been mixed with water, either oil or dry color can be used. Can be mixed to produce an oil texture.

Covers defects in walls and ceilings such as wavy finish, trowel marks and honeycomb surfaces.

Surface—No sizing is needed for any surface.

When used on plaster, skim coat may be omitted.

When used over wallboard, if nailholes and joints are filled properly—we recommend Bradley Crack Filler—Stuc-O-Tint will hide all joints and produce an unbroken surface.

Can be applied directly upon old wall paper, or to a surface from which wall paper has been removed, without any special preparation. If wall paper contains coloring matter likely to bleed through the Stuc-O-Tint, a thin coat of white paint should be applied over Stuc-O-Tint and allowed to dry before glazing.

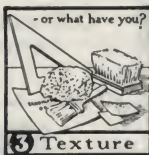
Artistic Textured Effects—All stipple and texture effects can be made with sponge, brush, trowel, or



1 Make thick Paste



2 Smear it on



3 Texture



4 Finishing

flat surface tool; also caen stone, travertine, grass cloth, burlap, canvas, lin-crusta, leather and weathered wood; special effects with sand, straw, dead twigs, etc., introduced into mixture.

Color—Stuc-O-Tint itself may be colored. This is recommended when economy is a factor. When textured and sandpapered, colored Stuc-O-Tint yields unusually fine high-lights, giving a soft two-tone effect that is in excellent taste. For schools, hospitals and public institutions where wall surfaces are exposed to mutilation, colored Stuc-

O-Tint, stippled or textured and painted in same color with two coats will not show white when surface is broken.

Colored at the Factory—Stuc-O-Tint may be colored in the mix at the factory to meet exact color specifications. A uniform color throughout material is thus assured.

Colored at the Job—Stuc-O-Tint can be colored at the job. First dissolve color in water or oil, depending upon its nature, and add this slowly to wet mixture until the desired color is reached. White Stuc-O-Tint is a water plastic, but absorbs oil and oil colors in the mixing.

Colored Mixtures, Blended—A new and very effective wall treatment with Stuc-O-Tint, tinted as described above. Ground color is first applied and while this is wet, other tints of this material are applied at random and all are worked in together with brush, trowel or sponge. Entire wall is then allowed to dry thoroughly, and is lightly sandpapered. Tinted Stuc-O-Tint should be covered with a coat of Stuc-O-Glaze to be rendered washable. This can be clear liquid, or it can carry a color of its own which can be brushed in and wiped off as described on the following page.



Permanent Stipple with Bradley Stuc-O-Tint

Can be coarse or fine, as desired. Finished with one coat of flat paint (no sizing is needed) and refinished at any time without further stippling. Use Stuc-O-Glaze where two-tone effect is desired.

Two-tone Effects—White Stuc-O-Tint is applied, textured, and sandpapered as described above. It should then be given one coat of Stuc-O-Glaze, which can be colored or tinted with any oil color. While still moist, wipe off all excess color with a cloth, and allow to dry. Stuc-O-Glaze can be applied directly over the material—no sizing is needed. It produces a washable surface, with exceptionally fine high-lights. It is extremely important that Stuc-O-Glaze be used with Stuc-O-Tint for best results.

Blended Effects—These are obtained by applying Stuc-O-Glaze in other colors in a zigzag fashion over the ground coat while it is wet. They are wiped into one another with a cloth or brush until a blend is produced. If more prominent high-lights are desired, wipe over with a clean cloth.

Oil Texture—Linseed oil added to heavily mixed Stuc-O-Tint will produce an excellent oil texture. This may be tinted with any oil color and gives very fine two-tone effects with one application when lightly sandpapered. When blended effects are desired, they may be handled as described in Colored Mixtures, Blended.

Directions for Using Stuc-O-Tint

Mixture—Mix 10 lb. of Stuc-O-Tint to a gallon of water for a medium texture or heavy stipple. If a finer stipple is required, use more water; for heavier texture, use less water.

General—If to be used immediately, mix with warm water and allow to cool before applying. If mixed with cold water, it should be allowed to stand 12 hours so that all the ingredients will have time to dissolve. Water should not be colder than 70° F.

No Sizing—Stuc-O-Tint requires no sizing of any surface before applying. It is not necessary to size the Stuc-O-Tint surface when Stuc-O-Glaze is used for finishing coat. Everything necessary to stop suction is in the materials.

Application—Stuc-O-Tint after being mixed with water will not change in consistency and can be easily applied to any surface and textured. Anything that will make an impression upon wet Stuc-O-Tint surface may be used as the medium to produce the texture desired.

Covering Capacity—Stuc-O-Tint will cover an average of 5 to 20 sq. ft. to a pound according to density of texture or stipple used and surface upon which it is applied.

Specifications for Stuc-O-Tint Standard Finishes

Stipple, Flat Paint Finish—Apply one coat Stuc-O-Tint mixed according to manufacturer's directions and stipple. When dry, sandpaper surface to remove sharp points and apply one coat of flat paint (specified), tinted to (any desired) color. No sizing is needed.

Texture Finish—Two-tone—Apply one coat of Stuc-O-Tint mixed according to manufacturer's directions, and while wet, texture surface (with brush, sponge, trowel, or any tool necessary to get desired texture). When dry, sandpaper to remove sharp points and directly apply one coat of Stuc-O-Glaze tinted (to desired color) in accordance with manufacturer's directions, and wipe with cloth. No sizing is needed.

Blended Colors—Apply one coat of Stuc-O-Tint mixed according to manufacturer's directions, and while wet, texture (as specified). When dry, sandpaper and directly apply one coat of Stuc-O-Glaze tinted to (desired color). While this surface is wet, spot (selected colors) upon same in (zigzag) fashion, wipe into one another with cloth or brush until a blend is produced. (If more prominent high-lights are desired, wipe over surface with a clean cloth.)

Tinted Finish—One Color—Apply one coat of colored () Stuc-O-Tint as supplied by the manufacturer; or tinted () with (dry color before mixing) (dry color dissolved and added to mixture as recommended by manufacturer) (oil or water color added to mixture). When dry, sandpaper lightly to remove sharp points.

Two or More Colors—Apply one coat of (color) Stuc-O-Tint (specifically as in preceding paragraph), and while still wet, apply (colors) mixtures and blend (as per instructions). When dry, sandpaper lightly.

Bradley Stuc-O-Glaze

Bradley Stuc-O-Glaze is a prepared finishing liquid, transparent and emulsified, to be applied over Bradley Stuc-O-Tint, without sizing. It produces a washable surface with prominent high-lights, two-tone and blended effects. May be colored or tinted with oil colors. Is easily applied and wiped.



Bradley One-Cote-Wite

Bradley One-Cote-Wite is a white paint which can be furnished in powder or mixed form. It can be applied with kalsomine brush or spray. Adheres closely, will not discolor, and does not rub off. Produces a dense white effect with one coat. May be colored or tinted as desired. Recommended for industrial plants, garages, basements, and especially adapted for use on concrete and rough plaster, as well as wood and brick-work exposed to dampness or the elements.

Bradley Crack Filler

Bradley Crack Filler is for use on wood, plaster, wallboards, etc. It unites with surfaces and dries without pulling away. Easily worked. Tough and durable. Especially recommended for joints in all wallboard installations.

Service Department

The manufacturers will gladly co-operate with architects by providing samples of the material, finished boards, and exact specification details. They do not apply Stuc-O-Tint but they will be glad to assist the architect with expert supervision of the work whenever practicable.

DURALITH CORPORATION

521 Fifth Avenue, NEW YORK, N. Y.

DURALITH (CANADA) LIMITED, 1502 St. Catherine Street, MONTREAL, QUEBEC

SALES AGENTS

LOS ANGELES, CALIF., J. E. LEININGER, 316 Commercial Street

SYDNEY, AUSTRALIA, S. G. FEIN

EXPORT AGENTS TO LATIN AMERICA: GALBAN & Co., 82 Beaver Street, NEW YORK, N. Y.

FACTORIES AT BROOKLYN, N. Y. and THREE RIVERS, QUEBEC, CANADA

Products

DURALITH—a decorative wall texture consisting of a blend of minerals with casein as the binding agent. Powder form for mixing with cold water.

DURATINT—a high-grade color concentrate solvent in water for pastel shades on textured walls.

Also **Duraglaze**—an oil and wax glaze (neutral and six colors) for textured walls. Also **Durasand**—an extra fine quality fast color sand (six colors) for blowing on textured walls.



How Furnished—Packed in 25, 50 and 100-lb. paper-lined burlap bags and in 1-lb. sample boxes.

Duratint

A new Duralith product. It is pure color finely ground in paste form, soluble in water (50 to 1) and made in a wide range of colors. Duratint is low in price and is undoubtedly one of the cheapest mediums for tinting textured walls yet produced. Applied with a spray gun—electric or hand—singly or in combination of colors while the texturing material is still wet and in plastic condition.

Many pastel shades are obtainable by blending Duratint colors. Duratint in combination with Duralith eliminates five operations and results in a textured wall at a cost comparable with paint and wallpaper.

Furnished in twelve colors in concentrated form, 2-oz. and 8-oz. bottles—2 oz. will make a tinting solution which is sufficient for the average room.

Specification (Short Form)

"The Painting Contractor [Plastering Contractor] shall apply Duralith [Duratint] pure and unadulterated as manufactured by and according to directions of DURALITH CORPORATION, New York, N. Y. Samples showing texture and color scheme shall be submitted to the architect. Approved samples shall be marked and hereby become a part of these specifications."

Samples and Co-operation

Samples of Duralith and Duratint furnished on request. Our Service Department will be glad to co-operate in the creation or development of special effects to suit individual requirements.

Duralith, the Modern Wall Texture

Duralith is unexcelled because of its ease and simplicity of application. Under the direction of the architect the beautiful textured effects to which this unique wall treatment lends itself are innumerable. Recommended for homes, offices, theatres and public buildings. The finish is permanent, reducing maintenance costs to a minimum.

Outstanding Features—

- (1) Mixes readily with cold water.
- (2) Works easily with brush or trowel.
- (3) Requires no slaking.
- (4) Will not sag.
- (5) Does not stain woodwork.
- (6) Very opaque; splendid covering and "hiding" capacity.
- (7) Unaffected by heat or cold.
- (8) Dries in 24 to 48 hours.
- (9) Easily and quickly cleaned.
- (10) Color combinations can be changed at any time.

Covering Capacity—On White Plaster and Smooth Surfaced Wallboard—9 to 20 sq. ft. per lb. On Brown Mortar (floated) or Rough Textured Wallboard—8 to 12 sq. ft. per lb. (Note: No size is required for wallboard unless particularly specified by the manufacturer thereof.) On Metal Surfaces, Kalamien Doors, etc.—About the same as on white plaster.



Duralith
Is Suitable
for Residences,
Public Buildings
and Theatres



Hotel Manoir Richelieu, Murray Bay, Canada
The walls of this famous hotel are attractively finished with Duralith



Period Effects
Are
Readily Obtainable
with
Duralith

THE MURALO COMPANY, INC.

Decorative Wall Coatings, Texture Paints, Cold Water Paints,
Wall Sizes and Patching Plaster

570 Richmond Terrace, STATEN ISLAND, N. Y.

CHICAGO, ILL., 317 North Wells Street

SAN FRANCISCO, CALIF., Potrero and 18th Streets



Mural-Tex—For Textured and Relief Decoration



The color plates featured on this page are photographic reproductions of actual wall surfaces decorated with Mural-Tex.

MURAL-TEX is a product of modern invention and modern manufacture by which a most interesting and unusual array of decorative wall effects may be obtained. With it the period plaster walls of France, Italy, Spain, England and America may be faithfully reproduced. In addition it offers unusual opportunities for original expression. With each new application of MURAL-TEX some new textural effect evolves.

Effects Obtainable—The color plates featured on this page are photographic reproductions of actual wall surfaces decorated with MURAL-TEX and will serve as examples of the many novel treatments in both texture and color that can be readily developed with MURAL-TEX and appropriate coloring materials. In fact, texture and color are, so to speak, incidental details subject to individual expression.

Adaptability—Particularly adaptable for the decoration of interior walls and ceilings. The finer textures and less pronounced color effects are most appropriate for use in the home, and the more rugged designs and bolder color tones are generally employed for decorating the broader areas of wall surfaces in hotels, churches, theaters, clubrooms, lodges, public buildings and other edifices.

Application—Manufactured in dry powder form and simply requires mixing with ordinary cold water to prepare it for use. The mixture is applied with a wall brush and the texture developed by manipulating the surface. The surface is then colored and glazed by simple processes.

Uniformity—MURAL-TEX is manufactured under carefully supervised processes which insure a uniform product of unvarying quality. It is produced by an organization with thirty-five years experience specializing in the manufacture of decorative wall coatings and kindred products.

Hi-Tex Textural Finish

HI-TEX Textural Finish is especially designed for use where economy is one of the deciding factors. It makes possible decorative effects in texture and color that are distinctive as well as attractive and produces these effects economically. It embodies all the essentials that go to make a good decorative medium at a cost well within the limitations of the average purse. Manufactured to a uniform scientific standard of established quality, it provides a decorative medium that makes it possible to achieve beauty and good taste in interiors at moderate cost.

Wall Coatings and Cold Water Paints

Muralo Sanitary Wall Coatings—High Grade Kalsomine

The ideal material for decorating interior walls and ceilings in all manner of residences and public buildings, where harmonious color treatments are essential factors.

Composition—Muralo Sanitary Wall Coatings are manufactured in dry powder form from the best selected raw materials, and compounded in such a manner that they require only mixing with either cold, warm or hot water, whichever is most convenient, to prepare them for immediate application over plaster, wood, burlap or any of the various wall boards.

Expert supervision over all manufacturing processes insures a uniform product that always meets the most exacting of decorative requirements.

Decorative Value—No matter what the style, the general treatment or proposed color scheme for a room may be, Muralo shades harmonize perfectly. They adapt themselves to any type of decoration, from the plain, severe Colonial to the highly ornate.

The deep subdued colors, the range of dainty, delicate tints with their rich velvety finish, devoid of gloss or glare, create an atmosphere of elegance, distinction and refinement, adding new charm to the cottage and mansion alike. The possibilities for soft blending of tints and shades and artistic harmonizing of colors are unlimited.

Muralo Wall Size

Preliminary treatment of wall surfaces prior to applying wall coatings in general is very essential.

A priming coat of Muralo Wall Size produces a perfect foundation and insures the successful outcome of the completed work. Compounded in dry powder form and is ready for use when dissolved with boiling water.

Indelible Exterior Cold Water Paint

A perfectly blended, smooth, fine-spreading paint mixture, which possesses all the adhesive and covering properties of oil paint at only a fraction of the cost. In addition it has fire-retarding properties of recognized value. Furnished in 18 standard colors, white and black.

Composition—Manufactured in dry powder form from the most durable and lasting paint pigments, combined with certain cementing and waterproofing compounds, and so treated by certain processes that it is at once soluble and ready for use when mixed with ordinary cold water, forming a durable cold water paint which has remarkable weather-resisting qualities.

Adaptability—Especially designed for painting the exteriors of factories, warehouses, and all types of industrial buildings. In the larger cities it is used extensively for the painting of airshafts and courtyards of apartment buildings and tenements, due to its sanitary and light-reflecting properties. In the country and farming sections it provides a means of painting farm buildings at a relatively low cost as compared with oil paint.

King's Perfected Interior Cold Water Paint

A high grade paint for interior surfaces, snow white, sanitary, fireproof and light-reflecting.

Composition—Manufactured in dry powder form, under improved processes that make possible the economic production of a cold water paint.

Ready for immediate use when mixed with cold water, and may be applied with brush or spraying machine.

Adaptability—Particularly adaptable for painting the interiors of factories, warehouses and all types of industrial buildings where the cost of oil paint is usually considered prohibitive.

Samples, Literature

Samples of our several products, descriptive literature and further information pertaining thereto will be cheerfully furnished on request. Correspondence invited.

Specifications

Directions for mixing and applying our products are given in detail in our "Mixing Directions" circular, a copy of which is inserted in each container of the respective products.



Color Chart of Muralo Sanitary Wall Coatings

Muralo Sanitary Wall Coatings are milled in the 18 light tints featured on the accompanying color chart, 12 deep colors, white and black.

By intermixing the white with the tints and deep colors or intermixing the tints and deep colors an infinite variety of intermediate shades may be developed to suit individual requirements.

LAUX WALL TEXTURE—A PLASTIC PAINT

MANUFACTURED BY
I. F. LAUCKS, INC.

314 Maritime Building
SEATTLE, WASH.

CHICAGO, ILL., B-33 Builders Building

LOS ANGELES, CAL., 816 Architects Building

EXHIBIT: BUILDERS EXPOSITION, 228 No. LaSalle Street, CHICAGO, ILL.

A PLASTIC PAINT MADE BY CHEMISTS AND APPROVED BY ARCHITECTS AND DECORATORS

Laux Wall Texture enables the architect to obtain for his interiors just the textured effect desired with the knowledge that the finished job will be permanently satisfactory to the client. It insures a uniform job—something not often obtained when textured wall finishes are prepared by using a painter's "private formula."

Whatever type of architecture—whether it be English, Spanish, Colonial, Italian—with Laux Wall Texture interior walls may be made to harmonize in spirit of treatment with the architectural theme of the whole structure. Textures may range from the lightest and most delicate to the heaviest.

Specific Advantages

Ready Mixed Colors—Comes in seven ready mixed colors, beautiful pastel shades. These may be blended into tiffany effects giving soft water color tones. Finished walls have no gloss but are restful and pleasing. Where washable finish is desired, Laux Wall Texture may be painted and glazed in any manner desired. Stencil and relief effects are readily and economically obtained.

Unvarying Uniformity—Made to a precise formula. No variations in color or quality. Uniform results assured.

Adheres Firmly and Is Durable—Laux Wall Texture can be applied over and will adhere to old or painted walls as well as new. Its marble base gives it extreme durability, and even when struck with a hammer it does not chip or crack.



Economical—Its ease of mixing, application and texturing make it an economical material which will not throw cost schedules out of line.

Proven in Use

Laux Wall Texture has given satisfaction on jobs ranging from modest homes to such interiors as: Pierce Arrow Auto Sales Room, Brooklyn, N. Y. Publix Theatres, Chicago and Aurora, Ill. Lankershim Hotel, Los Angeles, Cal. Y. W. C. A., Tokyo, Japan Yellowstone National Park Hotel, Yellowstone Park, Wyo. Medical Dental Building, Vancouver, B. C. and many others.

Architects' Short Form Specifications

The wall and ceiling surfaces noted in the schedule below shall receive proper surface preparation and shall be finished with Laux Wall Texture delivered in unbroken original packages. Both surface preparation and application shall be according to the directions furnished by I. F. LAUCKS, Inc., manufacturers, which directions are made part of these specifications. Sample panels for texture, color and finish shall be developed in the actual material and submitted to the architect, subject to his approval before beginning work. Duplicate samples of the panels accepted are to remain on file at the architect's office.

Schedule—Under schedule the following should be noted:

- (a) Room name or number and sample panel corresponding.
- (b) Whether walls or ceiling or both are to be finished.
- (c) Texture as light, medium or rough.
- (d) Whether material is to be in manufacturer's colors or painted.
- (e) Whether finish is to be glazing liquid or some other finishing medium.



THE REARDON COMPANY

Manufacturers of Plastic Paint, Patching Plaster, Water Putty and Wall Size

GENERAL OFFICES

2200 North Second Street, ST. LOUIS, MO.

SALES OFFICES

CHICAGO, ILL., 2415 W. 24th Place
SAN FRANCISCO, CAL., 383 Brannon Street

DALLAS, TEX., 919 North Bishop Street
PORTLAND, ORE., 8 Front Street

LOS ANGELES, CAL., 526 So. Alameda Street
SEATTLE, WASH., 124 R. R. Avenue, So.

FACTORIES: ST. LOUIS, MO., CHICAGO, ILL., LOS ANGELES, CAL.

For our page on Cement Paint, Cold Water Paint and Kalsomine, see Manufacturers' Index

PLASTEX, THE PERFECT PLASTIC PAINT

Description

Plastex is a white plastic paint of the dry powder type made ready for use by simply mixing with cold water to a stiff pastelike consistency. With Plastex, any of the textures so popular in the past ages and in such vogue now may be perfectly reproduced at little cost.

Plastex lends itself to an unlimited variety of texture effects, ranging from the finest stipple to the roughest antique. Italian, Old English and Gothic plaster, Greek, Spanish, Moorish, Early Colonial, Travertine and Caen Stone are simply and economically reproduced with Plastex.

Covering Capacity—Five pounds of Plastex powder when mixed with water will cover 5 to 10 sq. yd. depending upon the texture desired. For coarse textures it is applied heavier.

How to Prepare Surfaces for Plastex

Plastex may be applied over practically any rigid, interior surface that can be painted, kalsomined, or papered. It is important to follow these simple instructions in order to obtain best results. All surfaces must be clean and dry, free from grease, dirt, scaly paint, kalsomine and stains. Aniline stains must be coated with aluminum paint to prevent bleeding through.

Plaster Surfaces—Either Keene's cement, hard smooth finish putty coat, sand finish plaster, or brown coat walls and ceilings, when thoroughly clean, dry and free from grease, dirt and stains, ordinarily need no preparation. When excess amount of suction is present, they should first be given a coat of Plastex Size or a coat of thin shellac or shellac substitute. Cracks, joints and holes should be patched with Plastex Paste but be sure that the patched places are thoroughly dry and sized before applying Plastex.

Painted, Varnished or Enameled Surfaces—All loose paint scales should be scraped off. It is particularly important that painted, enameled and varnished surfaces are free from dust, dirt, grease and scaly paint. If in doubt about being thoroughly clean, use a good paint cleaner and follow manufacturer's directions. Then apply one coat of Plastex thinned to the consistency of thick cream like kalsomine. Allow to dry before applying Plastex at regular consistency.

Plaster or Pulp Wall Board—Wall board usually comes from the manufacturer already sized but when not, it should be given a coat of Plastex Size after all joints have been filled and nailheads covered according to the wall board manufacturer's specifications. Before applying Plastex, the material used for filling joints and nailheads must be dry and, if rough, sanded down, then Plastex may be applied at regular plastic consistency.

Kalsomined and Papered Surfaces—Wash off kalsomine, fill all cracks and make sure that the surface is clean and dry. Follow instructions under heading "Plaster Surfaces." Application of Plastex over wall paper is not recommended. It is best to remove wall paper and treat walls as outlined under heading "Plaster Surfaces."

Masonry and Brick Surfaces—Plastex may be applied to interior masonry and brick surfaces when they are dry, free from dust, mortar and dampness. First use Plastex Size to stop suction; do not attempt to use Plastex over a brick or masonry surface if damp. If the surface requires pointing, use a heavier mixture of Plastex the same as you would patching plaster.

Unpainted Wood Trim or Other Wood Surfaces—Before applying Plastex to such surfaces they should be coated with shellac or varnish size. When the wood surface has been painted, follow directions under the heading "Painted, Varnished or Enameled Surfaces."

Metal, Glass and Other Non-porous Surfaces—Such surfaces must be thoroughly clean and free from dirt, grease



and wax. Two coats of Plastex are necessary—a thin coat first and a second coat of regular consistency.

Fabric Wall Hangings—Plastex is not recommended for application over fabric hangings unless they are thoroughly bound to wall. It is best to remove hangings and follow instructions under "Plaster Surfaces." Sanitas, Lin-crusta and other glossy finish products should

have gloss cut through by washing with a paint cleaner. Wash clean with clear water and allow to dry before applying Plastex.

Glossy, Waxed Surfaces—Follow instructions under "Plaster Surfaces" but make sure the wax is all removed. This is best accomplished with a mixture of equal parts naphtha and carbon tetra chloride. Walls so treated must be sized before application of Plastex.

Caution: Do not use glue or paste size under Plastex.

How to Mix Plastex

Use clean metal containers. Pour cold faucet water into container and add Plastex Powder gradually while stirring. Stir thoroughly until free from lumps and mix to a heavy consistency. Let stand for at least 30 minutes and it is ready for application. If hot water is used, allow to cool before applying. Do not mix more Plastex than required for a day's work. If any is left over, saturate a cloth with water and lay it directly on top of mixture. Pour a small amount of water on top of cloth to keep it moist overnight. Before using again remove cloth and any skins and stir thoroughly.

Caution: If Plastex is allowed to stand over two nights in a mixed condition, more dry Plastex Powder must be added before using.

Coloring and Tinting—Plastex comes in white only but may be tinted with any dry limeproof pigment color. Do not use over 7% of dry color. Added colors must be mixed with water separately to a heavy paste form and then mixed with Plastex in its plastic form. Avoid the use of chemical or aniline colors. Always use same proportion of Plastex and colors to obtain uniform tints. For this reason it is best to prepare enough Plastex for the entire job to insure uniform shade.

How to Apply Plastex

The application of Plastex is simple. Use a clean brush. On large surfaces, a Dutch kalsomine brush is best. Plastex should be laid out on the surface in a fairly even coat, from $\frac{1}{8}$ to $\frac{1}{4}$ in. thick. Shortly after application, it is ready to texture. A sponge, wall knife, scraper, etc., may be used.

Tips on the Application of Plastex—During application wood work and trim may be protected by using gummed tape or Plastex should be washed therefrom with sponge and water before it sets up. Close doors and windows to insure normal temperature during application and open for free circulation of air after Plastex has been applied. The work is best accomplished by two men—one to apply and the other to texture the Plastex.

Decorator's Accessories

Plastex Size and Sealer—A casein size to be used in conjunction with Plastex Plastic Texture Paint.

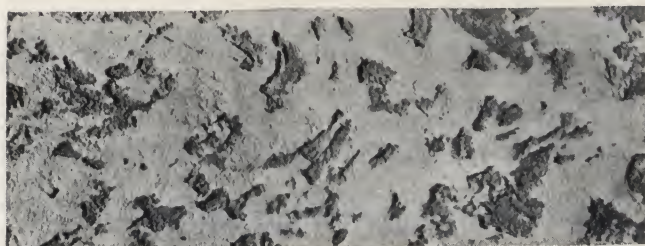
Reardon's Wall Size—A hot water soluble size. Excellent as a first coater or primer under paint and enamel and for sizing preparatory to kalsomining and wall papering. Positively kills stains, stops suction and neutralizes lime.

Roco Wall Size—Same as Reardon's Wall Size only cold water soluble.

Reardon's Water Putty—For filling cracks and damaged and cracks in plastered surfaces. Does not shrink or crack.

Reardon's Water Putty—For filling cracks and damaged places in wood, stone, plaster and metal surfaces. Sets extremely hard.

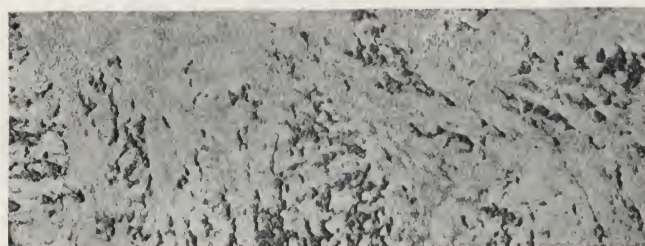
POPULAR TEXTURES OBTAINED WITH PLASTEX TEXTURE PAINT



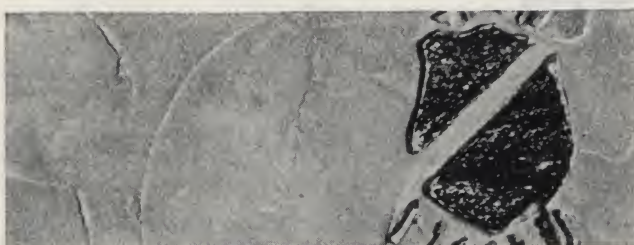
Modern American



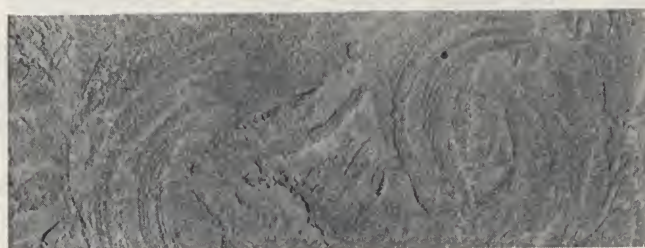
Caen Stone



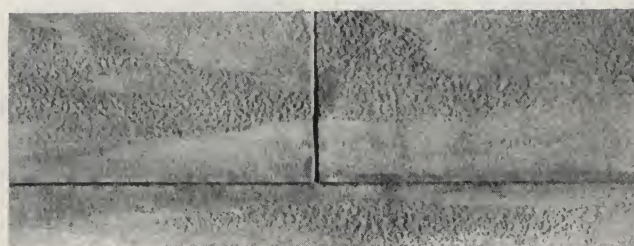
Sand Swirl



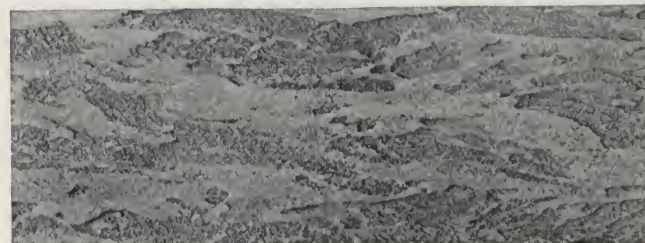
Old English Plaster



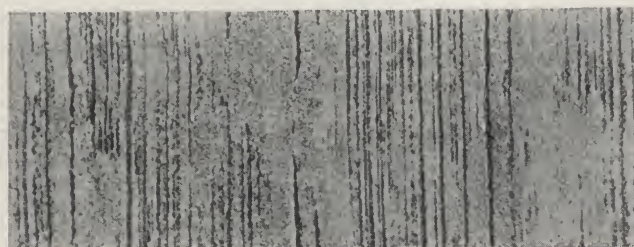
Monastic



Medici Stone



Spanish



Antique Bark

MODEX, THE MODERN PAINT

Description

Modex is the latest development in the science of paint manufacture. Its idea was suggested by the paste distemper paints so widely used in Europe, but in developing Modex it was found possible to not only improve the qualities of the European distemper paints, but to compound Modex through a special process in more convenient form.

Modex is marketed in dry powder form instead of the old-fashioned liquid paste and is simply broken up with water, then boiled linseed oil is mixed in and the mixture is thinned for use with additional water. In liquid form Modex closely resembles oil paint in odor, texture and body.

Modex is furnished in white and a variety of tints—packed in barrels of 300 lb. net, drums of 100 lb. net, and 5 lb. cans.

Advantages

Modex is made with the same high-grade opaque pigments that other good paints contain. All of its qualities are in proper balance: Modex flows freely, does not spatter, levels out and dries quickly. Some of its outstanding features are:

Great hiding power	Economical application	Flexibility
Low product cost	Washability	Long life

Modex adheres to damp or dry surfaces; dries with a tough elastic film which will not crack, peel or discolor. When dry it has a velvety flat finish which may be washed with soap and water.

Preparation of Surface

Owing to the great adhesiveness of Modex, preparation of surface is more important than when using other types of paint.

It is absolutely necessary that the surface be clean and firm, for if applied over a scaly or loose undercoating, Modex will lift the undercoating and result in chipping or scaling.

Applied to clean and firm surfaces, it adheres strongly and dries with a tough, elastic and durable film.

The main precaution to take in preparing to apply Modex is to thoroughly remove by washing or wire brushing any old undercoating of glue size, kalsomine, cold water paint or white-wash.

These undercoatings do not provide a sufficiently firm foundation for Modex.

Mixing

To each 10 lb. of dry Modex gradually add 3 qt. of water, stirring as added until mixture is free from lumps.

Then immediately add 1 pt. of boiled linseed oil and, after stirring in thoroughly, add an additional quart of water and stir again until worked in well and mixture is smooth.

Strain through paint strainer.

UNITED STATES GYPSUM COMPANY

Paint Products

GENERAL OFFICES

300 West Adams Street, CHICAGO, ILL.

For Sales Offices, see Sweet's Manufacturers' Index for U.S.G. Catalogue on Gypsum Lathing and Plaster Products

TEXTONE (THE PLASTIC PAINT) AND ACCESSORIES

TEXTONE

Description

Textone is a plastic decorative material for use over Sheetrock, plastered walls and ceilings, and other surfaces such as paint, canvas, glass, metal, wood, brick and concrete. It affords unlimited decorative treatment, in any desired tint or color.

Textone comes in white powder form, ready to be mixed with water. Textures are obtained with tools employed in everyday use—whiskbroom, stippling brush, sponge, wadded paper—or the palm of the hand.

Textone makes possible walls and ceilings in harmony with the architectural design of any period. Textures with unusual water-color effects, blended tones, grained, stippled and mottled surfaces, and antique effects are easily obtained. With Textone it is possible to achieve attractive caenstone and travertine masonry effects.

The heavy body of Textone produces a splendid opaque finish. One coat of white over a properly prepared surface covers perfectly, thus it is an extremely economical material.

Any color may be obtained by mixing dry pigment colors with the prepared Textone; by blowing in colored sands after the Textone is on the wall; by water glazing with tinted Textone Sealer, or by applying a coat of Textone Glaze which has been tinted with colors ground in oil. Wiping the glaze coat brings out the high-lights and produces striking two-toned effects.

Textone is remarkably adhesive and dries hard.

Package

Shipped in 10-lb., 25-lb., and 50-lb. moistureproof fiber boxes, and in 325-lb. (300 lb. net) barrels.

Covering Capacity

One pound of Textone should cover approximately from 1 to 1½ sq. yds. of surface for a medium texture (slightly more with finer textures).

TEXSAND

Description

A specially prepared silica sand, ground to uniform fineness for obtaining swirl effects in Textone. It is used to produce variegated effects in true color in Textone.

Texsand is sold in white only and is to be tinted with dry color to obtain any desired shade.

Package

Shipped in 10-lb. bags.

GREENSPAR

Description

This material is a finely ground, water floated, natural sand of a greenish color. It is employed with Textone to

produce the color found in the natural pits and markings in travertine stone.

Package

Shipped in 10-lb. bags.

TEXTONE SEALER

Description

Textone Sealer is a specially prepared sealing agent for Textone. The use of Textone Sealer improves the appearance and durability of the completed work, whether used as a protective coat on the finished Textone surface or under the glaze coat.

Textone Sealer is manufactured in dry powdered form and is easily and quickly prepared for use by mixing with water. After mixing, Textone Sealer is a colorless liquid.

Package

Shipped in 1-lb. and 5-lb. packages.

TEXTONE GLAZE

Description

Textone Glaze is a specially prepared, practically colorless glazing liquid for use over textured surfaces. It dries flat to a soft sheen, and gives a durable waterproof finish.

It is used for blended or glazed effects to produce the patina, or age coat, found on the antique rough textured wall surfaces in old buildings in Europe. Where such surfaces have become light in color on the high spots, due to frequent cleaning and to long wear, the original color remains in the low spots, accentuating the uneven modeling of the textured surface. There are also accumulations of moss and dust in the hollows which are sometimes desirable to reproduce for their soft, mellow appearance of age.

Besides the reproduction of antique treatments, numerous rich, two or more toned color and texture effects, such as tiffany blends and polychrome finish, may be obtained.

Textone Glaze is tinted with pigment colors ground in oil or japan.

Container

Shipped in quart and gallon containers.

SPECIFICATION—SHORT FORM

All wall and ceiling decoration not otherwise specified shall be Textone, mixed and applied in strict conformity with the directions of the UNITED STATES GYPSUM COMPANY, manufacturers, which directions are hereby made part of these specifications as fully as if they were set forth here in detail. Panels showing color and texture shall be made by the decorator and submitted to the architect for approval before work is commenced.

Note: List colors and textures selected for walls and ceilings in various rooms.

TEXTONE CEDAR

Description

Textone Cedar is a special Textone (Plastic Paint) composed of inert materials to which is added not less than 8% of cedar wood oil. It is intended for use as a texture paint lining applied ⅛ in. thick over the walls and ceilings of closets as a moth preventive.

When dry, it closely resembles cedar wood in both color and odor. Obviously, no finish of paint or sealer should be applied over the natural, textured Textone Cedar. As in cedar

lined closets, the doors, etc., should be close fitted to seal in the active cedar odor, which is repellent to moths.

Package

Shipped in 25-lb. round metal containers.

Covering Capacity

Approximately one and one-half (1½) pounds of Textone Cedar covers one (1) sq. yd., ⅛ in. thick.

CEMENTICO

(A Cement Stucco Paint)

Description

Cementico is a cold-water, weatherproof, insoluble cement paint for use over such surfaces as unpainted stucco, porous concrete, brick, tile and stone. It is not intended for use on wood or non-porous surfaces such as smooth plaster, terra cotta and enameled brick; or on oily or greasy surfaces.

It is in the form of a white powder to be mixed with water and coloring matter on the job.

An outstanding and almost exclusive advantage is the readiness with which Cementico mixes with water. Because of the absence of "sludge" in the mixture, the usual tedious straining operation is materially lessened. Due to its smoothness and uniform consistency, Cementico paint is admirably adapted to application by spray gun as well as by brush.

Again and quite important, the tendency to "bloom" inherent in most cement-and-lime mixtures, in Cementico has been practically eliminated.

When Cementico is to be tinted, the most lasting results are obtained by the use of U.S.G. Limeproof Colors.

Packages

Cementico is shipped in 25-lb., 50-lb., and 100-lb. round fiber drums and in 300-lb. net weight barrels.

Covering Capacity

One (1) pound of Cementico, applied in one (1) coat will cover 16 to 25 sq. ft., depending upon the texture of the surface to be covered and the heaviness of the application required.

TEXOLITE—A WALL PAINT

Description

Texolite is a paint for use on interior surfaces, such as plastered walls and ceilings, wallboard, concrete, brick and wood. It enters the field between calcimine and oil flat wall paints and combines many of the good features of both.

It dries with a soft sheen, like calcimine, which gives high light reflection, brushes more easily than flat wall paint and is water resistant and will wash as well as some flat wall paints.

Texolite comes in a pure white powder and is prepared for application by mixing with water. It may be easily tinted to any desired shade with limeproof colors and may be applied with a wide brush or spray.

One coat will hide as well as two coats of oil paint. It works well as an undercoat under enamels and flat wall paints and will save one or two coats.

Package

Texolite is shipped in 25-lb., 50-lb., and 100-lb. round fiber drums and in 275-lb. net weight barrels.

Covering Capacity

One (1) pound of Texolite (dry powder) applied in one (1) coat will cover from 25 to 45 sq. ft., depending upon the texture of the surface to be covered and the heaviness of the application.

U.S.G. LIMEPROOF COLORS

Description

Dependable limeproof colors are now available in convenient air-tight packages. The colors are black, raw and burnt sienna, raw and burnt umber, yellow, green, blue and red.

These limeproof colors are to be used for tinting Textone, Em-Bel-Lo and other plastic paints; calcimine, cement paints and other water-mixed products; for tinting Textone sealer; for coloring stuccoes and mortars.

All the colors are lightproof, and most of them are mineral pigments. Many are imported. They are finely ground and have not been "let down" by the admixture of filler.

Package

Packed in two sizes: No. 1 package contains from 12 oz. to 28 oz. of color, and No. 4 package from 48 oz. to 112 oz. The difference in contents of these containers is due to varying density of the colors.

Mixing

To mix, add the dry color to a little water, mix thoroughly to a thin paste, strain through a fine mesh screen to remove lumps, then add to the wet mixed paint or other material.

Caution: The tinted materials will be several shades lighter when dry than when in the wet mix.

RED TOP MORTAR COLORS

Description

Red Top Mortar Colors for coloring masonry mortar, etc. are produced for the UNITED STATES GYPSUM COMPANY by two of the leading manufacturers. The Eastern source is the Clinton Metallic Paint Co., Clinton, N. Y. The Western source is The Ricketson Mineral Color Works, Milwaukee, Wis.

These two products have been made since 1885. They are Pure Mineral Colors of high quality, noted for their fineness and uniformity in strength and shade.

The colors are standard in the industry. Red Top

Mortar Colors will be furnished in Red, Light Buff, Dark Buff, Brown, Double Strength Chocolate, Standard Black, and Double Strength Black. Special colors will be furnished on order.

For further data, see Clinton Metallic Paint Co.'s and Ricketson Mineral Color Works' catalogues in Sweet's.

Package

Shipped in 100-lb. waterproof, paper-lined nonreturnable jute bags.

H. B. WIGGIN'S SONS CO.

Manufacturers of Rufkote Plastic Stone

233 Arch Street, BLOOMFIELD, N. J.

BRANCH OFFICE: 4860 South Halsted Street, CHICAGO, ILL.

Products

RUFKOTE PLASTIC STONE for interior walls and ceilings.

WIGGIN'S SIZEKOTE.

WIGGIN'S GLAZEKOTE.

For page on Fab-Rik-O-Na Cloth Wall Coverings, see Manufacturers' Index.



TRADE-MARK

Wherever suction is likely to occur, the surface should be sized with Wiggin's Sizekote before putting on the Rufkote. Wall boards that have not been sized in manufacture should also be given a coat of this size.

Rufkote—Plastic Stone for Interior Walls and Ceilings

Rufkote is plastic stone. For the finishing of walls where the decorative requirements suggest rough plaster or stone surfaces, it affords a ready resource of the most agreeable quality. A white powdered mineral, it is free from any animal matter and, when mixed with cold water, it becomes a texturing paint of heavy consistency. Not only is it a medium that lends itself readily to manipulation while being applied and fully plastic but, as it sets absolutely without shrinkage, there is no element of chance about the surface texture whose final appearance remains exactly the same as upon first application. Packed in 250-lb. barrels, 100-lb. kegs, 40-lb. pails, 100-lb. and 25-lb. bags.

Rufkote will not fade colors, nor will it set up adverse chemical reactions in paint pigments applied over it.

The exact colors desired may be obtained by mixing in either dry colors or colors ground in oil.

Application of Rufkote

Rufkote may be applied over plaster surfaces, either directly over the brown coat or on the finished white coat. It may also be applied over brick, concrete, wall board, wood or any other material commonly used for wall or ceiling construction.

Wiggin's Sizekote—A Cold Water Size

For sizing and sealing surfaces upon which Rufkote is to be applied and for sizing the textured Rufkote before glazing. Sizekote penetrates, stops suction, brushes out freely and is rapid drying.

Packed in 1, 5 and 25-lb. sizes.

Wiggin's Glazekote—A Transparent Finish for Rufkote Surfaces—Easily Colored

A transparent glaze for finishing Rufkote surfaces. Dry pigments or oil colors may be mixed with it. It is used in producing wiped or blended color effects and makes a tough waterproof finish with an eggshell gloss, adding beauty and character to the texture. The Rufkote should be given a coat of Wiggin's Sizekote before glazing.

Packed in gallon cans and quart cans.

Distribution

Stocks of Rufkote products are carried at Bloomfield, N. J., and Chicago, Ill. Deliveries may be obtained from our jobbing distributors in prominent centers throughout the United States.

Service and Literature Available to Architects

We seek the opportunity to co-operate with architects and offer them the services of our experts regarding the proper use of our products.

We shall be glad to furnish on request a copy of our "Text Book of Textures" by F. N. Vanderwalker and folder of literature and samples of Wiggin's products. Also samples of Rufkote powder and finished boards.

All requests for information will be promptly answered.

Short Specification for Architects Use

All walls and ceilings shall be finished with Rufkote Plastic Stone as manufactured by the H. B. WIGGIN'S SONS CO., Bloomfield, N. J., in approved texture, color and *..... finish. Prepare Rufkote and treat all surfaces in accordance with instructions supplied by the manufacturer.

*Note: Here indicate texture by name such as Roman Travertine, Spanish Palm Finish, etc.

Textures Obtainable with Rufkote Are Unlimited



Colonial Stipple

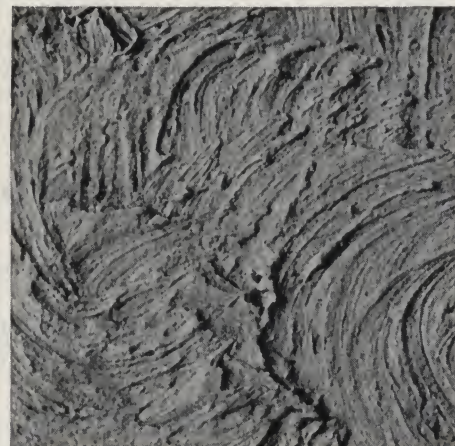
An interesting texture expressive of the friendly atmosphere and quiet dignity of Colonial Days



The Famous Ring Test Proves Rufkote Will Not Crack or Shrink

A brass ring 3 in. in diameter and 1 in. high is placed upon a glass plate and filled with wet Rufkote. The top being struck to a smooth, true surface.

After it has thoroughly dried, no cracks or shrinkage will develop; the Rufkote still fills the ring tightly. The surface is still true and even



Italian Effect

A rugged texture—introduced during the Renaissance Period—for backgrounds in larger sized rooms



INTERIOR DECORATION

Blank, Frederic, & Co.....	C4176-4177
Columbus Coated Fabrics Corp.....	C4178
Daprato Statuary Co.....	C4192
Floor Accessories Co., Inc.....	C4191
Gorham Co.	C4193
Kent-Costikyan	C4182-4185
Klearflax Linen Looms Inc.....	C4181
Mohawk Carpet Mills.....	C4187-4190
Nelson, W. P., Co.....	C4174-4175
Standard Textile Products Co.....	C4179
Walter, G. E., Inc.....	C4194-4195
Western Felt Works.....	C4186
Wiggin's, H. B., Sons Co.....	C4180

ESTABLISHED 1856

•N. J. NELSON, PRESIDENT

W. P. NELSON COMPANY

Interior Decorators, Furnishers and Painting Contractors

TELEPHONE
WHITEHALL 5073153-159 West Ohio Street
CHICAGO, ILL.

BRANCH OFFICES

NEW YORK, N. Y., 209-211 West 33rd Street
MILWAUKEE, WIS., 290 Third Street

PHILADELPHIA, PA., 703 Ranstead Street

CLEVELAND, OHIO, 4408 Carnegie Avenue

MONTREAL, CANADA, 762 St. Paul Street, West

Services

This company is prepared to execute contracts for PAINTING and DECORATING in large Public Buildings, Hotels, Theaters, Clubs, Banks, Office Buildings, Factories, Industrial Buildings, Churches and Residences; also to furnish WALL PAPER, MURALS, SPECIAL FURNITURE and DRAPERIES where desired.

It maintains its own artist studios and solicits consultation in preparing designs and plans for interior decorating and



furnishing. Contracts accepted for work in any part of the United States and Canada.

Experience

The ability of W. P. NELSON COMPANY to create beautiful decorative schemes and carry them through to completion has given it a national reputation.

For over seventy years the W. P. NELSON COMPANY has been decorating the finest buildings in the country.

REFERENCES**Hotels**

Allerton House, Chicago, Ill.
Davis Hotel, Chicago, Ill.
Palmer House, Chicago, Ill.
Shoreland Hotel, Chicago, Ill.
Stevens Hotel, Chicago, Ill.
Park Place Hotel, Traverse City, Mich.
Whittier Hotel, Detroit, Mich.
Pennsylvania Hotel, New York, N. Y.
Ritz-Carlton Hotel, New York, N. Y.
Savoy-Plaza and Annex, New York, N. Y.
Hollenden Hotel, Cleveland, Ohio
Lake Shore Hotel, Cleveland, Ohio
Wade Park Manor, Cleveland, Ohio
Walthall Hotel, Jackson, Miss.
Hotel Vicksburg, Vicksburg, Miss.
Penn-Alto Hotel, Altoona, Pa.
Pittsburgher Hotel, Pittsburgh, Pa.



Stevens Hotel, Chicago, Ill..

Hotels (Continued)

Arlington Hotel, Hot Springs, Ark.
Eastman Hotel, Hot Springs, Ark.
Peabody Hotel, Memphis, Tenn.
Walt Whitman Hotel, Camden, N. J.
Washington-Duke Hotel, Durham, N. C.
Pere Marquette Hotel, Peoria, Ill.
Georgian Hotel, Evanston, Ill.
Kirkwood Hotel, Des Moines, Iowa
Whitehall Hotel, Palm Beach, Fla.
Roney-Plaza Hotel, Miami, Fla.
Onesto Hotel, Canton, Ohio
Commodore Perry Hotel, Toledo, Ohio
Mayflower Hotel, Washington, D. C.
Mount Royal Hotel, Montreal, Can.

Office Buildings

Carbide & Carbon Building, Chicago, Ill.
Chicago Daily News Building, Chicago, Ill.
Chicago Board of Trade, Chicago, Ill.
McGraw Hill Building, Chicago, Ill.



Main Concourse, Union Terminal Station, Cleveland, Ohio

Office Buildings (Continued)

Pittsfield Building, Chicago, Ill.
 Builders Exchange Building, Cleveland, Ohio
 Medical Arts Building, Cleveland, Ohio
 Midland Bank Building, Cleveland, Ohio
 Union Terminal Tower, Cleveland, Ohio
 Union Trust Building, Cleveland, Ohio
 American Insurance Union, Columbus, Ohio
 Cadillac Motor Building, Philadelphia, Pa.
 Gimbel Store Building, Philadelphia, Pa.
 Packard Building, Philadelphia, Pa.
 Detroit Free Press Building, Detroit, Mich.
 Caldwell Building, Nashville, Tenn.
 Plaza Office Building, Jackson, Miss.
 Equitable Trust Building, New York, N. Y.
 Fuller Building, New York, N. Y.
 McCreery Building, New York, N. Y.
 Professional Building, New York, N. Y.
 Prudential Life Insurance Building, New York, N. Y.

Theatres

Civic Opera Auditorium, Chicago, Ill.
 Tower Theatre, Chicago, Ill.
 United Artists Theatre, Chicago, Ill.
 Fox Theatre, Detroit, Mich.
 State Theatre, Detroit, Mich.
 Erlanger Theatre, New York, N. Y.
 Paramount Theatre, New York, N. Y.
 Fox Theatre, Brooklyn, N. Y.
 Fox Theatre, St. Louis, Mo.
 Carolina Theatre, Winston-Salem, N. C.
 Toledo Paramount, Toledo, Ohio



Auditorium, Civic Opera House, Chicago, Ill.

Banks

Midland Bank, Cleveland, Ohio
 Union Trust Bank, Cleveland, Ohio
 Liberty Bank, Buffalo, N. Y.
 National City Bank, New York, N. Y.
 City National Bank, Albany, N. Y.
 City National Bank, Battle Creek, Mich.
 Old Merchants National Bank, Battle Creek, Mich.
 Peoples Trust & Savings Bank, Chicago, Ill.
 American Trust Bank, Nashville, Tenn.
 Federal Reserve Bank, Chicago, Ill.
 Illinois Merchants Bank, Chicago, Ill.

Hospitals

Islip Hospital, New York, N. Y.
 St. Johns Hospital, Yonkers, N. Y.
 Buffalo City Hospital, Buffalo, N. Y.
 Mount Vernon Hospital, New York, N. Y.
 U. S. Veterans' Hospital, Chillicothe, Ohio
 Pittsburgh Hospital, Pittsburgh, Pa.
 Lakeside Hospital, Cleveland, Ohio
 Walter Reed Hospital, Washington, D. C.
 Manteno State Hospital Group, Manteno, Ill.

Clubs

Chicago Woman's Club, Chicago, Ill.
 Illinois Woman's Athletic Club, Chicago, Ill.
 Lincoln Fields Jockey Club, Chicago, Ill.
 Lake Shore Athletic Club, Chicago, Ill.
 Onwentsia Country Club, Chicago, Ill.
 Cleveland Club, Cleveland, Ohio
 Union Club, Cleveland, Ohio
 National Town and Country Club, Cleveland, Ohio
 Penn Athletic Club, Philadelphia, Pa.
 Westchester-Biltmore Country Club, Rye, N. Y.
 Lawyers' Club (University of Michigan), Ann Arbor, Mich.

Residences

Malcolm J. Boyle, Chicago, Ill.
 Vincent Bendix, Chicago, Ill.
 Dr. John Golden, Chicago, Ill.
 Frank Karge, Chicago, Ill.
 Stanley Joyce, Chicago, Ill.
 T. J. McNulty, Chicago, Ill.
 R. H. Morse, Chicago, Ill.
 Leslie Small, Kankakee, Ill.
 Warren Wright, Golf, Ill.
 Ernest Mahler, Neenah, Wis.
 Edw. Ballard, French Lick, Ind.
 Ralph Browning, New Rochelle, N. Y.
 P. J. Maloney, New York, N. Y.
 I. M. Upperco, New York, N. Y.
 M. G. Corlett, Battle Creek, Mich.
 H. I. Sparey, Colorado Springs, Col.



Harvey Inc., Main Dining Room, Union Terminal Station, Cleveland, Ohio

FREDERIC BLANK & COMPANY

SALUBRA WALL COVER COMPANY

New York Central Building
NEW YORK, N. Y.

24 North Wabash Avenue
CHICAGO, ILL.

Salubra Is "Oil Paint-by-the-Roll"

Salubra is a wall covering which, in one operation, completes and decorates the structure of an interior wall.

Salubra consists of oil paint on a tough parchment background—"Oil Paint-by-the-roll." It is applied to the wall as easily and as speedily as wallpaper. It supplies color and decorative value, yet has all the sanitary and protective qualities of paint and adds to these a durability and washability that make it extremely practical.

Born in the laboratory, Salubra is the result of years of research and experimentation by prominent European scientists. They created this ideal wall covering by combining utility with beauty—perfecting all the favorable features of paint, its protection and sanitation, with the beauty and warmth of wallpaper—without the disadvantages of either.

Protects the Wall Surface

Salubra's strong parchment background offers an additional protection to the plaster, reduces to a minimum the breaks in the plaster surface, and prevents it from crumbling. It acts as a sort of *protective veneer* to the plaster.

Salubra eliminates the unsightly appearance of fire cracks so common in painted wall surfaces, whether new or old. It seals the pores of the plaster, becomes part of the structure and covers its defects. Unaffected by climatic conditions, Salubra neither peels nor scales. It is the modern method of treating walls.

Because it is not in direct contact with the plaster, Salubra's paint surface not only wears better but gives the wall finish a softer, warmer appearance. For the same reason, the color values of Salubra do not change through the action of ingredients of the plaster.

Durability That Approaches Permanence

When applied to the wall, Salubra is almost as permanent as any structural material you specify. Without losing its original freshness, color or lustre, it will remain there for 10 or 15 years, or as long as you choose to keep it. In thousands of European hotels, hospitals, homes and royal palaces, actual records show that

Salubra
REG. U. S. PAT. OFF.

won't fade—will wash

Salubra still retains all its original charm after 15 or more years of continuous service.

Hundreds of Beautiful Designs from Which to Choose

Architects and interior decorators find in Salubra a range of patterns and colors adapted to every type of interior—designs created by leading European artists.

Owing to the uniformity of the texture of its surface and the high quality of its oil colors which are on the base of zinc, a Salubra painted wall radiates a feeling of softness and warmth which is characteristic and possible only through mechanically perfect workmanship.

Salubra dresses the wall. It creates a new luxury in interiors, which permits the architect to complement the interior in complete harmony with the entire structure.

Selection of color or design "in the roll" permits the architect to visualize the finished surface of the wall while the project is still in plan form.

More than two thousand distinctive and colorful patterns await your choice.

Salubra Cannot Fade

The oil colors of Salubra have been specially compounded to resist the action of light and climate. They are unaffected by strong sun-

light, artificial light, heat, cold, moisture or dryness. Salubra may be used anywhere and is being used in the tropics, mountain resorts, at seashore hotels, in cities where smoke and soot abound, and in country homes.

The durability of Salubra, combined with its fadelessness, is *insurance against depreciation*. It keeps the walls for a number of years as you planned them and saves your client considerable money and inconvenience through the elimination of periodic redecorations.

Salubra Is Easily Cleaned

Salubra's non-porous, non-absorbent surface simplifies its upkeep. After a certain length of service, scrubbing with a brush, soap and water restores the room to its original freshness and beauty. Cleaning the Salubra-decorated walls is a simple, easy process even for the unskilled.



Scrubbing with Soap and Water Cleans Salubra

FEATURES AND ADVANTAGES OF SALUBRA WALL COVERING

(1)
Has all the protective and sanitary advantages of paint.

(2)
Has all the favorable features of the finest wallpaper in colorful and distinctive designs—2000 from which to choose.

(3)
Is non-porous, waterproof, and resists the absorption of dust, soot and odors.

(4)
Upkeep is the simplest. Scrubbing with brush, soap and water removes spots and restores all the original beauty of coloring and design.



(5)
Cannot fade under exposure to sun or artificial light—permanent oil colors on waterproof parchment paper.

(6)
Unaffected by heat, cold, moisture or dryness.

(7)
Vermineproof—hygienic. Sanitary properties have been attested by Institute of Hygiene of London and University of Basle, Switzerland.

(8)
Saves time. Completes the structure of the wall and decorates it in one operation.

Sample to Show Character, Texture and Quality of Oil Colors
2000 decorative patterns available

This ease of cleaning is due to the composition of Salubra—the fact that it is non-porous and non-absorbent. Dirt and dust remain on the surface. Since Salubra is waterproof, liquids do not penetrate it. The coloring that causes stains stays on the surface and is removed by washing. Stains that ruin ordinary wall finishes do not affect Salubra. Local spots are removed without injury by applying corresponding solvents. Any cleanser that does not affect textiles (linen sheets) can safely be used in removing spots from Salubra. This washability of Salubra makes for unsurpassed economy of maintenance.

Salubra Is Sanitary

Salubra contains no arsenic or other health-impairing chemicals. Its characteristic surface provides minimum opportunity for germ growth or dust absorption. It does not retain smoke or odors. Exhaustive tests conducted by the University of Basle, Switzerland, have proved that vermin and household insects cannot live on Salubra. Salubra may be washed with many disinfectants without injury.

The exceptional sanitary features of Salubra won for it the *Certificate of the Institute of Hygiene of London*. It is used extensively in many leading European hospitals and sanitariums.

Easily and Quickly Applied

Salubra, though a permanent decoration, can be handled and hung in the same manner as other good wallpapers. Any good paperhanger can do the work.

Reduces Final Costs of Wall Decoration

Salubra typifies "the economy of quality." Salubra's initial cost is not higher than good wallpaper or paint and its long life makes its final cost a great deal less.

The average wall is redecorated every two and a half years. For comparison, suppose we consider only ten years as the life of Salubra. In that time an ordinary room would need redecorating four times as compared with once for the Salubra-decorated room. On this basis, Salubra (1) saves the cost of three additional wallpaper or paint bills; (2) saves the cost of three expensive labor charges; and (3) saves the annoyance and inconvenience of redecoration, as well as lost revenue where rooms are rented and must be vacated during redecoration.

But—ten years is by no means the maximum life of Salubra as our records show many instances where Salubra is still in service after fifteen and even twenty years and more. Considering this and the low maintenance cost, the economy of Salubra is almost beyond comparison.

Unique Features Adapt It to All Types of Buildings

Salubra's beauty, the distinctive atmosphere it creates, its economy, its permanence and the speed with which it is applied adapt it to every type of building. Among its users are hotels, clubs, apartments and apartment hotels, restaurants, institutions, hospitals, offices and residences. Each finds in Salubra advantages combined in no other one wall decorating medium.

Co-operation with Architects

In almost every city are Salubra installations which may be seen. Our showrooms are at your disposal for the selection of patterns. You are invited to submit your problems; in solving them, we place at your disposal the *practical experience gathered during thirty-five years in wall decorating problem under the most varied conditions in all parts of the world*. References and endorsements of users will gladly be furnished on request.

A Few of Thousands of Salubra Installations

Hotel Biltmore, New York, N. Y.	Edgewater Beach Hotel, Chicago, Ill.
Hotel Manger Chain, New York, N. Y.	Ritz-Carlton, Boston, Mass.
Yale Club, New York, N. Y.	Chalfonte-Haddon Hall, Atlantic City, N. J.
New York Medical Center, New York, N. Y.	Hotel Sinton, Cincinnati, Ohio
Elks Club, Lodge No. 22, Brooklyn, N. Y.	Hotel Hollenden, Cleveland, Ohio
Palmer House, Chicago, Ill.	St. Charles Hotel, New Orleans, La.
	Mayflower Hotel, Los Angeles, Cal.
	Cliff Towers, Dallas, Tex.

And hundreds of other prominent installations. Names on request.

COLUMBUS COATED FABRICS CORPORATION

Manufacturers of Wall-Tex—Oil Coated Fabric Wall Linings and Decorative Wall Coverings

COLUMBUS, OHIO

Decorative, Durable and Washable Wall Coverings

Wall-Tex is an oil coated washable fabric. It is offered in designs to harmonize with every scheme of interior decoration.

Wall-Tex Lining Cloths are used as a background for paint work, stippling, fresco painting and stenciled panels. Or the walls may be covered in a decorative manner with a finished Wall-Tex design. After years of service, the finished design can also be used as a foundation for further painting and decorating.

Wall-Tex strengthens plaster and permanently hides plaster cracks in old walls and ceilings. Being somewhat elastic, it stretches slightly where necessary and prevents new cracks from showing through the surface. The surface of Wall-Tex is easily washed clean.

Wall-Tex Lining Cloths—An Excellent Base for Paint Work

The highest grade fabrics and finest oil coatings provide an even, unbroken background for paint work and thus give the effect of high class painted canvas at very low cost.

Wall-Tex Lining Cloth No. 3099—A three-coat foundation for further paint work. Especially adaptable where paint coat must exactly match shades in woodwork.

Wall-Tex Lining Cloth No. 3098—A dull, smooth white cloth especially desirable for paint work, tiffany finishes and stenciled paneling.

Wall-Tex Lining Cloth No. 3000—A dull, embossed white cloth (see sample) that can be used without further decorating or as a base for any

WALL-TEX

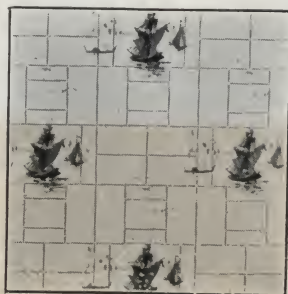
DURABLE WALL COVERING

The Result of Thirty Years' Experience in Making Coated Fabrics



"Wall-Tex" No. 3000

Can be used as a finish or as a base for any kind of decoration



Decorative Wall-Tex No. 3802

A dull finish number which adds color to the bathroom. Glazed finish is No. 3304



Decorative Wall-Tex No. 3910

Wall-Tex offers this pleasing and cheerful nursery pattern

kind of painted finish. Will give a slightly rougher result than 3098.

Wall-Tex Lining Cloth No. 3097—A stiffened canvas that makes a splendid foundation for paint with a result that looks like a stipple or canvas effect.

Wall-Tex Wall Coverings for Living Rooms, Dining-rooms, Bedrooms, Baths and Kitchens

The finest oils and pigments are used over highest grade fabrics to insure walls of lasting beauty and economy. There are many Wall-Tex designs for every room—a complete selection of plain, decorative and colorful patterns in dull and glazed finishes.

Important: This product is made by one of the largest manufacturers of strictly oil coated fabrics in the world—by men who know how.

Applied in Same Way as Wall Paper

Old walls should be cleaned, cracks filled and surfaces sanded. When walls and ceilings are prepared, dried and sized, Wall-Tex Lining Cloths and Decorative Wall Coverings are then applied in the same manner as ordinary wall paper, using a good quality flour paste. Edges are butted together and rolled down with felt roller.

Write for Samples and Further Information

Write direct to us for complete Wall-Tex information, samples, names of nearest Wall-Tex distributors and illustrated folder, "The Modern Trend in Wall Coverings."



Wall-Tex No. 3852

A modern version of an ancient Egyptian motif. Striking in appearance and a splendid wall covering for unusual rooms



Wall-Tex No. 3943

A colorful floral design typical of the all-over patterns. A charming background for bedrooms

THE STANDARD TEXTILE PRODUCTS COMPANY

320 Broadway
NEW YORK, N. Y.

DISTRIBUTED THROUGH BEST WHOLESALE HOUSES IN THE UNITED STATES

Product

SANITAS MODERN WALL COVERING, the original washable cloth wall covering.

Description of Sanitas

Sanitas is a cloth wall covering finished in durable oil colors. Four coats of paint are smoothly and evenly applied to the fabric back by machines, and subsequently dried in large heated cells. This oil color surface is non-absorbent and repels dirt and grease stains.

The tensile strength of the finished material is 40 pounds per square inch in the warp and 30 pounds on the average woof.

Sanitas Varieties

Sanitas is available in over 140 designs in plain or printed dull and enamel finishes, suitable for any interior, either as a finished decoration or as a ground for glazing, stenciling or decorative mural work. Sanitas Embossed Metalline Brocade makes an interior of great richness wherever a metallic effect is desired.

Plain Flat Finish—A fine selection of pastel and solid tones where plain walls or ceilings are desired.

Decorative Flat Finish—A splendid selection of florals, damasks, foliage, Toile de Jouy, colonial, plastic and air brush blend effects.

Enamel Finish—For bathrooms, kitchens, etc., in modernistic and conventional styles; also made in a fine variety of plain colors.

Metalline Brocades—Cannot be surpassed in richness of tones and durability by any other material. Made in all the popular shades obtainable in silk damasks.

Sanitas Standards of Measurement

Sanitas is made in 12-yard rolls, 48 inches wide, each roll covering 144 square feet or 16 square yards. One of these rolls covers the same superficial area as 4 rolls of wall paper.

The 48-inch width of Sanitas reduces the number of seams on walls and ceilings.

Advantages of Sanitas

Washable—Dust and finger marks on the wall may easily be removed with a sponge or soft damp cloth.



TRADE-MARK

Flexible—The cloth back protects wall cracks, due to plaster shrinkage, from breaking through Sanitas.

Permanent—There are many instances where Sanitas has been on the walls for 12 and 15 years, the only upkeep cost being that of washing off frequently with a damp cloth or sponge.

For All Types of Buildings—The wide range of styles, from the rich Metalline Brocades to the self-toned effects in dull or glazed finish make it possible to employ Sanitas in the decoration of homes, apartments, hotels, schools, offices, hospitals and steamships.

Adaptable—Sanitas has been used successfully in tropical countries and climates where moisture abounds. Sanitas can be applied to any flat surface. Can be used to cover boards or temporary partitions very satisfactorily, due to the strong cloth back on which the goods are made.

Easy to Apply—Sanitas can be hung by any good wall paper hanger. No special paste is required.



Sample of Sanitas in Decorative Flat Finish

Complete Sanitas Sample Book

A sample book showing the entire line of 140 styles will be sent to any architect free on request.

Specifications for Hanging Sanitas (Condensed)

Prepare all plastered surfaces by carefully cutting out and filling all cracks smooth and flush with the plaster plane.

Prepare a glue size by soaking 1 lb. of white ground glue in cold water, add 12 quarts hot water and 1 tablespoon of alum. Apply hot with a paste brush.

Trim the edges of the Sanitas perfectly straight and true with a sharp knife using a long

metal faced straightedge. Paste the back of the goods with any standard paste used by paper hangers, working the paste thoroughly into the fiber of the fabric. Butt the edges to a straight true tight joint and press and smooth with a paper hanger brush. Do not use a hard roller on the seams; wipe over each seam with a soft cloth wrung out in cold clean water. This will render each seam invisible, except to the closest inspection.

H. B. WIGGIN'S SONS CO.

Manufacturers of Cloth Wall Coverings

233 Arch Street
BLOOMFIELD, N. J.

BRANCH OFFICE: 4860 South Halsted Street, CHICAGO, ILL.

Products

FAB-RIK-O-NA CLOTH WALL COVERINGS.

(The words Fab-Rik-O-Na and Ko-Na are registered trade-marks.)

For page on Ruffkote Plastic Stone for interior walls, see Manufacturers' Index.

Fab-Rik-O-Na Finished Wall Coverings

Offered in textured fabrics of plain or patterned designs, various colors and color combinations, they are well filled, evenly colored, thoroughly shrunk and prepared for pasting to the wall.

Rolls contain 50 yards and the fabrics are 30, 35 or 36 in. wide.

Fab-Rik-O-Na Prepared Wall Coverings (to Be Painted)

These fabrics are manufactured in a variety of widths, weights and textures with surfaces carefully prepared to receive paint after having been hung. They are fully shrunk, and well backed, ready for pasting to the wall in the same manner as wall paper.

The heavier fabrics are especially suitable for wainscoting in schools, salesrooms, office buildings and hotels.

Method of Application of Fab-Rik-O-Na Cloth Wall Coverings

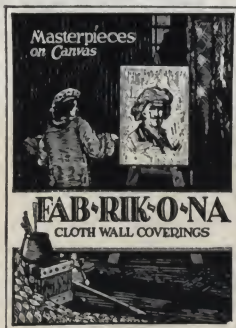
All Fab-Rik-O-Na Cloth Wall Coverings are applied to the wall with fresh flour paste.

Details with directions are contained in each roll of goods.

Kling-Ko-Na Undercoating and Size

A white powder prepared for use by adding hot water. For use in preparing walls for papering, painting or enameling, and over painted or varnished walls before hanging wall coverings. Also over dyed burlap or raw woodwork before painting.

Can be used on walls of hard or sand finished plaster, stucco concrete and brick as well as on wall boards.



TRADE-MARK

Suggested Specification for Architects' Use

General—All decorative and prepared canvas, burlap or other fabrics used shall be of the kind below specified and quality of those shown in the Fab-Rik-O-Na line of cloth wall coverings of the H. B. WIGGIN'S SONS Co. of Bloomfield, N. J., and Chicago, Ill., and equal to samples of this material on file in the architects office.

Location—The above wall coverings shall be applied on ceilings and walls of the following

Application—After walls have been plastered, in accordance with specifications for plastering, and are thoroughly dry, they shall be given a coat of Kling-Ko-Na Size manufactured by same Company (or other good wall size approved by architect).

*A good grade of lining paper shall be applied over the entire wall and allowed to dry thoroughly.

The fabrics then shall be pasted to the wall with good stiff fresh flour paste, trimming to a sharp smooth edge butting together in actual contact, thoroughly rolled down. Follow all detailed printed instructions packed with the material.

Old walls shall be thoroughly cleaned and all cracks filled. All edges of cracks and patches shall be sand-papered to a smooth level surface. Walls shall be made smooth and clean and sized as above described.

Painting—Where Fab-Rik-O-Na prepared goods are used they shall be given coats of paint as herein specified.

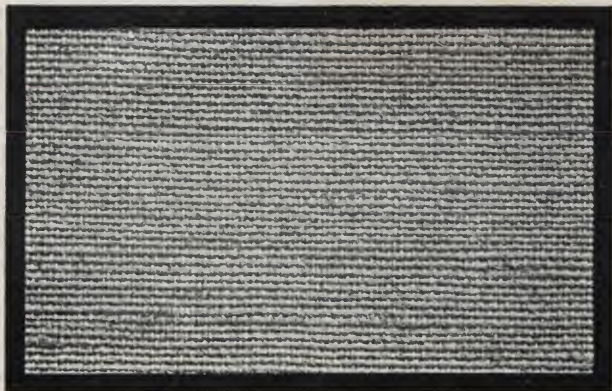
Service to Architects

We are prepared to co-operate with architects by affording quotations, special samples and practical suggestions for the use of our decorative products.

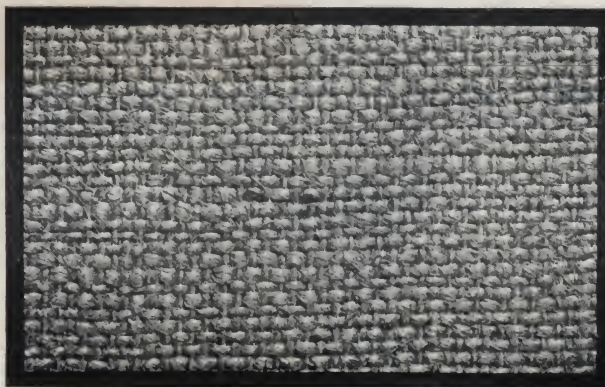
Distribution

Stocks of Fab-Rik-O-Na Products are carried at Bloomfield, N. J. and Chicago, Ill. Shipments can be made direct from those points or deliveries may be obtained from our jobbing distributors in prominent centers throughout the United States.

*Lining the wall is optional with the architect and unnecessary when applying fabrics which are to be painted.



Fab-Rik-O-Na Indikloth and Homespun



Fab-Rik-O-Na Dyed Tapestry Burlap

THE KLEARFLAX LINEN LOOMS, INC.

Manufacturers of Klearflax Linen Rugs and Carpets

DULUTH, MINN.

NEW YORK OFFICE: 295 Fifth Avenue

KLEARFLAX LINEN RUGS AND CARPETS

Where Used

Klearflax Linen Rugs and Carpets have been specified by many leading architects for a wide range of installations—in homes, clubs, churches, hotels, apartment houses, theatres, offices, hospitals, public and private buildings of nearly every kind.

Low Cost

Where unusual effects have been desired on very limited budgets, Klearflax has frequently been the solution. It is here especially that the sterling value of these rugs and carpets appears to best advantage.

Color and Texture

Klearflax is especially unique in both color and texture—two reasons perhaps more than any others, why it has appealed so strongly to architects for such a wide variety of places.

In linen, it is possible to obtain beautiful, soft, pastel shades as well as stronger colors that are not possible in other fabrics.

The texture of Klearflax possesses a rich, homespun or tweed effect that is very pleasing in its simplicity, dignity and restfulness.

Klearflax is thoroughly in accord with the vogue for rough stippled and troweled walls, wrought iron hardware and the best architectural trend of the day.

Other Features

Klearflax has many other features. It is reversible, mothproof, practically burnproof. It does not "furniture-mark." Plain or one-tone rugs and carpets are possible in Klearflax without the usual disadvantages associated with plain floor coverings.

Sizes

Klearflax is made in standard and special size rugs and runners and practically any length in rolls for carpet.

It is made in the following seamless widths—27 in., 3 ft., 4½ ft., 6 ft., 8 ft., 9 ft., 12 ft.

Literature and Specifications

For full information about Klearflax Rugs and Carpets, send for the A.I.A. folder giving in detail all the specifications for both the fabric and how it should be laid.



KENT-COSTIKYAN

Importers of Antique and Modern Rugs from Persia, India, China and Bulgaria,
Seamless Carpets in Solid Colors, Rugs Woven to Order in Europe and the Orient

TELEPHONE
MURRAY HILL 0113

485 Fifth Avenue, Second Floor

(Opposite Public Library)
NEW YORK, N. Y.

BRANCH OFFICES

PHILADELPHIA, PA., 1616 Walnut Street
BOSTON, MASS., 420 Boylston Street

CHICAGO, ILL., 1811 Heyworth Building

SAN FRANCISCO, CAL., 442 Post Street
LOS ANGELES, CAL., 816 South Figueroa Street

SAMPLE CASES

CLEVELAND, OHIO, Architects Exhibit Inc., Hanna Building and
Building Arts Exhibit, Builders Exchange Building
BUFFALO, N. Y., Architects and Builders Exhibits Inc., One Niagara
Square

NEW YORK, N. Y., Architects' Samples Corp., 101 Park Avenue
DETROIT, MICH., Architects Exhibit Inc., Barlum Tower
LOS ANGELES, CAL., Architects Building Material Exhibit, 5th and
Figueroa Streets

The House of Kent-Costikyan

The firm of Kent-Costikyan is one of the oldest exclusive Rug Importing Houses in New York today. Since 1886, we have been fitting the finest homes and institutions of America with hand-woven floor coverings. This experience of over forty years, largely in co-operation with the most artistic men and women in the architectural and decorative professions, qualifies us, as no other firm, to meet the most exacting requirements of service, and to find most expeditiously the rugs or carpets appropriate in design, color, price and quality to any particular decorative scheme submitted.

During this time we have fitted all conceivable types of rooms with high grade artistic floor coverings—sometimes with rugs furnished from stock, sometimes with rugs made to order, sometimes with plain carpets cut from rolls. These spaces include club and lodge rooms; directors' rooms and officers' platforms of banks; lobbies and lounges of hotels and apartment houses; reception rooms and executive offices; automobile and piano salesrooms; and fine private residences throughout in all types of decoration and color schemes. Suffice it to say that, given a reasonable time, we can solve any floor-covering problem in a manner that will give lasting satisfaction.

Rug Contracts

Rug contracts are usually let as a part of the decorating contract since they comprise an important part of the interior. Under such an arrangement the architect may be assured of Kent-Costikyan floor coverings being used by making this a



TRADE-MARK

condition under which the decorating contract is awarded. Architects and general contractors, however, are coming more to making the rug contract and other background elements such as paneling and lighting fixtures separate from the decorating contract with a view of furnishing the decorator or owner with a background on which to assemble the various interior furnishings. In such a case, we

are prepared to quote direct to the general contractor or owner and can guarantee the same satisfactory artistic result under the direction of the architect as we do when working in co-operation with an interior decorator.

Form for Specifying Kent-Costikyan Rugs or Carpets

"Rugs and Carpets of Kent-Costikyan Weave in the qualities specified are to be ordered sufficiently in advance so that delivery can be made before (Give approximate date of completion of building.)

Room	Quality	Main Color	Size of Rug or Carpet	Approx. sq. yd.	Floor Margin
.....
.....

"Colored designs are to be prepared in accordance with the architectural period style of the above rooms under the supervision of the architect and submitted to the architect and owner for final approval together with quality sample of the weaves specified and wool color tufts."

Specifications should be accompanied with full set of blueprints and elevations of rooms to be covered.

SCHEDULE OF SPECIAL ORDER QUALITIES

Type	Qualities	Pile and texture	Best adapted to designs of	Price range (list per sq. yd.)	Delivery (N. Y.)	Maximum seamless width, ft. (no limit to length)	Where made
Spanish Handtuft	Sierra, Seville, Oporto, Corsica	Medium and high pile, rough dull texture, chiseled design	Plain, Two-tone All over, Spanish, French Floral Spanish	\$36 to \$63	4 to 6 months	48	Spain
Oriental Spanish	Hispano, Kentshah, VI, Kentshah Super	Medium and high pile, smooth lustrous texture	French Floral, Period Rugs	\$45 to \$90	4 to 8 months	40	In the Orient
European Hand-tuft	Tyrol	High pile, pebbly texture	Plain with figured borders, Hooked Rug effects, Spanish	\$30 to \$42	4 to 6 months	40	Germany and Austria
European Hand-tuft	Alsatian	High pile, smooth dull texture	French Floral, Period Rugs	\$42 to \$96	4 to 6 months	40	Germany and Austria
Modern Art	Alsatian and Kentshah Moderne	Medium or high pile, dull smooth or lustrous texture	Modern art effects	\$39 to \$70	4 to 8 months	40	Europe and the Orient
Chinese	Mongol	Medium or high pile, smooth lustrous texture	Plain, Chinese and Floral effects	\$24 to \$90	6 to 8 months	40	China
Oriental	Kentshah	Medium or high pile, smooth lustrous texture	Two-tone All-over, Karabagh, Sarouk Floral Savonneries, Ispahan	\$63 to \$135	6 to 8 months	40	In the Orient
Oriental	Kashanoor and Kerman	Low pile, fine weave, dull antique or lustrous texture	Kerman, Sarouk, Fereghan and Ispahan	\$108 to \$180	6 to 12 months	40	In the Orient
Antique Reproductions	Ispahan and Fereghan	Fine weave, low pile, dull antique texture	Lavehr Kerman, Fereghan, Ispahan, Kuba	\$72 to \$180	12 to 18 months	30	In the Orient
French Aubusson	Cressy	Tapestry weave	French Period Types	\$82 to \$240	6 to 8 months	45	France
French Savonnerie	Orleans	High pile, fine dull texture, blended	French Period Types	\$90 to \$500	6 to 8 months	45	France
Savonnerie Reproductions	Floral Spanish, Alsatian and Kentshah	Medium or high pile, chiseled design, dull or lustrous texture	French Period Types	\$39 to \$120	4 to 10 months	30	Europe and the Orient
American Hooked	Gloucester, St. John	Low pile, pebbly antique texture	Early American	\$30 to \$81	3 to 6 months	21x15	Canada

Designs

During our many years in business some of the finest rugs of all times have gone through our establishment, and in our design volumes will be found beautiful color sketches of the choicest of these rugs. These sketches, of which we have accumulated several thousand during our forty years in business, are the foundation from which the rug to be made to order is started. Our clients select one that they feel most appropriate, and then our designer changes or modifies this in color or design to fit the exact taste of decorator and owner. The line of qualities carried and the range of possibilities in this department are so great that they can only be appreciated by a visit to our floor, where all designs and quality samples can be inspected. For those who find this impossible, however, these pages, supplemented by quality sam-

ples as orders come up, will be found adequate in most cases.

Samples

Samples suitable to show to prospective customers, complete in colors and qualities carried, will be sent upon request. Our samples are made in a standard size, 3x2 ft., and after serving their use as samples can fit very well in doorways, alcoves, etc. Samples are expensive to make up, and we are obliged to make a charge for them, if not returned within 30 days. However, we are willing to refund payments on all samples at any time, provided not damaged. We recommend that only samples be ordered in the types of merchandise for which it is felt there is a call in your own territory. Prices for 3x2 samples equal one-third of the list square yard price on each quality.

Specially Designed and Emblem Rugs

For Clubs, Fraternities, Lodges, Banks and Hotels (Not Sold for Private Homes)

Types—Alsatian E—High pile, pebbly texture.

Alsatian EE—High pile, smooth texture.

Spanish E—Medium pile, rough texture.

Spanish EE—High pile, rough texture.

Kentshah E—High pile, Oriental weave, dull finish.

Kentshah EE—High pile, Oriental weave, lustrous finish.

Deliveries—4 to 10 months, according to size.

Color Range—Made in any design or color, with emblem woven in.

Size Range—Unlimited seamless.

Price Range—\$18 to \$36 per sq. yd. (On contract.)

Samples—(With emblems) 3x2 ft., \$10.00 each.

YARDAGE CALCULATOR

Width in feet	Length in feet																													
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
3	2	2.3	2.7	3	3.3	3.7	4	4.3	4.7	5	5.3	5.7	6	6.3	6.7	7	7.3	7.7	8	8.3	8.7	9	9.3	9.7	10					
4	2.7	3.1	3.5	4	4.4	4.9	5.3	5.8	6.2	6.7	7.1	7.5	8	8.4	8.9	9.3	9.8	10.2	10.7	11.1	11.5	12	12.4	12.9	13.3					
5	3.3	3.9	4.4	5	5.5	6.1	6.7	7.2	7.8	8.3	8.9	9.4	10	10.5	11.1	11.7	12.2	12.8	13.3	13.9	14.4	15	15.5	16.1	16.7					
6	4	4.7	5.3	6	6.7	7.3	8	8.7	9.3	10	10.7	11.3	12	12.7	13.3	14	14.7	15.3	16	16.7	17.3	18	18.7	19.3	20					
7	4.7	5.4	6.2	7	7.8	8.5	9.3	10.1	10.9	11.7	12.4	13.2	14	14.8	15.5	16.3	17.1	17.9	18.7	19.4	20.2	21	21.8	22.5	23.3					
8	5.3	6.2	7.1	8	8.9	9.8	10.7	11.5	12.4	13.3	14.2	15.1	16	16.9	17.8	18.7	19.5	20.4	21.3	22.2	23.1	24	24.9	25.8	26.7					
9	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
10	6.7	7.8	8.9	10	11.1	12.2	13.3	14.4	15.5	16.7	17.8	18.9	20	21.1	22.2	23.3	24.4	25.5	26.7	27.8	28.9	30	31.1	32.2	33.3					
11	7.3	8.5	9.8	11	12.2	13.4	14.7	15.9	17.1	18.3	19.5	20.8	22	23.2	24.4	25.7	26.9	28.1	29.3	30.5	31.8	33	34.2	35.4	36.7					
12	8	9.3	10.7	12	13.3	14.7	16	17.3	18.7	20	21.3	22.7	24	25.3	26.7	28	29.3	30.7	32	33.3	34.7	36	37.3	38.7	40					
13	8.7	10.1	11.5	13	14.4	15.9	17.3	18.8	20.2	21.7	23.1	24.5	26	27.4	28.9	30.3	31.8	33.2	34.7	36.1	37.5	39	40.4	41.9	43.3					
14	9.3	10.9	12.4	14	15.5	17.1	18.7	20.2	21.8	23.3	24.9	26.4	28	29.5	31.1	32.7	34.2	35.8	37.3	38.9	40.4	42	43.5	45.1	46.7					
15	10	11.7	13.3	15	16.7	18.3	20	21.7	23.3	25	26.7	28.3	30	31.7	33.3	35	36.7	38.3	40	41.7	43.3	45	46.7	48.3	50					
16	10.7	12.4	14.2	16	17.8	19.5	21.3	23.1	24.9	26.7	28.4	30.2	32	33.8	35.5	37.3	39.1	40.9	42.7	44.4	46.2	48	49.8	51.5	53.3					
17	11.3	13.2	15.1	17	18.9	20.8	22.7	24.5	26.4	28.3	30.2	32.1	34	35.9	37.8	39.7	41.5	43.4	45.3	47.2	49.1	51	52.9	54.8	56.7					
18	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60					
19	12.7	14.8	16.9	19	21.1	23.2	25.3	27.4	29.5	31.7	33.8	35.9	38	40.1	42.2	44.3	46.4	48.5	50.7	52.8	54.9	57	59.1	61.2	63.3					
20	13.3	15.5	17.8	20	22.2	24.4	26.7	28.9	31.1	33.3	35.5	37.8	40	42.2	44.4	46.7	48.9	51.1	53.3	55.5	57.8	60	62.2	64.4	66.7					
21	14	16.3	18.7	21	23.3	25.7	28	30.3	32.7	35	37.3	39.7	42	44.3	46.7	49	51.3	53.7	56	58.3	60.7	63	65.3	67.7	70					

Width in feet	Length in feet																											
	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
3	10.3	10.7	11	11.3	11.7	12	12.3	12.7	13	13.3	13.7	14	14.3	14.7	15	15.3	15.7	16	16.3	16.7	17	17.3	17.7	18	18.3			
4	13.8	14.2	14.7	15.1	15.5	16	16.4	16.9	17.3	17.8	18.2	18.7	19.1	19.6	20	20.4	20.9	21.3	21.8	22.2	22.7	23.1	23.6	24	24.4			
5	17.2	17.8	18.3	18.9	19.4	20	20.6	21.1	21.7	22.2	22.8	23.3	23.9	24.4	25	25.6	26.1	26.7	27.2	27.8	28.3	28.9	29.4	30	30.6			
6	20.7	21.3	22	22.7	23.3	24	24.7	25.3	26	26.7	27.3	28	28.7	29.3	30	30.7	31.3	32	32.7	33.3	34	34.7	35.3	36	36.7			
7	24.1	24.9	25.7	26.4	27.2	28	28.8	29.6	30.3	31.1	31.9	32.7	33.4	34.1	35	35.8	36.6	37.3	38.1	38.9	39.7	40.4	41.1	42	42.8			
8	27.5	28.4	29.3	30.2	31.1	32	32.9	33.8	34.7	35.6	36.4	37.3	38.2	39.1	40	40.9	41.8	42.7	43.6	44.4	45.3	46.2	47.1	48	48.9			
9	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
10	34.4	35.5	36.7	37.8	38.9	40	41.1	42.2	43.3	44.4	45.6	46.7	47.8	48.9	50	51.1	52.2	53.3	54.4	55.6	56.7	57.8	58.9	60	61.1			
11	37.9	39.1	40.3	41.5	42.8	44	45.2	46.4	47.7	48.9	50.1	51.3	52.6	53.8	55	56.2	57.4	58.7	59.9	61.1	62.3	63.6	64.8	66	67.2			
12	41.3	42.7	44	45.3	46.7	48	49.3	50.7	52	53.3	54.7	56	57.3	58.7	60	61.3	62.7	64	65.3	66.7	68	69.3	70.7	72	73.3			
13	44.8	46.2	47.7	49.1	50.5	52	53.4	54.9	56.3	57.8	59.2	60.7	62.1	63.6	65	66.4	67.9	69.3	70.8	72.2	73.7	75.1	76.6	78	79.4			
14	48.2	49.8	51.3	52.9	54.4	56	57.6	59.1	60.7	62.2	63.8	65.3	66.9	68.4	70	71.6	73.1	74.7	76.2	77.8	79.3	80.9	82.4	84	85.6			
15	51.7	53.3	55	56.7	58.3	60	61.7	63.3	65	66.7	68.3	70	71.7	73.3	75	76.7	78.3	80	81.7	83.3	85	86.7	88.3	90	91.7			
16	55.1	56.9	58.7	60.4	62.2	64	65.8	67.6	69.3	71.1	72.9	74.7	76.4	78.2	80	81.8	83.6	85.3	87.1	88.9	90.7	92.4	94.2	96	97.8			
17	58.5	60.4	62.3	64.2	66.1	68	69.9	71.8	73.7	75.6	77.4	79.3	81.2	83.1	85	86.9	88.8	90.7	92.6	94.4	96.3	98.2	100.1	102	103.9			
18	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110			
19	65.4	67.5	69.7	71.8	73.9	76	78.1	80.2	82.3	84.4	86.6	88.7	90.8	92.9	95	97.1	99.2	101.3	103.4	105.6	107.7	109.8	111.9	114	116.1			
20	68.9	71.1	73.3	75.5	77.8	80	82.2	84.4	86.7	88.9	91.1	93.3	95.6	97.8	100	102.2	104.4	106.7	108.9	111.1	113.3	115.6	117.8	120	122.2			
21	72.3	74.7	77	79.3	81.7	84	86.3	88.7	91	93.3	95.7	98	100.3	102.7	105	107.3	109.7	112	114.3	116.7	119	121.3	123.7	126	128.3			



Camel (Lustrous Finish)



Beaver (Lustrous Finish)



Taupe (Lustrous Finish)



Beige (Lustrous Finish)

Kentshah Stock Colors in Plain Seamless Hand-woven Carpets (Any Special Color Matched)

9, 12, 15, 18 and 21-ft. widths—2 to 5 week's delivery



Mellow Gold



Walnut



Beige



Rose



Peach



Sand Glow



Fawn



Orchid



Briar



Rose Taupe



Blue



Green



Henna



Taupe Lake



Raisin



Jade Green

Stock Colors in Kentico Chenille Carpets (Seamless)

9, 12, 15 and 18-ft. widths—immediate delivery

Sand Glow, Fawn, Orchid, Briar, Rose Taupe and Raisin in 9, 12 and 15-ft. widths only

Plain Carpet Department

In addition to Chenille, to meet the large demand for plain floor coverings and still retain the quality in texture and durability of Orientals, we have perfected our Kentshah Plain Seamless Hand-woven Carpet. This we carry in stock for 2 to 5-week delivery in widths of 9, 12, 15, 18 and 21 ft., in four standard neutral shades. This goods, unlike machine-made carpet, can be dyed in the piece to any other color desired, and its texture blends perfectly with Orientals adjoining. It has a delicate sheen that enhances with wear and shows footprints less than any other plain fabric. It can be cut in exact sizes desired, in either dull (unwashed) finish or silky (washed) finish, with or without fringe. Special colors can be matched.

Price Range on Plain Seamless Carpets—\$11.00 to \$48.00 per sq. yd.

Seamless Chenille Rugs Made to Order in Scotland

Delivery—10 to 14 weeks.

Range of Colors—Unlimited.

Maximum Width—33 ft.

Price Range—\$21.00 to \$66.00 per sq. yd.

Qualities (from Cheapest to Most Expensive)—Ayre, medium pile; Shetland, medium pile; Sutherland, low pile; Essex, high pile; Tudor, medium pile; Orkney, medium pile; Argyle, medium pile; Kentico, medium pile; Wight, high pile.

Patterns Available—

Plain—Entirely plain rugs in any color.

Band Borders—Entirely plain centers, with any arrangement of plain lines or band borders in any color combination.

Two-tone Effects—Simple two-tone designs with lines, band or simple figured border. Repeat of design limited to 4½ in. For special designs there is an extra charge of \$50.00.

Type K—More elaborate designs, with designs of repeats up to 9 in. Any color variety can be used. For special designs there is an extra charge of \$125.00.

Designs of more elaborate nature than Type K can also be made, but they should be submitted to us for special estimate.

Borders and All-over Effects for Seamless Plain Carpets

Block print borders or all-over effects have the great advantage over woven-in borders of quick delivery; the artistic effect is equal, if not superior, and we guarantee absolute satisfaction as to wearing qualities and fastness of color.

Delivery—Block print borders or all-over designs, 3 weeks; woven-in borders or all-over designs, 3 to 6 months.

Range of Colors and Qualities—Kentico Seamless Chenille in beige, sand glow, faun, mellow gold, walnut, taupe lake, taupe, rose taupe, briar, henna, raisin, jade green, Nile green, green, peach, rose, blue, orchid; Kentshah Seamless Plain Hand-woven Carpet in beige, camel, taupe or beaver.

Special colors made to match sample, in Kentshah quality \$8.00 extra per sq. yd. 5 weeks delivery.

Widths in Stock—Kentico Chenille, 9, 12, 15, 18 and 24 ft.; Kentshah carpet, 9, 12, 15, 18 and 21 ft. (Wider than above must be made to order.)

Price Range—For borders \$5.00 to \$10.00 per lin. yd. in addition to price of carpet. For all-over pattern \$5.00 to \$10.00 per sq. yd. in addition to price of carpet.

Flat extra charge for special designs; one or two colors \$50.00; three or four colors \$100.00.

Advantages of Hand-woven Floor Coverings

Our Oriental rugs and hand-woven plain carpets, while more expensive than machine-made domestic floor coverings, have certain advantages.

(1) They give a home atmosphere of hospitality that is impossible to get with other floor coverings.

(2) They excel in durability and investment value. It is a fact, proven by many rugs sent to us by estates of former clients, that a good Oriental will last a lifetime in the home and for ten years at least under condition of heavy hotel wear. It is also well known that in the liquidation of estates the Oriental rugs bring a larger per cent of their original cost than any other property.

(3) They can be readily repaired without detection, native weavers in America simply restoring damaged spots by hand in the original weave.

(4) Their texture is the most attractive and shows no footprints, an objection often raised to chenille and other machine-made carpet.

(5) They can be made seamless to fit exactly any decorative scheme and in perfect sizes.

Rugs Made to Order for Period Rooms

(See third preceding page.)

The majority of home builders, architects and decorators do not realize the wonderful decorative results now possible in having practically any type of hand-made rugs, including Orientals, made to order. All with decorative experience will admit that the floor covering is a most important part of the foundation scheme of a room (which should be given consideration at the same time that the walls and ceilings are planned), yet the tendency is to let the selection of rugs, which are fully as much a background as the walls, remain until the very last even after furniture and draperies have been selected. The final artistic result under such a plan of decorating is very likely to be disappointing. The ideal rugs for the room will more than likely be the wrong size or the wrong color or inappropriate in design or too high in price and the unhappy decorator will spend many vexatious months hunting the market for something suitable. All these difficulties can be overcome by meeting this problem when it should be met—viz: immediately on completion of the blue prints. There will then be time to carefully plan the rugs for the important rooms in the same manner that the fixtures and other parts of the background have been planned.

It is now possible through our organization to weave abroad and deliver in from 3 to 9 months practically every kind of rug available in the stores with many additional types not found in the usual commercial channels. Even antiques can be reproduced in a manner that will give the same charming color and texture effects so much sought after in these old pieces at a much more reasonable price than the originals from which they are made. Among the weaves we have successfully made to order are the French Aubusson and Savonnerie rugs, the Persian Fereghan, Sarouk, Kashan and Kerman rugs, Chinese Rugs, Spanish and Austrian Handtufted rugs and American hooked rugs. These are woven by hand exactly in the same manner and under the same conditions as all Orientals for ages past. It is because of modern improvements in transportation and our careful supervision work that made-to-order rugs are now available in a reasonable time and with assurance of perfect execution. We can furnish many unsolicited letters of appreciation from clients who were at first inclined to be skeptical of the possibilities of this new method of meeting their rug problems.

The success of such work lies largely in the hands of the architect, since he alone can visualize the various rooms as they will appear on completion and he is therefore in the best position to make the proper selection from the various designs and samples submitted. Moreover, the architect is probably the only adviser the owner has to see at the time of completing the blue prints—and if the best results are to be attained the rugs must be planned then. The architect will be well repaid for his efforts in controlling the selection of floor coverings, as the spirit of the home, so often spoiled after the architect has completed the construction, will be carried out to include the interior furnishings. The rugs will be perfect in size, harmonious in design and color, and of a style and texture suited to the home and room which is being planned.

In order to make our suggestions we must be supplied with a set of blue prints including elevations, with the approximate appropriation for rugs and with the predominating colors desired. We then submit colored designs, quality samples and very often small rugs which can be modified to suit the owner's, architect's and decorator's taste exactly. The final approved sketch made up by our designers is sent to our looms in Persia, India, China or Europe, and within the time specified the completed rug will arrive in New York. In case the time available is not sufficient we loan suitable temporary rugs without extra charge pending final delivery. Rugs made to order in this manner having no carrying charge are reasonable in price, and the owner is assured of something unique without duplication.

Should a client have a room already furnished for which a rug is needed his problem of selecting a suitable piece from stock except in the standard sizes is even more difficult. Unless he is fortunate the rug will clash in color or pattern with some of the other furnishings. Here again, the best solution is offered in our special order service—making a rug to fit its surroundings in color and in spirit. The owner will be well repaid for the short wait by having a pleasing and restful ensemble.

WESTERN FELT WORKS

Manufacturers of Westfelt Carpet and Rug Cushions

FACTORY AND GENERAL OFFICES
4029-4133 Ogden Avenue, CHICAGO, ILL.

BRANCH OFFICES

NEW YORK, N. Y., 42 East 20th Street
BOSTON, MASS., 80 Federal Street
SEATTLE, WASH., 1110 Post Street
LOS ANGELES, CAL., 1001 East First Street
SAN FRANCISCO, CAL., 1239 Howard Street

CLEVELAND, OHIO, 750 Prospect Avenue
DETROIT, MICH., General Motors Building
ST. LOUIS, MO., 434 Paul Brown Building
ATLANTA, GA., 310 Rhodes Building
DENVER, COLO., 1166 Gaylord Street
MINNEAPOLIS, MINN., 903 Plymouth Building

Products

WESTFELT CARPET and RUG
CUSHIONS.
TREADSOFT CARPET CUSHIONS.

What Is Westfelt?

Westfelt is a strong, protecting cushion or padding for use under any soft-surface floor covering. When laid under rugs and carpets, it gives a sense of luxurious ease. You have a thick, soft, springy cushion between your feet and the floor. Besides this "feel" of depth and softness which it imparts to any rug or carpet—from the least expensive to the most costly—it gives longer, more comfortable service to the rug thus protected and reinforced.

Westfelt is actually an extra rug or carpet-length manufactured from combed jute fibre, obtained from a plant of the same name grown principally in the Province of Bengal, India. By a special process, the finely combed jute fibres are vertically interlaced through a heavy burlap base which is also made of jute.

Advantages of Westfelt

Economy—Gives long, satisfactory service at a reasonable price. The use of Westfelt and Treadsoft doubles the life of new rugs or carpets; adds years to the life of used ones.

Durability—Westfelt will give years of wear. It lies absolutely smooth and flat; will not curl, twist, or stretch out of shape. It retains remarkable cushion qualities even under carpets subject to terrific traffic.

Sanitation—Westfelt is purely vegetable and sanitary. Being absolutely free from hair or animal matter, there is no possibility of germs, odor or vermin.

Ease of Cleaning—It has a smooth surface, so dust does not work into it. It can be thoroughly and easily cleaned by the professional dry cleaner or with a carpet sweeper or vacuum cleaner.

Comfort—It retards slipping or sliding on polished surfaces; it makes walking safer and easier.

WESTFELT RUG AND CARPET CUSHION



½-in. Westfelt Rug Cushion

Ease of Installation—No anchor is necessary to hold Westfelt to the floor, because it clings as if it were a part of the covering itself. Merely put under rugs at any time by rolling them back. Install under carpets when laid, or before relaying after cleaning. Use cement on sloping aisles in theaters only.

Quietness—Westfelt absorbs the shock of shoe heels and reduces friction between the rug and the floor.

Many builders are using Westfelt underneath carpets in apartments to reduce the overhead noise between floors. The same use applies in private homes, Pullman and private railway cars.

Moth Resistance—Made entirely of vegetable product, Westfelt is free from the animal taint or hair which attracts moths.

Sizes—Westfelt rug preserver cushions are manufactured to fit all size rugs. Popular standard sizes are carried in stock with the edges neatly bound and taped. Odd sizes made special.

All rug cushions are made slightly smaller than the rug size, so that no portion of the pad shows. Each rug is packed in individual dustproof wrapping.

STANDARD DIMENSIONS OF WESTFELT AND TREADSOFT YARD GOODS IN ROLLS*

Thickness	Width	Length	Average weight per sq. yd.
*¼ in.	27 in., 1, 2 and 3 yds.	75 ft.	2.25 lb.
†⅜ in.	27 in., 1, 2 and 3 yds.	75 ft.	2.90 lb.
†½ in.	27 in., 1, 2 and 3 yds.	50 ft.	4.00 lb.
†¾ in.	27 in., 1, 2 and 3 yds.	50 ft.	5.00 lb.

*Made in Treadsoft quality only.

†Made in both Treadsoft and Westfelt quality.
Give exact width required when ordering.

Treadsoft

Made from a raw jute material not quite so light in color. Has wonderful cushion quality and widely used for contract work. Has been also widely used by hotels without any complaint.

Westfelt Guarantee

Westfelt carpet and rug cushions are guaranteed by the manufacturer to give satisfaction. Each is trade-marked for your protection.

MOHAWK CARPET MILLS

AMSTERDAM, N. Y.

ATLANTA, GA.
BOSTON, MASS.
CHICAGO, ILL.

DALLAS, TEX.
DENVER, COLO.
DETROIT, MICH.

REGIONAL SALES OFFICES
DES MOINES, IOWA
LOS ANGELES, CALIF.
PHILADELPHIA, PA.

SAN FRANCISCO, CALIF.
SEATTLE, WASH.
ST. LOUIS, MO.

The Mohawk Carpet Mills Offers Architects a Modern and Complete Woven Floor Covering Service

The selection of suitable rugs and carpets involves many technical problems which may at the start deter the architect from entering this field of activity. There is no reason, however, why any architect, who will take advantage of the service that the manufacturer stands ready to offer, should hesitate to venture into this field. To be specific: he may count upon the following services of co-operation from the MOHAWK CARPET MILLS:

Expert Consultation Service Without Charge

(1) We will, without obligation, send an expert to go over with him the plans for the building to be equipped, to determine the types of fabrics that will suit each particular use.

Samples

(2) We will submit for his examination samples

of the different types of fabric suitable for each use, with approximate cost per square yard.

Stock or Special Pattern

(3) We will offer him a wide range of stock patterns suitable for use in the type of building he is erecting. If none of the stock patterns meets the particular needs, our designing department will prepare for him special designs to blend in motif and coloring with the other features of the building.

Prices

(4) We will give him prices, based upon as low production costs as are to be found in any mills in America.

Delivery

(5) We will deliver goods on the date promised, subject, of course, to conditions beyond our control.

TYPES AND QUALITIES OF CARPETS SUGGESTED FOR VARIOUS SERVICES

The Carpets Are Arranged in Groups According to Quality

Location	1st Quality	2nd Quality	3rd Quality
Banks and Business Offices			
Director's room	Chenille	Rockton "Capital" Broadloom	Arcola Wool Wilton
Private offices	Chenille	Rockton "Capital" Broadloom	Arcola Wool Wilton
Churches			
Aisles	Rockton	Brentmore Wool Wilton	Olympic Wool
Meeting rooms	Rockton	Brentmore Wool Wilton	Olympic Wool
Hotels and Clubs			
Bedrooms	Kenmore Worsted Wilton	Brentmore Wool Wilton	Madison Wool Wilton, Fonda Wool Velvet, Hard Service Axminster
Corridors	Mohawk Saxony	Braeside Wool Wilton	Aristo Axminster
Dining rooms	Mohawk Saxony	Braeside Wool Wilton	Aristo Axminster
Lobby	Mohawk Loom Tufted	Mohawk Saxony	Braeside Wool Wilton
Public spaces	Mohawk Saxony	Braeside Wool Wilton	Aristo Axminster
Institutions			
Bedrooms	Kilmarnock Worsted Wilton	Kenmore Worsted Wilton	Kinross Worsted Wilton
Corridors	Mohawk Saxony	Braeside Wool Wilton	Aristo Axminster
Dining rooms	Mohawk Saxony	Braeside Wool Wilton	Aristo Axminster
Main entrance hall	Mohawk Loom Tufted	Mohawk Saxony	Braeside Wool Wilton
Stairs	Gordon Wool Wilton	Brentmore Wool Wilton, Aristo Axminster	Madison Wool Wilton
Railroad	Kilmarnock Worsted Wilton	Kilmarnock Worsted Wilton	Kilmarnock Worsted Wilton
Residences			
Bedrooms	Stock Chenille	Capital Broadloom, Montroyal Wool	Arcola Wool Wilton
Dining room	Special Design Chenille	Mohawk Saxony, Kilmarnock Worsted Wilton, Mohawk Imperial Axminster	Madison Wool Wilton, Tampa Axminster
Halls	Special Design Chenille	Mohawk Saxony, Kilmarnock Worsted Wilton, Mohawk Imperial Axminster	Madison Wool Wilton, Tampa Axminster
Living room	Special Design Chenille	Mohawk Saxony, Kilmarnock Worsted Wilton, Mohawk Imperial Axminster	Madison Wool Wilton, Tampa Axminster
Music room	Special Design Chenille	Mohawk Saxony, Kilmarnock Worsted Wilton, Mohawk Imperial Axminster	Madison Wool Wilton, Tampa Axminster
Servants' rooms	Arcola Wool Wilton	Olympic Wool	Baltic
Service stairs	Fonda Wool Velvet	Columbian Axminster	Catskill Axminster
Stairs	Special Design Chenille	Mohawk Saxony, Kilmarnock Worsted Wilton, Mohawk Imperial Axminster	Madison Wool Wilton, Tampa Axminster
Steamships			
Cabins			
Deluxe	Brocade Wool Wilton	Kenmore Worsted Wilton	Kinross Worsted Wilton
1st Class	Kenmore Worsted Wilton	Kinross Worsted Wilton	Madison Wool Wilton
2nd Class	Kinross Worsted Wilton	Brentmore Wool Wilton	Madison Wool Wilton
3rd Class	Madison Wool Wilton	Hard Service Axminster	Catskill Axminster
Companionways and corridors	Mohawk Saxony	Gordon Wool Wilton	Mohawk Imperial Axminster
Dining salons	Mohawk Saxony	Braeside Wool Wilton	Brentmore Wool Wilton, Scotia
Lounge	Mohawk Saxony	Glenburn Wool Wilton	Braeside Wool Wilton
Main salon	Mohawk Saxony	Glenburn Wool Wilton	Braeside Wool Wilton
Smoking rooms	Capital Broadloom	Arcady Wool Heather	Medford, Baltic
Theaters			
Auditorium	Mohawk Saxony	Gordon Wool Wilton, Scotia Velvet	Aristo Axminster
Lobby	Special Design Chenille	Mohawk Saxony	Braeside Wool Wilton, Scotia Velvet
Lounge, dressing rooms, etc.	Mohawk Saxony	Hard Service Axminster	Baltic
Stairs	Mohawk Saxony	Gordon Wool Wilton	Aristo Axminster

Mohawk Mills Produce Every Modern Weave

Mohawk, the *only* mills in America producing every modern weave, offers to architects for contract specification carpets in the weaves mentioned on this and the preceding page. Each weave, in turn, is offered in a

number of grades. This makes it possible to carpet every part of any building economically and with exactly the right fabric—and all from one mill, assuring uniform quality.

Chenilles

Deep-piled, lustrous, softly beautiful, Mohawk Chenilles possess a distinctive and luxurious character. Chenille is the one domestic floor covering of unlimited possibilities, in design, color, shape and depth of pile. It can be woven to order to fit, without cutting, any specified outline, however irregular.

For example, the giant Mohawk Chenille rug in the Fox Theatre in San Francisco has a large semi-circular inset, woven in, to run around the grand staircase. Specially designed symbols, made a part of the pattern, reflect the personality of the theatre and bespeak its individuality.

Made of lustrous yarns

of selected quality, Mohawk Chenilles are recommended for lobbies and public rooms where long wear, coupled with sumptuous "feel" and appearance, are

desired. Many of America's finest hotels, apartment houses, theatres and private residences are equipped with Mohawk Chenille. Chenille is also available ready woven in many plain tones, both in rugs and carpets.



Executive Officers' Foyer in the Bank of Manhattan Trust Company—Mohawk Carpeted



Mohawk "Capital" Broadloom Carpet

Mohawk "Capital" Broadloom Carpet is contributing its charm and service to countless interiors of distinction. Broadloom is made in eight widths, from 27 in. to 18 ft., and in 24 varied shades and colors. With this wide range of fabrics it is possible to cover any floor in a beautiful single tone carpeting—seamless from wall to wall. It is a durable, deep-piled fabric made of yarns that provide a carpet of great resiliency.

The Broadloom range of colors, shown at left, is wide enough to insure a tonal blend with any decorative scheme, or the carpet itself will form the background for tasteful color harmony. Homes, clubs, hotels, offices and theatres take many *miles* of Mohawk "Broadloom" every year. Broadloom colors are: Taupe, Natural, Fawn, Peach, Burma Rose, Briar, Castillian Red, Taupe Lake, Heather Mist, Rose Taupe, Jade Green, Blue, Raisin, Orchid, Black, Forest Green, Mulberry, Burgundy, Ashes of Roses, Turquoise Blue, Sage Green, Crimson, Gold, French Blue.

Worsted Wilton Carpet

Worsted Wilton Carpet is especially suited to the higher type of hotels, clubs and residences. Next to Chenille, Wilton is the most luxurious weave. It is the one generally known as having "buried" or hidden quality, since a portion of the yarn used in the fabric is buried in the back, adding resiliency and quality to the carpet. On this page are shown two of the many worsted Wilton patterns.



Kenmore Pattern 2144-C



Kinross Pattern 3018-T

Mohawk Carpet Fabrics Are Styled Each Year

All of our carpet fabrics are thoroughly styled each year to insure an active choice in keeping with decorative trends in general.



Mohawk Saxony Pattern 19-E

Saxony Weave (Wool Wilton) Carpets

These carpets are woven of heavy spun woolen yarn and are built in various frames. They are suitable for hotels and institutional lobbies, corridors and other public concourses. The wool is blended with great care to give the carpet the durability it must have. Mohawk offers several grades or variants of the Saxony construction.



Mohawk Saxony Pattern 90-H



Gordon Pattern 396-K

Wool Wilton Carpets

Wool Wilton Carpet is a high pile fabric suitable for theater auditoriums, public spaces in institutions, and for residences where a high type of carpet is desired. Wool Wilton is a durable carpet built for hard usage and offers excellent facilities for special design and color combinations.



Gordon Pattern 316-E



Aristo Pattern 1023

Axminster Carpets

The Axminster is a firmly woven carpet which has been an extensive seller on the American market and its quality is very well known. The pile is high and is composed of lustrous yarns. The new line of patterns includes splendid up-to-date effects for contract work. The Axminster is also a heavy duty carpet.



Tampa Pattern 6605



Columbian Pattern 5341

Velvet Carpets

Velvet Carpet is a good-looking, substantial fabric especially recommended where service considerations and price are paramount. It is made both in body and stair carpets, plain and designed.



Columbian Pattern 2340

Mohawk "Orientals"

A wide choice of American "Orientals" is offered in Mohawk's two exceptional series—the Caliph and its lower-priced running-mate, the Viceroy.

Architects whose plans require the charm of

pattern and lustre, the silky "feel," peculiar to the Oriental, will find in the Caliph and Viceroy, fabrics to meet every decorative need and every budget allowance.

The Caliph

This rug is woven of worsted yarn and has a deep, rich pile and an incomparable lustre. Included in the range of Caliph patterns are 30 faithful reproductions of venerable museum pieces, all of them priceless. The Caliph is, in fact, the *only* sheen-type rug in the \$150 price range, which is *all worsted*. Like the Viceroy, it is available in all the standard sizes.

The Viceroy

Oriental lustre at a remarkably low price could be produced only through the resources of a great mill like Mohawk. The Viceroy is offered in a choice of 20 color combinations and patterns, each inspired by a museum masterpiece. It's a seamless rug, woven of heavy wool, and has a deep, rich pile—truly an astounding achievement in the art of rug weaving. The Viceroy is in the \$100 retail price range.



Caliph Pattern 136/99

Guarantee

We guarantee every yard of Mohawk goods against defects either in materials or workmanship.

We want to emphasize that all this service is rendered in co-operation with local dealers or with contract supply houses. You can get their service in addition to all the above at no added cost. We will also give the names of reliable local dealers who can handle the entire contract and give estimates for the work.

Handbook

We have issued a handbook of rugs and carpets containing valuable information for architects and decorators. It is a 27-page booklet in full color, durably bound. It will serve you as a modern reference work on the various types and grades of carpets and rugs manufactured to-day.

Write for your free copy. Address the Contract Department.

A Deep and Enduring Lustre

The Caliph's lustre will endure for the life of the rug. The proof? Take a pencil, or your index finger, and lay back the pile. Notice its depth and also the fact that the softly beautiful lustre penetrates clear through to the warp. This distinctive feature of the Mohawk Caliph is the result of a careful selection of wools—plus a perfected treatment.



FLOOR ACCESSORIES CO., INC.

Tackless Carpet Strips

GENERAL OFFICE
KANSAS CITY, MO.

AGENTS IN PRINCIPAL CITIES

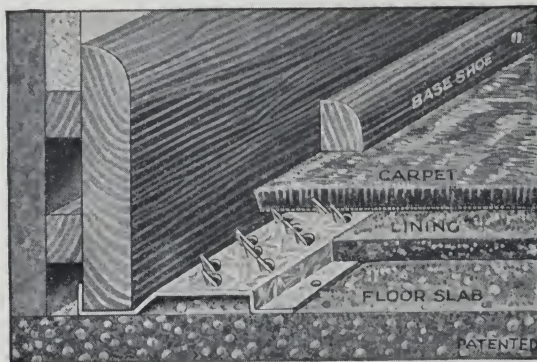
Products

TACKLESS CARPET STRIPS.

For Ankortite Floor Joiners, Floor Clips, Buck Anchors, Shelf Angle Fixtures and Hanger Fixtures, Recessed Floor Bar and Standard Brass Thresholds, see Manufacturers' Index.

Tackless Carpet Strip

By eliminating tacks, the Tackless Carpet Strip produces a smooth carpet installation—free from exposed tack heads or depressions. The smoothness and beauty of carpeted floors, together with the simplicity and economy of the strip, makes it a most practical and satisfactory method of carpet fastening.



Design No. 1

Fits Under and Locks Behind the Baseboard

This design is installed when the baseboard is being attached

The Tackless Carpet Strip is made of 24-gauge non-corrosive metal with three rows of upturned teeth for holding the carpet. It contains 36 teeth per lineal foot, which take a firm grip in the base of the carpet and hold more securely than a single row of tacks in wood or composition strips, or plugs. The strip is used in both new buildings and in carpeting rooms or offices where the baseboard is already in place.

As the baseboard is put on the Tackless Carpet Strip is laid under it with the baseboard resting in the channel of the strip. The baseboard, when attached, locks and holds the strip in place, but the strip may also be nailed to the floor at intervals if additional security is desired. Special case-hardened nails for driving into concrete floors are furnished for this purpose. The installation of the strip, therefore, is quick and economical.

When the strip is in place the carpets are laid by the same methods as where tacking is used, except that the carpet is pressed over the teeth on the strip by running a hammer or other tool over it instead of driving tacks into a nailing strip. After the carpet is laid, the base shoe is attached to the baseboard as usual.

The Tackless Carpet Strip is placed along the baseboard only. At doorways or other openings and around hearths where there is no baseboard, the carpets are fastened in the manner ordinarily used at such places.

Advantages

Produces a smooth, workmanlike and beautiful carpet installation, free from tack heads or depressions.

Is simple, quick and economical to attach.

Eliminates tacking. Facilitates laying. Lasts the life of the building.

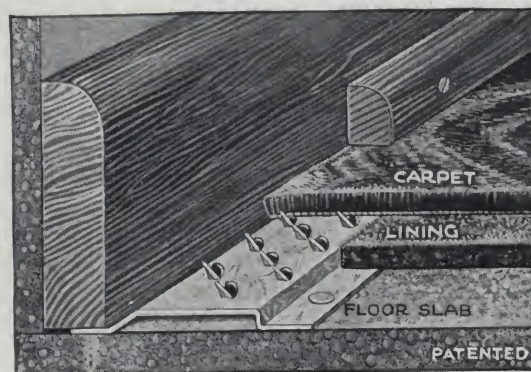
Holds stronger than tacking; is more durable and dependable.

Permits easy removal of carpet for cleaning or replacement without injury to carpet or strip. Shows same economy in relaying as in original installation.

With concrete floors it eliminates the cost of material and labor to provide a tacking strip since it is necessary only to float the structural concrete to a level surface.

Eliminates the burying of wood grounds in concrete floor slab prior to determining the exact location of partitions as well as the uncertainty of finding the grounds.

Installation of the strip requires but one operation, the cost of which is easily determined, and is far more economical than methods that require several scattered operations that are hard to compute individually but nevertheless have an excessive combined cost.



Design No. 2

Used Where Baseboard Is Already in Place

This style is slid under the baseboard slightly and nailed through holes provided in the opposite flange. Special nails for driving into concrete are furnished with this design also

Prices

Design No. 1.....5¢ lin. ft.

Design No. 2.....5¢ lin. ft.

Concrete nails included and freight allowed. Furnished in standard lengths of 8 ft. and is easily cut on the job to fit any space.

When ordering, please state design desired and thickness of lining to be used under carpet. On orders for No. 1 Design, thickness of baseboard should also be given.

Architect's Specification

(Recommended under carpentry work.)

This contractor shall provide and install at all walls, partitions and other vertical surfaces in rooms shown or specified to be carpeted, the Tackless Carpet Strip manufactured by the FLOOR ACCESSORIES Co., Inc., Kansas City, Mo. This Carpet Strip shall be their Design No. (state here whether No. 1 or No. 2) of the proper height to accommodate the thickness of carpet lining to be used and placed in accordance with manufacturer's directions.

DAPRATO STATUARY COMPANY

Creations in Ecclesiastical Art

STUDIOS
CHICAGO, ILL., NEW YORK, N. Y.
PIETRASANTA, ITALY

762-770 West Adams Street
CHICAGO, ILL.

BRANCH DISPLAY ROOMS
NEW YORK, N. Y., 53 Barclay Street

Products

ECCLESIASTICAL WORK, such as: Altars, Altar Railings and Pulpits of Marble, Scagliola and Rigalico; Statues, Stations of the Cross; Cemetery Groups, Stained Glass Windows, Sounding Boards; Baptismal Fonts; Sanctuary Lamps; Electroliers; Monuments, Oil Paintings, Mosaics, Special Modeling and Sculpturing, Voice Amplifier Systems, etc. Correspondence invited.

Services and Facilities

The DAPRATO STATUARY COMPANY are designers, sculptors, and makers of ecclesiastical products.

Their studios, which have been established for 70 years, are today among the largest of their kind in

the world, and maintain a staff of artists, modelers and sculptors of exceptional skill and ability.

The Daprato Library of Ecclesiastical Art, which they believe is the most extensive of its kind, enables them to certify to the liturgical, historical and architectural correctness of their productions.

Original designs of architects for the creation of new forms in architectural embellishment in the form of special statuary, relief work or ornamental effects will be faithfully and correctly executed.

The DAPRATO STATUARY COMPANY will gladly assist in the execution of monumental projects as well as in the execution of smaller projects where the financial resources are necessarily limited.



Designed by Joseph Venne, Architect

Rigalico Altar—Sacre Coeur de Jesus Church, Montreal, P. Q.

Altar and ornamental arch (the latter rising above section shown) are made of Rigalico. Some conception of the size of above altar will be gained from the fact that there are more than 250 statues in the reredos niches. Note that upper panels contain mosaics, central panel reliefs, while the lower panels are embellished with gold glass mosaic. With the exception of the angelic choir shown in upper relief, the above altar was executed in its entirety in the studios of DAPRATO STATUARY COMPANY, Chicago, New York and Montreal.

THE GORHAM COMPANY

Ecclesiastical Productions

576 Fifth Avenue at 47th Street
NEW YORK, N. Y.

For Gorham Catalogue of Ornamental Metal Work, see Manufacturers' Index

ECCLESIASTICAL DEPARTMENT

Co-operation with architects producing work in: marble and wood altars, stained glass windows, interior decoration, mural paintings, lighting fixtures, cemetery memorials, altar fixtures in brass and bronze.

A partial list of Gorham productions includes the following:

Altars
Altar rails

Balustrades
Bulletin boards

Candlesticks
Candelabra
Communion ware
Crosses
Crucifixes
Doors
Ecclesiastical wares
Elevator doors
Gates

Lamps, sanctuary
Lamp standards
Lecterns
Letters
Mausoleum doors
Pulpits
Railings
Signs
Tablets



Main Altar, Two Side Altars, Altar Railing, all in Bianco P. Marble, Executed by Gorham for St. Andrew's Church, Cincinnati, Ohio

G. E. WALTER, INC.

Designers and Manufacturers of Duretta Composition, Artificial Stone, Ornamental Plaster, Duro-Compo Ornaments for Woodwork, Lighting Fixtures, Wrought Iron, Metal Work and Interior Finishes

425 East 53rd Street
NEW YORK, N. Y.

Products

Ornamental Plastering—All period styles including the modernistic, antique plaster finishes and parge plastering.

Interior Cast Stone—All types of plain and ornamental imitation stone for interiors, both applied and precast. Caen Stone, Limestone, Travertine, etc.

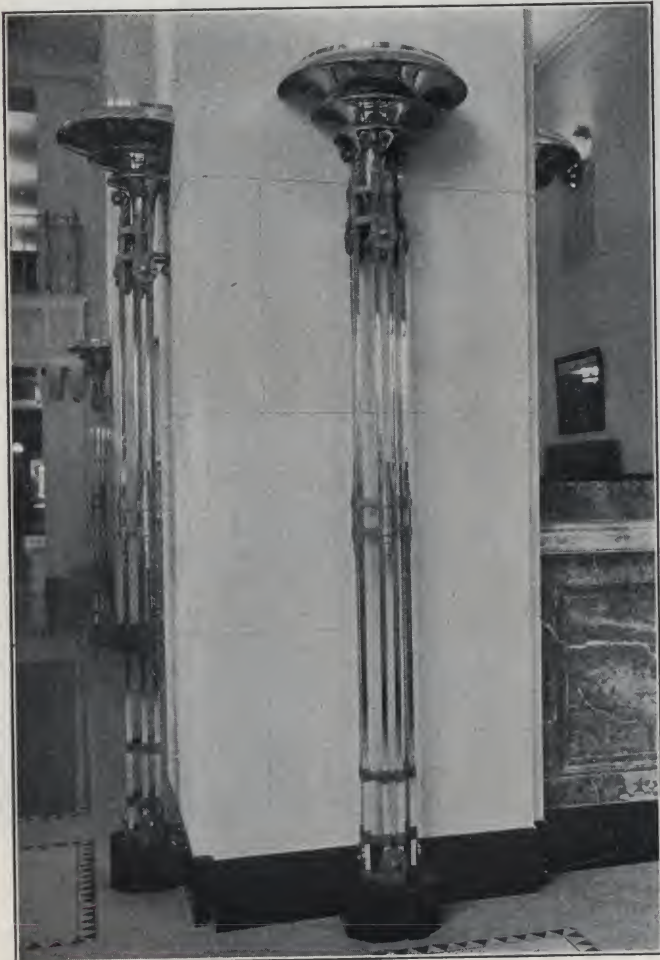
Cast Stone Mantels—Catalogue on request of period reproductions.

Duro-Compo Ornaments for Woodwork—Pressed composition exactly imitating carved wood and applied to woodwork. Soft and flexible when applied but becomes hard as rock, and if properly applied, will adhere permanently. Six or seven thousand stock designs comprising column and pilaster caps, mouldings, rosettes, festoons, friezes, corbels, stair brackets, panels, Grinling Gibbons ornaments, and a wide variety of other ornamental details.

Models—Will execute plaster or carved wood models for stone or metal.

Lighting Fixtures—Design and manufacture all types of lighting fixtures in wrought iron, bronze, crystal and compo. Specializing in reproduction of the antique and special design work. Wide range of designs in English, Italian, Spanish, French and Colonial styles, comprising wall brackets, ceiling fixtures, lanterns, floor and table standards. Will submit special designs for entire schemes for any type of building.

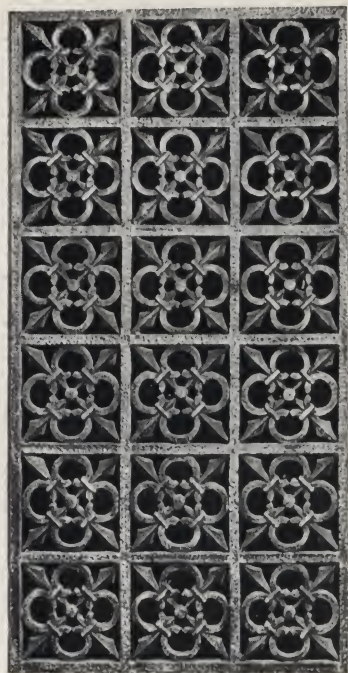
Wrought Iron, Bronze and Other Metals—Equipped to make a considerable variety of special objects and architectural details in metal requiring a high type of workmanship. Fine finishes and originality of construction, including cast metals, such as bronze, brass, aluminum, galvano work, sheet metal and wrought metal.



Standards in Bronze and Chromium



Duretta Ornaments, Aluminum and Bronze Door Panel, Wrought Iron Rail



Grille D-105



Duretta, Ornamental Plaster, Cast Stone and Wrought Iron by G. E. Walter, Inc.



Door Panel D-106

Duretta Fireproof Composition

What It Is—Duretta is a fibrous fireproof composition, cast in gelatin moulds and reinforced with metal where necessary. It exactly reproduces plain and carved woodwork or metal, is comparable to wood in durability and will neither warp nor shrink. It can be easily stained, painted or gilded. Duretta work is easily erected and can be secured in place with nails or screws.

The Bureau of Buildings of New York City has approved Duretta for use in fireproof buildings.

General Types and Uses—Duretta can be used as a substitute for wood in the decoration of fireproof buildings and is suitable for plain and carved paneling, ceilings, mantels, grilles, frames, consoles, lighting fixtures, etc. There are three distinct types of Duretta which are specified according to their uses:

Duretta Wood Composition.

Duretta Iron Composition.

Duretta Exterior Composition.

Modernistic Style—Duretta in special finishes such as polished silver, gold and copper is an excellent medium for the expression of modern ideas in decoration.

Planning Special Work—We are prepared to co-operate with the architect in the planning of any special work involving the use of Duretta. Where given definite information as to the general type of work, sizes and quantities, we will prepare sketches utilizing our stock designs where possible. This service is rendered without obligation.

Cost—In the matter of cost Duretta work will generally be found considerably more economical than wood. This is especially true where the design includes carved features. Where plain paneling is used the saving over

wood will depend upon the proportion of repetition, the extent to which a limited number of moulds can be used for a quantity of casts.

Columns—Exterior or interior columns and pilasters of any type are practical in Duretta, or caps, alone, can be supplied for columns or pilasters in other materials.

Half-timber—Duretta half-timber work is recommended primarily for fire-proof construction, and for use in general, where the design is largely ornamental.

Mantels—Duretta mantels in imitation wood are especially adapted for requirements calling for a quantity of mantels of the same design and size. Also, mantels in imitation stone.

Duretta Wainscots—Duretta wainscots are cast in sections of one to four panels in width. They can be screwed to wood grounds or applied to any wall presenting an even surface.

Ceilings—Duretta is used for coffered and beam ceilings in carved wood effect, also cornices and corbels.

Duretta Door Panels—Duretta door panels are cast in one piece and can be inserted in either wood or fireproof metal doors. They can be secured with narrow mouldings or by screws.

Ornamental panels of various types can also be successfully used in connection with woodwork for many other purposes.

Rails—Duretta has been extensively used for carved balusters.

Duretta Grilles—Duretta grilles are furnished unfinished or in bronze, gilt, verde antique, rusty iron, polished iron, marble and various other finishes. Duretta grilles range in thickness from 1/2 in. up, according to the design.

Special Designs and Estimates

In addition to our large line of stock ornaments in Compo and Duretta composition, we are equipped to make up models of special designs, and will quote prices promptly on this character of work upon receipt of scale

or detail drawings. Where given definite information as to the general type of work, sizes and quantities, we will prepare sketches utilizing our stock designs where possible.



FURNITURE AND EQUIPMENT

- Advance Directory Co.....C4246
 Akins Products Inc.....C4247-4249
 Albatross Steel Furniture Co., Ltd.....C4282-4283
 Alberene Stone Co.....C4291
 Armstrong Cork Co.....C4259
 Art Metal Construction Co.—
 Hospital CabinetsC4284-4285
 Interior EquipmentC4199-4224
 Atlas Metal Works.....C4347
 Bassick Co.C4230-4231
 Beckley-Cardy Co.C4261-4263
 Berger Mfg. Co.....C4232
 Buck X-Ograph Co.....C4286
 Bunnell, J. H., & Co., Inc.....C4350
 Capitol Mail Chute Corp.....C4239
 Circle A Products Corp.—
 Kitchen CabinetsC4314
 WardrobesC4351
 Clark, R. W., Mfg. Co.....C4250-4251
 Concealed Bed Corp.....C4292-4295
 Creo-Dipt Co., Inc.....C4342-4343
 Curtis Cos. Service Bureau.....C4312-4313
 Cutler Mail Chute Co.....C4240-4241
 Davenport-Taylor Mfg. Co.....C4252
 Dudfield Mfg. Co.....C4273
 Durabilt Steel Locker Co.....C4234-4235
 Elgin Stove & Oven Co.....C4316-4317
 Evans, W. L.....C4352
 Excel Metal Cabinet Co. Inc.—
 Hospital CabinetsC4288-4289
 Kitchen CabinetsC4315
 Fain Folding Furniture Corp.....C4346
 Griffin Mfg. Co., Inc.....C4348-4349
 Grigor-Heyman Corp.C4278-4279
 Hoffman, Andrew, Mfg. Co.....C4274
 International Nickel Co., Inc.—
 Hospital EquipmentC4287
 Kitchen Cabinet Working Tops, etc.....C4318
 Jamestown Metal Equipment Co.....C4225
 Janes & Kirtland, Inc.....C4322-4323
 Keil, Francis, & Son, Inc.....C4242
 K-M Supply Co.....C4354-4355
 Liberty Mfg. Co.....C4253
 Likly-Rockett Inc.C4353
 Lyon Metal Products, Inc.....C4233
 Masters Steel Frame Co.....C4276-4277
 Matthews, Jas. H., & Co.....C4254-4255
 Midwest Concealed Bed Corp.....C4296-4297
 Mundet, L., & Son, Inc.....C4260
 Murphy Door Bed Co.—
 Concealed BedsC4298-4303
 Kitchen CabinetsC4319-4321
 Natural Slate Blackboard Co.....C4264-4265
 New York Silicate Book Slate Co.....C4266
 Nystrom, A. J., & Co.....C4275
 Olean Metal Cabinet Works, Inc.....C4324-4333
 Park, Winton & True Co.....C4356
 Parsons Co.C4334
 Penn Metal Co. of Penna.....C4238
 Peterson and Neville, Inc.—
 Hospital CabinetsC4290
 Kitchen CabinetsC4339
 Rockford Steel Furniture Co.....C4340-4341
 Rowles, E. W. A., Co.....C4267-4269
 Seng Co.C4304-4305
 Sikes Co.C4228-4229
 Snead & Co.....C4236-4237
 Soellner, Herman, Inc.....C4357
 Sterling Ti-Di-Nette, Inc.....C4344-4345
 Tablet & Ticket Co.....4256-4258
 United Metal Box Co., Inc.....C4243
 United States Mail Chute Corp.....C4244-4245
 Valleyco Co., Inc.....C4272
 Vogel-Peterson Co.C4280-4281
 Wasmuth-Endicott Co.C4335-4338
 Watson Mfg. Co.....C4226-4227
 Weber Costello Co.....C4270-4271
 "White" Door Bed Co.....C4306-4311



STEEL and BRONZE INTERIOR EQUIPMENT

for
Banks, Public Buildings
and Libraries



ART METAL CONSTRUCTION COMPANY
JAMESTOWN, NEW YORK

ART METAL BUILT-TO-ORDER WORK

Art Metal maintains a large engineering force for the designing and detailing of interior equipment in steel and bronze. The following list will convey some idea

of what can be furnished in Art Metal. We shall be pleased to submit designs and estimates on anything in interior furnishings.

BANK EQUIPMENT—Pages 6 to 10

Counter Fronts
Counter Screens
Counters
Check Desks
Wickets and Grilles
Sign Plates

Currency Guards
Currency Cages
Coin Guards
Coin Trays
Partitions
Wainscoting

Rail and Gates
Doors
Cage Partition
Coupon and Phone Booths
Sorting Racks
Coin Trucks

Book Trucks
Omnibuses
Entrance, Vestibule, Elevator
and Interior Doors in
Bronze or Steel

LIBRARY EQUIPMENT—Pages 13 to 25

Bracket Stacks
Standard Stacks
Floors
Stairs
Railing

Delivery Counters
Book Lifts
Window Guards
Magazine and Newspaper
Racks

Book Trucks
Folio Cases
Library Tables
Herbarium Cases
Insect Cases

Museum Cases
Flag Cases
Film Cases
Entrance, Vestibule, Elevator
and Interior Doors in
Bronze or Steel

PUBLIC BUILDING EQUIPMENT—Pages 11 and 12

Ballot Boxes
Jury Wheels
Counters

Counter Screens
Document Files

Roller Shelves
Office Partition

Entrance, Vestibule, Elevator
and Interior Doors in
Bronze or Steel

HOLLOW METAL DOORS AND TRIM—See Manufacturers' Index

Base Mouldings
Bucks
Casings

Cornice Moulding
Doors, Fire
Doors, Hollow Metal in
Bronze and Steel

Dumbwaiter Enclosures
Elevator Enclosures
Jambs
Picture Mouldings

Scribe Mouldings
Trim, Hollow Metal
Wire Moulding

SECTIONAL METAL OFFICE PARTITIONS—See Manufacturers' Index

Cornice Height
Ceiling Height

Ceiling Height with Exten-
sion Parts

Grille
Vertical Unit Type

Wickets

HOSPITAL EQUIPMENT—See Manufacturers' Index

Laboratories Fixtures
Kitchen Cabinets
X-Ray Viewing Cabinets

X-Ray Storage Cabinets
Instrument Cases
Ether Cases

Blanket Warmers
Lockers
Storage Shelving

Partitions
Entrance, Vestibule, Elevator
and Interior Doors

ARCHITECTURAL BRONZE—See Manufacturers' Index

Bronze Wickets
Bronze Grilles

Bronze Counter Screen
Bronze Tablets

Bronze Doors (Cast)
Bronze Doors (Etched)

Bronze Doors (Welded)
Bronze Spandrels

MISCELLANEOUS

Book Cases
Bulletin Boards
Omnibuses
Revolving Cases
Stamp Cases
Plan Cases

Desks
Filing Cabinets
Fire Safes
Shelving
Map Racks
Lockers

Directors' Tables
Mailing Tables
Wardrobes
Tote Boxes
Film Cases
Laboratory Equipment

Kitchen Equipment
Bins
Factory Storage Racks
Factory Equipment, Fore-
men's Desks, etc.

ART METAL CONSTRUCTION COMPANY

GENERAL OFFICES AND FACTORIES

JAMESTOWN, N. Y.

BRANCH OFFICES

ALBANY, N. Y., 100 State Street
BALTIMORE, MD., 124 West Fayette Street
BIRMINGHAM, ALA., 1825 Comer Building
BOSTON, MASS., 94 Federal Street
CHICAGO, ILL., 173 West Madison Street
CINCINNATI, OHIO, 503 Duttonhofer Building
CLEVELAND, OHIO, 901-902 National City Bank Building
DALLAS, TEX., 1704 Republic Bank Building
DETROIT, MICH., 1408 David Stott Building
HARTFORD, CONN., 75 Pearl Street
INDIANAPOLIS, IND., 3536 Meridian Street
JACKSONVILLE, FLA., 519 Barnett Natl. Bank Building
KANSAS CITY, MO., 110 Scarritt Building

LOS ANGELES, CALIF., 608 Builders Exchange Building
MEMPHIS, TENN., 1759 Glenview Ave.
MINNEAPOLIS, MINN., 1441 Northwestern Natl. Bank Building
NEW YORK, N. Y., 369 Broadway
25 West 43rd Street
PHILADELPHIA, PA., Ninth and Sansom Streets
PITTSBURGH, PA., 315 Oliver Building
PORTLAND, ME., 33 Exchange Street
SEATTLE, WASH., 310 Columbia Street
ST. LOUIS, MO., 620-622 Arcade Building
ST. PAUL, MINN., 310 Cedar Street
SYRACUSE, N. Y., 119 Niven Street
WASHINGTON, D. C., 301 Southern Building

LONDON, ENGLAND, 199-203 Buckingham Palace Road

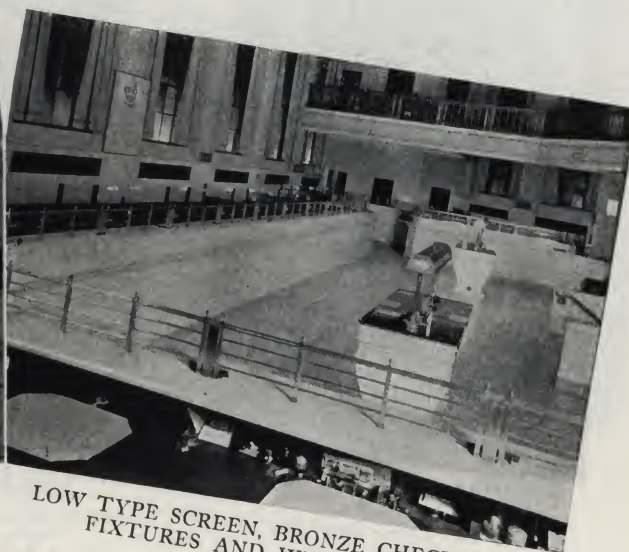
THE GENERAL SCOPE OF ART METAL INTERIOR EQUIPMENT

BANK EQUIPMENT

See Page 6



**BANK SCREEN AND FIVE BRONZE
CHECK DESKS**
Main banking room of Northern Trust Co., Chicago, Ill.
CHARLES FROST and O. C. HENDERSON, Architects



**LOW TYPE SCREEN, BRONZE CHECK DESK
FIXTURES AND WROUGHT IRON
GALLERY RAIL**
Monongahela National Bank, Pittsburgh, Pa.
EDWARD STOTZ, Architect

LIBRARY EQUIPMENT

See Page 12



TWO STORY STANDARD STACK
New York State Educational Library, Albany, N. Y.
PALMER, HORNPOSTEL & JONES, Architects



**REFERENCE ROOM SHOWING DEPART-
MENTAL STACKS**
Philadelphia Free Library, Philadelphia, Pa.
HORACE TRUMBauer, Architect

HOLLOW METAL DOORS AND TRIM

See Manufacturers' Index

BEAUTIFUL HOLLOW METAL
DOOR

New York County Court House,
New York, N. Y.
GUY LOWELL, Architect



TYPICAL STOCK DOOR
AND TRIM

First National Bank Building,
Boston, Mass.
YORK & SAWYER, Architects



MONUMENTAL BRONZE DOORS
Philadelphia Free Library, Philadelphia, Pa.
HORACE TRUMBAUER, Architect

ELEVATOR ENCLOSURES AND CABS

See Hollow Metal Doors and Trim

MAIN LOBBY ELEVATOR
ENCLOSURE

Detail showing etched bronze panels, Lord
Baltimore Hotel, Baltimore, Md.
W. D. STODDARD, Architect



BRONZE ELEVATOR CAB
INTERIOR

Hudson Building, Boston, Mass.
KROKYN & BROWNE, Architects

PARTITIONS

See Manufacturers' Index



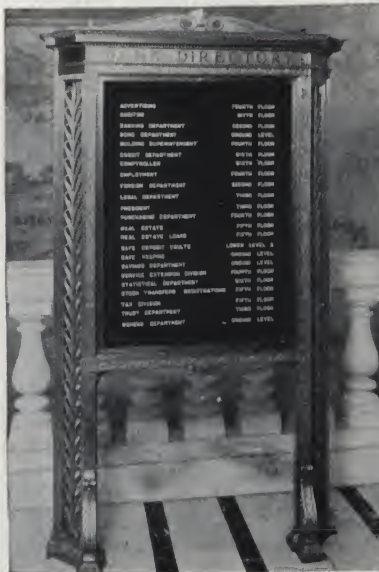
STANDARD SECTIONAL PARTITION
Ciba Co., Inc., New York, N. Y.
R. DeVERE HOPE, Architect



CEILING HEIGHT PARTITION
Basement of Aluminum Company of America,
New Kensington, Pa.
P. R. L. HOGNER, Architect

ORNAMENTAL BRONZE

See Manufacturers' Index



CAST BRONZE DIRECTORY
Northern Trust Co., Chicago, Ill.
FROST and HENDERSON, Architects



BRONZE GRILLES, TRANSOM, ETC.
Entrance City Clerk's Office, City Hall, Atlanta, Ga.
G. LLOYD PREACHER & Co., Architects



BRONZE VAULT ENTRANCE AND GATES
First National Bank, Beaver Falls, Pa.
EMMETT E. BAILEY, Architect

ART METAL IN THE MODERN BANK

For more than forty years ART METAL CONSTRUCTION COMPANY has assisted architects, bankers and public officials in the arrangement and decorations of banks and buildings of the commonwealth. Practically every city in America does its banking in one or more institutions in which the steel equipment and bronze grilles, doorways and furniture were produced by the ART METAL CONSTRUCTION COMPANY. One bank in every four has Art Metal furnishings. This vast experience in building metal equipment for bank interiors has given Art Metal engineers and designers a tremendous store of specialized knowledge of the requirements of bank work. This experience is freely available to every architect confronted with the problem of designing a bank interior.

Art Metal equipment for banks includes the following: Bronze entrance and vestibule doors; elevator enclosures; check desks, counter screens; wicket and vault grilles; cage partitions; bank counters, filing equipment; bookkeeping desks; savings ledger desks; desks for officers' use; coupon booths, etc.

The Counter Screen Gives Character to the Interior

During its long experience ART METAL CONSTRUCTION COMPANY has produced every style of bank equipment for every size and kind of bank from the large metropolitan banking institutions to the modest rooms of banks in small communities all over the country. Probably the most prominent feature of any banking room and one which gives it character is the counter screen.

While the style of this equipment is largely one of individual taste the modern trend is away from the high, massive screen towards the low one which gives a more open, airy effect, enhancing the architectural design and decorative details of the banking room. In some instances the screen above the counter is entirely eliminated. Art Metal counter screens are composite fixtures built with metal or marble front, harmonizing in material and finish with the general architectural scheme.

When desired, ART METAL CONSTRUCTION COMPANY will handle the entire work including the marble base although they prefer to do only the metal work, placing it on marble or other base after it has been finished by others.

A Type of Counter for Every Need

ART METAL CONSTRUCTION COMPANY makes two general types of counters. One is the usual flat counter and the other is provided with a metal roll top which can be readily closed, protecting everything on the counter when the teller is temporarily absent. The space below the counter may be left open or drawers or a cupboard for the teller's use may be placed there. Both types of counter with different bases are shown in detail on page 8 and illustrated on page 9.

Tellers' Cages

Modern practice is also towards the elimination of cages which carry out the open effect of the low screens and at the same time afford more room. Sometimes the tellers' desks are separated by counters which provide additional working space. Where cages are desired there are many types. They may be of metal panels as high as the counter with glass or rails above. A metal lattice or a perforated metal grille may be used in the lower portion to afford ventilation. A few types are illustrated on page 9 but variations are almost endless.

Produced by Skilled Artisans Using Modern Equipment

ART METAL CONSTRUCTION COMPANY has unsurpassed facilities for the production of wrought or ornamental cast bronze work of highest quality. The uniform quality of Art Metal bronze is insured by the most modern equipment of thermometers and gauges and by constant laboratory tests.

To produce work of the highest character requires skilled artisans. The volume of work always in progress enables ART METAL CONSTRUCTION COMPANY to give permanent employment to a large force of highly trained men—each a true artist. A great deal of reverence and love for fine cabinet work in steel and bronze goes into the production of each order. It is an Art Metal tradition to

cast, polish and hand chase bronze work as carefully as though each piece were to repose on a library table or to occupy an honored place in a museum.

Co-operation with Architects Insures Individuality

Working from blue prints of the floor plans, Art Metal engineers will be glad to submit modern layouts of counter equipment and cages for the most efficient conduct of the work of the bank. This, of course, is done after consultation with the architect and banking officials and a determination of the requirements of the particular institution.

Architectural individuality is obtained by Art Metal designers working with the architect and carefully modelling the details from his designs. All work is individually prepared and carefully executed for each important contract. The work is finished with cutting tools, chisels, files and gravers. Often the natural skin of the metal solidified in contact with the mould is preserved. Then again it is carved and chased, beaten, wrought and embossed.

It has been our good fortune to visualize in bronze and steel the designs of the most eminent architects. The interior of an Art Metal bank is remembered for its genuineness, dignity and all-pervading refinements.

Stock Designs Are Available When Cost Is a Factor

Where cost is consideration ART METAL CONSTRUCTION COMPANY has a wide range of stock designs which may be combined to produce a most attractive interior effect at a minimum expense.



ART METAL IN A SMALL BANKING ROOM
BANK OF WEIRTON, W. VA.

Counter screen and wickets, check desks, gate and balcony rail
PETERSON & CLARKE, Architects

ART METAL BANK EQUIPMENT

Not only does ART METAL CONSTRUCTION COMPANY produce the beautiful, ornamental bronze work which adorns the public spaces of modern banks. It also builds steel equipment which includes every item used in a bank, office or public building, from desk tray and waste basket to officers' desks and fire resisting record safes. In filing devices, all forms and sizes to take every standard size record in use are manufactured.

Any requirement in desks, vault trucks, steel

safes and filing devices which cannot be filled from stock can be met in our facilities for built-to-order work.

On this page are illustrated some of the special equipment designed and built by Art Metal to facilitate the rapid and efficient handling of the large volume of work in some of the largest banks in the country. Art Metal engineers will gladly consult with architects and bank officials regarding special equipment which will assist them in handling their problems most efficiently.



VENTILATED MONEY COUNTING DESKS

Foreman-State National Bank, Chicago, Ill.
GRAHAM, ANDERSON, PROBST & WHITE, Architects



BOOKKEEPING DESKS WITH STATIONARY STORAGE BINS AT ENDS

Chase National Bank, New York, N. Y.
GRAHAM, ANDERSON, PROBST & WHITE, Architects



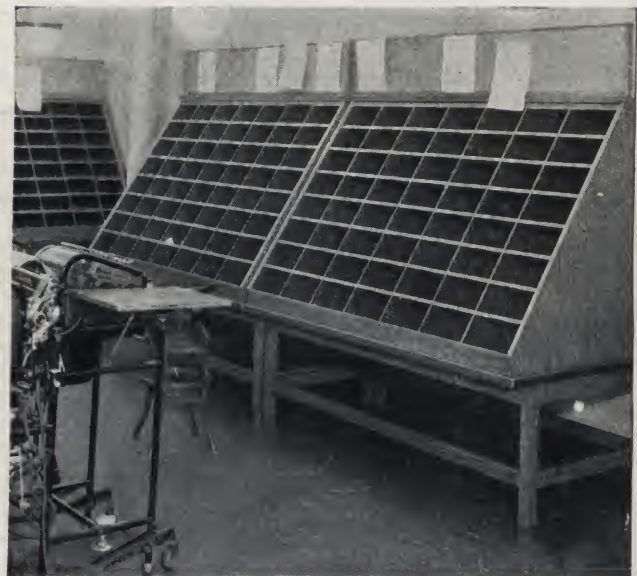
SAVINGS CARD LEDGER DESKS

City National Bank & Trust Co., Battle Creek, Mich.
C. C. HENDERSON, Architect



CHECK SORTING DESKS WITH RELEASES TO PROVIDE FLAT WORKING SURFACE

Chase National Bank, New York, N. Y.
GRAHAM, ANDERSON, PROBST & WHITE, Architects



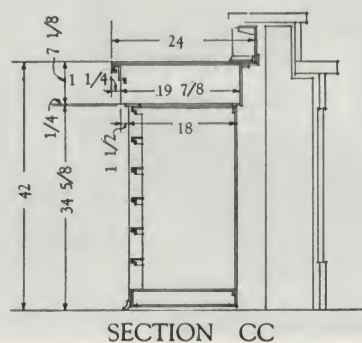
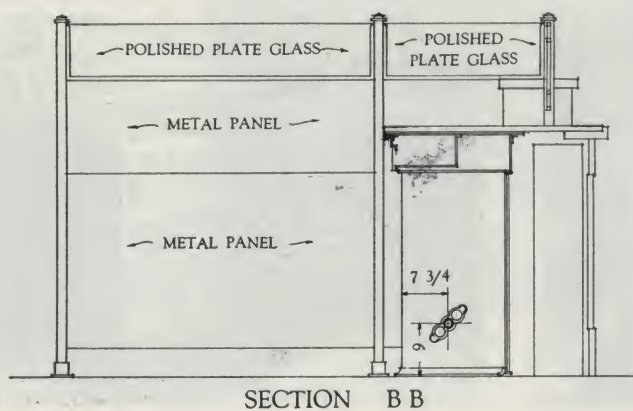
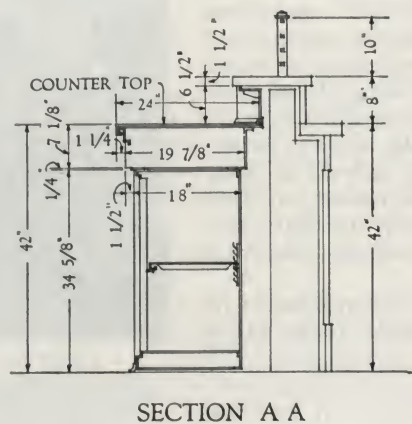
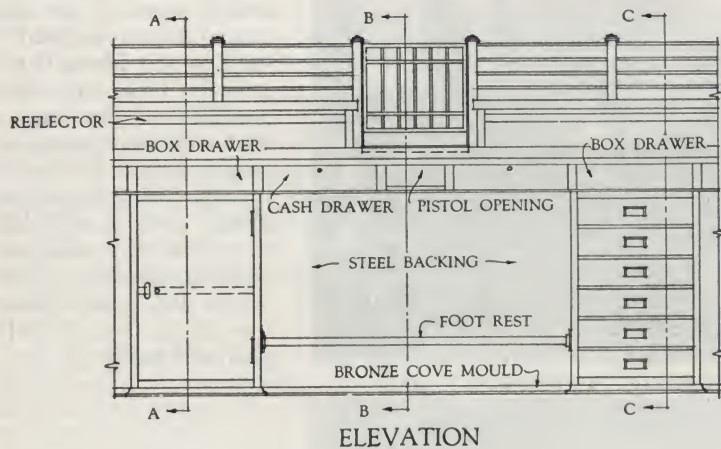
DOCUMENT SORTING BINS

Foreman-State National Bank, Chicago, Ill.
GRAHAM, ANDERSON, PROBST & WHITE, Architects

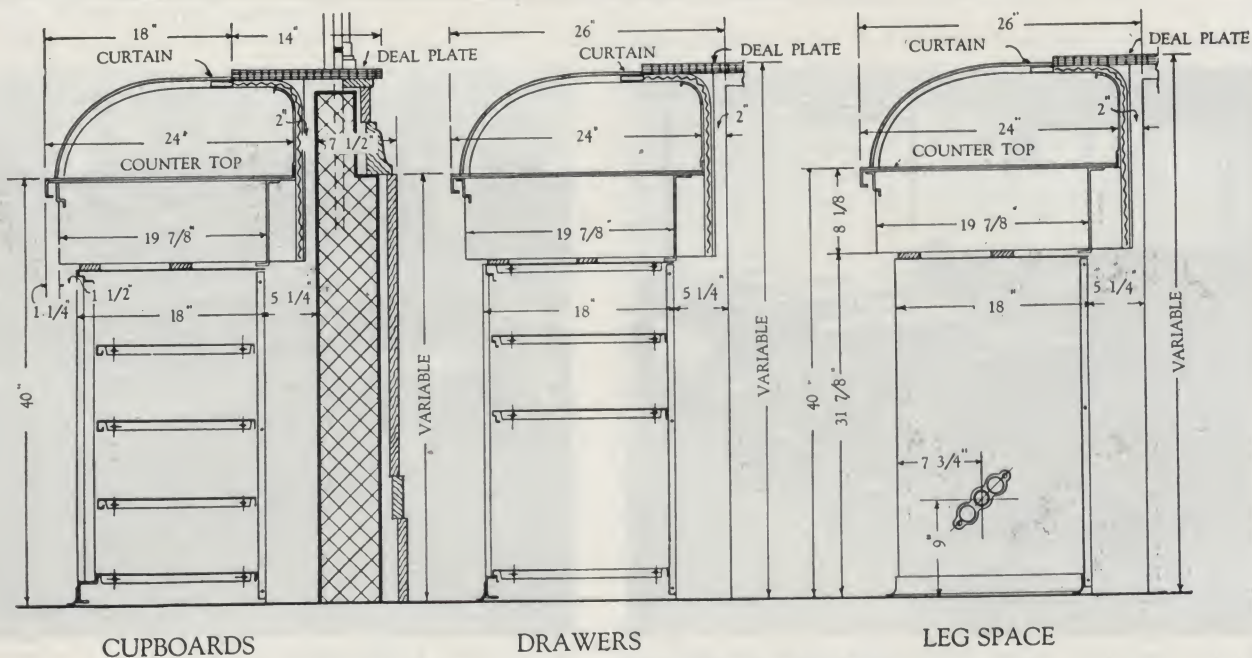
ART METAL



BANK COUNTERS



DETAILS OF TYPICAL COUNTER AND CAGE PARTITION



DETAILS OF TYPICAL COUNTER WITH ROLL TOP

COUNTERS AND TELLERS' CAGES



STRAIGHT COUNTER WITH MEDIUM HEIGHT SCREEN
Union and Peoples National Bank, Jackson, Mich.
ALBERT KAHN, INC., Architects



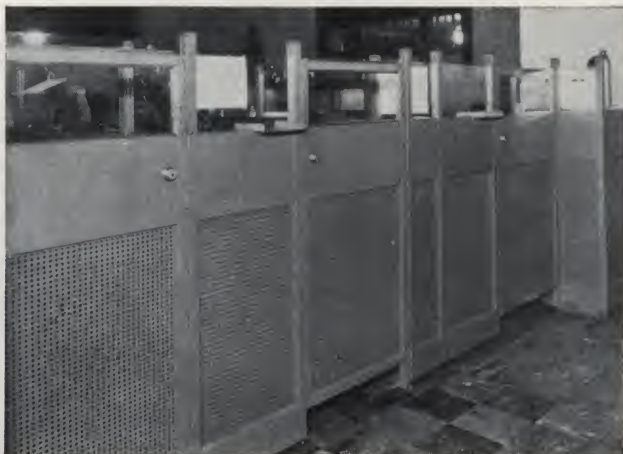
ROLL TOP TELLER'S COUNTER
Northwestern National Bank, Minneapolis, Minn.
GRAHAM, ANDERSON, PROBST & WHITE, Architects



REAR COUNTER AND CAGE PARTITIONS WITH NEW TYPE LOW FRIENDLY SCREEN
Monongahela National Bank, Pittsburgh, Pa.
EDWARD STOTZ, Architect



STEEL COUNTERS—BRONZE TOP SCREEN—AND DOUBLE INSULATED STEEL PARTITIONS
First National Bank, Salem, Ohio
THE OWSLEY CO., Architects



LOW TYPE REAR PARTITION WITH PERFORATED STEEL PANELS
Bank of Kalamazoo, Kalamazoo, Mich.
WEARY & ALFORD, Architects



LOW CAGE WITH GLASS AND MESH PANELS BELOW
Logan Trust Co., New Kensington, Pa.
P. R. L. HOGNER, Architect

SPECIFICATIONS FOR BANK COUNTERS AND EQUIPMENT

Counter Work

Pedestals—See pedestal specifications.

Knee Space Panels—To be made of No. 18 gauge steel with $\frac{1}{2}$ in. adjustment and No. 18 gauge adjustment strip at bottom. Bronze cove mould will be furnished in place of adjustment strip at bottom at extra cost if so desired.

Legs—To be of No. 18 gauge steel formed up square and tapered, with corners welded, or of 2-in. sq. tubing of No. 16 gauge if so desired. Bottom of leg to be fitted with bronze foot of suitable design and equipped with adjustable bolt at bottom.

Front Aprons—To be made of No. 13 gauge steel formed at right angle at top and zee section at bottom for strength and to form strike for drawer. Front to be reinforced by heavy steel bar which extends from end to end of counter and is securely bolted to lower flanges of uprights.

Rear Aprons—To be made of No. 13 gauge steel formed at right angle at top, with knee space panel screwed to bottom.

Drawer Uprights—To be of No. 18 gauge steel flanged all around and, securely welded to top, front and rear aprons.

Pistol Openings—To be made with bottom and back in one piece of No. 20 gauge steel.

Top—To be of No. 14 gauge steel, reinforced as necessary, all exposed edges formed into a channel section and all corners rounded to a $\frac{3}{8}$ -in. radius. Top to be covered with the best grade linoleum .119 in. thick, color green, securely cemented to steel with edges bound by bronze binding secured to top with concealed screws. When deal plates are required, same will be recessed flush with top.

Cupboard and Pedestal (Hinge Doors)—Single Wall Construction

Ends and Backs—Forming shell or jacket with an area of 1,500 sq. in. or less for any one surface when formed up shall be made of No. 18 gauge steel; for larger surfaces No. 16 gauge steel shall be used. Front edges of uprights to be formed into a channel section with a 1 in. flat face. Top and bottom edges to be flanged or stiffened by angles electro-welded to same. Strikes for doors to be formed $\frac{1}{8}$ in. high on return flange of uprights, and perforations for shelf adjustment 1 in. centers to be made in returned flange. Large ends to be reinforced as necessary.

All pedestals under counters to be built with $\frac{1}{2}$ in. adjustment at bottom and with an 18-gauge steel adjustment strip running all around at floor.

Bronze cove mould will be furnished in place of adjustment strip at bottom at extra cost if so desired.

Bottom Plate—To be made of No. 18 or No. 16 gauge steel, depending on size, to be formed with offset at front for door strike. Bottom plate to form base at front.

Plain Shelves—To be made of No. 18 gauge steel front formed into a box channel section with a $\frac{3}{4}$ -in. flat face, end and back to be flanged down. Bracket adjustment to be used at

front. Rear of shelf to be hung on adjustment strips with lugs formed at intervals of 1 in.

Doors—Up to and including 21x36 in. to be made of No. 11 gauge steel. Doors over 36 in. high and up to and including 48 in. high to be made of No. 8 gauge steel. Over 48 in. high, doors to be made of No. 20 gauge steel formed up with stiles and rails $\frac{3}{4}$ in. thick to be flush outside. Doors over 20x60 in. to be reinforced with channel section. Doors to be hung on heavy wrought hinges.

Door Knobs—To be of solid cast bronze and arranged to operate a steel latch to which up and down bolts are attached when doors are in pairs or are over 18 in. high, thus holding doors securely at top and bottom when locked. When locks are specified Yale locks shall be used and lock bolt is to engage latch on door when in locked position.

Top Plates—To be of such gauge sufficiently reinforced to carry superimposed loads. Both top and bottom plates to be securely welded in place except in large cases where knock-down construction is essential.

Cupboard and Pedestal (Hinge Doors)—Double Wall Construction

Inside Uprights—To be made of No. 20 or No. 18 gauge steel, depending on size, to be flanged at rear and with Z-shape formation at front for additional strength. These uprights to be perforated for adjustment 1 in. on centers. Bracket adjustment to be used at front. Rear of shelf to be hung on adjustment strips with lugs formed at intervals of 1 in.

Drawer Pedestal

Drawer pedestals shall be made with gauges the same and with construction very similar to pedestal construction described above with drawer strikes at proper intervals.

Drawer Construction

Outside Head—To be flat. Edges to be formed into a $\frac{5}{8}$ -in. box channel section with back turned flanges at sides and bottom and welded through these flanges to body. Top corners to be oxyacetylene welded to prevent opening of joints and all corners ground to a slight radius to eliminate sharp corners. Outside head with an area up to and including 130 sq. in. to be of No. 22 gauge, no reinforcement; over 130 sq. in. up to and including 198 sq. in., No. 22 gauge reinforced; above 198 sq. in., No. 20 gauge reinforced.

Inside Heads—To be of No. 24 gauge steel, formed or flanged on all edges, to be slipped into place after hardware has been applied. Approximately $\frac{1}{2}$ in. dead air space to be left between heads as a fire resistant.

Bodies—Sides bent up at right angles to bottom with top edges formed into a $\frac{5}{8}$ -in. sq. tubing section and rear edges flanged and electro-welded to back. Bodies up to and including 20x4 $\frac{1}{2}$ in. or equivalent area to be made of No. 24 gauge steel. Above this size No. 22 gauge shall be used.

Backs—To be made of No. 18 gauge steel.

Hardware—To be of design shown on drawings and securely fastened through outside heads. Where drawings so indicate, drawers in standing desks, tables and counters are to be constructed to pull out by reaching under head, eliminating projecting pulls. Where specified, locks shall be recessed into inside head, leaving inside of drawer smooth.

Suspensions—Drawers will be equipped with channel suspension, progressive suspension or Amco suspension, as requested.

ART METAL COUPON BOOTHS

ART METAL CONSTRUCTION COMPANY supplies coupon booths made to special design to fit the space available or assembles them, using standard partition

units as illustrated in the partition section. (See Art Metal in the Manufacturers' Index.)



COUPON BOOTHS MADE FROM STOCK PARTITION

Schenectady Savings Bank, Schenectady, N. Y.
RODMAN L. NICHOLS, Architect



COUPON BOOTHS SPECIALLY BUILT

Industrial Trust Co., Pawtucket, R. I.
THOMAS M. JAMES Co., Architects

ART METAL EQUIPMENT FOR PUBLIC BUILDINGS

Furnishings for public buildings have long formed an important part of Art Metal production. Throughout the country, government and state buildings, city halls, court houses, county clerks' offices, etc., are completely equipped with Art Metal products.

This equipment includes counters with or without files, cupboards or drawers below, document files, roller shelving for large record books, plan files, safes, desks, etc., down to letter trays and waste baskets.

Constructed of High Grade Steel .

Public building equipment is nearly always of steel. This insures long life under the extremely hard wear to which such equipment is subjected and also reduces the hazards of fire.

The sheet steel used in all Art Metal products is a high grade stock especially made for the product. Re-annealed to withstand sharp bending. It is patent leveled, full pickled to remove scale and all impurities, resquared and finally oiled to prevent rusting.

After fabrication the units are carefully filled and finished using slow-baking enamel or lacquers which have been developed through long years of testing and experience. The finish will never chip, flake or peel.

Cooperative Service

Art Metal engineers will gladly consult with architects and public officials and after ascertaining the requirements, will submit layout to care for the records most efficiently.

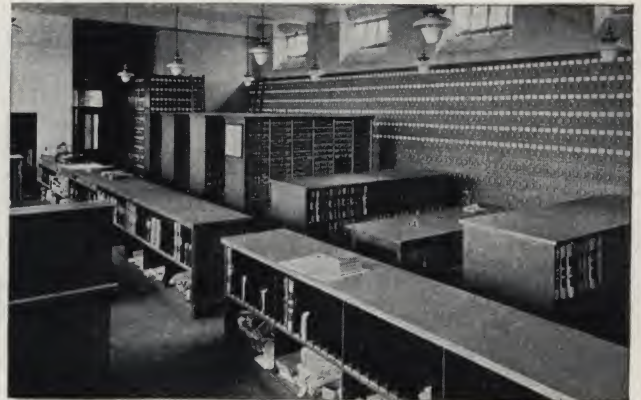


TREASURER'S OFFICE, DAVIESS COUNTY COURT HOUSE, WASHINGTON, IND.

Counter with low glass screen, bronze wickets, counter high safe and special counter equipment



RECORD OFFICE, CITY OF NORFOLK, VA.
Document files, roller shelving and table



OFFICE AND RECORD ROOM, PROBATE COURT, HAMILTON COUNTY COURT HOUSE, CINCINNATI, OHIO
Counters, roller shelving, table and desks



CLERK OF COURTS INDEX ROOM, HAMILTON COUNTY COURT HOUSE, CINCINNATI, OHIO
Roller shelving, files and desks



NEW YORK COUNTY COURT HOUSE, NEW YORK, N. Y.
Counter with cupboards and drawers below
Guy Lowell, Architect

SELECTIONS FROM THE LIST OF ART METAL BANK EQUIPMENT INSTALLATIONS

CITY	ALABAMA INSTALLATION	ARCHITECT	CITY	NEBRASKA INSTALLATION	ARCHITECT
Mobile	Merchants National Bank	Warren, Knight & Davis	Omaha	Federal Reserve Bank	Graham, Anderson Probst & White
	CALIFORNIA			NEW JERSEY	
Sacramento	California National Bank		Atlantic City	Marine Trust Company	
San Francisco	Bank of California		Newark	Hudson Trust Company	
	CONNECTICUT			NEW YORK	
Bristol	City Deposit & Discount Co.	J. Smith Flannegan	Albany	National Commercial Bk. & Trust	York & Sawyer
Waterbury	Central Industrial Bank	W. G. Hunt	Buffalo	Federal Reserve Bank	
	DISTRICT OF COLUMBIA		Buffalo	Marine Trust Company	F. J. & W. A. Kidd
Washington	Bank of Commerce & Savings	Milburn, Heister & Co.	New York	Chase National Bank	Graham, Anderson Probst & White
	FLORIDA			EQUITABLE TRUST COMPANY	Trowbridge & Livingston
Miami	Meyer-Kiser Bank	Hampton & Ehmann	New York		
	GEORGIA			FEDERAL RESERVE BANK	
Atlanta	First National Bank	Pringle & Smith	New York		
	IDAHO		Rochester	Mechanics Savings Bank	
Boise	First National Bank	Tourtellotte & Jumme		NORTH CAROLINA	
	ILLINOIS		Raleigh	Wachovia Bank & Trust Co.	
Chicago	Continental Illinois Bank & Trust Co.	Graham, Anderson Probst & White	Fargo	NORTH DAKOTA	Keith & Kurke
Chicago	Federal Reserve Bank			OHIO	
Chicago	Lincoln Trust & Savings Bank	Hall, Lawrence, Rippe & Radcliffe	Cincinnati	Provident Sav. Bk. & Tr. Co.	
	INDIANA		Cleveland	Federal Reserve Bank	D. Riebel & Sons
Fort Wayne	First National Bank	Charles R. Weatherhogg	Columbus	First Citizens Trust Co.	Charles W. Bates
	KANSAS		Youngstown	Peoples National Bank	
Indianapolis	Meyer-Kiser Bank			PENNSYLVANIA	
	KENTUCKY		Allentown	Allentown National Bank	Ruhe & Lange
Kansas City	Home State Bank		Harrisburg	Union Trust Co.	Walter W. Whitman
	LOUISIANA		Homestead	Monongahela Trust Co.	Hopkins & Dentz
Louisville	Citizens Union National Bank		Philadelphia	Toland Trimble Co.	C. A. Ziegler
	MAINE		Pittsburgh	Exchange National Bank	Weary & Alford
New Orleans	American Bank Building	Moise H. Goldstein	Pittsburgh	Union Trust Co.	
	MARYLAND		Wilkes-Barre	Wyoming National Bank	Thomas A. Foster
Portland	Portland Morris Plan Bank	F. W. Cunningham & Sons		RHODE ISLAND	
	MASSACHUSETTS		Providence	Providence National Bank	Howe & Church
Baltimore	Century Trust Co.			TENNESSEE	
Brunswick	Peoples National Bank	Robert L. Harris	Chattanooga	Am. Trust & Banking Co.	K. M. Vitzthum & Co., Inc.
	MICHIGAN		Chattanooga	Chattanooga Sav. & Tr. Co.	R. H. Hunt Co.
Boston	Federal Reserve Bank		Memphis	Bank of Commerce & Trust Co.	Hanker & Cairns
Boston	National Shawmut Bank	Thomas M. James Co.		TEXAS	
Lawrence	Lawrence Savings Bank	Joseph E. Allen	Dallas	National Bank of Commerce	
Lowell	City Institution of Savings	Harry Prescott Graves	Fort Worth	Continental National Bank	
Springfield	Union Bank & Trust Co.	M. H. Westhoff	Houston	Federal Reserve Bank	
	MINNESOTA		San Antonio	Houston National Bank	Wyatt C. Hedrick
Detroit	Gurdian Detroit Bank			Federal Reserve Bank	R. M. & A. B. Ayres
Flint	First National Bank	J. W. Cook Corp.		VIRGINIA	
Jackson	Union National Bank	Albert Kahn, Inc.	Norfolk	Trust Co. of Norfolk	
Saginaw	Bank of Saginaw	Albert Kahn, Inc.		UTAH	
	MISSISSIPPI		Salt Lake City	Federal Reserve Bank	
St. Paul	State Savings Bank	Toltz, King & Day		WASHINGTON	
	MISSOURI		Seattle	National Bank of Commerce	Doyle & Merriam
Jackson	Merchants Bank & Trust Co.	W. C. Hedrick	Tacoma	National Bank of Tacoma	
Meridian	Merchants' & Farmers' Bank			WEST VIRGINIA	
	MISSOURI		Charleston	Kanawha Valley Bank	Alfred C. Bossom
Kansas City	Federal Reserve Bank	Graham, Anderson Probst & White		CANADA	
St. Louis	Federal Reserve Bank	William B. Ittner	Montreal	Royal Bank of Canada	
St. Louis	Grand National Bank				

A FEW ART METAL PUBLIC BUILDING INSTALLATIONS

CITY	CALIFORNIA INSTALLATION	ARCHITECT	CITY	NEW JERSEY INSTALLATION	ARCHITECT
San Diego	City Surveyor's Office		Camden	County Court House & Municipal Building	Edwards & Green
Santa Barbara	Santa Barbara County Court House		Newark	Essex County Hall of Records	Guilbert & Betelle
	DISTRICT OF COLUMBIA			NEW YORK	
Washington	Dept. of Commerce	York & Sawyer	Albany	Department of Health Building	Sullivan W. Jones
	FLORIDA		New York	State Office Building	Wm. E. Haugaard
Miami	Dade County Court House	A. Ten Eyck Brown	Buffalo	Erie County Court House	H. J. Cook
	GEORGIA		New York	New York County Court House	Guy Lowell
Atlanta	City Hall	G. Lloyd Preacher & Co.	New York	New York State Office Building	Wm. E. Haugaard
	INDIANA			NORTH CAROLINA	
Carrollton	Carroll County Court House	J. J. Case	Fayetteville	Cumberland County Court House	Harry Barton
	IOWA			NORTH DAKOTA	
Bedford	Lawrence County Court House	Walter Scholer	Minot	Ward County Court House	Toltz, King & Day
	KANSAS			OHIO	
Waterloo	Black Hawk County Court House		Cincinnati	Hamilton County Court House	John Scudder Adkins
	KENTUCKY		Portsmouth	Scioto County Court House	
Oberlain	Decatur County Court House	Squires & Rosa		PENNSYLVANIA	
Wichita	Sedgwick County Court House	Ed. Forsbloom	Harrisburg	South Office Building No. 2	Gehron & Ross, H. C. Troust Assoc.
Kansas City	Wyandotte County Court House		Lancaster	Lancaster County Court House	C. Emlen Urban
	LOUISIANA		Norristown	Montgomery County Court House	Rankin and Kellogg
Louisville	Jefferson County Court House	Brinton B. Davis	Pittsburgh	Allegheny County Court House	Bureau of Architecture
	MAINE			RHODE ISLAND	
Augusta	Kennebec County Court House		Providence	Rhode Island State Office Bldg.	
	MASSACHUSETTS			SOUTH CAROLINA	
Boston	Suffolk County Court House	Charles R. Greco	Gaffney	Sherokee County Court House	M. R. Marsh
E. Cambridge	Middlesex County Court House			SOUTH DAKOTA	
Dedham	Norfolk County Court House		Redfield	Spink County Court House	Toltz, King & Day
Pittsfield	Berkshire County Court House	Burton Edw. Geckler		TENNESSEE	
Springfield	State Building		Bristol	Wise County Court House	
	MARYLAND				
Baltimore	Municipal Office Building				
Towson	Baltimore County Court House				

ART METAL LIBRARY EQUIPMENT

For a period of 40 years the ART METAL CONSTRUCTION COMPANY has been manufacturing *quality* steel library equipment.

During this time, development and research has been carried on to continuously improve and perfect the equipment.

Art Metal Steel Library Equipment is used in a large percentage of the modern libraries in this country as well as many foreign countries.

If the architect wishes to view an installation, the company will be glad to refer him to several in his community. Every state in the country, as well as practically every important city, has many Art Metal installations.

For a partial list, see Art Metal page 24.

The production of a complete line of modern fire-resisting steel equipment for libraries and museums of various kinds is a specialty of this company. The line of products is complete for the equipment of small private or town libraries to the great city libraries, such as the new Free Library of Philadelphia in which over 2,783,000 lb. of Art Metal Steel library equipment was used.

The Art Metal line includes not only the shelving for books but indexing systems, trucks, delivery desks, tables, display cases, magazine racks, metal furniture, iron or bronze railings, stairs and stack floor construction, as well as hollow metal trim and doors for the entire building. No order is too large for the Art Metal factories to handle.

DEFINITION OF ART METAL LIBRARY EQUIPMENT TERMS

Shelf Compartments

A unit of shelving one shelf wide between supports and extending one tier high. Standard height, 7 ft. 6 in., floor to floor and floor to cornice, but also furnished in heights to suit conditions.

Range

A row of shelf compartments placed end to end. Length is as required but it is advisable to have it in even multiples of the shelf unit adopted. A range may be single or double-faced.

Single-faced Range—A range that is usually placed on side or end walls with or without a back.

Double-faced Range—Two single-faced ranges back to back, with aisles at the front of each.

Tier

A number of ranges one story high placed side by side with aisle space between each.

Bookstack

A series of superimposed self-supporting tiers or an isolated tier.

Each tier is separated by a deck floor which is supported by the tier or tiers beneath.

Standard Bookstack—Consists of a number of removable book shelves supported by vertical shelf supports extending from floor to floor. The supports also extend the full depth of the shelves.

See Art Metal pages 15, 17 and 18.

Bracket Bookstack—Consists of a number of shelving units, each composed of a shelf and end brackets secured to each other as a solid steel unit by the Art Metal No Bolt Process.

The unit is hooked directly into slotted openings in the vertical column which extends the entire height of stack. Brackets extend full depth of shelves.

See Art Metal pages 15, 19 and 20.

PRELIMINARY DATA FOR THE ARCHITECT'S USE IN DESIGNING LIBRARIES

Ranges

Depth, single-faced without back 91½ in.
Depth, single-faced with back 81½ in.
Depth, double-faced without back 161¼ in.
Height, standard floor to floor 7 ft. 6 in.

Note: Height also variable to suit conditions.

Shelves

Depth, standard stack 71½ in.
Depth, standard stack (oversize) 101½ in.
Length, standard stack 36 to 42 in.
Depth, bracket stack 7 in.
Depth, bracket stack (oversize) 10 in.
Length, bracket stack 36 to 42 in.
Vertical depth, all shelves ¾ in.

Main or Corridor Aisles

Width, not less than 2 ft. 6 in.
Length: Blind at one end 12 ft.

Open both ends 18 ft.
Storage for seldom used books, up to 30 ft.

Stack Stairs

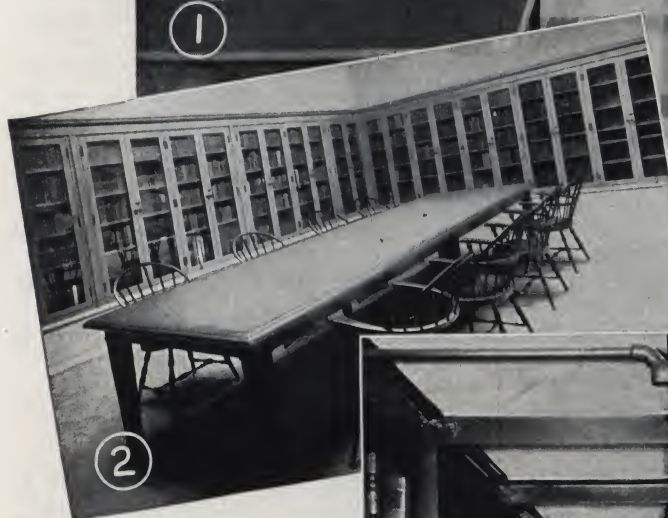
Number of risers for floor to floor height of
7 ft. 6 in. 12
Tread standard 10 in.
Well length 8 to 19 ft.
Width of stairs, average 2 ft. 6 in.
Approximate diameter of spiral stairs . . 4 ft. 2 in.

CAPACITY OF 7-IN. DEPTH SHELVES

Class of books	Volumes per ft. of shelf	Class of books	Volumes per ft. of shelf
Bound periodicals*...	5½	Law	6
Circulating	10	Medical*	6½
Economics	9	Public documents	6
Fiction	9	Reference works	8
General literature	8	Scientific	7
History	8	Technical	7

*10-in. shelf depth is better suited to these books.

ART METAL IN THE FREE LIBRARY OF PHILADELPHIA



- 1. PEPPER HALL, MAIN READING ROOM
- 2. RARE BOOK ROOM

- 3. CHARGING DESK, CIRCULATION DEPARTMENT
- 4. MAIN BOOK STACK, FOURTH LEVEL

HORACE TRUMBAUER, Architect

ART METAL STANDARD STACK SHELVES AND SHELF SUPPORTS

The Art Metal Standard Stack Compartment consists of two parts: The one-piece shelf support and the one-piece plate shelf. Both are made of smooth plates of steel, finished with baked-on enamel. There are no cast iron parts.

Shelf supports are U-shaped with a trifoil formation at the front and flanged at the rear for reinforcing.

In the front, the supports have horizontal slots incorporating the Art Metal Lock Shelf feature. These slots engage the projecting bearings or flanges on the ends of each shelf and provide a bearing which keeps the shelf firmly in position.

The supports are also perforated in the rear flange for further shelf support. Into these perforations falls the channel formation on the back of the shelf. By this means of construction and assembly the shelf has solid bearings at the extreme ends. The simplicity of these features is unusual, and any shelf may be easily removed without the use of tools and without disturbing other shelves.

The shelves are formed from single steel plates, shaped at the front and back in the form of a channel. This gives a finished appearance and reinforces the shelf at the same time. The ends of the shelves are also reinforced by shaping in the form of a flange, which also serves to lock the shelf in place.

The shelves will not warp, twist, split, shrink or swell and because of their hard, smooth surface can be readily cleaned. Shelves without perforations are recommended and usually furnished. Perforated shelves, to provide extra ventilation, may be had if desired.

Shelving may be any length required but should be of uniform length, if possible.

There are two kinds of shelf supports: Finished ends which are used at the ends of ranges, and partition or intermediate supports. Each of these is divided into two classes: Double-faced, where ranges have shelves accessible from both sides; and single-faced, where shelves are on one side only. The finished ends are entirely plain and smooth, with rounded edges. Where preferred, they may be paneled.

ART METAL BRACKET STACK SHELVES AND SHELF SUPPORTS

The "All Wrought" Bracket Shelf is made of steel, with front and back formed to a box or channel section which, with its smooth steel-plate brackets, makes a solid steel unit without intermediate part between itself and the standard. It is hooked directly into the slotted openings in the standard by stout lugs on the back of the bracket.

Framing for intermediate floors is introduced as in the Art Metal Standard Stack.

This type of shelving is light and easily handled, or stored, having no cast iron parts liable to breakage. It is entirely smooth, having no sharp openings that would crease or wear books and afford lodgement for dust. It is most durable, being built entirely of steel without loose parts.

This shelving is easily adjusted, being hooked directly into the supporting standard. It can be shifted by anyone without disturbing the books, no tools or spirit level being required for adjustment. Absolutely level shelves are assured by mathematic levels on the supporting standards.

Brackets have flanged edges so that books will not easily straddle them; thus the wear on books through handling at the stack is reduced to a minimum. The brackets are connected to the shelves by the Art Metal patented *no bolt* process.

Ranges have open ends, thus allowing free circulation of air and light.

Solid ends can be provided when it is desired to exclude direct sunlight.

ART METAL DECK FLOORS

Note: *The bottom floor of a stack room is not included with the deck floors and is usually not a part of the contract for equipment, but is installed by the contractor for the building.*

Between each pair of tiers there should be a deck floor of light structural framing supporting some solid material that is dust and waterproof, preferably marble, glass or slate.

Reinforced concrete slabs may also be used but are not recommended. Wood cannot be used to advantage for deck flooring as it multiplies noise, feeds fire, catches dust and dirt, is hard to keep clean, does not reflect light and is generally unsatisfactory.

Glass for floors is $\frac{3}{4}$ in. thick with top or floor side sand blasted to obscure the vision and make footing more secure.

It is bedded in a special cement putty with slabs leveled so that there are no projecting edges. In stack rooms having a skylight, glass floors permit light to pass through.

Marble is now generally used for deck floors in larger stack rooms. The marble should be $1\frac{1}{4}$ in. thick, sound and without pronounced veinings, with both sides sand rubbed. It is set in cement with joints neatly pointed.

Slate, while not frequently used, makes a satisfactory floor aside from its appearance and the fact that it does not reflect light. The under surface is often painted white to help reflect the light. Slate floors should be $1\frac{1}{4}$ in. thick and set in cement, joints neatly pointed and adjoining slabs leveled.

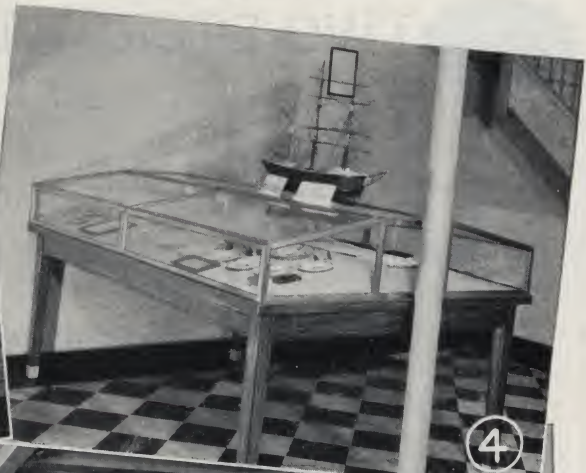
Total thickness of deck floors for ordinary spans up to 48 in. from top of floor to bottom of steel floor beam, is $3\frac{1}{2}$ in. plus the thickness of glass, marble or slate. When alcoves are large enough for reading tables, deck floors need heavier construction.

Along the face of each range there should be a horizontal or vertical deck slit of 2 to 3 in. wide or high for ventilation and light. These are protected by a curb angle as illustrated on Art Metal pages 17 to 20.

SPECIAL LIBRARY AND MUSEUM EQUIPMENT



1



4



2



5



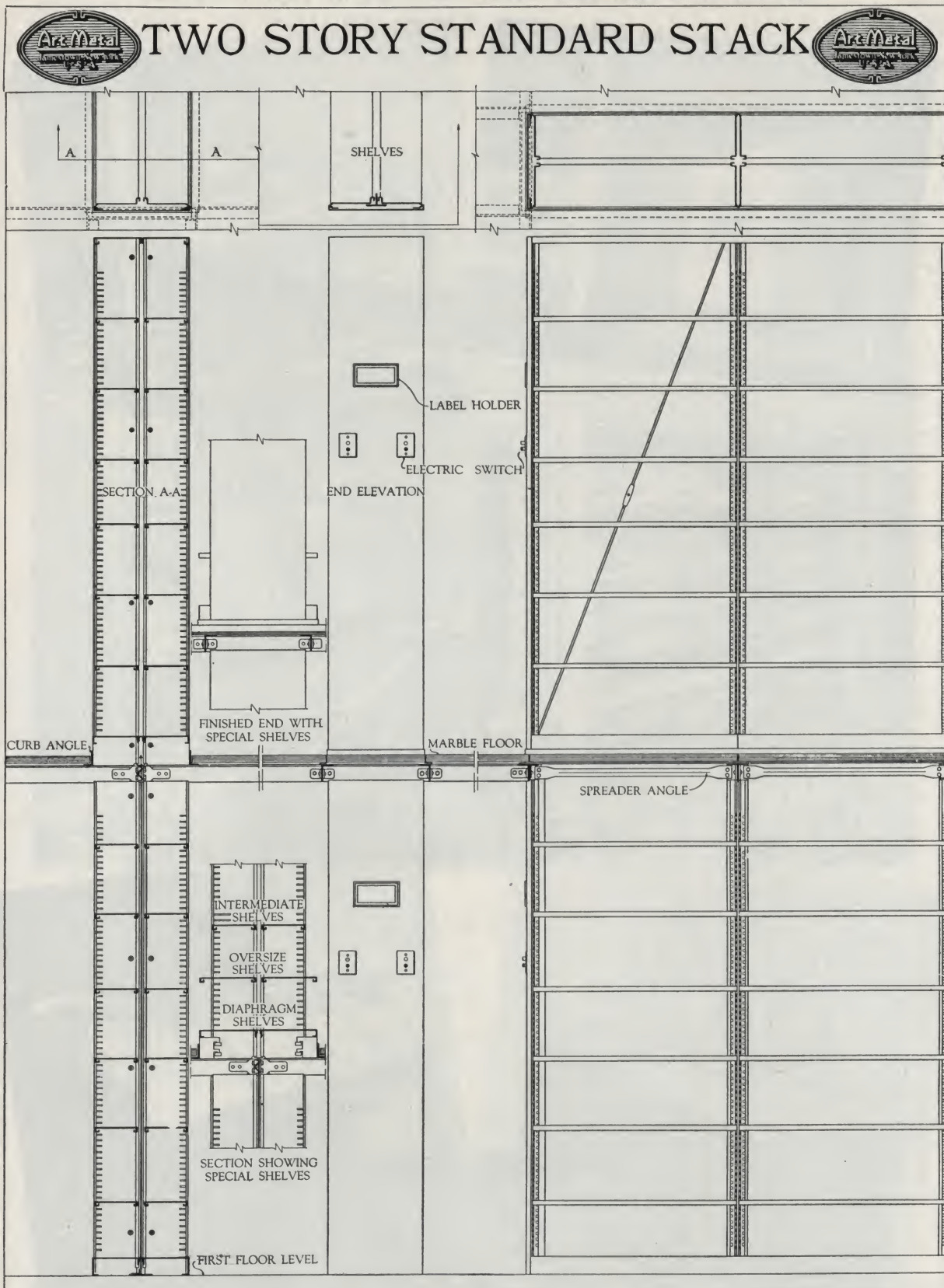
3



6

- 1. BULLETIN BOARD IN WHICH PRINT MAY BE LOCKED
- 2. DETAILS OF ROLLER SHELVING
- 3. SINGLE FACED MUSEUM CASE ON STEEL
- DRAWER BASE

- 4. DOUBLE FACED MUSEUM CASE TABLE TYPE
- 5. PORTFOLIO CASES FOR PRINTS
- 6. HIGH NEWSPAPER RACK

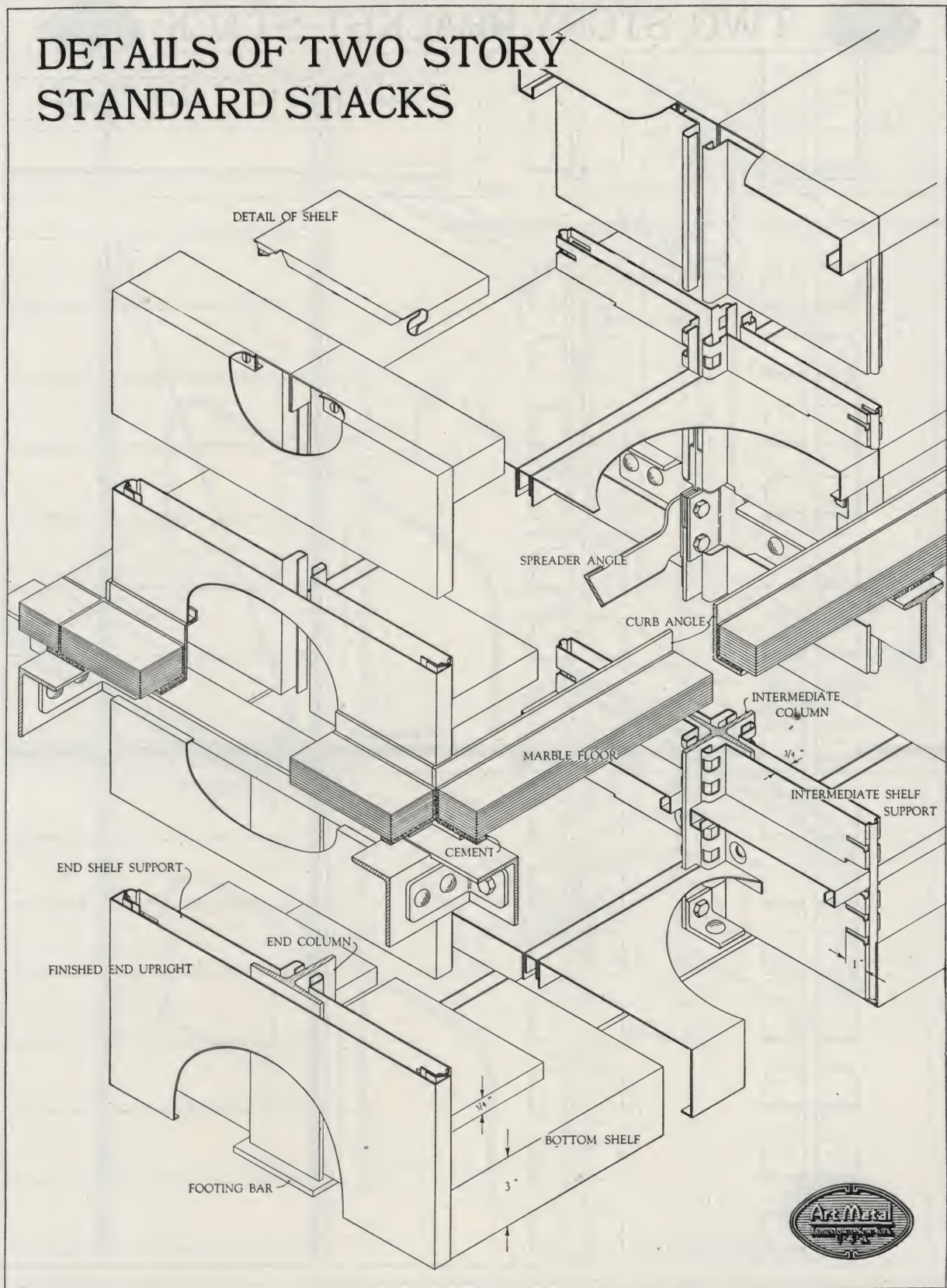


On this page is shown the two story standard stack in elevation and in plan. The elevation at the right shows the method of fastening and bracing. The end view at the center shows the location of label holders, light switches, etc. The sectional view of the left is taken at line A-A on the plan. It shows

the curb angle supporting second floor slab while the smaller sectional view shows the application of special shelves for large books, etc. At the top are shown plan views.

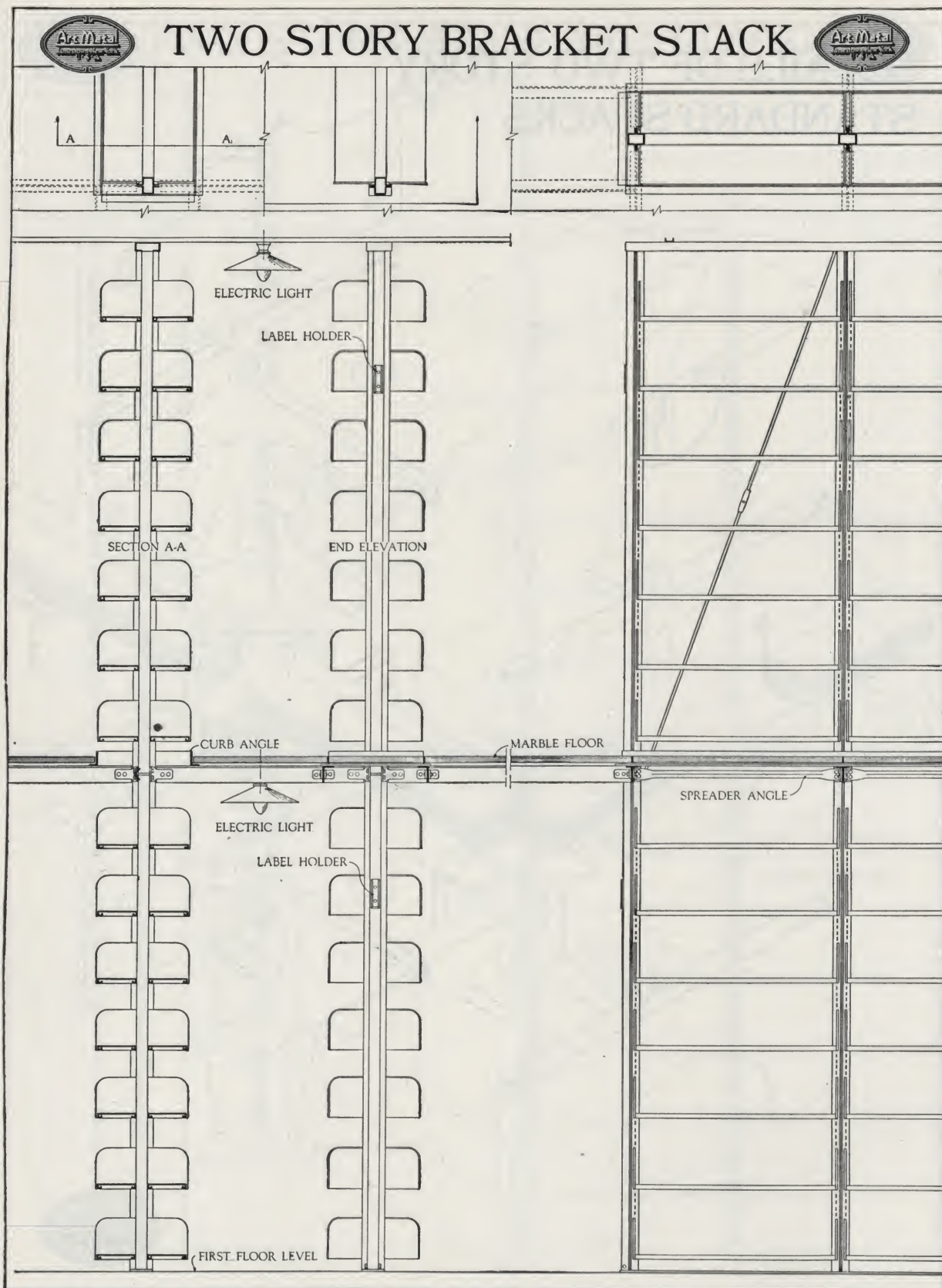
Details of construction are shown on the opposite page.

DETAILS OF TWO STORY STANDARD STACKS



On this page are shown the construction details of the two story standard stack.

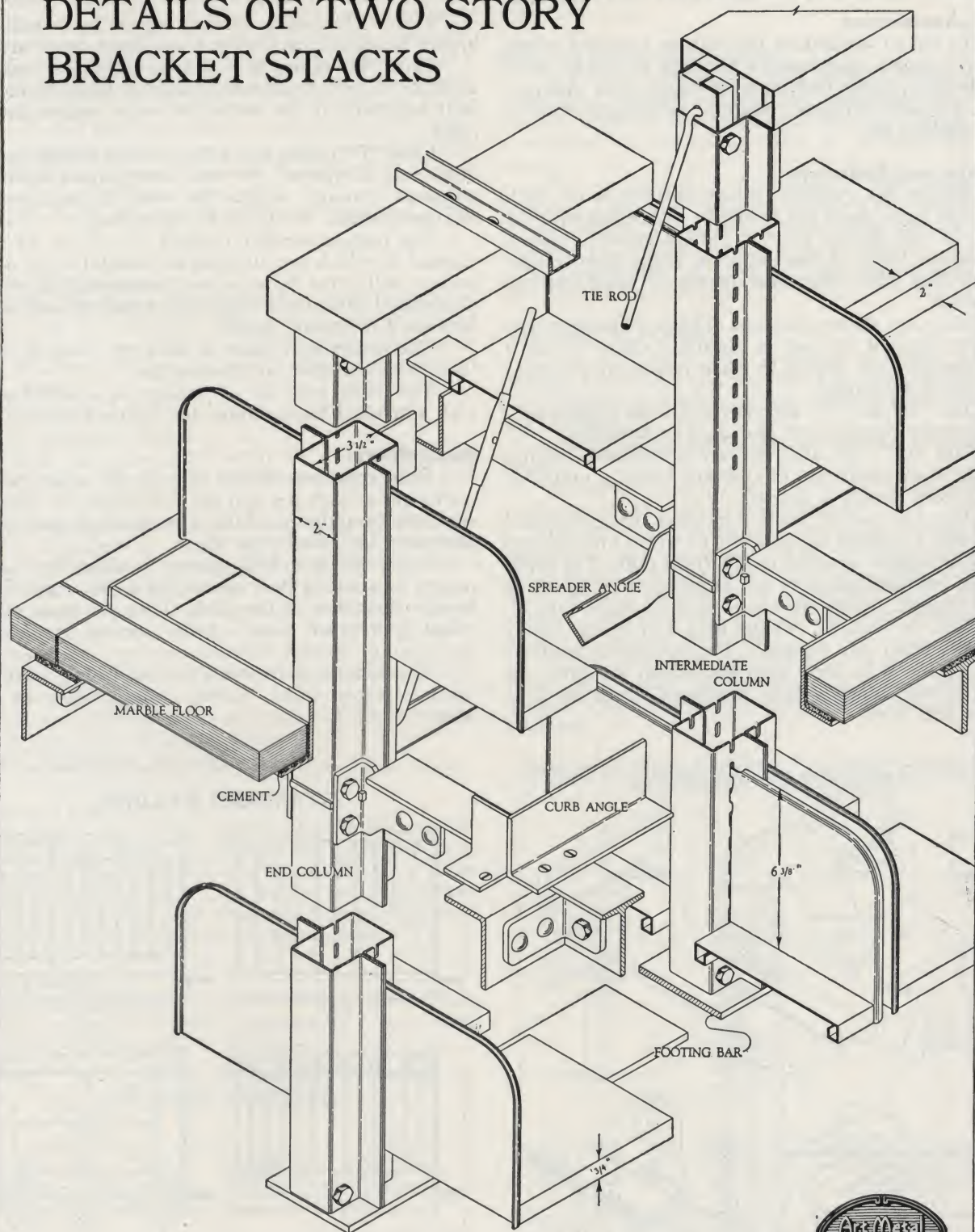
The lower portion of the page shows the first story with the second story above. Note the columns which carry the load of the second story and the curb angles which support the floor slabs. The stack is braced by the spreader angles in both directions and the tie rods to form rigid structure.



On this page is shown the two story bracket stack in elevation and in plan. The front elevation at the right shows the method of fastening and bracing the stack. The end elevation in the center shows the bracket stack ends, location of

label holder, etc. The sectional view at the left is taken at line A-A on the plan. It shows the curb angle supporting the second floor slabs. At the top are plan views. Details of construction are shown on the opposite page.

DETAILS OF TWO STORY BRACKET STACKS



On this page are shown the construction details of the two story bracket stack. Note the tubular construction of the columns which extend the full height of the stack and carry the second story load and also form supports for the shelves.

Where the loads require it, reinforcing channels are placed inside the columns as shown on page 14. The stack is braced by the spreader angles in both directions and by tie rods to form a rigid structure.



ART METAL LIBRARY ACCESSORIES AND GENERAL EQUIPMENT

Stack Accessories

The list of accessories that can be provided where desired includes label holders for ends of stacks, shelf label holders, range finders, book supports of different types, portable reference shelves, perforated shelves, roller shelves, etc.

Railings and Stairways

Railings for galleries across open ends of stack decks and open stairways should be in keeping with the design of the library interior. Stairs located between the finished backs of two adjacent single-faced ranges are provided with either steel, bronze or wood handrail as desired.

Below are shown standard railings of designs particularly adapted for use in libraries. Class "A" is a plain design used largely in stack rooms on stairways and around stairwells.

Class "B" and "C" are more elaborate designs used for the same purpose and also used on balconies.

Class "D," "E" and "F" are ornamental railings suitable to all conditions in a library where a railing of more artistic design is desired.

Class "A" railing has a 2-in. steel tubing handrail fitted into a channel top member to which are attached the $\frac{5}{8}$ -in. square wrought iron vertical rails. The lower ends of vertical members are attached to a $\frac{3}{4}$ in. by $\frac{3}{8}$ -in. channel. Posts are 1 in. square wrought iron.

Class "B" and "C" railings have 2-in. bronze tubing handrails fitted into channel. The horizontal members are 1 in. by $\frac{3}{8}$ in. steel bars into which are fitted the $\frac{5}{8}$ -in. square tubing vertical members. Posts are 1-in. square steel bars.

Class "D" railing is built up of bars with 2-in. bronze handrail, posts being 1-in. square steel bars.

Class "E" railing is similar to Class "A" with the addition of cast ornaments applied to three of the vertical members in the center of each section between posts.

Class "F" railing has a 2-in. bronze tubing handrail fitted into a channel, the two intermediate horizontal members through which the vertical members are mortised consist of $1\frac{1}{2}$ in. by $\frac{1}{2}$ -in. bars.

The bottom member consists of a $\frac{3}{4}$ in. by $\frac{3}{8}$ -in. channel to which are attached all vertical $\frac{5}{8}$ -in. square bars as well as the $\frac{3}{4}$ -in. square bars at each side of the ornamental panel occurring at the center of each section between 1-in. square posts.

The ornamental panel is built up from $\frac{3}{4}$ in. by $\frac{1}{2}$ -in. bars and cast ornamentations.

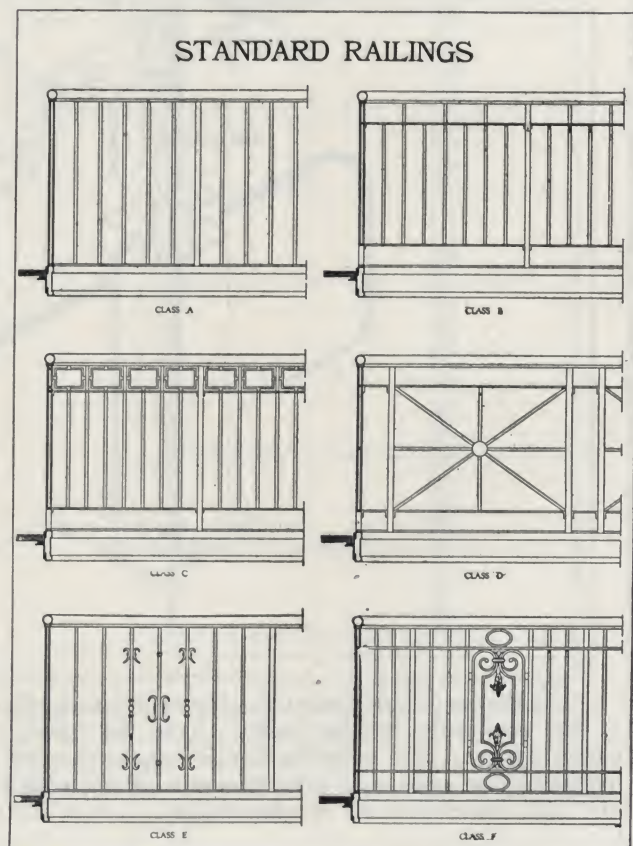
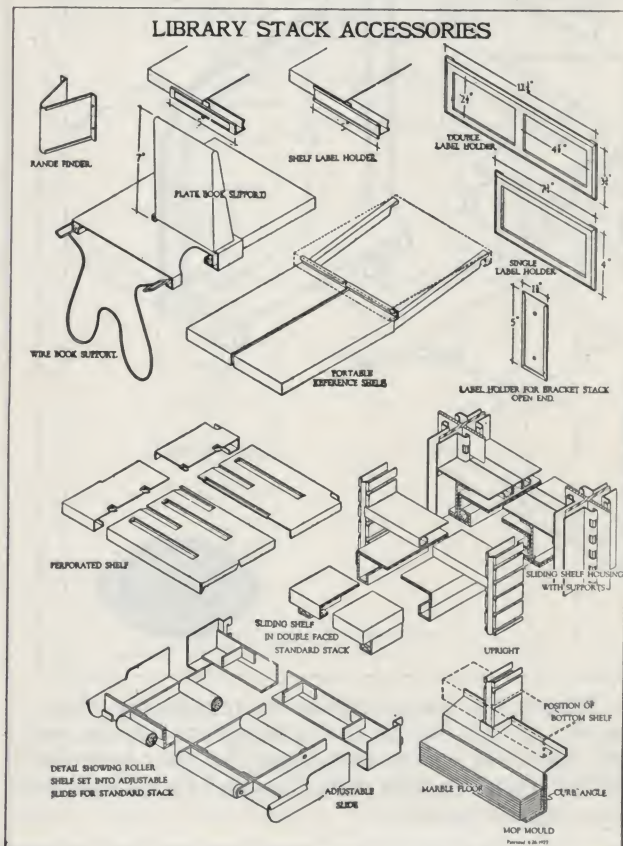
The finish used for all railings is a baked enamel with a brushed bronze finish for bronze handrails.

Stack Stairs

Main corridors should connect the aisles between the ranges of each tier and the tiers should be connected vertically by stairs and lifts. For standard stair dimensions, see Art Metal page 11.

Stairs are frequently placed between two parallel ranges thus saving floor space. As a rule, stairs should be near the center of the stack. They are made of cold-rolled steel which gives a better surface for applying the baked-on enamel finish.

Treads of various kinds are available: Corrugated rubber, safety tread, marble, glass, slate or linoleum.



Booklifts

Booklifts are regularly supplied for operation by a handpower mechanism with automatic brakes which hold the car where it is stopped. Car is made of brass mesh or wood and has a capacity of 100 lb. Booklift enclosures consist of corner posts to which are bolted steel panels. An opening is provided at each stack level. These openings are covered with slide down or swing doors. A steel shelf 6 in. deep is provided at each opening to assist in placing books on and removing them from the lift. An access door to the machinery is provided at the top of the enclosure.

Electrically operated can also be furnished when ordered.

Cubicle Partitions

Metal partitions for providing study rooms or cubicles can be furnished with a reference shelf that will serve as a work table, and adjustable shelves on which books may be placed within convenient reach of the student.

Bronze Museum Cases

These cases are constructed of architectural extruded bronze shapes. All joints are of dustproof construction.

All corners of doors and case panels to be securely fastened together by means of concealed connection angles. All panels of case are held in position by means of concealed sliding lock bars.

Glass or Vehisote panels optional and are cemented in the bronze frames so as to make a dustproof joint and absolutely rigid construction.

Cases can be had with removable panels or hinged doors fitted with locks.

Cases are made to any specified size for mounting on tables, sanitary or closed bases.

For illustration, see page 24.

Delivery Counters

A typical Art Metal Counter for library requirements is shown below. Charging card trays are placed in the top of the counter and are protected by a disappearing cover. The rear of the counter is equipped with card index drawers, cash drawers, storage cupboards and open shelving for returned book storage.

Book Trucks

Facilitate handling of books between stack room, delivery counter or other departments. Art Metal

Trucks for this purpose are built entirely of steel and have baked enamel finish. Trucks are equipped with ball bearing wheels and casters with either rubber or aluminum tires.

Reading Room Equipment

Art Metal equipment for reading rooms includes folio cases, periodical racks and newspaper racks. In smaller libraries the periodical and newspaper racks are placed on casters for ease in moving about the room.

The newspaper or periodical is tightly held and locked in a specially designed holder. Only a small part of the margin is covered by the holder and all inside columns are exposed with margin to spare.

All equipment is made of steel and finished with the durable baked enamel.

Electrical Equipment

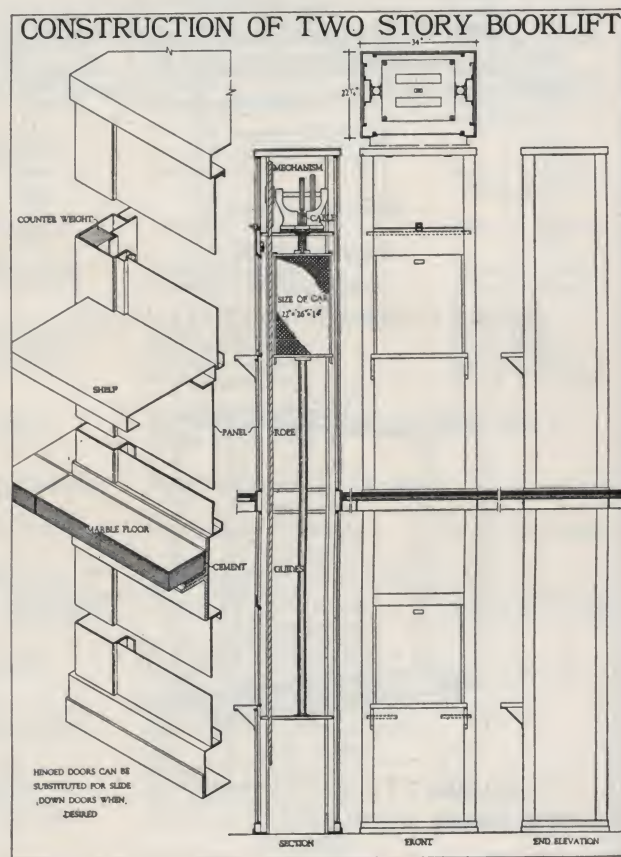
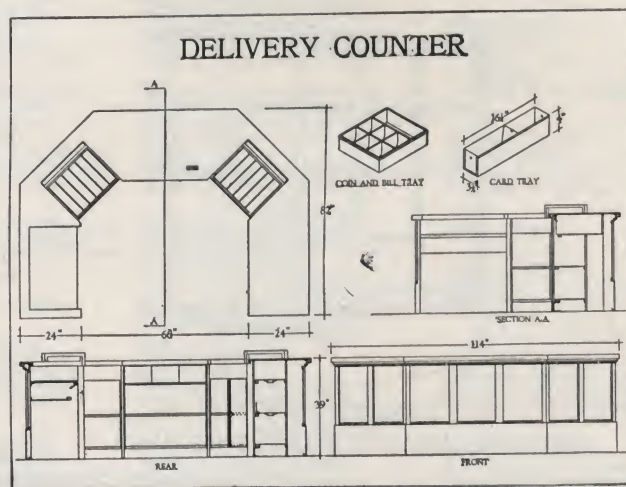
The furnishing and installing of rigid conduit fittings, receptacles and switches may be included with the contract for stacks, but not the wiring and furnishing of lamps.

Conduit risers extend on the underside of each deck floor.

Horizontal conduits to carry the wires are supported in the deck floor construction.

Lights in the aisles between ranges should be located 6 ft. apart and controlled by switches countersunk in the finished ends of the ranges. Main aisle or corridor lights may be located 12 ft. apart and should be controlled by switches adjacent to stack room entrances, or at foot or head of stairways.

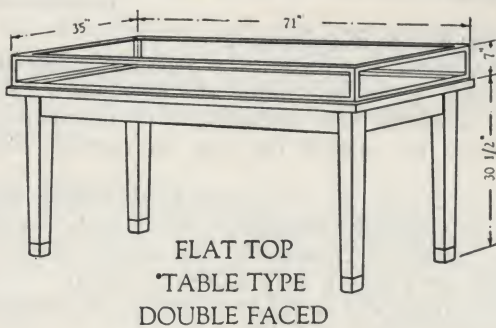
Single or double switches may be used to control range aisle lights. Three-way switches are very convenient where ranges are open at both ends and 12 ft. or longer.



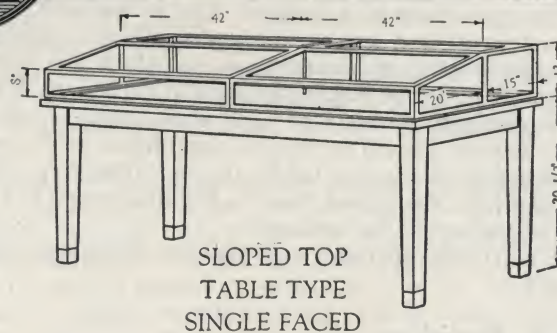
MUSEUM



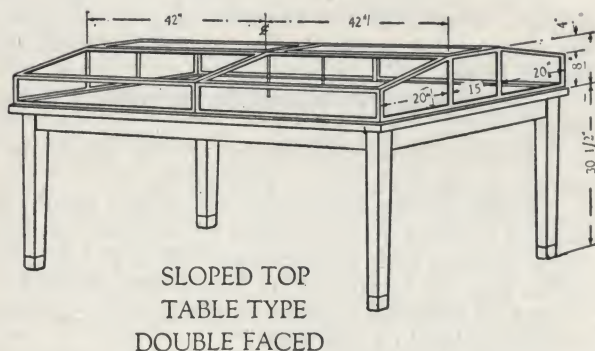
CASES



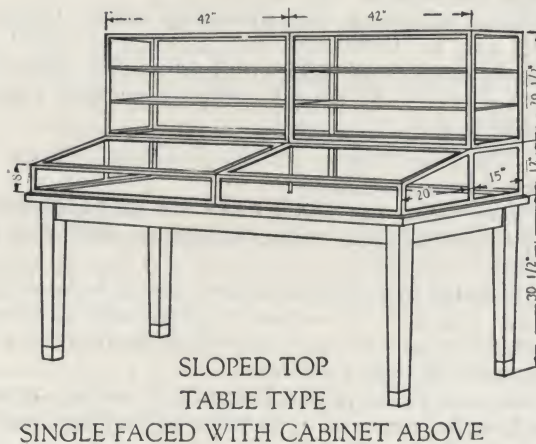
FLAT TOP
TABLE TYPE
DOUBLE FACED



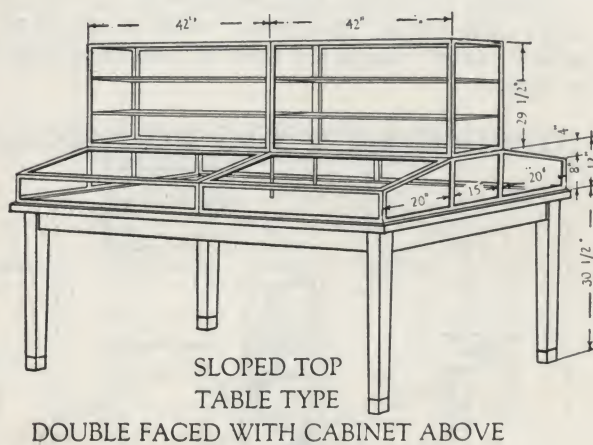
SLOPED TOP
TABLE TYPE
SINGLE FACED



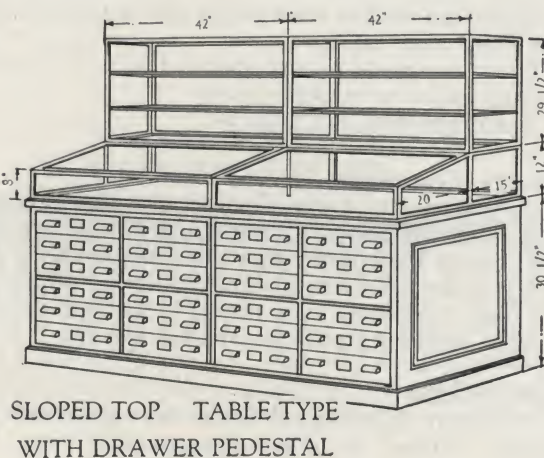
SLOPED TOP
TABLE TYPE
DOUBLE FACED



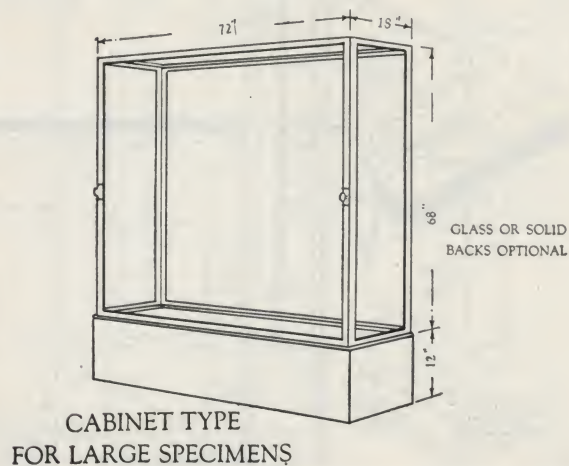
SLOPED TOP
TABLE TYPE
SINGLE FACED WITH CABINET ABOVE



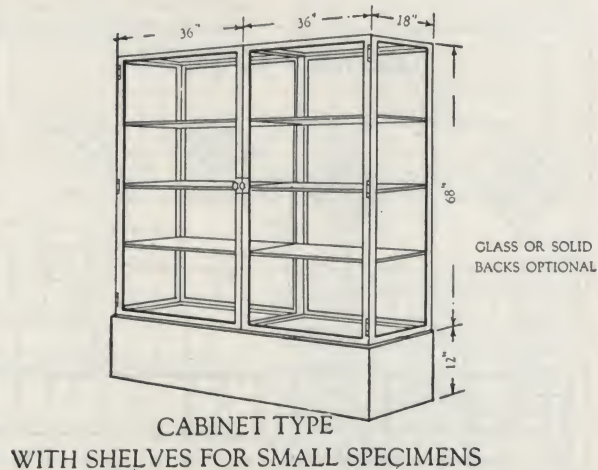
SLOPED TOP
TABLE TYPE
DOUBLE FACED WITH CABINET ABOVE



SLOPED TOP TABLE TYPE
WITH DRAWER PEDESTAL



CABINET TYPE
FOR LARGE SPECIMENS



CABINET TYPE
WITH SHELVES FOR SMALL SPECIMENS

A PARTIAL LIST OF ART METAL LIBRARY EQUIPMENT INSTALLATIONS

CITY	LIBRARY	ARCHITECT	CITY	LIBRARY	ARCHITECT
Montgomery	Montgomery Co. Law Library	Okel & Cooper	Bozeman	Montana State College	Card & Hawksworth
Berkeley	CALIFORNIA		Helena	State Law Library	
Los Angeles	University of California	J. H. P. Atkins		NEBRASKA	
Los Angeles	William A. Clark, Jr., Library	Robert D. Farquhar	Lincoln	Lincoln Carnegie Library	Fisher & Lawrie
Palo Alto	University of California	Ward & Blohme	Lincoln	University of Nebraska	Walker & Kimball
San Francisco	Leland Stanford, Jr., University	Albert Pissis	Omaha	Omaha Public Library	
San Diego	Mechanics' Institute	Ackerman & Ross		NEVADA	
	Public Library		Carson City	State Library	M. J. Curtis
Boulder	COLORADO			NEW HAMPSHIRE	
	University of Colorado	Geo. W. Roe	Bennington	Dodge Memorial Library	J. E. Randlett
	CONNECTICUT		Dover	Dover Public Library	
Bridgeport	Fairfield County Law Library	Briggs & Caldwell		NEW JERSEY	
Hartford	Hartford Public Library	Benj. W. Morris	Newark	Free Public Library	Rankin & Kellog
Hartford	Trinity College	Cass Gilbert	Passaic	Reed Memorial Library	John F. Jackson Co.
New Haven	Ives Memorial Library	Chas. C. Haight		NEW YORK	
New Haven	Yale University Library		Albany	State Ed'l Building	Palmer, Hornbostel & Jones
	DISTRICT OF COLUMBIA		Buffalo	Buffalo Historical Society	William B. Tubby
Washington	Department of Commerce	York & Sawyer	Brooklyn	Polytechnic Institute	R. F. Armiral
Washington	Folger Shakespeare Library	Paul Cret	Brooklyn	Public Library	Miller & Mallory
Washington	Scientific Library-Patent Office	Thos. Ustick	Ithaca	Cornell University Library	McKim, Mead & White
Washington	U. S. Geological Survey Library	Thos. Ustick	New York City	Columbia University Library	Gehron & Ross
Washington	U. S. Senate Library	Thos. Ustick	New York City	Jewish Theological Seminary	Emile G. Perrot
	FLORIDA		New York City	Fordham University	
Gainesville	University of Florida	Wm. B. Ittner	New York City	Municipal Building	
Jacksonville	Free Public Library	H. J. Klutho	New York City	Teachers' College	
	GEORGIA		Poughkeepsie	Vassar College Library	Allen & Collens
Atlanta	Carnegie Library		Syracuse	Public Library	James A. Randall
	IDAHO		Utica	Utica Public Library	
Boise	Carnegie Library	Tourtelotte & Com-		NORTH CAROLINA	
Moscow	University of Idaho	pany	Asheville	Pack Memorial Library	Edward L. Tilton
	ILLINOIS	J. E. Tourtelotte & Co.	Charlotte	Carnegie Library	J. M. McMichael
Aurora	Public Library	W. A. Otis	Fargo	Public Library	Hancock Brothers
Chicago	Art Institute	Shepley, Rutan & Coolidge		OHIO	
Chicago	Frederick Hild Branch, Pub. Lib.	Pierre Blouke	Canton	Public Library	Guy Tilden
Chicago	University of Chicago	Shepley, Rutan & Coolidge	Cincinnati	Cincinnati College	Tietig & Lee
Decatur	Public Library	Mauran, Russell & Crowell	Cincinnati	Public Library	James W. McLaughlin
Urbana	University of Illinois		Cleveland	Cleveland Law Library Ass'n	
	INDIANA		Columbus	Supreme Court Law Library	
Bloomington	Indiana University Library		Columbus	Public Library	Peters & Burns
Decatur	Public Library		Dayton	Dayton Library and Museum	
Fort Wayne	Carnegie Library	Alfred Grindle		OKLAHOMA	
Indianapolis	City Library	Paul B. Cret	Muskogee	Muskogee Public Library	Henry D. Whitefield
Indianapolis	State Library	Edwin May	Norman	University of Oklahoma	Layton, Hicks & Forsyth
	IOWA		Oklahoma City	University of Oklahoma	
Des Moines	State Historical Library	Smith & Gutterson		PENNSYLVANIA	
Des Moines	Iowa State Library	Oliver O. Smith	Erie	Public Library	Alden & Harlow
	KANSAS		Harrisburg	South Office Building No. 2	Gehron & Ross
Kansas City	Carnegie Library	W. W. Rose	Harrisburg	State Law Library	Jos. M. Huston
Lawrence	Un. of Kansas Library	Van Brunt & Howe	Philadelphia	Free Library of Philadelphia	Horace Trumbauer
Topeka	State Library	E. T. Carr, J. G. Haskell	Philadelphia	Philadelphia City Law Library	J. McArthur
	KENTUCKY		Philadelphia	University of Pennsylvania	Furness & Evans
Huntington	Public Library		Pittsburgh	Allegheny County Law Library	Alden & Harlow
Lexington	Public Library	H. L. Rowe			Jones
Paducah	Carnegie Library	A. L. Lassiter	Newport	RHODE ISLAND	
	MAINE		Providence	U. S. Naval War College	Stone, Carpenter & Wilson
Augusta	Maine State Library	G. Henri Desmond		Public Library	
Bangor	Penobscot Co. Law Library		Rock Hill	SOUTH CAROLINA	
	MARYLAND			Winthrop College	Edwards & Sayward
Annapolis	State Library	Maginnis & Welch	Sioux Falls	SOUTH DAKOTA	
Baltimore	Baltimore Bar Association		Vermillion	Carnegie Library	Joseph Schwartz
Baltimore	St. Mary's Seminary			University of South Dakota	Joseph Schwartz
	MASSACHUSETTS		Chattanooga	TENNESSEE	
Boston	Harvard School of Business	H. G. Balcom	Memphis	Public Library	R. H. Hunt
Boston	Mass. Historical Society	Chas. Brigham	Nashville	Cossitt Library	L. B. Wheeler
Boston	State Law Library	Guy Lowell		Carnegie Library	Albert R. Ross
Boston	Museum of Fine Arts	Shepley, Rutan & Coolidge		Fisk University	Henry C. Hibbs
Cambridge	Harvard Un. Law Library	McKim, Mead & White	Austin	TEXAS	
Cambridge	Harvard School of Business Adm.		Dallas	University of Texas	Cass Gilbert
Holyoke	Holyoke Public Library			Dallas Public Library	
Lawrence	Lawrence Public Library	William Aldrich	Salt Lake City	UTAH	
Lynn	Lynn Historical Society	Nat C. Smith		State and County Law Library	
New Bedford	Public Library	George F. Newton	Burlington	VERMONT	
South Hadley	Mt. Holyoke College Library	Coolidge & Carlson		University of Vermont	W. H. Richardson
Wellesley	Wellesley College Library		Charlottesville	VIRGINIA	
	MICHIGAN		Richmond	Law Dept. University of Virginia	W. M. Poindexter
Ann Arbor	University of Michigan	Albert Kahn	Williamsburg	State Law Library	Charles M. Robinson
Ann Arbor	University of Michigan, Legal Research Building	York & Sawyer		William and Mary College	
Detroit	University of Detroit	Malcomson & Higginbotham	Olympia	WASHINGTON	
Houghton	Michigan College of Mines	Charlton & Keunzli	Seattle	Washington State Library	E. O. Eastwood
	MINNESOTA		Charleston	University of Washington	
Duluth	Public Library	Chas. A. Aldrich	Morgantown	WEST VIRGINIA	
Minneapolis	Public Library	Clarence H. Johnston		West Virginia State Capitol	Cass Gilbert
Minneapolis	University of Minnesota	Clarence H. Johnston	Madison	West Virginia University Library	
St. Paul	State Historical Library		Madison	WISCONSIN	
	MISSOURI		Madison	State Law Library	Geo. B. Post & Sons
Columbia	University of Missouri	Jamieson & Spearl	Milwaukee	State Historical Society	Edw. Tough
Jefferson	Missouri State Library	Mariner & La Blume		University of Wisconsin	Van Run & DeGelleke
St. Louis	Washington, University	Cope & Stewardson		Milwaukee Public Library	
			Cheyenne	WYOMING	
				State Library	



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INCORPORATED

Metal Furniture and Equipment for Banks, Hospitals, Libraries, General Offices and Public Buildings

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Designing and engineering is under the supervision of capable men who have had long experience in building steel equipment of quality. The materials are carefully selected from the most suitable stocks and fabricated with modern machinery and equipment by skilled craftsmen. Architects are invited to refer inquiries to us for estimates, submission drawings or details of construction. This service is furnished without cost or obligation.



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Jameco equipment is built to give uninterrupted service and the utmost efficiency in a minimum space. Careful attention is given each detail of construction and all finishes are oven baked to make their beauty permanent.

The handsome appearance of Jameco equipment is the result of well balanced design and many refinements of construction that experience has shown to be essential to a good product.

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Methodist Episcopal Hospital, Brooklyn, N. Y.
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First National Bank, Bennington, Vt.
William H. Vaughn, Architect
Columbia National Bank, Washington, D. C.
Appleton P. Clark, Jr., Architect
Brighton High School Library, Boston, Mass.
O'Connell & Shaw, Architects
Paine-Webber & Co. Offices, Chicago Ill.
Girard College, Philadelphia, Pa.
John T. Windrim, Architect
Pontiac General Hospital, Pontiac, Mich.
L. I. Heenan, Architect



Dollar Savings Bank, New York, N. Y.

H. B. MULLIKEN, Architect

A typical example of banking room equipment furnished by the JAMESTOWN METAL EQUIPMENT COMPANY

WATSON MANUFACTURING COMPANY

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STEEL and BRONZE EQUIPMENT for banks, courthouses, hospitals and public buildings including: Counters, Counter Screens, Cage Partitions, Office Partitions, Vault Equipment, Omnibuses, Document Files, Roller Shelves, Slope Top Standing Desks, etc.; Dressers, Chifforobes and all kinds of special built-in Wall Cases for the hospital; Library and Vault Shelving; also a complete line of Desks, Tables and Filing Cabinets for every purpose.



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Our many years of practical manufacturing experience, a business and manufacturing organization of selected competent and trained men, a sincere desire to satisfy customers, careful adherence to details and specifications, constant study and improvements, and the use of modern designs and manufacturing processes have not only established an enviable reputation for the best in quality and service but have won the interest, friendship and confidence of our customers.

A Few Recent Watson Bank Installations



Cleveland Trust Co., Medical Arts Building,
Cleveland, Ohio

Cleveland Trust Company,
Cleveland, Ohio
Foreman National Bank, Chi-
cago, Ill.
Commercial National Bank,
Independence, Kan.
Allegheny Trust Company,
Pittsburgh, Pa.
Canal National Bank, Portland,
Me.
Security National Bank, Tulsa,
Okla.
Terre Haute Trust Co., Terre
Haute, Ind.
Citizens Bank & Trust Co.,
St. Johnsbury, Vt.
Equitable Trust Company, Wil-
mington, Del.
Piqua National Bank, Piqua,
Ohio
First National Bank, Dearborn,
Mich.



Merchants & Farmers Bank, Greens-
burg, Pa.



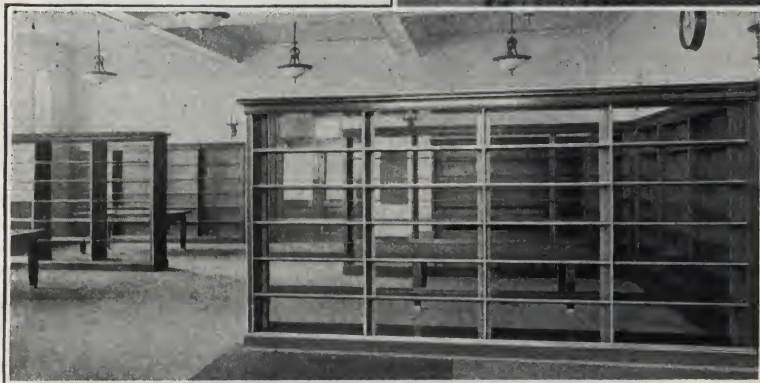
Austin National Bank, Austin, Tex.
PAGE BROS., Architects, Austin, Tex.

A Few Recent Watson Courthouse Installations

City Court Building, Buffalo,
N. Y.
Erie County Courthouse, Erie, Pa.
Erie County Courthouse, Buffalo,
N. Y.
Nassau County Courthouse, Mine-
ola, L. I., N. Y.
Caldwell County Courthouse, Le-
noir, N. C.
Allegheny County Courthouse,
Pittsburgh, Pa.
Ocean County Courthouse, Toms
River, N. J.
Medera County Courthouse, Me-
dera, Calif.
Mecklenburg County Courthouse,
Charlotte, N. C.
Wayne County Courthouse, De-
troit, Mich.



Crime Record Room, New City Court Building,
Buffalo, N. Y.



Law Library, New City Court Building, Buffalo, N. Y.

Library Installations

University of Cincinnati, Cincinnati, Ohio
Adelphi College, Garden City, L. I., N. Y.
Providence Courthouse, Providence, R. I.
Erie County Courthouse Law Library, Erie, Pa.
City Court Building Law Library, Buffalo, N. Y.
Phillips Academy, Andover, Mass.
Louvain University, Brussels, Belgium
J. P. Morgan Library, New York, N. Y.
De Paul University, Chicago, Ill.

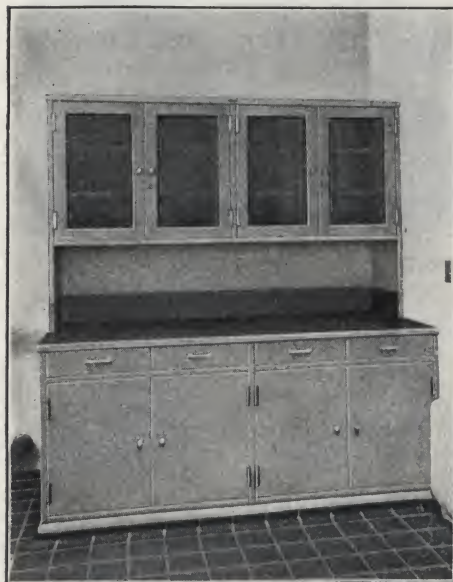
Hospital Installations

Melrose Hospital, Melrose, Mass.
City Hospital, Edinburg, Tex.
J. N. Adams Memorial Hospital, Perrysburg, N. Y.
St. Joseph's Hospital, Memphis, Tenn.
Jersey City Hospital, Jersey City, N. J.
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Hurley Hospital, Flint, Mich.
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Estimates

On request, and without obligation, we will submit quotations, accompanied by submission drawings if necessary on architects' plans and specifications.

We maintain a large force of trained engineers and draftsmen to work with architects giving them their ideas, and to assist with the many items of detail in planning the work. The same thoroughness that attends this preliminary phase of Watson co-operation is maintained through every stage of the work.



Beth Israel Hospital,
Brookline, Mass.



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Chairs for Clubs, Hotels, etc.



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THE SIKES COMPANY offers a broad service to architects interested in chairs specially suited to their environments.

There are Sikes Chairs in over 500 standard designs for the executive office, the boardroom, the general office, the bank, the school, the public building. Moreover a Department of Design executes new and interesting patterns for special uses.

We are glad to co-operate with architects in the selection of furniture suitable for each use. This service includes drawing up tentative designs for criticism, planning complete layouts, recommending furniture arrangements, color schemes, drapes, floor coverings, etc. This service is advanced without cost or obligation. It is authoritative, based on an experience of seventy years. Write for the complete catalogue, describing the nature of your requirements.



Sikes Chair SM-813

Used in the lecture rooms at Princeton University
CHARLES Z. KLAUDER, Architect, Philadelphia, Pa.

Some Typical Sikes Installations

Public Buildings

Los Angeles City Hall, Los Angeles, Cal.
Suffolk County Courthouse, Riverhead, L. I., N. Y.
Atlantic City Convention Hall, Atlantic City, N. J.
East Orange City Hall, East Orange, N. J.
Newark City Hall, Newark, N. J.
New York State Capitol (Attorney General's offices), Albany, N. Y.
Buffalo City Courts Building, Buffalo, N. Y.
Eric County Courthouse, Buffalo, N. Y.
Bronx County Courthouse, New York, N. Y.
Buncombe County Courthouse, Asheville, N. C.

Columbus City Hall, Columbus, Ohio
Dallas Hall of Records, Dallas, Tex.
Rhode Island State Courthouse, Providence, R. I.
Essex County Courthouse, Newark, N. J.

Banks and Insurance Companies

Manufacturers & Traders-Peoples Trust Co., Buffalo, N. Y.
American Exchange-Irving Trust Co., New York, N. Y.
Chase National Bank, New York, N. Y.
Equitable Life Assurance Society, New York, N. Y.
Equitable Trust Company, New York, N. Y.
Metropolitan Life Insurance Co., New York, N. Y.
Fidelity Mutual Life Insurance Co., Philadelphia, Pa.
Integrity Trust Company, Philadelphia, Pa.
Citizens & Southern Bank of South Carolina, Charleston, S. C.
Jefferson Standard Life Insurance Co., Greensboro, N. C.
Equitable Trust Company, New York, N. Y.



Sikes Chair 1520 CB

Used in Mayor's office, City Hall,
East Orange, N. J.
J. H. & W. C. Ely, Architect,
Newark, N. J.

Corporations

United Shoe Machinery Corp., Boston, Mass.
New Orleans Public Service Corp., New Orleans, La.
New York Central Railroad Co., Buffalo, N. Y.
United Light & Power Co., Brooklyn, N. Y.
National Biscuit Co., New York, N. Y.
New York Evening Journal, New York, N. Y.
Pennsylvania Power & Light Co., Allentown, Pa.
Philadelphia Public Ledger, Philadelphia, Pa.
Industrial Rayon Corp., Covington, Va.
Standard Brands, Inc., New York, N. Y.
Richfield Oil Co., Los Angeles, Cal.

Some Sikes Construction Features

(1) Rim is fastened at every point of contact with double dowels, making it one solid unit.

(2) Stretchers are chuck doweled, *glued and bradded*.

(3) Notch on the back legs, deep enough to take the full thickness of the stretcher and relieve the strain on the dowel.

(4) Each back leg forms its own corner block. The making of leg and block in one joint adds immensely to the strength of this joint.

(5) Corner blocks firmly fastened by both glue and screws give additional strength at these points.



Sikes Chair No. 1550

Used in the Boardroom of the Integrity Trust Company of Philadelphia
PAUL CRET, Philadelphia, Pa., Architect
for interior



Sikes Chair No. 8100

One of several styles used in the new Atlantic City Auditorium and Convention Hall
LOCKWOOD GREEN CO., Boston, Mass., Engineers
COOK & BLOUNT, New York, N. Y., Associated Architects

of something even better—a chilled steel pivot operating in a bath of lubricant. This pivot, which carries the weight of the chair, revolves with the smoothness, ease and silence of the jewel bearing in a watch. The lubricant, being in an enclosed well, cannot escape and its evaporation is a matter of years. Under ordinary conditions the original lubrication, given at the factory, should last fifteen to twenty years.

New Improved Swivel Mechanism Used on All Sikes Revolving Chairs

This is the first chair iron in which provision is made for *long time* lubrication of that part of the iron which carries the load.

After years of experiment and observation of chairs in actual use, we discarded ball bearings in favor

The Sikes Line

Today, the Sikes line of office chairs consists of nearly 500 different models. On this page is shown a few of the many Sikes designs. It is impossible in this limited space to give a full idea of the Sikes line. A complete catalogue will be forwarded to any architect on request.



No. 1534

Height from seat, 23 in. Depth of seat, 20½ in. Width between arms, 20½ in. Spring leather seat. Code word: Ostrich



No. 1533

Same dimensions as companion chair No. 1534—and like it made in American walnut and mahogany. Spring leather seat. Code word: Jewel



Sikco 529-C

Height from seat, 17½ in. Depth, 20¼ in. Width between arms, 20¼ in. Loose cushion over cane. Code word: Tank



Sikco 530-C

Same dimensions as companion chair No. 529-C—and like it made in American walnut and mahogany. Loose cushion over cane. Code word: Tart



No. 604 CB

Height from seat, 18½ in. Depth of seat, 18½ in. Width between arms, 18 in. Loose cushion over cane. Code word: Reprobate



No. 603 CB

Same dimensions as companion chair No. 604 CB—and like it made in American walnut and mahogany, and in imitation walnut and mahogany. Loose cushion over cane. Code word: Refuge



No. 906

Height from seat, 24½ in. Depth of seat, 19 in. Width between arms, 20¼ in. Spring leather seat. Code word: Opal



No. 905

Same dimensions as companion chair No. 906—and like it made in American walnut and mahogany. Spring leather seat. Code word: Omelet



No. 915-C

Height from seat, 21 in. Depth of seat, 19 in. Width between arms, 19 in. Loose cushion over cane. Code word: Ordeal



No. 916-C

Same dimensions as companion chair No. 915-C—and like it made in American walnut and mahogany. Loose cushion over cane. Code word: Orphan



No. X89½

Height from seat adjustable from 14 in. to 16 in. Depth of seat, 14 in. Width of seat, 16½ in. Made in American walnut, quartered oak, birch finished mahogany and walnut. Code word: Nectar



No. X91½

Height from seat adjustable from 13 in. to 15 in. Depth of seat, 13½ in. Width of seat, 16½ in. Spring leather seat and leather back. Made only in American walnut and mahogany. Code word: Night

Sikes Office Easy Chairs

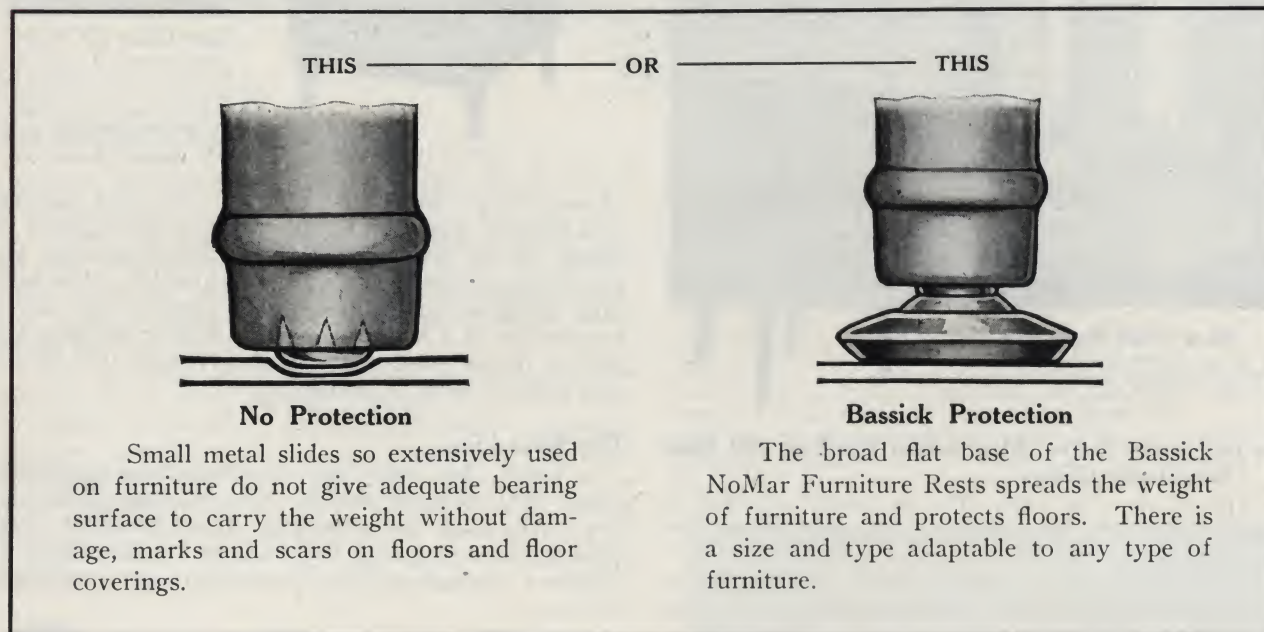
BASSICK FLOOR PROTECTION EQUIPMENT

MANUFACTURED BY
THE BASSICK COMPANY
BRIDGEPORT, CONN.

FLOOR PROTECTION WITH BASSICK NOMAR FURNITURE RESTS

A Positive Protection Against Marring of Soft Floors of Linoleum, Cork, Rubber

This information should be of particular interest to architects, for they may best serve the interests of their clients by recommending the installation of floor protection equipment.



Neat in Appearance

The dark brown Atlasite base adds a finishing touch of neat appearance to the furniture leg.

Durable

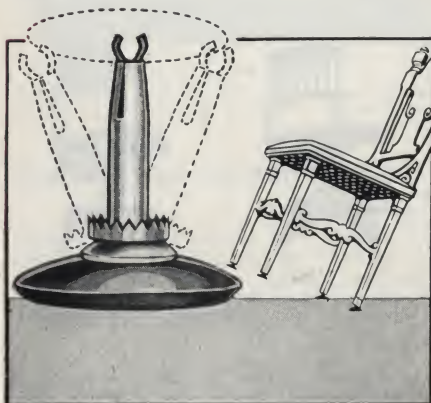
The Atlasite in the base is a special composition with a polished hard surface, which will not break, crack or chip under severe service.

Tilt

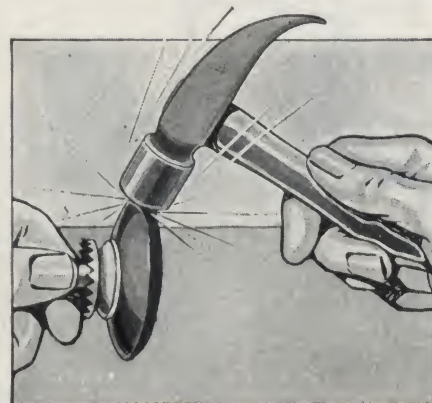
Every NoMar Rest has a flexible joint which allows the base to remain flat on floor when furniture is tilted. This is a very important feature when used on chairs. It prevents sharp edges of legs from digging into floors.

Quiet

The joint of the NoMar Rest is made with a spring tension to prevent rattles and chatter when furniture is moved.



Tilting Joint Keeps the Broad Base Flat on the Floor



Atlasite Base Will Not Break, Chip or Rust

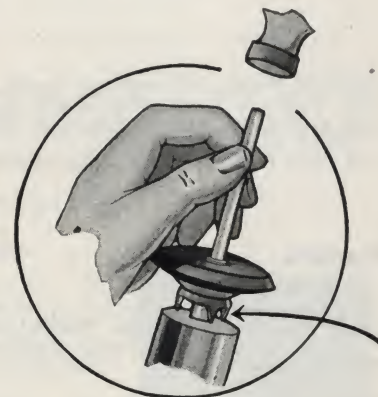
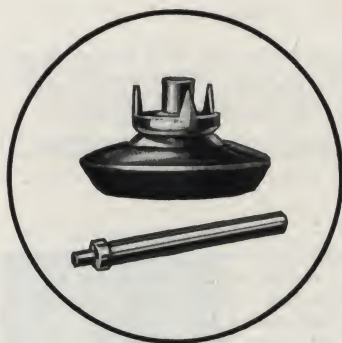
SPECIFICATIONAL DATA BASSICK FLOOR PROTECTION EQUIPMENT

The "Drive-On" NoMar

Easy to Apply—Will Not Split

This type on furniture which has never been equipped with casters or bored for caster sockets, eliminates the necessity of boring holes.

A driving tool furnished with each set and a hammer will do the job as easy as driving a nail. A patented hollow driving tube gives a positive grip—it will not come off.

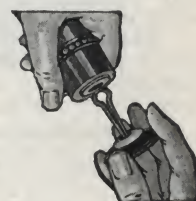


No.	Diam. of base, in.	List price, set of 4
NR-10	1 1/4	\$0.50
NR-20	1 1/2	.60
NR-30	2	.70
NR-40	2 1/2	1.00

The "Socket" NoMar

For Use with Grip Neck Caster Sockets

The "Socket" type NoMar is furnished with standard 3/8-in. grip neck caster sockets. Where it is desirable to replace casters or where furniture legs have caster socket holes this type should be used.



No.	Diam. of base, in.	List price, set of 4
NR-1	1 1/4	\$0.50
NR-2	1 1/2	.60
NR-3	2	.70
NR-4	2 1/2	1.00

Bassick NoMar Desk Cups

For Use Under Round or Square Desk Legs, Stove Legs, Radiator Legs, etc.

Made of brown Atlasite, neat in appearance and unbreakable these cups fill a need for attractive durable floor protection. No. NDC-6 is especially adaptable for use as a caster cup. A curved depression in the center holds the caster wheel firmly in place.



No.	Size of opening, in.	List price, set of 4
NDC-125 Square	1 1/2	\$0.90
NDC-225 Square	1 3/4	1.00
NDC-325 Square	2	1.30
NDC-6 Round	1 3/8	.60
NDC-7 Round	1 1/2	.80

BASSICK CASTERS

THE BASSICK COMPANY, one of the largest manufacturers of casters, makes a complete line of casters for every purpose. Information re-

garding proper types of casters for any furniture or equipment for use on all kinds of floor will gladly be furnished on request.

Note: These products can be secured through leading hardware distributors and dealers, office supply houses or direct from the manufacturer.



THE BERGER MANUFACTURING CO.

Manufacturers of Steel Lockers, Shelving and Storage Cabinets

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Products

STEEL LOCKERS.

Also Shelving, Storage Cabinets, Wardrobes, Filing Cabinets and Light Weight Fireproof Safes. For our pages on Metal Building Material, see Manufacturers' Index.

Berloy Steel Lockers

Made in designs and sizes to meet every locker need and have every construction advantage which makes for long life and freedom from repairs. *More than one million are now in use throughout the world.*

Material—Two-pass deoxidized stretcher leveled steel. This material is all made in our own mills from ore to finished sheet and given special processes to insure perfectly level sheets with smooth surfaces. The door frame is also made of sheet metal same as balance of locker and matches up perfectly.

The Unit Principle of Construction—Followed throughout gives great flexibility of arrangement. As many or as few lockers as desired may be built into any group and rearrangement of any equipment is easily and quickly accomplished.

STANDARD SIZES OF BERLOY STEEL LOCKERS

Locker No.	Width, in.	Depth, in.	Height, in.	Locker No.	Width, in.	Depth, in.	Height, in.
Single Tier Lockers Types S.S. and F.S.							
226	12	12	60	257	12	15	72
256	12	15	60	287	12	18	72
286	12	18	60	557	15	15	72
556	15	15	60	587	15	18	72
586	15	18	60	887	18	18	72
227	12	12	72				
817	18	21	72				

Double Tier Lockers Types S.D. and F.D.

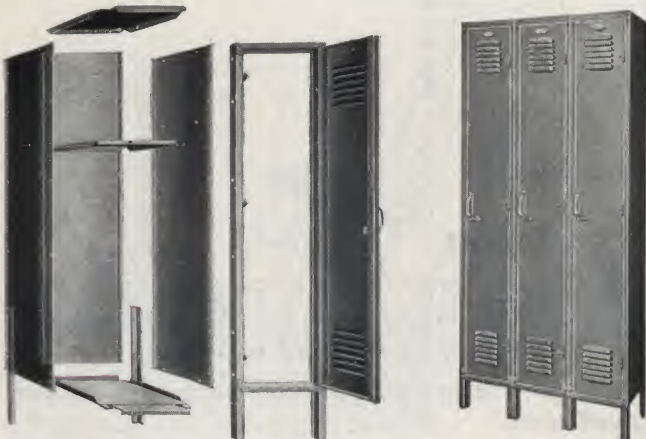
223	12	12	36	213	12	12	30
253	12	15	36	254	12	15	42
553	15	15	36	554	15	15	42

Compartment Lockers Type C

Locker No.	Compartment dimensions, in.			Number of compartments high
	Width	Depth	Height	
222	12	12	12	6
252	12	15	12	6
221	12	12	12	5
251	12	15	12	5
555	15	15	14½	5
551	15	15	15	4

Combination Lockers Type G

No. 2860—5 small compartments, each 15 in. wide, 21 in. deep and 15 in. high; 1 small compartment 21 in. wide, 18 in. deep and 15 in. high; 1 large compartment 18 in. wide, 18 in. deep and 60 in. high.



Details of Berloy Steel Lockers

Type S.S. Single Tier



All of the parts are punched and formed over standard dies which make all corresponding parts uniform. This makes it possible to rearrange lockers at any time. (Note dissected view which illustrates clearly how parts are assembled.)

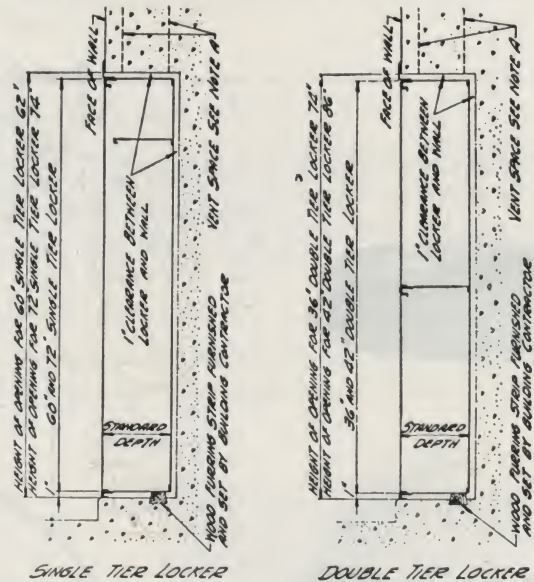
Doors—Made of 20 gauge steel with a ¾x1½-in. filleted tubular reinforcement at inner edge of door and two ¾x¾-in. filleted tubular reinforcements at outside edge. Entire door made of one piece of steel welded together. Lock cannot be removed from outside of door as no lock bolts appear on outside.

Ventilation—Types S.S., S.D., F.S. and F.D. hooded slots or louvers are embossed in the field of the doors. These are not mere slits in the metal, but are roomy louvers measuring 5½ in. wide and extending ¼ in. from face of door. They assure ample ventilation, while the hoods furnish protection against dust, dirt, theft, and fire originating in the locker.

Positive Latching Device—Locking bar operates between the two tubular reinforcements at the outside edge of door and runs the full length of door. Both the locking clip on the door and the locking lug on door frame are made of heavy 13 gauge steel. Both the locking clip and lug are scientifically designed so as to force door to positively latch when closed. A silencing feature permits locking bar to drop into locked position with minimum noise.

Lockers Recessed in Corridor Walls

These accompanying details are given to show the size opening required for the recessing of locker equipment. The

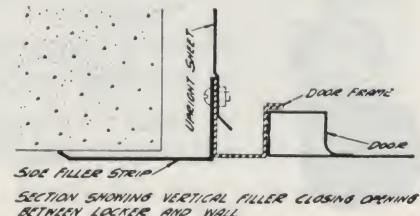


SINGLE TIER LOCKER

DOUBLE TIER LOCKER

height of the opening for recessed lockers should be at least 2 in. greater than the over-all height of the locker without legs. Depth of recess to be 1 in. greater than depth of locker. Width of recesses should be 2 in. greater than the over-all width of the total number of lockers in the group.

Example, five lockers 12 in. wide, 12 in. deep by 60 in. high, without legs, recess in one group, the opening should be 5 ft. 2 in. wide, 13 in. deep, 62 in. high.



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installations will be glad to co-operate with you when your plans are being made.

Technical Engineering Co-operation

Lyon Engineers experienced in all phases of planning locker

Just write or telephone our nearest sales office, or communicate with our general offices at Aurora for detailed information.

Manufacturer's Specifications of Lyon Steel Lockers



Single Tier Locker
WIDTHS AND DEPTHS,
IN.

60-in. hts.		72-in. hts.	
W	D	W	D
12	12	12	12
12	15	12	15
12	18	12	18
15	15	15	15
15	18	15	18
18	18	18	18
18	21	18	21

Doors—Full cold rolled, patent leveled, 20-gauge furniture steel, formed with channel shape reinforcement at each vertical edge, providing double thickness of steel where locking device and hinges are attached. Top and bottom are flanged and all joints and corners electrically welded.

Frames—Both vertical and horizontal members are 1x1x $\frac{1}{8}$ in. hard steel angles. Joints rabbeted and electrically welded.

Body—24 gauge steel, flanged at all sides to give a double thickness of metal at each edge.

Tops—Flat, unless sloping tops are specified.

Hinges—Full looped hinges—3 hinges on 60-in. and 72-in. high doors; 2 hinges on 36-in. and 42-in. high doors.

Ventilation—Standard louver perforations 5 in. wide by $\frac{1}{4}$ in. deep.

Locking Device—Three point locking device on single tier lockers; two point locking device on double tier lockers. Gravity locking bar remains up when door opens. Closing the door releases locking bar which drops quietly into place.

Locks—Masterkeyed flat key locks with two keys each. Combina-

tion locks or padlocks can be furnished when specified.

Legs—Front legs are integral with frame. Rear legs are 1x1x $\frac{1}{8}$ in. hard angle. Fitted with adjustable feet.

Number Plates—Brass, with $\frac{1}{2}$ -in. etched black enameled numerals.

Equipment—Single tier locker, one hat shelf. Double tier locker, no shelf. 12-in. wide lockers have 3 single prong and 1 double prong ball pointed, rustproofed coat hooks. Over 12-in. widths, 4 single and 1 double prong hooks.

Silencing Devices—Rubber cushions at all points where door strikes jamb, and where lock trigger passes through door. Gravity locking device, which eliminates noise due to locking mechanism "riding over" jamb.

Finish—Standard finishes—Lyon green or Lyon gray baked enamel. Coat hooks, cadmium plated. Bolts Parkerized.

Recessing—Complete details in our locker handbook No. 209.

Erection—All lockers shipped knocked down. We can erect or furnish erection superintendent.



Double Tier Locker
WIDTHS AND DEPTHS,
IN.

36-in. hts.		42-in. hts.	
W	D	W	D
12	12	12	12
12	15	12	15
15	15	15	15



Gymnasium Locker

One single tier locker 9 in. wide, 12 in. deep, 60 in. high used with 3 or more triple tier box lockers 9 in. wide, 12 in. deep, 20 in. high.

Equipment: Single tier locker: 1 hat shelf, 3 single prong, and 1 double prong hooks. Triple tier: 2 single prong hooks and 1 double prong hook.



Two-person Lockers

SIZES IN INCHES

W	D	H	
15	15	72	Add 6 in. if legs are desired
15	18	72	
15	21	72	

Hat Compartment: 15 in. wide, 9 in. high.

Coat Compartment: 7 $\frac{1}{2}$ in. wide, 54 in. high.

The lock on the coat compartment also controls the hat compartment.



Golf and Club Lockers

WIDTHS, DEPTHS AND HEIGHTS, IN.

W	D	H
24	18	60
24	21	60
24	18	72
24	21	72

Standard Equipment: Coat rod and hooks, shelves, and golf ball tray.

Optional: Private compartment, mirror, comb tray, towel rod, card holder, umbrella holder. Can be furnished at extra cost.



Box Lockers

SIZES IN INCHES

W	D	H	Over-all tier hts.
12	12	12	66 to 78
15	15	15	66
18	18	18	78

If legs are not required, deduct 6 in. from over-all heights. No shelves or hooks furnished.

DURABILT STEEL LOCKER CO.

506 Arnold Avenue, AURORA, ILL.

SALES OFFICES IN ALL PRINCIPAL CITIES

Products

STEEL LOCKERS for all purposes.
STEEL STORAGE and WARDROBE CABINETS.
STEEL GYMNASIUM RACKS and TRUCKS.

A complete set of architects drawings, A.I.A. File No. 28a-1, showing locker details will be gladly sent upon request.



Locker Specifications

Doors—Full cold rolled, patent leveled No. 20 gauge special enameling steel with tubular reinforcement at each vertical edge and hemmed flange at each horizontal edge.

Frames—Uprights, 1x1½ in. hard steel angles; cross members, 1½x¾ in. No. 14 gauge formed steel channels, joined by two ⅝ in. countersunk rivets at each corner.

Body—The remaining parts of locker are made of No. 24 gauge steel.

Locking Device—Concealed type operated by stamped steel (not cast) straight lift handle with curled grip which provides ample space for comfortable hand-hold, latching automatically and quietly when door is closed.

Lock Fingers—Improved design with rubber silencers. Three on both single tier and double tier standard lockers.

Padlocking Attachment—This attachment complete with rubber silencers furnished on standard single and double tier lockers at no extra cost.

Locks—Masterkeyed flat key locks (with two German Silver keys each) fastened to inside of door without exposed bolt heads. Combination locks or padlocks can be furnished when specified.

Hinges—Reinforced, full-looped, 5-knuckle "strap" hinge permitting door to open approximately 180 degrees.

Legs—Front legs integral with frame. Adjustable feet furnished. Rear legs also adjustable.

Tops—All lockers have flat tops unless sloping tops are specified.

Ventilation—Standard louver perforations in doors, "safety type" 4½ in. wide, ⅝ in. deep.

Equipment—Single tier, one hat shelf 9 in. from top; double tier, no shelf. 12 in. wide lockers, one double prong ceiling and three single prong side hooks. Lockers more than 12 in. wide, one double prong ceiling and four single prong side hooks. All hooks arranged for attaching with two bolts.

Coat rods, mirrors, comb trays, towel rods, umbrella racks, drip pans, golf ball trays, golf bag chains, drawers and other special equipment to order.

Finish—Standard No. 307 olive green baked enamel and No. 213 standard gray baked enamel. Other colors at reasonable cost. Coat hooks, Udylyte finish. Bolts and nuts parkerized. All outside bolt heads are slotless type.

Number Plates—Polished brass with ⅞-in. black filled numerals.

Sizes—Widths: 12, 15, and 18 in.; depths: 12, 15, 18, 21 and 24 in.; heights: 60 and 72 in. single tier; 30, 36 and 42 in. double tier.

*Overall height with standard legs is 6 in. greater than nominal heights listed.

Multiple Tier (Box) Lockers

Multiple Tier Lockers conform in general with specifications of standard lockers with following exceptions:

Doors—Full cold rolled, patent leveled No. 16 gauge special enameling steel, flanged on all edges.

Frames—Same as standard lockers with No. 20 gauge intermediate channel cross members between door openings.

Combination Handle and Padlock Attachment—All Multiple Tier Lockers are furnished with neatly formed stamped steel (not cast) straight-pull curl handle combined with padlock attachment. When doors are closed, spring clips keep them shut.

Equipment—No hooks or shelves.

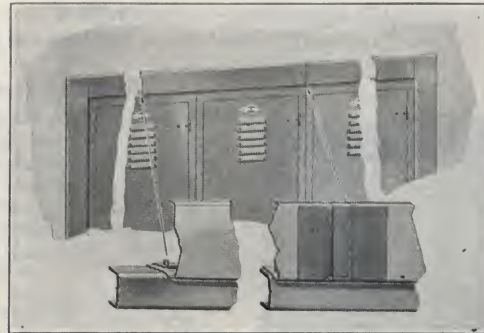
Sizes—Widths: 12, 15 and 18 in.; depths: 12, 15, 18, and 21 in.; heights: 12, 15 and 18 in. Usually furnished in tiers four to six high. Also combinations of lockers and Multiple Tier Lockers in all sizes.

Top and End Finishing Strips

The perfect fitting top and end finishing strips are by far the neatest and most attractive trim ever furnished for recessed locker installations. Durabilt Finishing Strips project ⅜ in. in front of the face of locker. The edge of top strip adjacent to locker is offset ⅜ in. to overlap the locker. End strips do not overlap but to project ⅜ in. in front of locker same as top strip. Our strips are easily attached by means of concealed screws and joint clips. When the joint clips are engaged there is a spring contact which holds the finishing strips in alignment with a smooth, flush butt joint.

Additional Information

For additional locker information telephone our nearest sales office or write us direct at Aurora for a copy of Folder No. 6000. No obligation incurred.



Top and End Finishing Strips

Gymnasium Lockers

A complete unit consists of one standard single tier locker with multiple tier lockers, 2 or 3 high (depending on size) in sections of 1, 2, 3, or 4 wide.

Padlocks are most practical to use with gym type lockers.

Equipment—Each large compartment has one hat shelf. Small compartments have none. All compartments have one double prong ceiling and three or more single prong side hooks (depending on size of locker). Large compartment doors are standard single tier locker construction. Doors on small compartments are multiple tier (box) locker construction.

Small Compartments

W. D. H.*	
6' x 12x30"	Double Tier Arrangement
6' x 15x36"	Double Tier Arrangement
7½' x 12x30"	Double Tier Arrangement
7½' x 15x36"	Double Tier Arrangement
9' x 12x20"	Triple Tier Arrangement
9' x 15x24"	Triple Tier Arrangement

Large Compartments

W. D. H.*	W. D. H.*
12x12x60"	15x15x60"
12x15x72"	15x15x72"

Two-in-One Lockers

W. D. H.

15x15x72"	without coat rod
15x18x72"	with coat rod
15x21x72"	with coat rod

Coat compartments are 7½ in. wide x 54 in. high. Hat compartments are 15 in. wide x 9 in. high, making total height 72 in. exclusive of legs.

Equipment—One double prong ceiling hook and two or more single prong side hooks, depending on size of locker. Lockers 18 in. deep and over have a coat rod in addition to hook equipment.

Two Person Lockers

W. D. H.*

15x12x60"	15x12x72"
15x15x60"	15x15x72"
15x18x60"	15x18x72"
15x21x72"	

Equipment consists of two hat shelves, vertical partition dividing lower part into two coat compartments each having one double prong ceiling and two or more single prong side hooks, depending on size of locker. Can be furnished without partition when desired.

"Doorless" Lockers with Trays

Equipment consists of 19 3-in. trays in 60 in. high and 23 3-in. trays in 72 in. high lockers. Trays are removable. These steel lockers can be furnished with doors if desired. Can also be made without legs for recessing in walls when desired.

Co-operation

We welcome the opportunity of working with you on your storage problems when plans are in the formative stages. It is then that our "Specialized Knowledge" will prove most profitable to you. For further information phone our nearest sales office or write us direct at Aurora. Literature will be gladly sent on request without obligation to you.

"Doorless" Lockers with Trays



Single Tier Lockers

W. D. H.*	W. D. H.*
12x12x60"	12x12x72"
12x15x60"	12x15x72"
12x18x60"	12x18x72"
15x15x60"	15x15x72"
15x18x60"	15x18x72"
18x21x60"	18x21x72"

Equipment consists of hat shelf, one double prong ceiling and three or more single prong side hooks, depending on size of locker



Double Tier Lockers

W. D. H.	W. D. H.
12x12x30"	15x15x36"
12x12x36"	12x15x42"
12x15x36"	15x15x42"

Overall height, including legs, is 6 in. greater than combined height of lockers in section.

No hat shelf is furnished in Double Tier Lockers. Hook equipment is same as in Single Tier Lockers



Single Tier Lockers with Adjustable Shelves



Gymnasium Lockers



Two-in-One Lockers



Two Person Lockers



Single Tier Shoe Lockers



Multiple Tier (Box) Lockers (Sometimes called cubicles)



Combination Cabinet

W. D. H.
36x18x78 in.
36x21x78 in.
36x24x78 in.



Wardrobe Cabinet

W. D. H.
36x18x78 in.
36x21x66 or 78 in.
36x24x78 in.



Stationery Cabinet

W. D. H.
36x21x66 or 78 in.
36x15x78 in.
36x18x66 or 78 in.



Teachers' Cabinet

W. D. H.
36x18x78 in.
36x21x78 in.
36x24x78 in.



"Doorless" Cabinet

W. D. H.
36x 9x66 or 78 in.
36x12x66 or 78 in.
36x18x66 or 78 in.



Sportsman's Cabinet

W. D. H.
36x18x78 in.
36x21x78 in.
36x24x78 in.



Janitors' Cabinet

W. D. H.
36x18x78 in.
36x21x78 in.
36x24x78 in.

Cabinet Construction Features

Cabinet doors, back, top, bottom, sides, and storage shelves are of full cold rolled patent leveled No. 20 gauge enameling steel—rolled to our own specifications.

The door frame is made by interlocking the top, bottom and sides. It is offset where doors overlap, assuring a close fit. Doors are reinforced in center with full length panel, spot welded to inside, which makes them exceptionally strong and rigid. The front, sides, and top are free from unsightly bolt heads or screws. These features make Durabilt Cabinets unusually secure, dustproof, fire-retarding and verminproof.

Positive Locking Device and Handle—The locking device consists of a special, triple action, straight throw, mechanism operated by an attractively designed nickel plated lever type handle. Vertical locking bolts which are concealed in tubular reinforcement engage holes at top and bottom of door frame while a heavy, horizontal bolt locks doors at center.

Secure Locks—Durabilt Steel Locker Co. special cabinet locks are standard on all cabinets with doors. Locks are so attached that it is impossible to chisel bolts off when doors are locked.

Exceptionally Strong Hinges—Our special designed strong strap hinge is so attached that no bolt heads appear on exterior of doors. The hinge construction also permits doors to open all the way back against sides so as not to take up valuable aisle space.

Attractive Color Finish—The rich "Satin Texture" olive green finish on Durabilt Cabinets which harmonizes with any interior trim makes them both permanently beautiful and dignified in appearance. (Other colors may be had at slight extra cost.)

Complete Range of Sizes—Durabilt Cabinets are available in various widths, depths and heights, and the line covers cabinets in both one and two-door types as well as cabinets without doors. All Cabinet dimensions listed are overall. Door openings are 3 in. less in width and 7 in. less in height than nominal dimensions given under illustrations.

Interior Equipment—The following can be furnished:

Storage, wardrobe, and combination shelves; full length and short partitions, also half width shelves for attaching to same; shelf partitions; shelf trays; plain, tool and blue print drawers; drawer dividers, partitions, and separators; bin fronts and extensions; Indian club and dumb-bell racks; milling cutter panels; key panels; and various other standardized parts which permit of easy attaching without drilling any extra holes, etc.



Wardrobe or Storage Cabinet

(One Door)
W. D. H.
19½x18x66 in.
19½x21x66 in.
19½x21x78 in.

This one door cabinet is furnished with adjustable wardrobe shelf assembly with coat rod and four double prong ceiling hooks. Storage shelves can be inserted when desired without the use of special tools.



Combination Wardrobe and Lavatory Cabinets

W. D. H.
30x18x78 in.
30x21x78 in.
30x24x78 in.

A standard Durabilt Cabinet in every respect except that it has a special short back to which the following equipment is attached: mirror, comb and brush shelf; soap dish; tumbler holder; also electric light fixture with convenience outlet. A towel rod is bolted to inside of top flange. (Can be furnished without special back and equipment, if desired.) Standard wardrobe cabinet furnished same size as lavatory cabinet when used in combination with it. Wardrobe equipment consists of shelf for hats and parcels; coat rod and six double prong ceiling hooks.

Durabilt Hospital Cabinets



Private Room Cabinet "Built-in" Type—Hospital units of this type, either "built-in" or "portable" have one, two or three 19½ in. wide wardrobe sections (depending on number of patients to be accommodated) and a section consisting of one storage compartment above a utility compartment. For one and two patient units, the latter section is 19½ in. wide. In the three patient units, it is 24 in. wide with double doors. For four or more patients, use combinations of these units best suited to your requirements. These cabinets are usually furnished in 78-in. heights and 21-in. depths.



W. D. H.

Small—15x6x30 in.

Large—24x6x30 in.

The 15-in. wide cabinet furnished with 100 to 600 key hooks as follows:

Panel on back only—

100 hooks.

Panel on back and

panel on door—200 hooks.

Panel on back and one

swinging leaf—300 hooks.

Panel on back, panel on

door and one swinging

leaf—400 hooks.

Panel on back and two

swinging leaves—500 hooks.

Panel on back, panel

on door and two swinging

leaves—600 hooks.

Above arrangements in

a 24-in. wide cabinet

would provide twice as

many hooks. (Each hook

will hold five locker keys

but hanging capacity is re-

duced when larger keys

are stored.)

Each combination hook

and number or label holder

is adjustable horizontally on

1-in. centers and vertically

on 2½-in. centers. No tools

required.

Durabilt Blue Print, Map and Plan Cabinets

Any size Durabilt Steel Cabinet may be equipped with sliding drawers with tilting suspension for the safe and convenient storage of drawings, tracings, blue prints, charts, graphs, photographs, decalcomania, printing plates, electros, small tools, bits, screws, etc., and thousands of other items.

Sliding drawers are furnished in 2, 3, 4, 5, 6, 8, 10 and 12 in. depths overall. They can be perforated for attaching front to back and left to right partitions—thus making it easy to arrange for storing items of various dimensions with the minimum loss of space.

Accidental pulling out of the drawers is prevented by the Durabilt concealed drawer lock which can be easily released by a half turn with a screw driver. As many or as few drawers can be placed in a Durabilt cabinet as present needs would require—more can be added later as the demand arises.

Locks can also be furnished when ordered on drawers 3 in. or higher.



Blue Print, Map and Plan Cabinets

W. D. H.
36x18x42, 66 or 78 in.
36x21x42, 66 or 78 in.
36x24x42 or 78 in.

Equipment includes: sliding drawers with tilting suspension, blue print flap at front and hood at rear, drawer pulls and label holder.

SNEAD & COMPANY

Manufacturers of Metal Bookstacks for Libraries

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Makers of SNEAD STANDARD BOOKSTACKS, SNEAD SHEET METAL BRACKET STACKS and NEWSPAPER STACKS for University, College, Public and Special Libraries.

For pages on ArmorGrids and Steel Partitions for office and factory, see Manufacturers' Index.

Snead Standard Stacks

The Snead Standard Stack has been installed in the majority of the most important libraries. This shelving is suitable for small installations consisting of a single stack tier (story) as well as for multi-tier (story) installations in larger library buildings. The end uprights of the Snead Standard Stack are fabricated of cast iron or sheet steel and may be had in several designs. The cast iron upright lends itself particularly well to various designs, finishes, color effects, etc., to harmonize with the architecture and color scheme of the room in which it is installed. The uprights are manufactured in one-tier heights, and are superimposed one over the other to obtain the desired number of tiers. Such uprights occupy the minimum space and are entirely free from dirt and dust collecting hollow spaces.

Deck floors or galleries between tiers give direct access to all shelves. The steel stack structure can be economically designed to carry overhead roofs and floors, without concentrated loads, and to brace the walls of the stack room.

The adjustable shelves may be either of the solid plate type, or, preferably, of the special Snead Open Bar construction, which is light, strong, resilient and

has dust collecting surfaces reduced to a minimum. Top cover plates protect books from dust and injury.

The interchangeability of parts and the flexible design of Snead Standard Stacks allow them to be readily taken down, re-erected, and extended both horizontally and vertically.

The construction of the uprights and of the shelves, as well as the special slit along the face of the ranges, facilitates the heating and ventilating of the entire unit.

The adjustable shelves are completely finished at the factory with baked-on ebony black rubber japan. All fixed metal parts are finished after erection with air-drying paint and enamel.

Snead Bracket Stacks

Bracket stacks consist of vertical tubular steel columns which may be superimposed one above the other to form a series of stack tiers. Solid plate shelves attached to brackets are cantilevered from the vertical tubular steel columns.

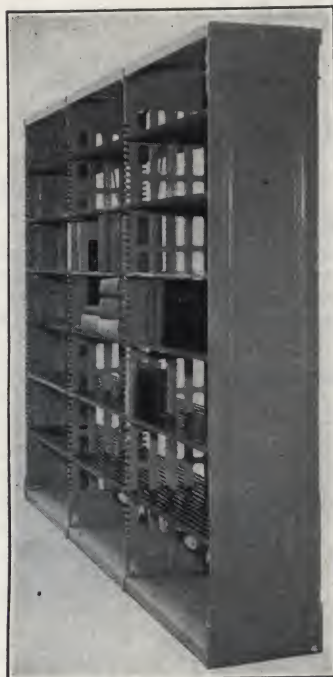
One-tier bracket stacks may be furnished free standing and require no attachment to the walls of the room in which they are installed. The shelves and columns are fabricated of cold rolled steel, finished with smooth, wear-resisting baked enamel, usually in olive green. If desired, the shelves may be factory finished in baked-on ebony black japan, the most durable finish known, without additional cost, or the entire equipment may be finished in any standard plain color at slightly increased cost. The structural steel framing is painted in the field to match the color of the stack.



Snead Standard Type A Stack in Library of Congress
DAVID LYNN and PIERSON & WILSON, Architects



Snead Steel Bracket Stack in San Francisco Public Library
GEORGE W. KELHAM, Architect



Snead Standard Type B Bookstack

16-in. double faced range. Similar single faced ranges also supplied. These ranges are 7 ft. 4 in. high over all and are carried in stock

General

The distance between main building floors should be an even multiple of the desired stack tier height (preferably 7 ft. or 7 ft. 6 in.) so as to line up the main building floors with the stack deck floors.

Service

The Snead staff of library experts is available for consultation, criticism, layouts and estimates, all without obligation. From a simple installation of wall shelving or a free-standing range to a fifty-tier tower stack—nothing is too small nor too large for SNEAD & COMPANY's attention.

Complete architectural and engineering information on bookstacks, as well as a host of valuable examples of Library plans and designs are given in the large book on Library Planning published by SNEAD & COMPANY, which, if desired, is obtainable on request by owners, architects and librarians.

Particular care has been given to the development of satisfactory lighting systems, featuring the Snead Stack Aisle Light Reflector. Snead engineers have also developed the Snead Book Distributor, and the Snead Heating and Ventilating Systems. Information will be gladly furnished upon request.

BOOK CAPACITIES

Average per lineal foot of shelf

U. S. Patent Specifications	2 volumes
Law, public documents, bound periodicals	6 volumes
Medicine and science	7 volumes
Reference and general literature	8 volumes
Economics and fiction	9 volumes
Circulating books	9 to 10 volumes

STANDARD STACK DIMENSIONS

Special sizes built to order if quantity warrants
Shelf widths—For books, 8, 9, 10 and 12 in.; newspapers, 18 and 22 in.
Shelf lengths—3 ft. usual—varied to suit conditions
Tier heights—7 ft. to 7 ft. 6 in.
Aisle widths—Main, 2 ft. 6 in. to 5 ft.; minor, about 28 in. minimum, 30 to 36 in. average.

STANDARD STACK WEIGHTS

Uprights and shelves	7 to 10 lbs. per cu. ft. of range
Books	20 to 25 lbs. per cu. ft. of range
Deck framing	5 lbs. per sq. ft.
Deck flooring, $\frac{3}{4}$ -in. glass	10 lbs. per sq. ft.
Deck flooring, $1\frac{1}{4}$ -in. marble	18 lbs. per sq. ft.

Snead Free Standing Bracket Stack

20-in. double-faced range. Similar single-faced ranges also supplied. These ranges are 7 ft. 3 in. high over all and are carried in stock.

The same uprights will take shelves of different width, adjustable in height at 1-in. intervals. A handy man with wrench and screwdriver can erect such a range in a few minutes.

No attachment necessary to floor, walls or ceiling



Snead Standard Type B Stack, Garrett Biblical Institute, Evanston, Ill.

HOLABIRD & ROCHE, Architects



Typical View of Carrels and Low Cases in Stack Room, University of Michigan Library, Ann Arbor, Mich.

ALBERT KAHN, Architect

PENN METAL CO. of PENNA.

Manufacturers of Steel Lockers, Shelving and Cabinets

Oregon Avenue and Swanson Street, PHILADELPHIA, PA.

NEW YORK, N. Y., 41 East 42nd Street

CAMBRIDGE, MASS., 675 Concord Avenue

Products

PENCO STEEL LOCKERS, SHELVING and CABINETS, METAL CEILINGS, TINCLAD and KALAMEIN DOORS.



TRADE-MARK

Sixty Years' Experience at Your Service

A force of engineers with a background of 60 years' experience in design, fabrication and installation will submit layouts, recommendations and estimates without obligation.

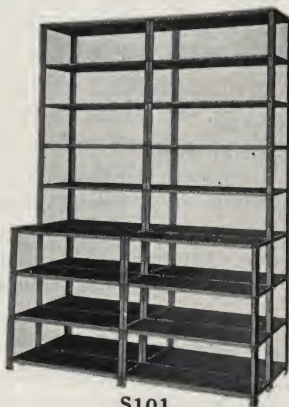
Penco Steel Shelves

Simple, durable, exceptionally strong and fully interchangeable. Readily erected with the aid of only a screwdriver. Quickly disassembled and re-erected.

Penco Standard Specifications—Uprights made of No. 14 gauge cold formed angles, 3, 6, 7, 8, 9 and 10 ft. high. A combination of the above will give any desired height. Punched for 2-in. adjustment.



S104



S101

Shelves are 9, 12, 15, 18, 24, 30 and 36 in. deep, 24, 30, 36, 42, and 48 in. wide, made of No. 18 gauge steel. Reinforcing angles are supplied for heavy duty shelving. The 24 and 30-in. widths are used to fill out shelving in lengths not a multiple of 36 in.

Flat steel backs and divisions, same heights as uprights, are punched for attaching to flanges of the uprights and shelves, and at equal distances from top and bottom edges to make them reversible.

Dividers of No. 24 gauge are 6, 8, 10, 12, 14, 16, 18 and 24 in. high by all shelf depths. (Flanged top and bottom for bolting to adjoining shelves). Beaded front and back.

Bin fronts (with continuous label holders when desired) are readily attached to uprights by steel clips.

Counter shelves and hinged doors with locks also supplied.

Finish is olive green baked enamel. Special finishes at additional cost.

Special shelving made in accordance with specifications or requirements. Blue prints and estimates on request.

Penco Tinclad and Kalamein Doors



Tinclad Door

Standard equipment in office buildings, hotels, apartments, schools, hospitals, etc. Made to exact specification in any size or type, and installed by experts.



Kalamein Door

Penco Steel Lockers

Penco steel lockers are made of cold rolled steel, in single tier (full height) and double tier (half height), either in banks one row deep or in double rows (back to back).

STANDARD SIZES OF PENCO STEEL LOCKERS

(Width x depth x height, in.)

Single tier	Double tier
*12x12x60	*12x12x36
*12x15x60	*12x15x36
*15x15x60	12x12x42
*12x12x72	12x15x42
*12x15x72	
*15x15x72	
*15x18x72	
*18x18x72	
*24x24x72	

*Carried in stock for immediate shipment.

Sizes other than those listed above will be made to order. Write for prices.



50U2

Sides and backs are made of No. 24 gauge steel, or when specified, of expanded metal.

Tops, bottoms and shelves are made of No. 24 gauge steel, reinforced on all edges, with ventilating louvres as illustrated, or with expanded metal.

Equipped with top shelf, gravity latch locking device and master-keyed cylinder lock.

Wall hooks supplied in single tier lockers (full height) and double tier (half height).

All lockers are supplied with 6-in. legs of 1x1x1/8-in. steel angle. Adjustable shoes permit leveling on uneven floors.

All Penco Lockers are accurately punched for quick assembly. Finish is olive green baked enamel; special finish at additional cost.

Penco Steel Cabinets

Several types—two-door, single door, desk, counter high, and wardrobe.

Standard finishes—olive green, walnut and mahogany—baked on.



No. 201



No. 200



No. 202

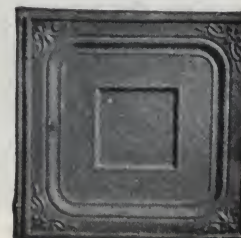
Penco cabinets are unusually serviceable and an ornament as well. They embody every feature of the well-known Penco locker line.

Penco Ceilings

A pattern for every purpose.

Experienced designers will submit sketches and suggestions for most practical treatment.

Penco ceiling is rigid, clear stamped and square sheared. Contracts for Penco installation—thermalizing and final decoration, carry assurance of complete satisfaction. Thousands of such contracts prove it.



CAPITOL MAIL CHUTE CORPORATION

TELEPHONE
STILLWELL 4-3790

21-30 44th Avenue
LONG ISLAND CITY, N. Y.

Products

Manufacture and installation of the CAPITOL MAIL CHUTE and RECEIVING BOX for Post Office collection service.

Capitol Mail Chute Corporation

The CAPITOL MAIL CHUTE CORPORATION is the development of an organization successful in its field for 24 years.

Authorization

The Capitol Mail Chute bears the approval of the Post Office Department and we are under bond in a large penal sum to strictly carry out the Post Office rules and regulations.

Features

As the result of persistent research and experimenting combined with the use of the best material, the Capitol Mailing System stands out as one of the most perfect means for safe delivery of mail to the hands of the Post Office collectors.

The panel frames, a special feature of the Capitol Mail Chute, are made of heavy extruded bronze material $\frac{3}{8}$ in. thick with $\frac{1}{4}$ -in. clear plate glass. These panels are rigid and easily opened for cleaning by the proper authorities. They are secured by locks made specially for us.

Design and Finish

The Capitol Mail Chute has been designed to combine its proven quality with the architectural refinements of today.

Special finishes of any kind, to conform with the architectural requirements, will be done at a slight additional cost, if any.

Service and Information to Architect

We shall be pleased to furnish to architects while plans are in progress any information necessary as to location of chutes, number of chutes, cubic capacity of receiving box.



Capitol Receiving Mail Box
Model 310



Model C
Capitol Mail
Chute

Specifications for Furnishing and Installing Capitol Mailing Systems

Note: Rough openings in the floor and patching are not part of the mail chute contract and are left for us by others. Architect should make provisions for these items in other trades.

Furnish and install where shown on the drawings, and as hereinafter specified, the Capitol Mailing System as manufactured by the CAPITOL MAIL CHUTE CORPORATION, 21-30 44th Avenue, Long Island City, New York, N. Y.

Preparatory Work

This contractor shall prepare the building to receive the mail chute equipment by furnishing and erecting (.....) frame of 2x2x $\frac{1}{4}$ -in. steel angles, securely fastened, in the rough openings provided.

The frames shall extend from the top of the mail box in the (first) story to a point 4 ft. 9 in. above the finished floor in the (top) story. At this point the angles shall be neatly mitered and returned across the top. The frame shall be left flush and plumb throughout and sufficiently rigid to properly support the mail chute. Frame shall be finished with two coats of lead and oil, dead black (or as directed).

Erection

Erect on this steel frame the Capitol Mailing System, consisting of ... Model C Mail Chute and No. 310 Standard U. S. Mail Box. The mail chute shall be ade-

quately supported by and fastened to the angle frame and shall be properly connected with the mail box. Chute shall extend from the top of box through ... floors and to a point 4 ft. 8 in. above the finished floor of the (top) story where it shall be suitably joined to the angle frame. Openings for mail shall be provided in each story.

Mail Chute

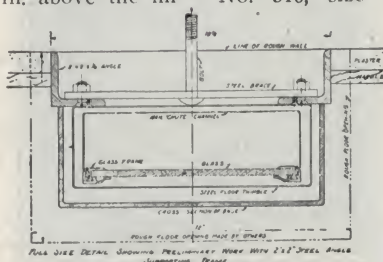
Mail chute shall be manufactured of No. 20 U. S. gauge, cold rolled steel, with removable panels of plate glass, set in bronze frames and secured in place by special locks with keys in the hands of Post Office authorities.

Mail Box

Mail box shall be CAPITOL MAIL CHUTE CORPORATION design No. 310, size, constructed of heavy sheet bronze, door and frame of cast bronze and mouldings of extruded bronze. Finish of channels and neck pieces and cast iron subbases in rustless black enamel, with fittings in bronze. All bronze surfaces shall be finished slightly oxidized, or statuary bronze color and lacquered as directed.

Conclusion

The entire work to be done to the satisfaction and acceptance of the architect, in strict accordance with the regulation of the Post Office Department.



Roughing-in Diagram

Rough floor opening 7x12 in., by others

CUTLER MAIL CHUTE COMPANY

GENERAL OFFICES

NEW YORK OFFICE
551 Fifth Avenue

Cutler Building, ROCHESTER, N. Y.

(Where All Correspondence Should Be Addressed)

AGENCIES IN PRINCIPAL CITIES

FACTORY
ROCHESTER, N. Y.

Copyright 1930 by CUTLER MAIL CHUTE COMPANY

Product

The manufacture and installation of the CUTLER MAIL CHUTE.

Cutler Achievement

The Cutler brothers invented and patented the modern method of mailing letters from the upper stories of buildings in 1883. In 1884 four Cutler Mail Chutes were installed; at the present time there are few important high buildings in the United States which are not equipped with Cutler Mail Chutes. In addition they are in use in many foreign countries.

Cutler Quality

The name "Cutler" stands for the highest quality of design, workmanship and service.

The design is simple, substantial and elegant, and has a refined architectural and artistic character which is appreciated and much commended by architects.

The workmanship is the highest of its class attainable. The Cutler factory at Rochester, N. Y., is designed, built and equipped exclusively for the manufacture of the company's *one product—The Cutler Mail Chute.*

A complete organization and an experience of 47 years permit the maintenance of the Cutler quality of work and prompt and satisfactory execution and completion of contracts.

U. S. Post Office Requirements

When installed in connection with the U. S. Free Collection Service, this work is subject to the Regulations of the Post Office Department. Among the rules most affecting architects are the following:

Mail box should be placed as near the main entrance of building as possible, preferably within 50 ft.; not to exceed 100 ft. under any conditions. Mail chute must run in a vertical line through a public hall, or premises visible and freely accessible to the public and post office authorities. It must not be placed behind a partition or elevator screen.

Cutler Mail Chute

Standard—The Cutler Mail Chute in its standard form, known as Model F, is substantial, simple, practical. Its interior, under government lock, is quickly and easily accessible to authorized persons, as the front is removable in convenient sections.

The removal and particularly the replacement of the fronts is simple; by turning the official key in any one of the locks, the two adjoining panels are released and either or both of them can be removed and replaced as desired.

Twin Chute Equipment—For buildings where large quantities of mail originate, two or more mail chutes are provided, usually installed in pairs. By opening the chutes on alternate floors, danger of overcrowding is avoided, and in case of need one chute can be cleared, cleaned, or repaired, while the service is maintained by the other without interruption.

Special details on request.

Standard Finish—Steel chute channels (sides and back of chute) and sub-bases in dead black baked enamel; caps, duplex electrobronze plated; bases, mailing pockets and frames of glass fronts of bronze, slightly oxidized or statuary bronze color.

Bronze Finish—Model F is also made with all exposed parts of bronze. In this construction the sides of the chute channels are covered with sheet bronze. It is not unusual to use this finish in the first story, combined with the standard finish in the upper stories.

Mail Boxes—The mail box furnished with the standard finish is, for buildings of moderate size, the No. 4165 made of heavy cold rolled steel, duplex electrobronze plated, with mouldings, where the most wear comes, of bronze. Also furnished in bronze throughout.

Design 4038, illustrated, is one of a series intended for use in connection with the modernistic style.

Stock boxes are recommended where it is necessary to have a low figure. Special and semi-special designs are also furnished. In the semi-special designs stock models and patterns are used in combination with new details as may be necessary to complete a consistent design.

Installation

The CUTLER MAIL CHUTE COMPANY erects its work complete, including steel angle supports, but *not* including rough openings through floors and the repairing and finishing of plaster and other materials coming in contact with the work.



U. S. Mail Box, Design No. 4038

Model F
Full story

The Post Office Department requires from us scrupulous observance of its regulations with regard to the installation and use of mail chutes in buildings, and we are under bond in a large penal sum to insure such observance.

Specifications

Note: Rough openings through floors are not included in the mail chute contract, and are otherwise provided for together with the items of general cutting and patching and repairing of plaster.

When concrete construction is used, openings should be formed by setting centers or curb boxes (7x12 in.) when concrete is poured.

(1) Mail Chute Equipment—Mail Chute where indicated on drawings shall be the Cutler Mail Chute Equipment. To be manufactured and installed complete, including supports, by the CUTLER MAIL CHUTE COMPANY, Rochester, N. Y., as follows:

(2) Supporting frame to be of 2x2-in. steel angles, securely fastened, extending from the floor or top of the mail box in the first (ground) story to a point 4 ft. 8 in. above the finished floor in the (top) story, and there finished by neatly mitering and returning the angle across the top. This frame to be plumb and flush in all stories, and sufficiently rigid to form a suitable support for the Mail Chute. Finish to be 2 coats of dead black or color to match elevator screen, as directed.

(3) Furnish and erect on the steel frame described above (one) Cutler Mail Chute,



Detail of Model F Type
Unlocked, panels released, and lower panel removed

Model F, and (one) (special) U. S. Mail Box. The Mail Box to be located in the first (ground) story, and the Mail Chute, properly connected with and extending from the top of the Mail Box through stories and 4 ft. 7 in. into the (top) story, with openings for mail in each of these stories.

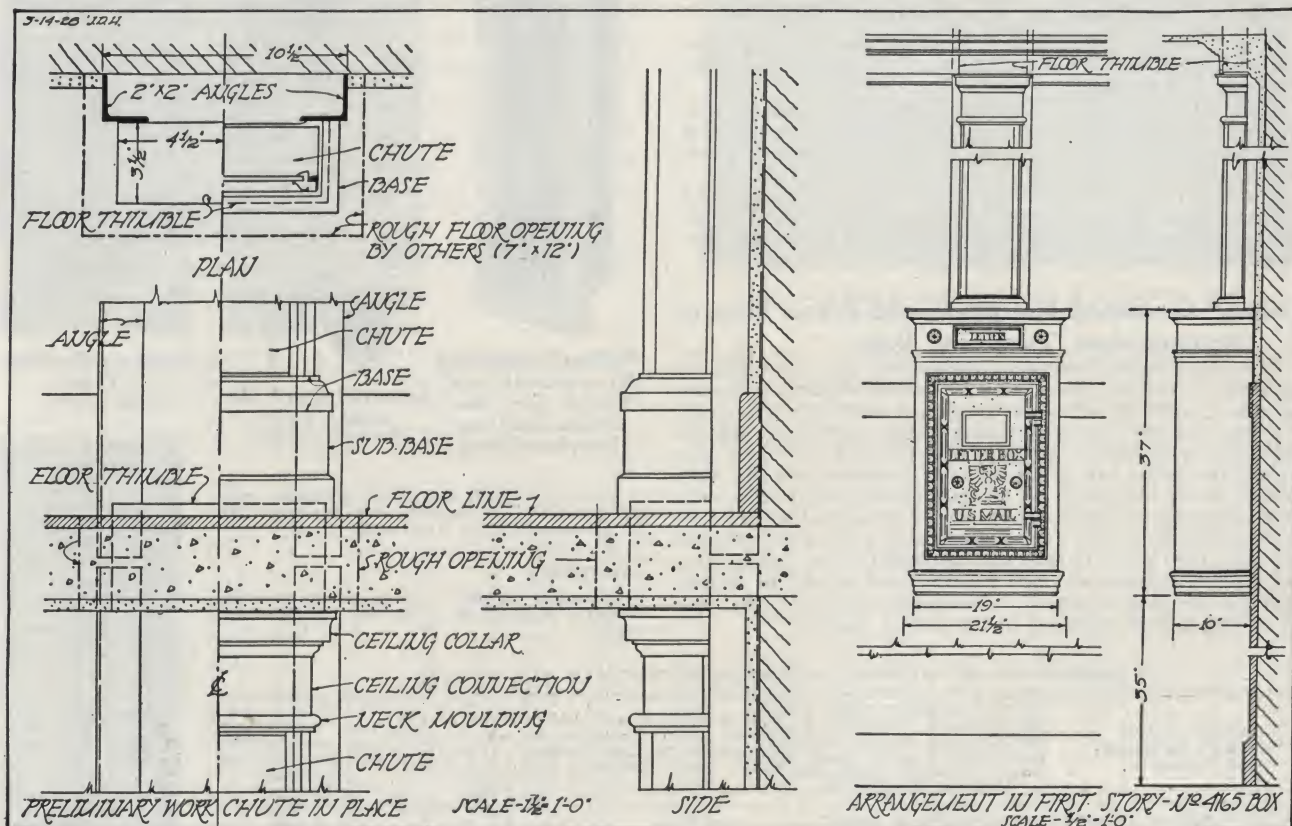
(4) Mail Chute to be constructed of No. 20 U. S. gauge cold rolled steel formed in channels with removable panels of rolled glass, set in frames of bronze and secured in place by the standard Cutler U. S. Mail Chute locks with keys in the hands of the Post Office authorities.

(5) Mail Box to be of design No. 4165, 37x21½x11¼ in. over all, electrobronze plated, with mouldings of bronze. Finish of Mail Chute in all stories to be standard—steel chute channels and subbases in dead black baked enamel with other fittings in bronze. All bronze surfaces to be finished slightly oxidized and lacquered.

(6) Work to be done to the satisfaction and acceptance of the architects,; in strict accordance with the regulations of the Post Office Department, and installed with the approval of the Postmaster of Any and all defects in workmanship or material developing within 1 year from date of completion, to be made good without charge.

Note: If bronze finish is desired in the first story, substitute the following paragraph for paragraph (5) above:

(5A) Mail Box to be of bronze from design No. 4165, Exposed parts of Mail Chute and supporting angles in first story to be of bronze; construction and finish of Mail Chute in upper stories to be standard—steel chute channels and subbases in dull black enamel with fittings in bronze. All bronze surfaces to be finished slightly oxidized or statuary bronze color and lacquered.



General Installation Details of Cutler Mail Chute

FRANCIS KEIL & SON, INC.

Manufacturers of Apartment House Mail Boxes

401-425 East 163rd Street
NEW YORK, N. Y.

For Keil Burglarproof Cylinder Locks, see Manufacturers' Index

Description

"Keilson" Government Approved Apartment House Mail Boxes are neat and artistic in design and are made of heavy wrought brass. They insure safety of the mail and are convenient for the carrier.

They are built in accordance with United States Post Office Department Order No. 3979.

"Keilson" Boxes have been also improved by increased receptacle space, and are entirely free from all obstructions in the way of mechanical construction, yet retaining economy of wall space.

Specification Details

Made of heavy wrought brass with steel receptacles. Each box is (over all) 17½ in. high and 3½ in. wide (end box 4½ in. wide). Receives mail up to 15x3¼ in. Visitor's card slot, 2¼ in. Tenant locks have 3 tumblers and have 60 changes.

Master lock applied with special patent machine screws for the convenience of the post office authorities in replacing damaged locks without defacing or marring either the master door or name plate.

Surface of boxes entirely flush and without any screws or fastenings showing to mar their appearance.

Finishes

Finished in "Sprayed Brass" Finish only, except to order at extra charge, as follows: Sprayed Antique Copper; Sprayed Verde Antique; Sprayed Statuary Bronze; Sprayed Colonial Iron. Also other standard finishes imitated by spraying process.

These finishes are best preserved by simply washing the surface with soap and water.

Telephone Equipment to Fit "Keilson" Boxes

Manufacturers of telephone units will furnish their telephone equipment to fit our standardized "Keilson" Combined Receptacles and Frames.

These match up with "Keilson" Letter Boxes and may be placed either alongside or amongst the letter box groups that are placed in single rows or may be placed entirely separate therefrom.

When used in combination with single row letter box groups, all sizes specified there can be used together, however, with the sizes specified below to accommodate the selected "Receptacle and Frame" for the telephone unit.

"Keilson" Combined Receptacle and Frame Sizes to Accommodate Telephone Units

The size required must be determined by the make of telephone unit and the number of push buttons required. Frames are made of wrought brass, receptacles of steel (see Finishes).

When telephone units (or extra button units) are used in combination with letter boxes mounted in double rows, we give no plans for letter box groupings, nor mention sizes for wall cut-outs, as the telephone or the push button units effect the general grouping of double rows of letter boxes and as there are so many possible layouts for telephone units, extra push button units and the letter boxes, we respectfully ask prospective purchasers to submit wall space available and the plan of desired layout (if any decided upon), whereupon we shall furnish the wall cut-out size if requested and a plan if desired.

DIMENSIONS OF "KEILSON" COMBINED RECEPTACLE AND FRAMES

Outside sizes of "Keilson" Receptacles and Frames, in.	Size of telephone plates required to fit "Keilson" Receptacles and Frames. Being equivalent to 1, 2, 3 and 4 single "Keilson" Letter Box Units as specified, in.	Add to width of wall cut-out when placed alongside of "Keilson" Single Row Grouped Boxes	Add to width of wall cut-out when placed between (2) groups of "Keilson" Single Row Boxes	Make wall cut-out when used entirely separate from the letter boxes
No. 1 17½ high x 5½ wide	15½ high x 3 wide	5½ in.	5½ in.	4 in.
No. 2 17½ high x 9 wide	15½ high x 7 wide	9 in.	9 in.	7½ in.
No. 3 17½ high x 12½ wide	15½ high x 10 wide	12½ in.	12½ in.	11 in.
No. 4 17½ high x 16 wide	15½ high x 14 wide	16 in.	16 in.	14½ in.

Thickness of metal required for all .060. Templates for screwholes furnished.
Push button vertical plates also furnished for use with these boxes.



Information

"Keilson" Receptacles and Frames are also utilized for push button and panel layouts for use in vestibules, and these can also be made in combination with loud speaker to order.

"Keilson" Receptacles and Frames overlap the specified wall openings (1) inch all around.

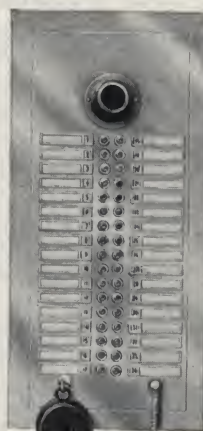
"Keilson" Receptacles and Frames are fastened to the wall in the same manner as "Keilson" Letter Boxes.

"Keilson" Receptacles and Frames are made in the same finishes as "Keilson" Letter Boxes. Telephone Units may be sent us for matching up the finishes of the letter boxes.

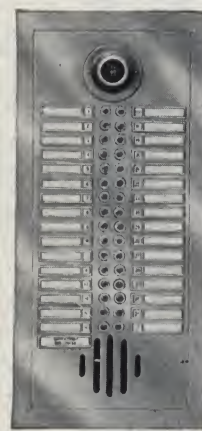
All packed in double cartons to assure safe delivery to distant points.



"Keilson" Combined Receptacle and Frame for Accommodating Telephone Units



Armored Cord Receiver Type
Not loud speaking



Cordless Receiver Type
Loud speaking

Note: We will also mount telephone units and assemble them together with "Keilson" Letter Boxes within one framework.

Literature

Separate pamphlet showing all our types and complete information as to sizes, furnished on request.



Swinging Arm Receiver Type
Not loud speaking

UNITED MAIL BOXES

Manufactured by

UNITED METAL BOX CO., INC.

473-491 President Street, BROOKLYN, N. Y.

Product

UNITED MAIL BOXES.

For our page on Bathroom Cabinets, see Manufacturers' Index.

United Mail Boxes

Designed to meet all requirements of the Post Office Department Order No. 3979, issued March 9, 1926. Standard over-all height 16½ in. Made in gangs of 3, 4, 5, 6, 7 and 8 units, each unit accommodating mail for one tenant. Each gang fitted with post office lock, furnished by United States Post Office Department, each unit with tenant lock.

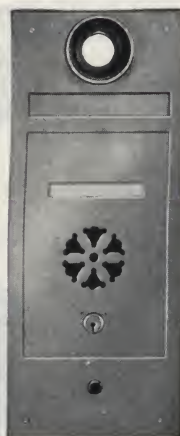
United Mail Box units are built as one box, not assembled. Casing is of steel with rustproof coating of lead and zinc. Fronts are heavy gauge brass designed in panel effect. All hinges and screws concealed. Upper master (postman's) door is counterbalanced and acts as sorting shelf for postman when opened. Lower (tenant's) door opens upward to a stationary position leaving both hands free. Opening doors can not cover tenant's name plate.

United Boxes are made with or without speaking tube mouthpiece and push buttons. Boxes with mouthpiece and push buttons have buttons on removable plate to allow easy access to wiring.

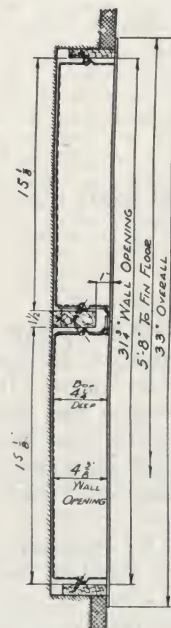
See table for sizes and gang arrangements.



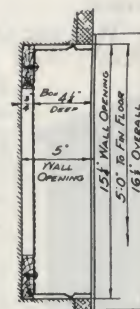
United 3-Gang Mail Box with Postman's Door Open



Single Box



Double row



Single row

Mounting Details for Boxes

Note:
Both types of wall screwholes shown. Either type can be had on single or double row boxes, as desired



United 7-Gang Mail Box with Bell Buttons and Speaking Tube Compartment

MODEL NO. 26-A WITHOUT BELL BUTTON OR SPEAKING TUBE

Number of units	Single Row Mounting				Double Row Mounting			
	Wall opening, in.		Over all, in.		Wall opening, in.		Over all, in.	
	Width	Height	Width	Height	Width	Height	Width	Height
3	10 1/4	15 1/4	11 3/8	16 1/2	8	13 7/8	31 3/4	15
4	13 7/8	15 1/4	15	16 1/2	10	17 1/4	31 3/4	18 3/8
5	17 1/4	15 1/4	18 3/8	16 1/2	12	20 5/8	31 3/4	21 3/4
6	20 5/8	15 1/4	21 3/4	16 1/2	14	24	31 3/4	25 1/8
7	24	15 1/4	25 1/8	16 1/2	16	27 3/8	31 3/4	28 1/2
8	27 3/8	15 1/4	28 1/2	16 1/2	18	32 1/4	31 3/4	33 3/8
9	32 1/4	15 1/4	33 3/8	16 1/2	20	35 5/8	31 3/4	36 3/4
10	35 5/8	15 1/4	36 3/8	16 1/2	22	39	31 3/4	40 1/8
11	39	15 1/4	40 1/8	16 1/2	24	42 3/8	31 3/4	43 1/2
12	42 3/8	15 1/4	43 1/2	16 1/2	26	45 3/8	31 3/4	46 3/8
13	45 3/8	15 1/4	46 3/8	16 1/2	28	49 1/8	31 3/4	50 1/4
14	49 1/8	15 1/4	50 1/4	16 1/2	30	52 1/2	31 3/4	53 3/8
15	52 1/2	15 1/4	53 3/8	16 1/2	32	55 7/8	31 3/4	57
16	55 7/8	15 1/4	57	16 1/2	34	60 3/8	31 3/4	61 7/8
17	60 3/8	15 1/4	61 7/8	16 1/2	36	64 1/8	31 3/4	65 1/4
18	64 1/8	15 1/4	65 1/4	16 1/2	38	67 1/2	31 3/4	68 3/8
19	67 1/2	15 1/4	68 3/8	16 1/2	40	70 7/8	31 3/4	72
20	70 7/8	15 1/4	72	16 1/2	42	74 1/4	31 3/4	75 3/8
21	74 1/4	15 1/4	75 3/8	16 1/2	44	77 5/8	31 3/4	78 3/4
22	77 5/8	15 1/4	78 3/4	16 1/2	46	81	31 3/4	82 1/8
23	81	15 1/4	82 1/8	16 1/2	48	84 3/8	31 3/4	85 1/2
24	84 3/8	15 1/4	85 1/2	16 1/2	50	89 1/4	31 3/4	90 3/8
25	89 1/4	15 1/4	90 3/8	16 1/2	52	92 5/8	31 3/4	93 3/4
26	92 5/8	15 1/4	93 3/4	16 1/2	54	96	31 3/4	97 1/8
27	96	15 1/4	97 1/8	16 1/2	56	99 3/8	31 3/4	100 1/2
28	99 3/8	15 1/4	100 1/2	16 1/2	58	102 3/4	31 3/4	103 3/8
29	102 3/4	15 1/4	103 3/8	16 1/2	60	106 1/8	31 3/4	107 1/4
30	106 1/8	15 1/4	107 1/4	16 1/2				

MODEL NO. 26-A WITH BELL BUTTON OR SPEAKING TUBE

Number of units	Single Row Mounting				Double Row Mounting			
	Wall opening, in.		Over all, in.		Wall opening, in.		Over all, in.	
	Width	Height	Width	Height	Width	Height	Width	Height
3	13 7/8	15 1/4	15	16 1/2	8	17 1/4	31 3/4	18 3/8
4	17 1/4	15 1/4	18 3/8	16 1/2	10	20 5/8	31 3/4	21 3/4
5	20 5/8	15 1/4	21 3/4	16 1/2	12	24	31 3/4	25 1/8
6	24	15 1/4	25 1/8	16 1/2	14	27 3/8	31 3/4	28 1/2
7	27 3/8	15 1/4	28 1/2	16 1/2	16	35 5/8	31 3/4	36 3/4
8	35 5/8	15 1/4	36 3/4	16 1/2	18	39	31 3/4	40 1/8
9	39	15 1/4	40 1/8	16 1/2	20	42 3/8	31 3/4	43 1/2
10	42 3/8	15 1/4	43 1/2	16 1/2	22	45 3/8	31 3/4	46 3/8
11	45 3/8	15 1/4	46 3/8	16 1/2	24	49 1/8	31 3/4	50 1/4
12	49 1/8	15 1/4	50 1/4	16 1/2	26	52 1/2	31 3/4	53 3/8
13	52 1/2	15 1/4	53 3/8	16 1/2	28	55 7/8	31 3/4	57
14	55 7/8	15 1/4	57	16 1/2	30	64 1/8	31 3/4	65 1/4
15	64 1/8	15 1/4	65 1/4	16 1/2	32	67 1/2	31 3/4	68 3/8
16	67 1/2	15 1/4	68 3/8	16 1/2	34	70 7/8	31 3/4	72
17	70 7/8	15 1/4	72	16 1/2	36	74 1/4	31 3/4	75 3/8
18	74 1/4	15 1/4	75 3/8	16 1/2	38	77 5/8	31 3/4	78 3/4
19	77 5/8	15 1/4	78 3/4	16 1/2	40	81	31 3/4	82 1/8
20	81	15 1/4	82 1/8	16 1/2				

Top of wall opening, single row mounting, 60 in. from floor. Double row 67 in.

Mail box is 4 1/4 in. deep. Make wall opening 4 3/8 in. deep.

Speaking tube and bell button compartment on left side.

Gangs: Without speaking tube and bell button—3, 4, 5, 6, 7, 8.

With speaking tube and bell button—3, 4, 5, 6, 7.

UNITED STATES MAIL CHUTE CORPORATION

TELEPHONE
CALEDONIA 4345, 4346

101 Park Avenue
NEW YORK, N. Y.

Products

UNITED STATES MAIL CHUTES, Single and Twin Types.
MAIL BOXES.

Service

It is our desire to co-operate with the architect and contractor in every way and to have them utilize the experience and facilities of our organization in dealing with any problem involving the selection and installation of mail chutes and equipment.

Our engineers are at the service of the building trade and are ready at all times to assist in the solution of individual problems or to furnish information regarding costs of installation, etc. All estimates on mail chutes and mail boxes are written to cover our standard finish unless otherwise specified.

Write to us for any information, regarding cost of installation, or your own particular problems.

Improved Construction of U. S. Mail Chutes

The construction of the interior of United States Mail Chutes is such that there can be no impediment to its successful operation.

The process whereby the channels are practically embedded in the panel frame makes the interior of the chute equivalent to one-piece construction in effectiveness. This construction eliminates crevices and precludes blockage in the chute.

The panels are composed of special bronze moulding and $\frac{1}{4}$ -in. clear glass which permits observation of the passage of the mail. These panels are absolutely pryproof and are secured by special locks made for us by Corbin.

The simplicity with which these glass panels can be opened by authorized persons for cleaning is clearly shown at the right.



Officially Approved by the United States Post Office Department

UNITED STATES MAIL CHUTE CORPORATION equipment has been officially approved by the United States Post Office Department.

United States Postal Service Regulations call for strict observance of their requirements. The form of contract we use is based on these requirements and governs the installation of the UNITED STATES MAIL CHUTE CORPORATION's mail chutes and boxes.

Single and Twin Chutes

In buildings of moderate size our Model A Single Chute will often suffice but in large buildings where a heavy deposit of mail makes the single chute inadequate, our twin chute, with openings for mail on alternate floors, has the necessary capacity and eliminates overcrowding or congestion of either chute.

Stock Designs and Special Finishes

While the UNITED STATES MAIL CHUTE CORPORATION has given every care to assure the practical utility of its device, the ornamental aspects have also received due consideration. Simplicity of line is stressed throughout, achieving a harmonious dignity in accordance with conventional and modern architectural motifs. In addition to stock designs and patterns, U. S. Mail Chutes and equipment can be supplied in any finish the architect or owner may desire in order to conform with the decorative scheme of the building in which the installation is to be made.



Model A
Single Chute



Model A
Open



Model A
Twin Chute

Specifications

Work Included—Equipment of mail chutes shall be of UNITED STATES MAIL CHUTE CORPORATION'S manufacture and shall include (one United States Mail Box No. in). This equipment shall be located where indicated on plans and installed complete by the UNITED STATES MAIL CHUTE CORPORATION, New York, N. Y.

Note: All in accordance with the requirements of Part B, New York Building Congress Standard Specifications for Mail Chutes, Items 5 to 8, inclusive, quoted verbatim as follows:

(5) **Preparatory Work**—Rough openings, in floor construction and suspended ceilings, or chases in walls or partitions necessary for the proper installation of mail chutes and mail boxes will be provided under other divisions.

After the installation by this Contractor, of thimbles or sleeves, angle frames, mail chutes and mail boxes, the contractors for other divisions will finish their work neatly against or around the work furnished and installed under this contract. This Contractor, however, shall assist in the location and plumbing of openings and chases.

(6) **Construction**—Where Standard Mail Chutes are called for under Part A, this Contractor shall furnish and install:

(a) Steel thimbles extending down from finished floor, through the construction, to finished ceiling.

(b) A frame, consisting of 2x2 in. steel angles, starting from the top of the mail box, located in the first (ground) story and extending through each story to be served, to a point 4 ft. 8 in. above the floor of the last story served. At this point the frame shall be finished by mitering and returning the angle across the top. This frame shall be erected true and plumb throughout its entire height in the relation to structural framing, indicated on the architect's drawings and be firmly and rigidly secured in place.

The floor sleeves and angle frames shall be installed before plastering.

(c) A chute, consisting of No. 20 gauge cold rolled steel, forming channel sections, extending from the floors to ceilings, the front of which shall consist of special mail chute glass panels set in bronze frames. These panels shall be secured in place by locks acceptable to the United States Post Office authorities. The chute shall be finished, at the floor with a neatly designed die-cast sub-base and base and, at the ceiling, with a die-cast ceiling collar.

(d) A mail box, of the size, design, material and finish specified under Part A. Where the type of box is not given under Part A, the estimate shall be based on furnishing and installing a mail box of stock design, subject to the architect's selection, of size sufficient to accommodate mail matter of the building; the box shall be constructed of sheet steel and cast iron, electro bronze plated, with mouldings of drawn bronze.

(*Note:* The UNITED STATES MAIL CHUTE CORPORATION'S stock design boxes are constructed of heavy gauge solid sheet bronze and cast bronze, with mouldings of extruded bronze.)

(7) **Finish**—Unless otherwise specified under Part A, the standard for the various parts of the installation shall be as follows:

MAIL CHUTE FRAME—Two coats of lead and oil finished flat black, unless otherwise directed by the architect.

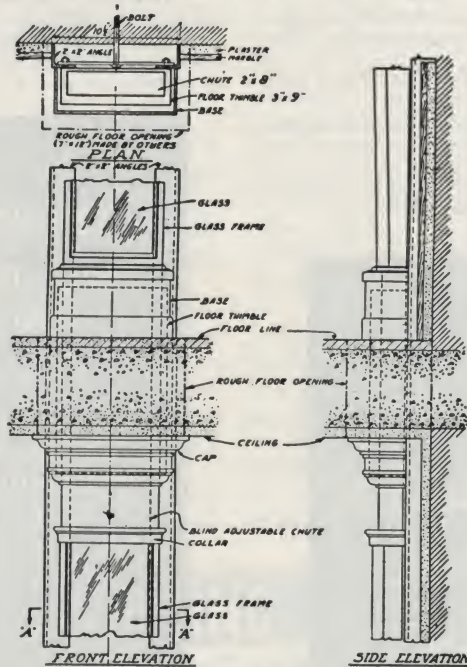
MAIL CHUTE CHANNELS AND SUB-BASE—Flat black, baked enamel.

BASE AND CEILING COLLAR—Electro bronze plated.

(*Note:* Base and ceiling collar of UNITED STATES MAIL CHUTE CORPORATION equipment is cast bronze.)

MAIL BOX AND ALL BRONZE FITTINGS—Statuary bronze, lacquered.

(8) **Post Office Requirements**—This Contractor, as part of his contract, agrees to execute all work, in connection with the construction and installation of the mail chute, strictly in accordance with the regulations of the Post Office Department. Before acceptance of the work by the owner this Contractor shall obtain the approval of the local Post Master or other Post Office Department official having jurisdiction.



Installation Details of U. S. Mail Chute



Standard Mail Box No. 12

Made of heavy gauge sheet bronze, with door, frame and mouldings of cast bronze, in slightly oxidized or statuary bronze finish



Special Standard Mail Box No. 86

One-piece construction, with front of cast bronze and body of 14 U. S. gauge sheet bronze



Standard Mail Box No. 15

Constructed of heavy gauge sheet bronze, with door, frame and mouldings of cast bronze, in slightly oxidized or statuary bronze finish. Designed to conform with the modernistic motif in architecture

ADVANCE DIRECTORY COMPANY

Manufacturers of Building Directories and Bulletin Boards

303 Fourth Avenue, NEW YORK, N. Y.

Products

BUILDING DIRECTORIES (Strip or Loose Letter Type); CHANGEABLE BULLETIN BOARDS, ANNOUNCEMENT BOARDS, CORK BULLETIN BOARDS, MEMORIAM BOARDS, IN-AND-OUT and STATISTICAL BOARDS, GOLF HANDICAP BOARDS.

Building Directories (Strip Type)

Advance Building Directories are modern in design, compact, practical and ornamental.

Frames—Wood, iron or bronze (drawn, extruded or cast); stock or special designs created to fit any requirements. Blue print of mouldings on request.

Sections (Glazed Panels)—Cold rolled steel fitted with bevel plate glass and lock.

Removable separately from face of frame—names remain on steel backboard exposed to view permitting convenient and rapid insertions, removals or respacing of name strips.

Name Strips—Lettering embossed by machine process assuring perfect spacing and alignment and uniformity.

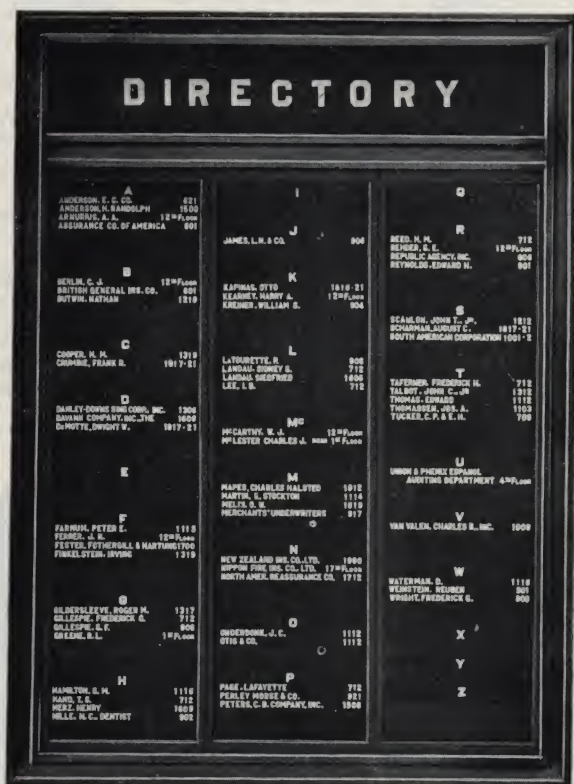
Service or Sale—We maintain directories on contract or sell same outright. New name strips furnished promptly.

Bulletin Boards—Changeable Letter Type for Indoor or Outdoor Use

Used in hotels, office buildings, public buildings, churches, banks, clubs, schools, colleges, etc., for sales charts, announcements, hymn boards, etc.

Frames—Wide variety of designs and materials, glazed or unglazed as desired.

Grooved Boards—Boards are made of kiln dried wood, properly reinforced, covered with best quality cloth of standard or special colors.



100-Name Directory



Letters—"Advance" die-cast aluminum letters, with letter and invisible prongs in one piece.

Easy to insert, shift or remove. Artistically designed, clean-cut and legible. The faces of the letters are flat, with a baked semi-flat white finish and black beveled edges which throw the letters into strong relief.

Sizes $\frac{1}{4}$ to $2\frac{1}{2}$ in. in height. Can be had in colors if desired. Guaranteed against breakage and discoloration.



Advance Die-cast Aluminum Letter

Sizes—Strip type directories consist of any number of sections, as described above, fitted into an outer frame. For computing sizes of frames for any given number of names refer to chart below.

SIZES AND NAME CAPACITIES OF ADVANCE STRIP TYPE DIRECTORIES

Size of section	$7\frac{1}{2} \times 26\frac{3}{8}$ -in.								$7\frac{1}{2} \times 32\frac{3}{8}$ -in.							
Number of names....	50	100	150	200	250	300	400	500	100	200	300	400	500	600	700	
Number of sections...	2	3	4	5	6	7	8	10	2	4	6	7	8	10	11	
Width in....	15	22 $\frac{3}{4}$	29 $\frac{1}{4}$	37 $\frac{1}{4}$	44 $\frac{1}{4}$	52 $\frac{3}{4}$	59 $\frac{1}{4}$	74 $\frac{3}{4}$	15	27 $\frac{3}{4}$	44 $\frac{1}{4}$	52 $\frac{3}{4}$	59 $\frac{1}{4}$	74 $\frac{3}{4}$	82 $\frac{3}{4}$	

Note: Above table computed for size letters shown below.

ADVANCE DIRECTORY CO.

247

Actual Size of Advance Strip Type Names ($\frac{1}{4}$ -in. Letters)

ESTABLISHED 1890

AKINS PRODUCTS INC.

U. S. CHANGEABLE SIGN CO., INC.

OWNING AND OPERATING

B. L. AKINS, INC.

MAGNETIC CHANGEABLE SIGN CO., INC.

TELEPHONE

BRYANT 9-6430

118 West 43rd Street, NEW YORK, N. Y.

Products

BUILDING DIRECTORIES; FLOOR DIRECTORIES; ELEVATOR DIRECTORIES; CLUB ROSTERS; GOLF HANDICAP BOARDS and IN-and-OUT BOARDS; CHANGEABLE BULLETINS and ANNOUNCEMENT BOARDS; REFLECTOLITE ELECTRIC SIGNS; CORK BULLETIN BOARD; BRONZE TABLETS; BRONZE LETTERS; FLOOR DIRECTIONAL ARROWS.

Also products of the U. S. Changeable Sign Co., Inc., the pioneer building directory company established in 1890.

Wide Scope of Adaptability

Building Directories and Floor Directories—For office and loft buildings, banks, hotels, clubs and fraternal organizations, department stores, hospitals, schools and colleges, business departments, and public buildings and places where alphabetical or group listings are required.

Bulletin and Announcement Boards—For hotels, churches, railroad and steamship schedules, theater ticket agencies, rosters, menus, programmes, etc.

Statistical Boards—Sales record tabulations, factory production records, hospital and institutional census records, fire department calls, competitive records, stock quotations, etc.

Club Boards—Rosters, golf handicap boards, in-and-out, changeable letter bulletin boards, and cork bulletins for thumbtack notices.

Building Directories (Akina Type Strip Directories)

This new and improved directory has been developed by our organization and is the result of our many years of manufacturing directory boards.

Patented October 20, 1925, No. 1557542 and February 16, 1926, No. 1573126.

Advantages—Construction so simple no supervision required for making changes. In making changes, it is only necessary to remove the doors with a key, leaving all name strips in place, so that operator is always working from the front, making alphabetical mistakes improbable. This method of making changes is a distinct advance over any other system, since it permits changes to be made with one operation, allowing the directory board to be in full use while changes are being made. Any door may be removed and cleaned without disturbing the names. Changes are supplied promptly at nominal cost.

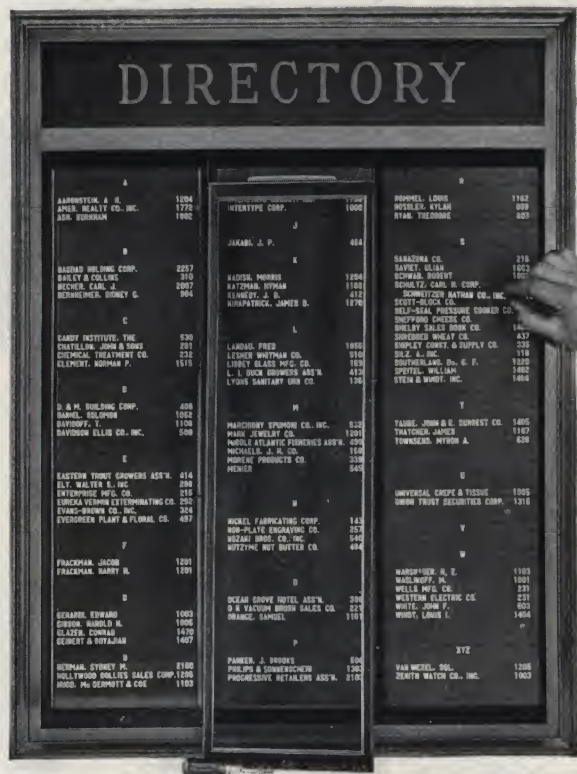
Frame Designs and Finishes—Frames for the various types of directory and bulletin boards are furnished either in approved stock designs or in accordance with the architect's specifications. Special designs are created when desired. They can be had in bronze, wood or iron in any finish required. We supply our systems without frames if so desired.

Service—Directories are sold outright and service maintained, or furnished on rental basis.

AKINS PRODUCTS, INC.

118

$\frac{3}{8}$ -in. Strip, $\frac{1}{4}$ -in. Letters for Akina Type Strip Directory, Actual Size Shown
Also made $\frac{1}{2}$ in. wide with $\frac{3}{8}$ -in. letters and $\frac{1}{8}$ in. wide with $\frac{1}{16}$ -in. letters



Akina Type Strip Directory
Stock design No. 226, bronze frame



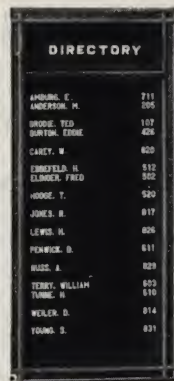
Cast Bronze Directory, Style No. 306
36 in. wide x 43 in. high
Capacity, 265 names

Specifications—(1) Frame—Frame to be constructed of bronze (steel, iron or wood), workmanship and design to meet approval of architect. Title of directory shall be in bronze.

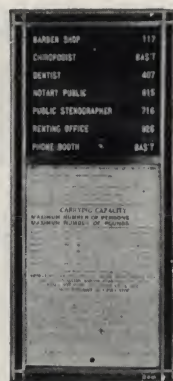
(2) Fillers—Any door shall be removable, allowing easy access to change name strips, without disturbing balance of directory. Name strips to remain in directory while changes are being made. Name strips shall be held in place by a steel backboard, covered by locked doors of cold rolled steel finished in baked enamel (or bronze). Doors to be glazed with beveled plate glass.

(3) Name Strips—Name strips to be of flexible fibre board, covered with dull black paper. Names to be made with white embossed letters, machine spaced, alignment to be perfect and all lettering uniform.

(4) Service—Must be accurate and prompt. Directory to be purchased outright (furnished on rental basis).



Style 376

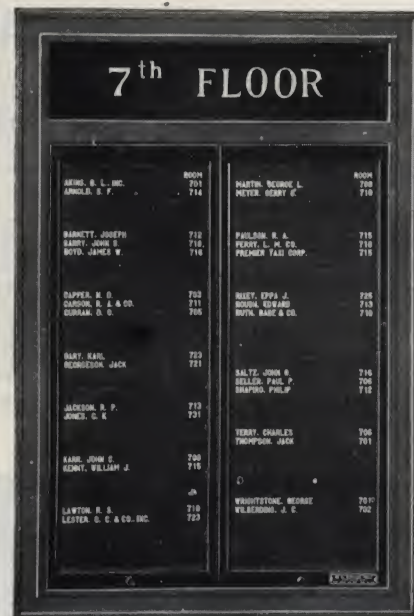


Style 377

Elevator Directories

Style No. 376—Listing the names of tenants in the smaller buildings.

Style No. 377—For inspection card and listing profession or business of tenant and regulation card in one frame, combining the requirements in the elevator of a modern office building. Convenient to locate tenants on various floors and a service greatly appreciated.



Floor Directory Akina Type Strip

Stock Design No. 156 steel frame.
Over-all size $17\frac{1}{2} \times 26\frac{3}{4}$ in. Capacity 75 names.

SIZE AND NAME CAPACITIES OF AKINA TYPE STRIP DIRECTORIES

Fillers $7\frac{1}{2}$ in. wide x 26 in. high										Fillers $7\frac{1}{2}$ in. wide x 32 in. high									
Number of fillers.....	2	3	4	5	6	7	8	9		Number of fillers.....	2	3	4	5	6	7	8	9	
Width, in.....	15	22½	30	37½	45	52½	60	67½		Width, in.....	15	22½	30	37½	45	52½	60	67½	
Name capacity, ¾-in. strips	75	125	175	250	300	350	400	450		Name capacity, ¾-in. strips	125	195	265	335	405	475	545	615	

Table figures actual name capacities ¾-in. strip. Alphabet space allowed.



Changeable Letter Type Directory Installed in the Municipal Building, New York, N. Y.

Special design cast bronze frame, using broadcloth covered grooved backboard and Akina's letter type B

Greeley Changeable Letter Directories

This is the original changeable letter system. Directories in use for over 40 years are still giving excellent service, testifying to the durability of the system.

In making changes, the entire equipment is under complete control of the owner—no outside assistance is needed.

Backboard—Made solid or in interchangeable strips, each strip designed to hold a name or a line of reading matter, and the whole grooved horizontally and covered with durable broadcloth. The wood used is well seasoned, kiln-dried and free from knots, ribbed and reinforced in an improved manner to prevent warping.

Broadcloth—Of fine durable quality, all wool.

Colors—Black, blue, green or special colors.

Letters—Type "A"—Made of an ivory white durable solid plastic material. Have moulded prongs to fit into the grooves of the backboard and are removable and replaceable with perfect ease. The prongs are so fixed as to assure perfect alignment.

Sizes— $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1 and $1\frac{1}{2}$ in.

Type "B"—Are convex faced and stamped in one piece (including tongues) from half-hard brass and covered with a special ivory white enamel, guaranteed against discoloration, cracking or chipping. The letters are set and held in place by tongues top and bottom, and can be set in an upright position only and will align perfectly.

Sizes— $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1 and $1\frac{1}{2}$ in.



Type A



Type B

Continued on next page

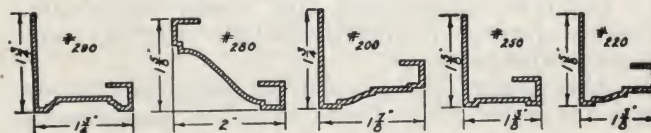


Changeable Letter and Strip Backboard

For use in small buildings. Strips are removable. Names are made with loose letters which are inserted on strip. The strips can be removed, inserted or transposed without disturbing or removing adjacent strips.

A tool, as shown in illustration, may be used or removal can be made by hand.

Every strip holds in place individually and slides up or down as required.



Bronze Moulding Stock Designs

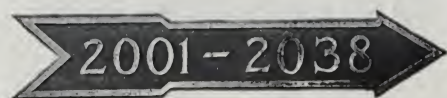
SIZE AND NAME CAPACITIES OF U. S. CHANGEABLE AND AKINS TYPE B DIRECTORIES

Sight size, in.		9 1/2 x 21 1/2	19 1/2 x 29 1/2	29 1/2 x 35 1/2	29 1/2 x 49 1/2	39 1/2 x 53 1/2	49 1/2 x 61 1/2
1/4-in. letters	Number of columns	1	2	4	4	5	6
	Name capacity	40	75	200	300	400	600
1/2-in. letters	Number of columns	1	2	3	3	4	5
	Name capacity	25	50	100	150	250	350

Allowance has been made for title of building in suitable size letters.

Cast Bronze Floor Directional Arrows

Made of cast bronze in stock designs or from architect's details. Easily attached to any wall. A sign that will be understood. Also made in glass illuminated.



Solid Bronze Letters

Made in a number of stock designs or architect's specifications accurately followed. Sketch to scale or space on receipt of accurate measurements.



Reflectolite Signs—Wall and Hanging Types

An illuminated sign for all purposes where an effective sign is required for hotels, clubs, banks, theatres, office buildings, public buildings and stores.

Type No. 1. A plate glass with etched letters. The source of illumination is entirely hidden. The light enters the plate through the edge. The plate appears dead, except where the etching occurs, giving a surprisingly beautiful and original effect.

Type No. 2. Raised opalite letters on a ground of deep rich bronze.



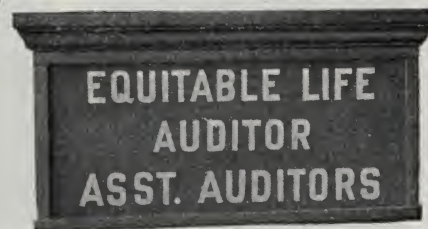
No. 420

Single or double face with flange to attach to wall or casing. Made with plates 14 and 26 in. long. 4 to 8 in. high



No. 424

Hanging. Single or double face. Made with plates 14 and 26 in. long. 4 to 8 in. high



No. 425

Single face. Made with plates 14, 26, 38, 50, 62 and 74 in. long. 4 to 8 in. high

A Few Recent Installations of Building Directories

Over 5000 in use. Some for 40 years. Many in foreign countries.

New York
American Radiator Bldg.
American Express Bldg.
New York Central Bldg.
Film Centre
Graybar Bldg.
New York Telephone Bldg.
Standard Oil Co.
Bowery Savings Bank
Municipal Bldg.
Singer Bldg.
Pershing Square Bldg.
Wall-Hanover Bldg.
Johns-Manville Bldg.
Pennsylvania Hotel
Prudence Bond Bldg.
Lord & Taylor
One Park Avenue Bldg.

New York (Continued)
No. 2 Park Avenue Bldg.
Salmon Tower
French Plan Bldg.
Gimbel Brothers
Saks & Co.
Garment Tower
Bank of Manhattan Bldg.
Squibb Bldg.

Detroit
Fisher Bldg.
Book Tower
First National Bank
Union Trust Bldg.

Philadelphia
Public Ledger Bldg.
Gimbel Brothers

Philadelphia (Continued)
Bell Telephone Co.
Liberty Title & Trust Co.
Philadelphia Convention Hall

Brooklyn
Williamsburg Savings Bank
Albee-Keith Theatre
Court-Remsen Bldg.
Municipal Bldg.
Court-Montague Bldg.

Newark
L. S. Plaut & Co.
Federal Trust Bldg.
Industrial Office Bldg.
Military Park Bldg.
National Newark and Essex Bank Bldg.

Miscellaneous
Industrial Trust, Providence
Administration Bldg., Pittsburgh
Niels Esperson Bldg., Houston, Tex.
Union Central Life Ins. Co. Bldg., Cincinnati
Union Station, Chicago
First National Bank, Utica
First National Bank, Boston
Nissen Bldg., Winston-Salem
Barnett Nat. Bank, Jacksonville
Gimbel Brothers, Pittsburgh
Grant Bldg., Pittsburgh
State Office Bldg., Albany
Capitol Bldg., Harrisburg
Chesapeake & Potomac Telephone Co., Richmond
75 Federal St. Bldg., Boston

J. A. WEBER, PRESIDENT AND TREASURER

R. G. MOLITOR, VICE-PRESIDENT AND SECRETARY

R. W. CLARK MFG. CO.

Manufacturers of Building Directories and Bulletin Boards

TELEPHONE
BUCKINGHAM 22774311 Ravenswood Avenue
CHICAGO, ILL.

ESTABLISHED 1913

Products

BUILDING DIRECTORIES for Lobby or Floors: CLARK LIBERTY (INTERCHANGEABLE LETTER) and CLARK EMBOSSED STRIP.

Also Rosters, Bulletin and Announcement Boards, Desk and Teller Name Plates, and Cork Tack Boards.

Clark Directories

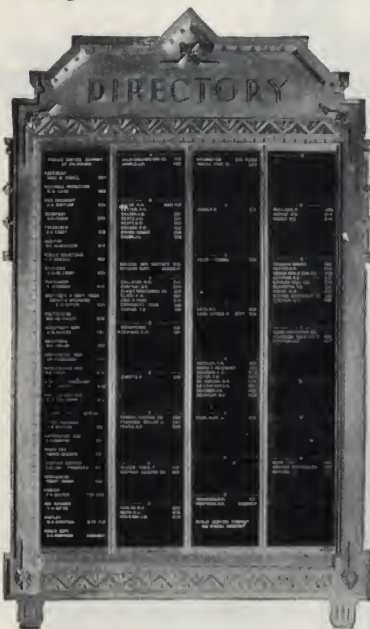
Clark Liberty Directory (Interchangeable Letter)—Little or no up-keep cost; immediate service to tenant; letters and covered strips can be re-used many times; practically same wall space required as for gummed-strip using same size letter. Letters made of best white celluloid under Clark patent.

Embossed Strip Directories—Also supplied and a service on strips given. Service costs approximately 15% of customary rental. We do not rent directories, but save owner about 85% of such rental charge. Strips fit easily into groove and are held in position with felt covered back.

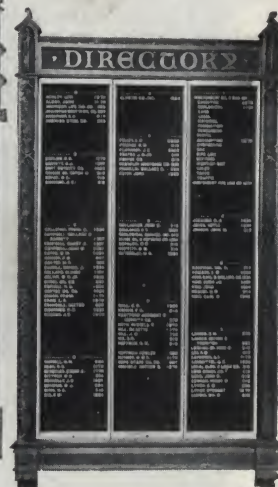
Styles and Sizes

All sizes, styles and finishes supplied—ornamental iron, plain or ornamental extruded bronze, wood filled bronze, and wood in either oak, walnut, mahogany or ebony finish.

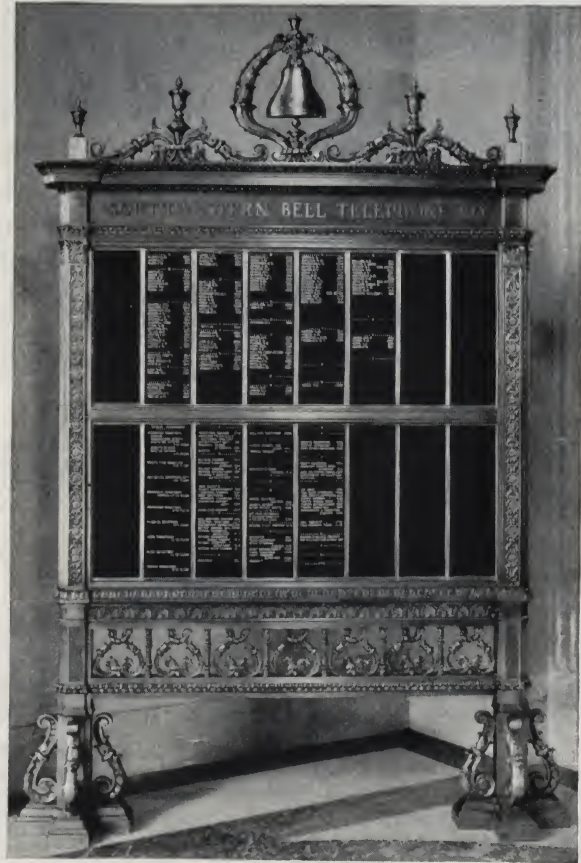
Standard width



4-section Special Clark Liberty Directory



3-section Special Clark Liberty Directory



16-section Clark Liberty Directory, Special Bronze Frame

of sections: for changeable strip (embossed strip), $7\frac{1}{2}$ in.; for Clark Liberty (interchangeable letter) $7\frac{1}{2}$ in. with $\frac{1}{4}$ -in. letters and 12 in. with $\frac{3}{8}$ -in. letters. Sections also made 15 in. wide for $\frac{1}{2}$ -in. letters.

Any convenient heights can be made; standard sizes are given on following page.

Estimates

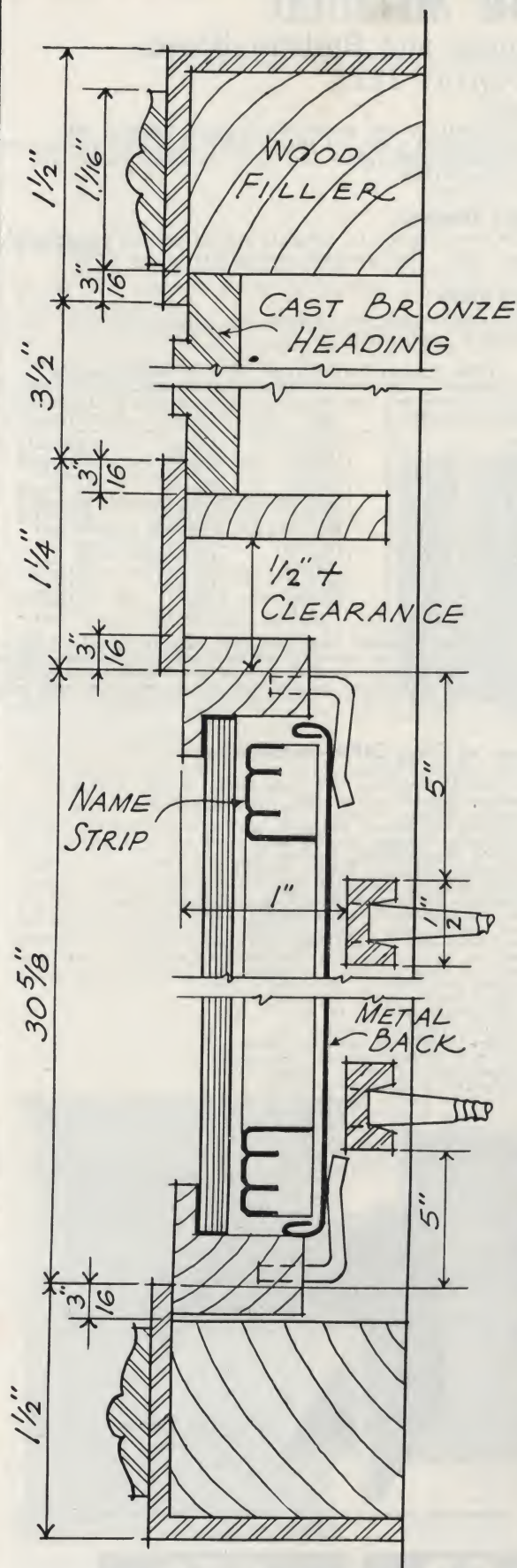
For all ordinary buildings two names to the room will be the approximate capacity of directory required. In the case of special buildings, more or less, according to purpose of the building.

In writing for estimates, state total number of names board must hold; material; style; finish; and, particularly, available wall space, if limited.

Some Installations of Clark Directories

FORT WORTH, TEX.—National Bank Building, Sanguinet, Staats, Hedrick & Gottlieb, Architects; Electric Building
SCHENECTADY, N. Y.—General Electric Company
AKRON, OHIO.—Municipal Building, Good & Wagner, Architects
EL DORADO, ARK.—Exchange Building, Mann & Stern, Architects
BUFFALO, N. Y.—Travelers Insurance Company
PITTSBURGH, PA.—George Brothers, Guthrie Building
SAVANNAH, GA.—Realty Office Building, Henrik Wallin, Architects
HOUSTON, TEX.—Post-Dispatch Building and First National Bank Building, Sanguinet, Staats, Hedrick & Gottlieb, Architects; Gulf Building, Alfred C. Finn, Architect
NASHVILLE, TENN.—Nashville Trust Co.—Amus & Clark, Architects
OKLAHOMA CITY, OKLA.—Petroleum Building and Oklahoma Gas & Electric Building, Layton, Hicks & Forsyth, Architects; Southwestern Bell Telephone Co.

QUINCY, ILL.—Western Catholic Union Building
HAGERSTOWN, MD.—Wareham Building
ALBANY, N. Y.—New York Power & Light Corp.
WACO, TEX.—Liberty National Bank
BEAUMONT, TEX.—Goodhue Building
DALLAS, TEX.—Dallas County Building and Southwestern Bell Telephone Building, Lang & Wittichell, Architects
TULSA, OKLA.—Philtower Building, Keene & Simpson, Architects
KLAMATH FALLS, ORE.—Chilcothe & Smith Co., L. R. Perrin, Architect
SAN ANTONIO, TEX.—Smith-Young Tower; Alamo National Bank Building, Graham, Anderson, Probst & White, Architects
SHAWNEE, OKLA.—Masonic Temple
MIAMI, OKLA.—First National Bank Building
MANILA, PHILIPPINE ISLANDS—Heacock Building; Insular Life Building



Vertical Cross Section of Clark Liberty Directory

SPECIFICATIONS

Directory—At the place indicated on the plans or to be designated by the architects, the contractor shall install an "A" section "B" strip directory made by the R. W. CLARK MFG. Co., 4311 Ravenswood Avenue, Chicago, Illinois.

The strips shall be made for the use of "C" inch Clark interchangeable celluloid letters and shall be covered with black broadcloth.

Sections shall be glazed with beveled plate glass with frame of "D."

The directory frame shall be "E."

Legend—"A"—State number of sections of fifty strips each. (40 for 1/2-in. letters.)

"B"—Calculate at two to two-and-a-half times the number of rooms.

"C"—One-quarter, three-eighths or one-half.

"D"—"Wood," "black steel" or extruded bronze.

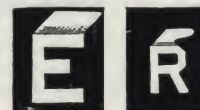
"E"—Oak, mahogany or ebony finish, black ornamental iron, bronze wood filled, extruded bronze, extruded ornamental bronze or cast bronze.

DIRECTORIES WITH 12-IN. SECTIONS FOR 3/8-IN. LETTERS

Vertical Sight Opening of Frame 30 5/8 in.

Other heights can be furnished

Number of sections	Height of directory, in.	Width of directory, in.	Strip capacity
1	38	15	50
2	38	27	100
3	38	39	150
4	38	51	200
5	38	63	250
6	38	75	300
Double 4	70	51	400
Double 5	70	63	500
Double 6	70	75	600



Pat. Dec. 12, 1916

Actual Size of 3/8-in. and 1/4-in. Clark Celluloid Letters

DIRECTORIES WITH 7 1/2-IN. SECTIONS FOR 1/4-IN. LETTERS

Vertical Sight Opening of Frame 24 in.

Other heights can be furnished

Number of sections	Height of directory, in.	Width of directory, in.	Strip capacity
2	32	18	100
3	32	25 1/2	150
4	32	33	200
5	32	40 1/2	250
6	32	48	300
Double 4	57	33	400
Double 5	57	40 1/2	500
Double 6	57	48	600

DIRECTORY			
FIRST FLOOR			
BOY SCOUTS	1	DEPT. STATE MOTOR VEHICLE DIV.	3
DEPT. PUBLIC WORKS	2	WATER OFFICE	6
BLDG. SEWER, PLUMB. & ELECT. INSP.	2	CITY SEALER	7
RED CROSS	3	HEALTH DEPT.	8-9-10
SECOND FLOOR			
CITY ENGINEER	11	CITY TREASURER	18
CITY CLERK	12-13	JUDGE GRAY	
JUDGE CODY		JUSTICE OF PEACE	21
JUSTICE OF PEACE	14	ASSESSOR'S OFFICE	22
MAYOR'S OFFICE	16		
THIRD FLOOR			
SHERIFF'S OFFICE	26	ATTORNEYS' LIBRARY	34
CAMP FIRE	29	CIRCUIT COURT	
COMMISSION ROOM		COURT STENOGRAPHER	40
MICH. CHILDREN AID SOCIETY	31	CIRCUIT JUDGE	42
SOCIAL SERVICE BUREAU	32	COUNTY CLERK	45

Bulletin Board as Directory—Letters Only Are Interchangeable

No. 60A (grooved long way) two columns. Names in 1/2-in. letters

DAVENPORT-TAYLOR MFG. CO.

Manufacturers of Building Directories and Bulletin Boards

TELEPHONE

SUPERIOR 9274

Private Exchange

NEW YORK, N. Y., 132 West 43rd Street—Telephone, Bryant 7999
BOSTON, MASS., 318 Little Building—Telephone, Beach 2584
SEATTLE, WASH., 1007 2nd Avenue

412 Orleans Street, CHICAGO, ILL.

BRANCH OFFICES

DETROIT, MICH., 1346 Broadway—Telephone, Randolph 9334
SAN FRANCISCO, CAL., 693 Mission Street—Telephone, Kearney 5460
LOS ANGELES, CAL., 405 S. Hill Street—Telephone, Tucker 1312

AGENCIES IN ALL PRINCIPAL CITIES

Products

DAVENPORT-TAYLOR ALPHABETICAL and CHANGEABLE BUILDING DIRECTORIES for every type of building.

CLUB and STORE DIRECTORIES.

EMBOSSED and PRINTED GUMMED LABELS and SEALS, in paper, foil and metal.

Also, Key Cabinets.

For our page on Bronze Tablets, Bronze Memorial Plaques, Name Plates, Electric Directional Signs, Exit Signs, Interior Electric Signs and Cast Letters, see Manufacturers' Index.

Quality

The name Davenport-Taylor stands for the highest quality of design, workmanship and service. A complete organization and twenty years' experience assures the maintenance of the Davenport-Taylor quality of work and prompt and satisfactory completion of contracts.

Changeable Building Directories Sold Outright or Installed on the Yearly Rental Plan

These two plans afford the architect and owner the opportunity to choose the plan they want.

Directory Service

When a Davenport-Taylor Directory is received at a building it contains all the names of tenants who have already signed leases for office space. This detail is arranged by the company through the owner or renting agent. Subsequent name strips are furnished by the company as needed, or the owner can purchase supplies and letter the names. Lettered strips are shipped within 24 hours after receipt of order.

Construction

Full size detail will be furnished on request. Frames are cast bronze, extruded bronze, iron, steel, metal covered wood or wood in any finish. Heading may be in cast letters or white letters on a black card. Removable sections or units to hold the names are provided in numbers sufficient to accommodate the names required. Units or sections are fitted with plain or beveled plate glass to protect the names. Names are lettered with our die-cut white paper letters on black cards which slide up or down in the holder to permit insertion of new strips in alphabetical order.



Cast Bronze, Design No. 501, Capacity 250 Names, Installed in Richmond Trust Building, Richmond, Va.
STARRETT & VAN VLECK, Architects, New York, N. Y.

Special Designs

We are equipped to complete special designs requiring the greatest skill. Our workmen are artists in the work.

Panels Only

We also supply our system for frames made by others according to our details.

STEEL FRAME AND UNITS, "D & T" DIRECTORIES

Number of names	Number of units	Size of units, in.	Sight opening of frame, in.	Outside size stock frames, in.
50	2	7 1/2 x 26 3/8	14 7/8 x 26	18 1/2 x 34 1/2
100	3	7 1/2 x 26 3/8	22 3/8 x 26	25 1/2 x 34 1/2
150	4	7 1/2 x 32 1/2	22 3/8 x 32 1/2	25 1/2 x 41
	4	7 1/2 x 26 3/8	29 7/8 x 26	33 x 34 1/2
200	4	7 1/2 x 32 1/2	29 7/8 x 32 1/2	33 x 41
	5	7 1/2 x 26 3/8	37 3/8 x 26	40 1/2 x 34 1/2
250	5	7 1/2 x 32 1/2	37 3/8 x 32 1/2	40 1/2 x 41
	6	7 1/2 x 26 3/8	44 1/8 x 26	48 x 34
300	6	7 1/2 x 32 1/2	44 1/8 x 32 1/2	48 x 41
	7	7 1/2 x 26 3/8	52 3/8 x 26	55 1/2 x 34 1/2
400	7	7 1/2 x 32 1/2	52 3/8 x 32 1/2	55 1/2 x 41
	9	7 1/2 x 26 3/8	67 3/8 x 26	70 1/2 x 34 1/2
500	8	7 1/2 x 32 1/2	59 1/8 x 32 1/2	63 x 41

To Figure Capacity and Size—The capacity should be figured on a basis of at least two names to each individual office to insure against future renting arrangements. Reference to the detailed schedule shows the approximate over-all size, varying with the design. If no wall space is available, single or double face directories or standards should be provided.

A Few of Over 3000 Installations

New York Life Building, New York, N. Y.
32 Broadway Building, New York, N. Y.
Lefcourt Realty Buildings (10), New York, N. Y.
Koppers Building, Pittsburgh, Pa.
Allegheny Courthouse, Pittsburgh, Pa.
Rolls Royce Building, Boston, Mass.
Trenton Trust Building, Trenton, N. J.
Stephenson Building, Detroit, Mich.
Leader Building, Cleveland, Ohio
Maccabees Building, Detroit, Mich.
Los Angeles City Hall, Los Angeles, Calif.
Russ Building, San Francisco, Calif.
First Wisconsin National Bank, Milwaukee, Wis.
Southern Railway Building, Cincinnati, Ohio
American Bank Building, Greensboro, N. C.
Medical Art Building, Minneapolis, Minn.
Medical Art Building, Chattanooga, Tenn.
Steuben Club, Chicago, Ill.
Palmolive Building, Chicago, Ill.
Chicago Daily News Building, Chicago, Ill.
Carbide & Carbon Building, Chicago, Ill.
Foreman Bank Building, Chicago, Ill.
McCormick Building, Chicago, Ill.
Willoughby Tower, Chicago, Ill.
Civic Opera Building, Chicago, Ill.
Merchandise Mart, Chicago, Ill.
Aldine Trust Building, Philadelphia, Pa.
Integrity Trust Building, Philadelphia, Pa.
Lewis Building, Philadelphia, Pa.



Extruded Bronze Moulding Style No. 70

Actual size of one of several stock mouldings. Illustrations and samples on request

MAXWELL, H.R. & CO. 360

Actual Size of Letters Used on Name Strips—Strips Are 7 x 3/8 Inches

LIBERTY MANUFACTURING CO.

Building Directory Boards and Changeable Letter Bulletins

67 West 44th Street
NEW YORK, N. Y.

FACTORY, 601 15th Street, WEST NEW YORK, N. J.

SELLING AGENTS IN PRINCIPAL CITIES

Products

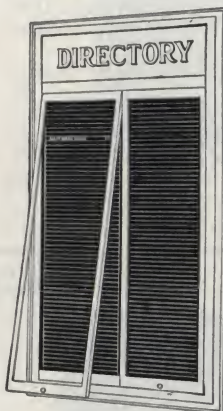
LIBERTY BUILDING DIRECTORIES (Changeable Embossed Strip) and LIBERTY BULLETIN BOARDS (changeable Noglare Celluloid Letters).

Also manufacturers of Bronze Tablets and Signs (Send for Catalogue G), Interchangeable Letter Signs, Hotel Bulletin Boards, Statistical Boards, Cork Bulletin Boards, Edgelow Electric Signs, Bronze Signs, "In and Out" Boards for clubs, Golf Club Handicap Boards, Wood and Metal Frames, Name Plates, etc.

Liberty Directory Boards for the Better Type of Building

Liberty Directory Boards are sold outright. They provide an owned board which will represent an actual saving of from 25% to 50% over the rented board. Strips, both blank and embossed, are furnished without charge on installation. Additional name strips cost only 15 cents each. Thus the building management pays only for what it needs and uses.

Custom Built Frames—Liberty Boards are made with special heavy gauge drawn bronze or cast bronze frames, as well as bronze frames over wood core or solid wood. Each frame is custom built for its respective installation. Frames mitered accurately and strongly reinforced from inside. No corner pieces employed. Panels are fitted with heavy beveled plate glass.



How the Welded Steel Door, with Beveled Plate Glass, Opens



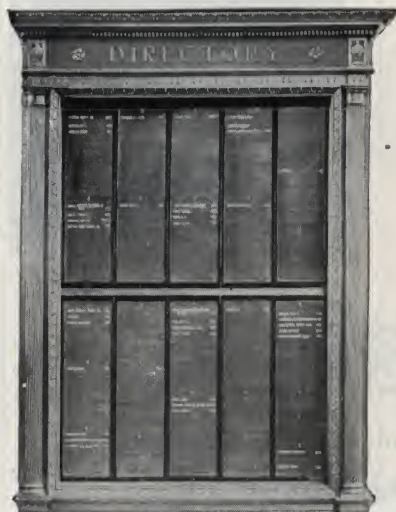
How the Embossed Changeable Strip Slips Quickly and Easily Into Place

HOW TO FIGURE THE CAPACITY OF LIBERTY STRIP DIRECTORIES

Size of directory units, in.	Maximum capacity using $\frac{3}{8}$ -in. Liberty strips		Maximum capacity using $\frac{1}{2}$ -in. Liberty strips	
	Blanks	*Names	Blanks	*Names
$7\frac{1}{2} \times 26$	60	40	40	25
$7\frac{1}{2} \times 32$	80	60	50	35

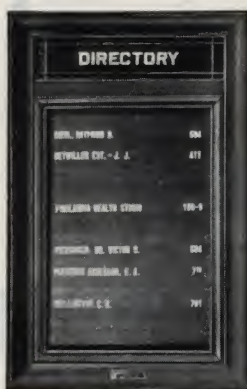
*Name capacity is less than "blank capacity" due to necessary spacing and extra line names.

Note: In order to allow for proper elasticity, it is always better to figure two names to each office; because, while one entire floor may be taken by a firm which will require but one name strip on the directory, a single office may carry as many as eight or ten names. Then, too, it is well to figure enough room so as to make allowances for the future, when floors may be cut up into offices.

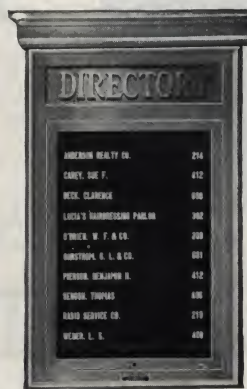


Liberty Changeable Embossed Strip Directory—Made for Liberty Bank, Buffalo, N. Y.

Each of the 10 sections is $7\frac{1}{2} \times 26$ in. and holds 60 $7\frac{1}{2} \times \frac{3}{8}$ -in. strips



No. 3 1/2 S, size 14×22 in. over all. Wood frame in oak or mahogany finish. Capacity 20 $10 \times \frac{3}{8}$ -in. strips. Price \$25.00.
No. 3S, size 14×34 in. Capacity 40 $10 \times \frac{3}{8}$ -in. strips. Price \$35.00



No. B3 1/2 S, size 13×23 in. over all. Bronze kalamein frame. Capacity 20 $10 \times \frac{3}{8}$ -in. strips. Price \$65.00.
No. B3S, size 13×34 in. Capacity 40 $10 \times \frac{3}{8}$ -in. strips. Price \$75.00

Liberty Changeable Embossed Strip Directories
Installations from coast to coast and in many foreign countries. Write us for installations in your city or nearby

Note: Liberty equipment, however, may be purchased separately when the directory frame is included in the bronze contract. In this case, drawings should be sent to us for our approval, as dimensions must fit our standard sections.

Frame should be shipped to our factory where installation of our equipment will be made. It is then sent direct to the building ready for erection.

Legibility and Appearance—The changeable name strips are made of special imported dull fibre and are *reversible*—an exclusive feature.

Liberty strips, which are made in two standard sizes, $\frac{3}{8}$ and $\frac{1}{2}$ in., are held in channels in the back boards so they cannot slip. The special spring back board with its channels, and action of door when closed, cause all name strips to flatten out evenly against the glass.

The lettering on the name strips is done by machine embossing. This produces a beautiful, perfectly aligned and clean cut result.

Service—Return mail service on name strip is guaranteed. This is similar to the system adopted for firehouse assignments where service is imperative. Hundreds of managers of important buildings are glad to recommend this service.

When Making Inquiries

Give number of offices to be served (note that two lines should be allowed for each office); kind of frame: whether solid drawn bronze, kalamein bronze, or wood (if wood, give kind and finish); maximum dimensions of space available.

DIRECTORY		
ABBOTT R S	DENTIST	22
AILAN J E		28
BROWN A Q	LAWYER	24
DABBLAR & CO	INSURANCE	26
EDERTON W W		39
EARL CHAS H		37
HICKON I F	BEAUTY PARLOR	33
UNDERWOOD STUDIO		37
MASSOLL CO	COTTON WASTE	23
WILTNOT-PECK CORP		41

Liberty Changeable Letter Directories

No. 202 changeable letter bulletin, weatherproof, size over all $27\frac{1}{2} \times 39\frac{1}{2}$ in. Big value. Capacity according to size of letters used. A practical office building directory for outside erection. Price, without letters, \$70; frame is real bronze kalamein.

Bulletin (back board that holds letters) is removable when changes are necessary. Same size board in mahogany or oak frame is \$50.00—for inside use only No. 200

TELEPHONE
MAYFLOWER 7500

JAS. H. MATTHEWS & CO.

Manufacturers of Building Directories and Bulletin Boards
3930 Forbes Field
PITTSBURGH, PA.

ESTABLISHED
1850

BRANCH FACTORY: 480 Canal Street, NEW YORK, N. Y.—Telephone, Walker 9860
For our pages on Bronze Building Tablets, Overhead Letters, etc., see Manufacturers' Index

Building Directories

Bronze Frames—3 styles, (a) drawn bronze over invisible wood core—see sections on following page, (b) extra heavy extruded bronze, without wood core, (c) ornamental cast bronze. Finishes: Light natural brushed bronze or dark oxidized bronze.

Wood Frames—Finished mahogany, walnut, oak or ebony.

Changeable Letter Style—(Shown below) permits changes by owner without outside assistance.

Changeable Name Strip Style—(Shown following page) uses standard name strips—either $7\frac{1}{2}'' \times \frac{3}{8}''$ or $10'' \times \frac{5}{8}''$. Fast service. Low cost.

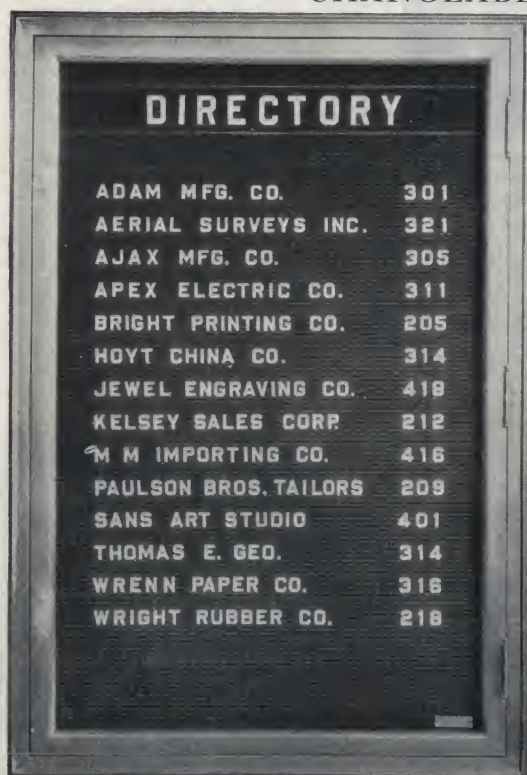
Ornamental Bronze Directories

Architect's own design or Matthews. Changeable letter directories made any size. Name strip directories should accommodate standard panels—see following page.

"MUNICIPAL." Standard solid cast bronze directory, $39'' \times 46''$. Either changeable letters or name strips. Changeable $\frac{1}{2}''$ letters recommended—capacity 75 names.



CHANGEABLE LETTER DIRECTORIES



No. 130 Changeable Letter Style

Bronze frame No. 50 or 51 (see following page) with No. 54 for inset hinged glass door. Illustration $28'' \times 40''$. Made any size. With wood frame Style No. 30

Flat Face Celluloid Letters

For matching up existing installations or where flat face is preferred. $\frac{1}{2}''$, $\frac{3}{4}''$, $1''$, $1\frac{1}{2}''$ and $2''$. White, red and yellow.

DeLuxe Metal Letters

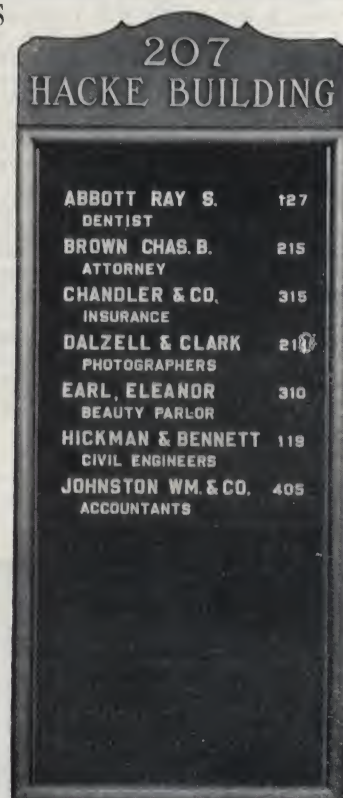
White enamel face on cast aluminum. Hand-some in appearance. $\frac{1}{4}''$, $\frac{3}{8}''$, $\frac{1}{2}''$, $\frac{3}{4}''$, $1''$, $1\frac{1}{2}''$ and $2''$ sizes.



Suitable floor standards made in either bronze or wood—supplied where wall attachment is not desired



Letters have wings on back to fit in grooved background (grooves $\frac{1}{4}''$ c-c). Background is black broad-cloth. Other colors can be supplied



No. 150 Changeable Letter Weatherproof Outside Directory

Made any size. Frame section No. 53, dark oxidized bronze finish. Hinged glass door. Illustration $24'' \times 48''$ with $8\frac{1}{4}''$ cast bronze header. Header optional

"Embossed" Celluloid Letters

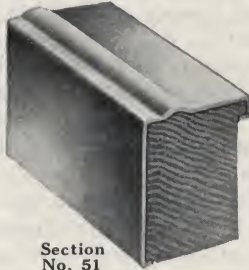
Beautiful contour and highlighting. Made in white, yellow, green and red. Sizes $\frac{1}{2}''$, $\frac{3}{4}''$, $1''$ and $1\frac{1}{2}''$. Sold in "fonts" arranged for average use (letters or figures). One size to a font. Fonts of 100, 200 or more.

CHANGEABLE NAME STRIP DIRECTORIES

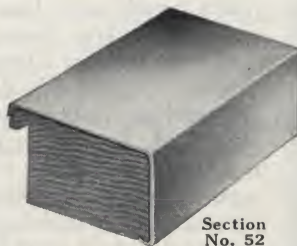
Details of Bronze Frames



Section No. 50



Section No. 51



Section No. 52



Section No. 53



Section No. 54



No. 180-S Directory

Made with any number of panels. See sizes below. Name strip $7\frac{1}{2} \times \frac{3}{8}$ ". Frame section No. 50 or 51 recommended. Solid bronze letters in header. Plate glass inset panels in black enameled steel frames.

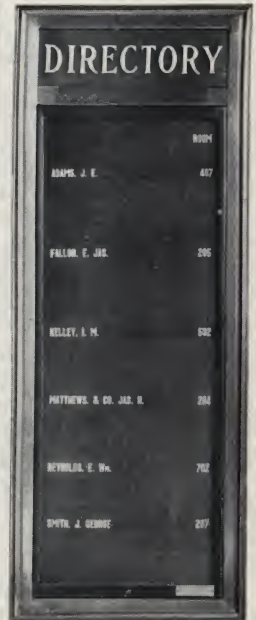
DIRECTORY CAPACITIES

Directories using name strips $7\frac{1}{2} \times \frac{3}{8}$ " use standard size inset panels—either $7\frac{1}{2} \times 26$ " or $7\frac{1}{2} \times 32$ ". Approximate capacities and over-all sizes are given below. Capacities are for directories comfortably filled. Maximum capacity would average about 25% more.

Number of names	Number of $7\frac{1}{2} \times 26$ " panels	Approx. over-all sizes, in.	Number of names	Number of $7\frac{1}{2} \times 32$ " panels	Approx. over-all sizes, in.
75	2	18 x 34	125	2	18 x 40
125	3	25 $\frac{1}{2}$ x 34	195	3	25 $\frac{1}{2}$ x 40
175	4	33 x 34	265	4	33 x 40
250	5	40 $\frac{1}{2}$ x 34	335	5	40 $\frac{1}{2}$ x 40
300	6	48 x 34	405	6	48 x 40
350	7	55 $\frac{1}{2}$ x 34	475	7	55 $\frac{1}{2}$ x 40
400	8	63 x 34	545	8	63 x 40
450	9	70 $\frac{1}{2}$ x 34	615	9	70 $\frac{1}{2}$ x 40
500	10	78 x 34	685	10	78 x 40

Directories of small capacity such as 175-S have best display if the large size name strip $\frac{3}{4} \times 10$ " is used. Takes standard panel 10×26 ". Capacities and over-all sizes are indicated below:

Number of names	Number of 10×26 " panels	Approx. over-all sizes, in.
12	Half	13 x 21
30	One	13 x 34
60	Two	23 $\frac{1}{2}$ x 34



No. 175-S Directory

Small capacity directory. Name strips $10 \times \frac{5}{8}$ ". For sizes see table at left.

CHANGEABLE NAME STRIPS (Actual Size)

JAS. H. MATTHEWS } 3942

Name strip $7\frac{1}{2} \times \frac{3}{8}$ ". Standard for directories of 50 names or over. Embossed white characters on black or bronze tone fibre

MATTHEWS & CO. } 3942

Name strip $10 \times \frac{5}{8}$ " for small capacity directories



THE TABLET & TICKET CO.

Building Directories, Changeable Bulletin Boards, Directional Signs
1021 West Adams Street, CHICAGO, ILL.

115 East 23rd Street
NEW YORK, N. Y.

407 Sansome Street
SAN FRANCISCO, CAL.

405 South Hill Street
LOS ANGELES, CAL.

BALTIMORE, MD.
BOSTON, MASS.
BUFFALO, N. Y.

SALES REPRESENTATIVES
CLEVELAND, OHIO
DETROIT, MICH.
KANSAS CITY, MO.
ST. PAUL, MINN.

MILWAUKEE, WIS.
MINNEAPOLIS, MINN.
NEW ORLEANS, LA.
SEATTLE, WASH.

PITTSBURGH, PA.
PORTLAND, ORE.
ST. LOUIS, MO.
SPOKANE, WASH.

Products

BUILDING DIRECTORIES; BUSINESS DIRECTORIES; CHURCH DIRECTORIES; STORE DIRECTORIES; CLUB MEMBERSHIP and HANDICAP BOARDS; CHANGEABLE LETTER SIGNS and BULLETIN BOARDS; "IN" and "OUT" BOARDS; HOSPITAL REGISTER BOARDS; INTERIOR ELECTRIC DIRECTIONAL SIGNS; CHANGEABLE DESK AND GRILLE NAME PLATES; WILLSON'S GUMMED PAPER LETTERS and FIGURES; SELF-SPACING PYRALIN SELL-U-LETTERS; EMBOSSED and PRINTED LABELS and SEALS.

(A) Building Directories—Service or Sale

(A-1) Service—

THE TABLET & TICKET Co. will install its directory equipment as specified, furnish name strips as ordered, and keep the directory up to date, making name changes as ordered. The service will be installed under a five-year contract at an

agreed annual fee based upon the name capacity of the equipment. No charge is made for the equipment.

(A-2) Strip Service—In cities where our plant and branch offices are located, we render 24-hour service on strip changes, and in any other cities, service within 3 days.

(A-3) Maintenance—A staff of men visit our directories periodically to see that they are kept clean, in repair and in good working order. There is no additional charge for this service.

(A-4) Sale—THE TABLET & TICKET Co. directories may be purchased at a very reasonable cost; in this case regular Tablet & Ticket Directory service may be had at special rates.

(B) Description of Office Building Directory

(B-1) The Directory—Each directory consists of two or more units, the frame and one or more sections.

(B-2) Frames—Our stock frames can be furnished in any of four styles of extruded Benedict nickel; four styles of extruded bronze; two styles of kalamein moulding; or two styles of ornamental iron moulding. These can be finished in natural polish, or the various plated finishes as desired. Among these will be found a



SINCE 1870



style to harmonize with any bronze or ornamental iron work. Where special frames are included in the work of the ornamental iron or bronze contractor, Tablet & Ticket sections only are specified.

(B-3) Headings—Two styles of headings are available—a bronze tablet with cast bronze letters or a black background with white letters covered with beveled plate glass.

(B-4) Sections—Each section is a unit in itself. Section frame is of extruded bronze, steel, nickel, or special white metals with beveled plate glass front. The strips fit into grooves in each side of the section frame and are held flat and in perfect alignment against the plate glass front by the broadcloth covered removable wooden back piece.

All standard sections are 7½ in. wide and use No. 1 strips as illustrated. The chart below shows the strip and name capacities of different length sections.

tions. Special size sections with appropriate strips to fit special frames can be supplied.

(B-5) Name Strips—An actual size illustration of No. 1 name strip is shown below. The strips are pliable black cardboard of special texture, ⅜ in. wide, 7⅛ in. long, lettered with ¼-in. glazed white gummed letters, providing sharp contrast and unusual legibility. The name is also typed on the reverse side of strip enabling the operator to see the entire set-up without disturbing the strips when the section back is removed.

The strips slide easily up and down in the side grooves making it convenient to remove or change a single strip without disturbing the others.

NAME CAPACITIES OF STANDARD SECTIONS

Number of sections	Length of section, in.			
	18½	26¾	32½	40¾
3 sections.....	50	100	150	200
4 sections.....	100	150	200	300
5 sections.....	150	200	250	400
6 sections.....	200	250	300	500
7 sections.....		300	400	600
8 sections.....		400	500	700
9 sections.....		450	600	800
10 sections.....		500	700	900
(Total strips per section).....	45	64	80	100

HEALTH EXTENSION SERVICE

212

(B-6) Other Directories—Other types of THE TABLET & TICKET Co. directories are: Floor Directories, used on individual floors to show tenants of such floors; Business Directories, giving the business as well as the name of the individual or company; Church Directories; Department Store Directories, for listing the locations of different merchandise departments; Golf Handicap Boards; and Club Membership Directories with our patented "in and out" feature. Specifications will be immediately furnished upon request.

(C) Changeable Bulletin Boards

(C-1) Description—The Tablet & Ticket Changeable Bulletin Boards are made in three types—(1) without glass front; (2) with stationary glass front and take-out back; (3) with hinged glass door. All have the same kind of grooved backboard.

(C-2) Frames—The stock changeable bulletin boards range in sizes from 6x10 in. to 28x40 in. over all. De Luxe models may be of wood moulding or kalamein. Extruded bronze mouldings will be furnished to order. We advise the purchase of stock sizes, but will furnish special sizes at slightly increased cost.

(C-3) Backboards—Backboards have parallel grooves $\frac{5}{16}$ in. apart covered with best quality broadcloth. Black covered backboards only are carried in stock, but any color broadcloth can be furnished on order.

(C-4) Standards—Stock standards are 62 in. high and are furnished in oak, mahogany, or walnut; or bronze or iron. Special finishes on order.

(C-5) Letters and Figures—Our Bulletin board letters and figures are known as Sell-U-Letters. They are die-cut from pyralin .020 in. thick and made with our patented self-spacing flanges. Stock colors are red and white, but any color, including gold or silver, will be supplied on special order.

Sizes range from $\frac{1}{4}$ to 2 in. high in either block or Roman style, single or double flange.

(C-6) Application—These boards are especially adapted for use in banks, hotels, theatres, clubs, hospitals, railroad stations, schools and public buildings, as well as in industrial plants as manufacturing production schedules or sales record boards.

(D) "In" and "Out" Boards

(D-1) Description and Application—We manufacture several styles of Changeable Name "In" and "Out" indicator boards to meet every normal requirement, and are prepared to build special "In" and "Out" boards as may be designed.

Such boards are a necessity in large offices, hospitals, etc., to keep accurate record of the movement of executives, doctors, etc.

(E) Cork Back Bulletin Boards

(E-1) Description and Application—These boards are made like our regular grooved-back boards with the exception the backboard is of cork composition. These can be furnished in any size and the cork backboards may be covered with any color broadcloth or without covering.

These are particularly appropriate for use in banking institutions, retail stores, museums and educational institutions for displaying advertisements, drawings, etc., which are attached to the cork backboard with thumb tacks.

(F) Willson's Gummed Paper Letters and Figures

(F-1) Description and Application—Willson's gummed paper letters and figures are die-cut from highly glazed gummed paper in stock colors of white, red and black, but can be furnished in any desired color on special order. We have a wide range of sizes and styles of letters from $\frac{3}{16}$ to 4 in. high. These are furnished in individual envelopes as well as in small alphabet assortments and large handy box assortments to suit every need.

Paper letters and figures are used extensively in drafting rooms, for marking and lettering drawings and tracings. They photograph perfectly. Free samples will be furnished on request.



Electric Directional Signs

Casings are made of drawn bronze in natural polish, brushed bronze or statuary finish, or drawn steel sprayed any desired color.

Glass faces can have sandblasted letters either embossed or incised with contrasting colors or can be etched in plate glass. Emblems, symbols, trade-marks, etc., can be successfully reproduced.

Standard Mazda lamps of showcase type provide illumination.

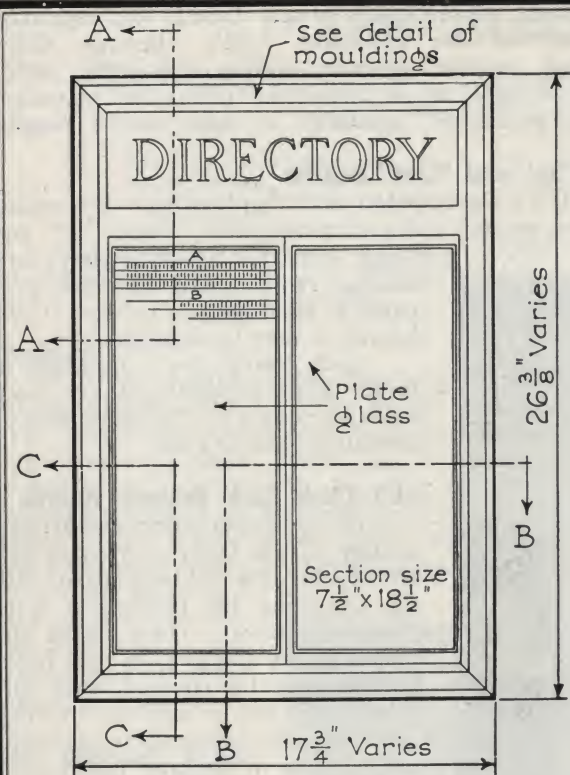
Our standard moulding will harmonize with any architectural design, but we will furnish cast or drawn bronze frames of special design on special order.



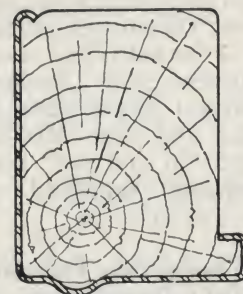
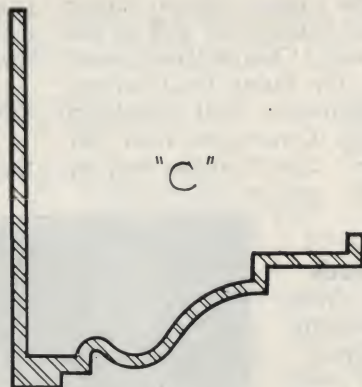
"Letr-Lite" Standing Type

We have illustrated only one of the four distinct types of Letr-Lite directional signs which are: standing type, hanging type, flat wall type, and flange type.

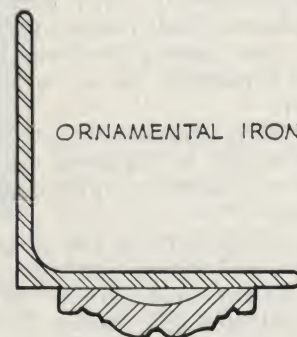
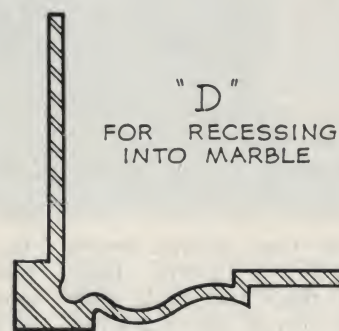
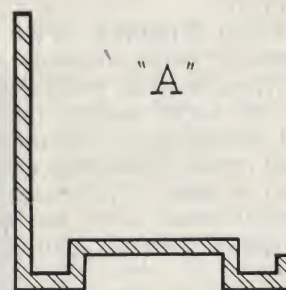
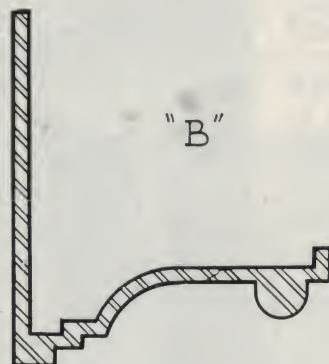
The type sign required is governed by the place it is to be used and the manner of its attachment.



ELEVATION
Scale $\frac{3}{4}$ " = 1'-0"

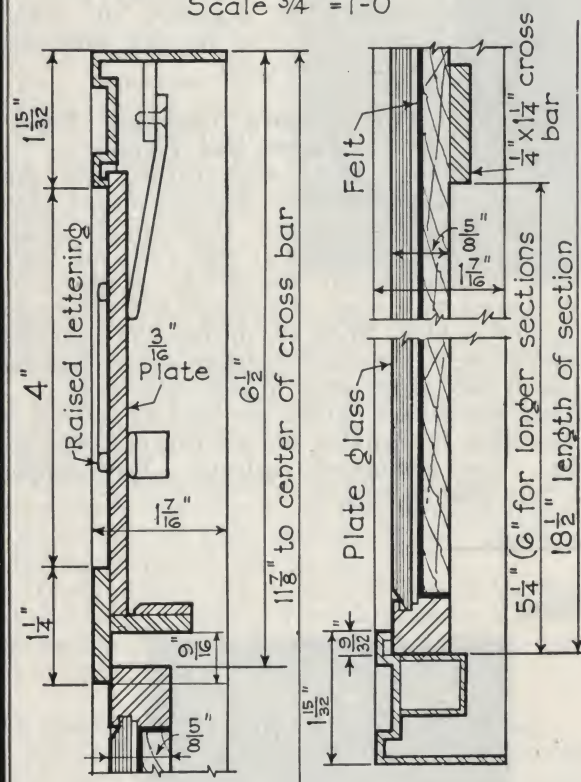


#35C KALAMEIN



"D"
FOR RECESSING
INTO MARBLE

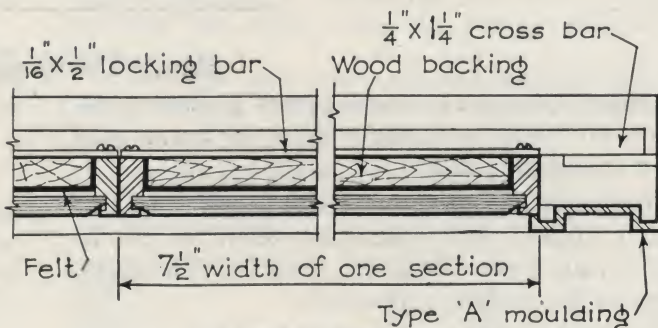
ORNAMENTAL IRON



SECTION
AT "A-A"

SECTION
AT "C-C"

Scale 3" = 1'-0"



SECTION AT "B-B" Type 'A' mould

Scale 3" = 1'-0"

TYPICAL STANDARD TWO - SECTION DIRECTORY

ARMSTRONG CORK COMPANY

Manufacturers of Cork Bulletin and Tack Boards

926 Arch Street, LANCASTER, PA.

BOSTON, MASS., 84 North Street, Station 16
BALTIMORE, MD., 21 South Charles Street
CINCINNATI, OHIO, 1017 Broadway
NEW YORK, N. Y., 50 Church Street
PHILADELPHIA, PA., 408 North Third Street
DETROIT, MICH., 507 Garfield Building

BRANCHES

CHICAGO, ILL., 111 North Canal Street
ST. LOUIS, MO., 204 South Third Street
SAN FRANCISCO, CAL., 1853 Folsom Street
MONTREAL, QUE., CAN., McGill Building
TORONTO, ONT., CAN., 222 King Street, West
WINNIPEG, MAN., CAN., Confederation Life Building

Product

ARMSTRONG'S CORK BULLETIN and TACK BOARDS for schools, colleges, hotels, lodge rooms, offices, factories, etc.

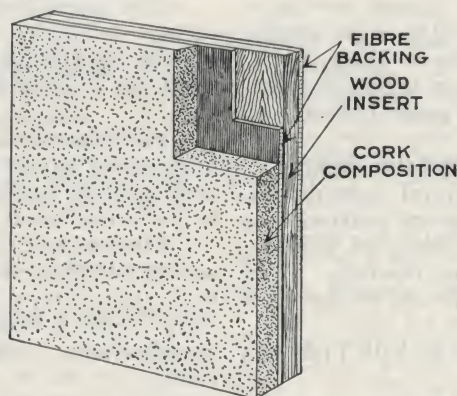
For Armstrong's Corkboard for Building and Roof Insulation, Cold Storage Insulation, Pipe Coverings and Machinery Isolation, Linoleum, Linotile, and Cork Tile, see Manufacturers' Index.

Description

Armstrong's Cork Bulletin and Tack Boards wood-backed and burlap-backed. Wood-backed boards are composed of a layer of burlap-reinforced cork composition $\frac{1}{4}$ -in. thick cemented securely to a backing of $\frac{1}{4}$ -in. 3-ply wood insert compo board. Burlap-backed board differs from wood-backed in that it does not have the compo board reinforcing.

Particular Advantages of Armstrong's Cork Bulletin and Tack Boards

Because of the peculiar texture of the cork composition used in their construction, Armstrong's Bulletin and Tack Boards are far more satisfactory than wooden ones. Thumbtacks can be pushed easily into the cork. They are held securely and can be removed readily without the use of a tack puller or knife, and without damage to the finger nails. Furthermore, due to the resiliency of the cork, the tendency of the tack holes is to close up gradually. Hence, Armstrong's Cork Bulletin and Tack Boards are not marred by unsightly splinters and retain a much smoother surface than wooden ones. They can be cleaned easily with soap and water.



Sectional View, Armstrong's Wood-backed Cork Bulletin and Tack Board

Sizes

Standard panels of wood-backed board are 4x6 ft. x $\frac{1}{2}$ in. thick. Boards or strips of smaller sizes can be easily sawed on the job from standard panels, or will be supplied by the factory. Larger sizes are furnished in sections.

Burlap-backed material is supplied in a single piece of any desired length and in any width up to 6 ft.

Colors

Both materials can be supplied in either green or tan.

Specifications

Wood-backed Cork Bulletin Boards—Provide and install Armstrong's Wood-backed Cork Bulletin or Tack Boards where indicated on the drawings or herein specified.

(State here where they are required and sizes.)

All tacking spaces of bulletin boards shall be Armstrong's Wood-backed Cork Bulletin or Tack Board material as made by the ARMSTRONG CORK COMPANY, Lancaster, Pa. (This material is to be $\frac{1}{2}$ -in. thick, consisting of one $\frac{1}{4}$ -in. thick layer of cork composition reinforced with burlap and securely cemented to a three-ply backing of compo board with wood core.)

All frames to be of same finish and material to match trim and to have loose cover mould as detailed around all cork bulletin boards. All cork bulletin boards to be securely nailed along all edges before placing cover mould in position.

Grounds—(Paragraph to be included under "Grounds" in Carpentry Specifications.)

Set a 2-in. x $\frac{3}{4}$ -in. thick (thickness will depend on adjoining trim, etc.) wood grounds to receive Armstrong's Cork Bulletin Boards when these are called for on drawings or specified. All grounds shall be set straight and leveled for all edges and in the middle, running the long way of each bulletin board, also where two sections of the bulletin board may join.

Burlap-backed Cork Tack Boards

—Provide and install Armstrong's Burlap-backed Cork Tack Boards where indicated on the drawings or herein specified.

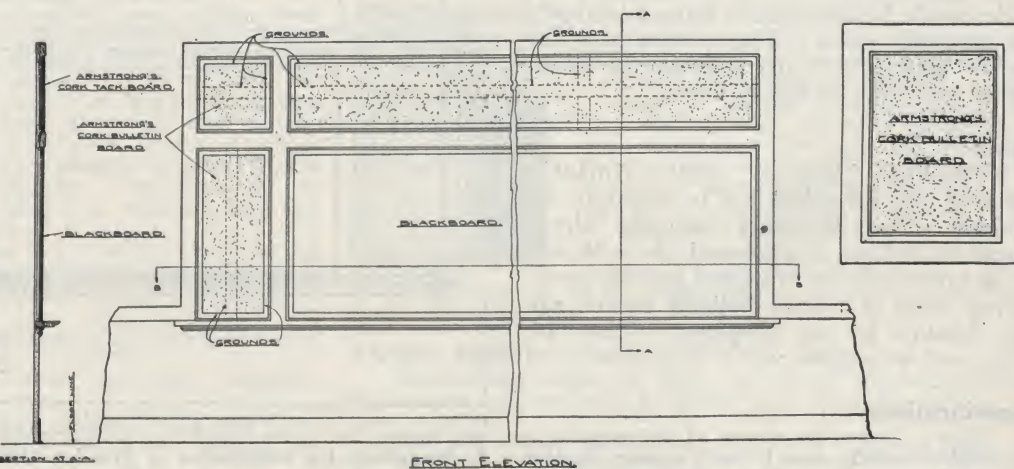
All tacking spaces shall be Armstrong's Burlap-backed Cork Tack Board material as supplied by ARMSTRONG CORK COMPANY, Lancaster, Pa. (This material to be $\frac{1}{4}$ -in. layer of cork composition reinforced with burlap.)

All tack board is to be securely cemented to a finished plaster surface with Armstrong's Waterproof Cement as supplied by the ARMSTRONG CORK COMPANY, Lancaster, Pa., or other suitable adhesive.

All frames to have same finish and material as trim and to have loose cover mould as detailed.

Plastering—(Paragraph to be inserted in plastering specifications.)

Finished plaster to be carried over all areas detailed as cork tack boards.



Method of Installing Armstrong's Cork Bulletin Board

L. MUNDET & SON, INC.

461 Eighth Avenue, NEW YORK, N. Y.

DOMESTIC FACTORIES: HILLSIDE, N. J., BROOKLYN, N. Y.

BRANCHES

ATLANTA, GA.
BOSTON, MASS.
BUFFALO, N. Y.

CHARLOTTE, N. C.
CHICAGO, ILL.
CINCINNATI, OHIO
DETROIT, MICH.

HOUSTON, TEX.
KANSAS CITY, MO.
LOS ANGELES, CAL.

MEMPHIS, TENN.
NEW ORLEANS, LA.
NEW YORK, N. Y.
PHILADELPHIA, PA.

ST. LOUIS, MO.
SAN FRANCISCO, CAL.
TULSA, OKLA.

AGENTS

CLEVELAND, OHIO, C. S. ROSS
DES MOINES, IOWA, JOHN KENNEDY
MINNEAPOLIS, MINN., INSULATION SALES CO.
PORTLAND, ORE., F. J. LEONARD

VANCOUVER, B. C., CANADA, T. M. GRINDLEY COMPANY, LTD.

PORTLAND, ORE., PACIFIC ASBESTOS & SUPPLY CO.
SALT LAKE CITY, UTAH, L. A. ROSE
SEATTLE, WASH., PACIFIC ASBESTOS & SUPPLY CO.
UTICA, N. Y., GEORGE WEISENBERGER

Product

MUNDET "JOINTITE" BULLETIN BOARDS.

For other Mundet products, including Cork Insulation and Cork Flooring Tile, see Manufacturers' Index.

MUNDET "JOINTITE" BULLETIN BOARD

Uses

Mundet "Jointite" Cork Bulletin Boards are used extensively in schools, colleges, factories, offices, hotels, club rooms and, in general, wherever a soft and durable surface must be provided for the posting of notices. They are easily penetrated by thumbtacks.

Description

Mundet "Jointite" Cork Bulletin Boards are composed of a layer of composition cork $\frac{1}{4}$ in. thick which has been securely cemented to a backing of $\frac{1}{4}$ -in. 3-ply, wood insert, compoboard. It is a neutral brown in color and makes an ideal background in its natural state.

Advantages of Mundet "Jointite" Bulletin Boards

Cork bulletin boards have several advantages peculiar to the material of which they are constructed. They are so much superior to the conventional wooden bulletin board as to render the latter obsolete. The chief reasons the cork bulletin boards are so superior to those of wood construction are:

- (1) A thumbtack can be pushed in with little effort but is held with a firm grip.
- (2) No knife or tack puller is necessary to remove thumbtacks.
- (3) Due to the resiliency of cork, holes made by thumbtacks have a tendency to gradually close. This results in a far better appearing board than one in which there are many unsightly holes.

Sizes

Mundet "Jointite" Cork Bulletin Boards are furnished cut to any size required. The standard mounted sheets measure 4x6 ft. Unmounted, the cork bulletin board can be furnished in rolls measuring 6x60 ft. Cork bulletin boards can be installed by any carpenter. They are easily cut with a saw.

Specifications

Note: Due to the nature of the material, it is usual to include same in the Carpentry Section of the General Specifications as follows:

Cork Bulletin Boards—Furnish and install Mundet "Jointite" Cork Bulletin Boards where indicated on the drawings and as specified.

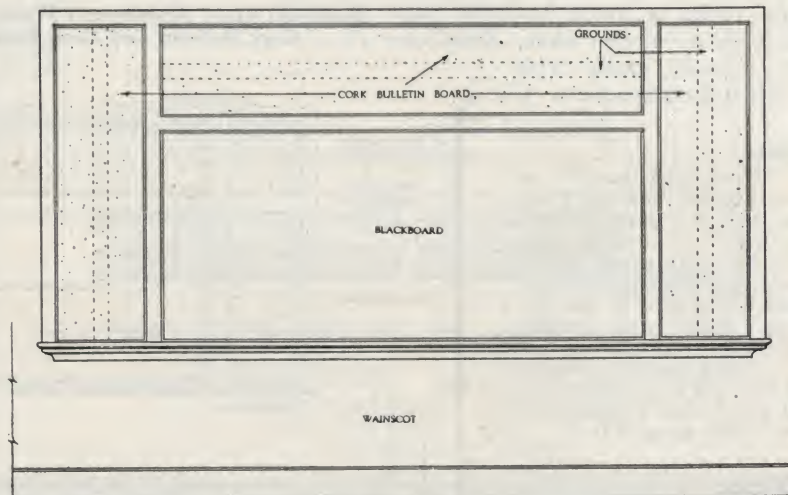
Note: Specifications should further contain a schedule of locations and sizes.

All bulletin boards shall be Mundet "Jointite" Cork Bulletin Boards as manufactured by L. MUNDET & SON, INC., New York, N. Y.

The material shall be a full $\frac{1}{2}$ in. in thickness, consisting of a $\frac{1}{4}$ -in. layer of composition cork reinforced with a burlap back, securely mounted by cementing same to a 3-ply backing of compoboard with wood core.

All frames shall match the trim and shall have loose cover mould around all cork bulletin boards. All cork bulletin boards shall be securely nailed at edges before cover mould is installed.

Grounds—Set 2-in. wide grounds, of such thicknesses as will be required to conform with that necessary for adjacent trim, to receive Mundet "Jointite" Cork Bulletin Board as called for on drawings, or in specifications. All grounds shall be set straight and level.



A Suggestion for Installation of Mundet "Jointite" Bulletin Board—Front Elevation

BECKLEY-CARDY COMPANY

Manufacturers of Blackboards, Bulletin Boards and School Equipment

17-21 East Twenty-third Street
CHICAGO, ILL.

Products

SLATEBESTOS BLACKBOARD.
SLATEROCK BLACKBOARD.
SLATOPATE BLACKBOARD.
SIMPLEX "H" BAR METAL JOINING STRIPS for BLACKBOARDS.
SIMPLEX and DUPLEX BULLETIN BOARDS and TACKBOARDS.

The Company

For almost a quarter century we have specialized in the manufacture of blackboards and school equipment for educational institutions. During this period we have built up manufacturing facilities, financial responsibility and gained experience that makes it possible to serve you with the very best of tested and guaranteed materials and to give prompt and intelligent service.

Slatebestos—the Permanent Blackboard

Quality—A new standard of excellence for blackboards.



Hard as rock, and its dark slate color permeates the entire board. Permanence and Durability—Base is a combination of asbestos fiber, hard minerals and cement which actually improves with use. Slatebestos will last as long as the building in which it is installed; is equally as durable as natural slate, more fire resistant and less subject to breakage.

Color and Writing Surface—Slatebestos is solidly built throughout its full $\frac{1}{8}$ -in. thickness. Its writing surface is produced through a series of liquid blackboard surfacing coats, which penetrate the body of the board. The method is to apply each coat and then rub it down, thus building up the incomparable, velvet-light, non-reflecting dark slate color writing surface which is ideal for rapid and legible writing.

Easy to Install—Installed on any kind of straight wall. Because it has extreme density and practically no expansion, it is very easy to put up. Joints can be made secure so that writing over them is always possible, thus forming a continuous writing surface.

Sizes and Weights—Standard widths $3\frac{1}{2}$ and 4 ft.; lengths 6, 7 and 8 ft. Thickness $\frac{1}{8}$ in. Weight approximately $2\frac{1}{4}$ lb. per sq. ft. Furnished in black.

Shipment—Carried in stock at Chicago. Immediate shipments assured.

Slatebestos Guarantee—We guarantee Slatebestos Blackboard, when properly installed and cared for according to our printed instructions, to give satisfactory service during the life of the school building.

Slaterock Blackboard—Natural Slate's Rival

Description—Consists of a core of pure gypsum rock comprised between two sheets of tough mineralized fiber boards.

It has a hard, velvety writing surface of uniform color. The surface is long wearing, does not reflect light and contains a sufficient amount of grit to insure easy, rapid and legible writing. Costs one-half as much as natural slate and weighs approximately one-third less.

Easy to Install—It is true and straight, cannot warp, crack or buckle and is not affected by atmospheric changes, can be easily installed by inexperienced labor over brick, stone, plaster or bare studding.

Durability—There is no breakage with Slaterock and it will last as long as the building.

Shipments—Stocked at Chicago. Immediate shipments assured.

Sizes and Weights—Standard widths, 3, $3\frac{1}{2}$ and 4 ft.; lengths, 1 to 8 ft. inclusive. Thickness, $\frac{3}{8}$ in. Weight, approximately $2\frac{1}{2}$ lb. per sq. ft.

Color—Can be furnished in black or green.

Slatoplate—the Perfect Blackboard

Description—Slatoplate is a wood pulp composition blackboard—less expensive than Slaterock. Made of new, pure wood fibers, hardened and toughened by special processes, kiln dried, waterproofed and surface filled.



Stiffer, harder and stronger than most common position blackboards. Writing surface is hard, close grained, uniform in color and has enough bit to cut crayon noiselessly. Makes clear, legible mark.

Slatoplate will not warp, pit, peel, crack, wear shiny, change color or lose its splendid writing surface. Cannot be easily indented and corners will not split. Writing can be easily erased.

Easy to Install—Can be easily applied over brick, stone, plaster or bare studding by inexperienced labor.

Shipments—Stocked at Chicago. Immediate shipments assured.

Sizes and Weights—Standard widths, 3, $3\frac{1}{2}$ and 4 ft.; lengths from 1 to 12 ft. Thickness, $\frac{1}{4}$ in. Weight, approximately 1 lb. per sq. ft.

Colors—Can be furnished in black or green.

Slaterock and Slatoplate Guarantee

We guarantee every sheet of Slaterock and Slatoplate blackboard to be equal in quality to any samples (since samples are cut from odds and ends of regular stock). Properly installed and cared for, they will give entire satisfaction for a period of many years. In most cases, Slaterock will last the life of the building.

Simplex "H" Bar Metal Joining Strips for Blackboards

Use—Suitable for covering the joints of Slatebestos, Slaterock and Slatoplate blackboards, thus eliminating the unsightly bump caused by half-round mouldings.

Description—The Simplex strip is made "H" shape and fits between two lengths of blackboards. The two upper wings cover the joints, lie flat against the blackboard and form a continuous level writing surface.

Lengths and Colors—Lengths 3, $3\frac{1}{2}$ and 4 ft. Finished in dull black or green to match color of blackboard.

Bulletin Boards and Tack Strips

Use—These are as essential as blackboards in the modern school, and are easily installed. Bulletin Boards and Tack Strips can be placed above the blackboard in strips and in panels at the ends; also in panels in doors and partitions.

Simplex Bulletin Boards and Tack Strips

Description—Simplex Bulletin Boards are made uniformly $\frac{1}{4}$ in. thick of pressed cork of unvarying color and resiliency, cemented to burlap backing. The cork surface holds pins or thumb tacks securely and does not show holes when tacks are removed.

Simplex Bulletin Boards will not warp, curl or buckle and when soiled can easily be cleaned with soap and water. They are easy to install by cementing to the wall or nailing along all edges before putting the tack moulding in position.

Sizes and Colors—Regularly made and carried in stock in 6, 9, 12, 14, 18, 24, 30, 36 and 48-in. widths and lengths cut to fit spaces up to 60 ft. without joint. Furnished in light brown or green color.

Duplex Bulletin Boards and Tack Strips

Description—Made in $\frac{1}{2}$ -in. thickness, consisting of $\frac{1}{4}$ -in. sheet cork cemented to special $\frac{1}{4}$ -in. wood fiber composition backing.

Sizes and Colors—Regularly made and carried in stock in 12, 18, 24, 30, 36 and 48-in. widths and in 48, 60, 72, 84 and 96-in. lengths. Boards larger than 48x96 in. furnished in sections. Furnished in light brown or green color. Samples on request.



MASTER SPECIFICATIONS FOR BLACKBOARDS

(A) CORRELATIVE SPECIFICATION DATA

Note: To insure a perfect blackboard installation, the following clauses should be incorporated in the various divisions of the specifications, as they apply.

Note: It is suggested that blackboards be included under a separate division of the specifications.

(A1) Include Under Carpentry Work

(A1a) All blackboards, except as hereinafter otherwise mentioned, will be furnished and set by others.

(A1b) The following blackboards will be furnished cut to size and crated separately by the Blackboard Contractor to be set by this contractor who shall be entirely responsible for their good condition after delivery.

Note: Here list blackboards which are to be set by the Carpentry Contractor, such as those in wardrobe or other door panels, etc.

The list and sizes (allowing $\frac{1}{4}$ in. clearance) shall be furnished by the Carpentry Contractor to the Blackboard Contractor.

(A1c) Provide accurately set grounds, in accordance with the detailed drawings, surrounding all blackboards and cork tack boards and bulletin boards. These grounds shall not only form proper nailing base for the blackboard trim, but shall provide nailing at top for blackboards and form accurate screeds for plaster surfaces back of blackboards.

(A1d) All grounds shall be S4S, grade B, select white pine free from knots, sap or other deleterious defects for (here specify thickness and number of coats of plastering).

Grounds shall be securely fastened in position every 16 in. on center, set absolutely true to line, level, plumb and in perfect surface alignment. All nails shall be slightly set.

(A1e) Plug the wall back of blackboard joints with three wooden plugs set 12 in. apart below the wood grounds.

(A1f) In locations hereinafter listed, this contractor shall provide wood blackboard grounds and frames on walls of finished brickwork. Frames shall be as detailed. Ground frames shall be of same material and construction as specified for blackboard grounds, accurately set, with vertical intermediates at each joint and midway between joints. Attach every 2 ft. on center with $\frac{1}{4}$ in. flat headed wood screws (head countersunk) secured to brickwork with "Diamond N. Y." screw anchors.

Note: Here list locations so provided.

(A1g) Grounds set directly on unfurred exterior masonry walls shall be painted with (here specify wood preservative to be used) or an approved equivalent. (Omit if walls are thoroughly dampproofed.)

(A2) Insert Under Lathing and Plastering

Note: We recommend that plastering be omitted behind all blackboards and a backing of Celotex, Masonite or similar material substituted.

(A2a) This contractor shall check all grounds for blackboards as specified under division of "Carpentry Work." Thickness of grounds shall be such that plastering back of blackboards is flush with surfaces of grounds.

(A2b) Plaster, flush with grounds, all surfaces back of blackboards. Plaster surfaces shall be in a true plane without projections beyond the face of ground work.

(A2c) Wherever blackboards are applied against unplastered masonry walls, a backing of insulation board shall be provided.

(A2d) The finish coat of plaster may be omitted back of blackboards, but the brown coat shall be floated to a true plane in perfect alignment with the grounds.

(A2e) Wherever blackboards are installed on outside walls which are not furred, the masonry back of plastering shall be given two (2) good coats of dampproof paint.

(A3) Insert Under Painting

(A3a) All blackboard trim (except inner loose tack mould) shall be completely finished before blackboards are set.

(A3b) The inner loose tack mould of blackboard trim shall be finished up to the last coat before installation. After blackboards are set and the inner mould attached, this contractor shall apply the last coat of finish.

(A3c) Great care shall be exercised by this contractor that no painter's finish, by accident or otherwise, is applied to the blackboard surfaces. Any varnish or other finish appearing on blackboard surfaces will be renewed without injuring the writing surface and the surface refinished (or new boards erected) by the Blackboard Contractor at this contractor's expense.

(B) BLACKBOARD SPECIFICATIONS

Note: The following clauses shall be included under the blackboard specification where and when they apply.

(B1) Correlated Work

The following correlated work is done under other contracts and is covered under the following specification divisions. Before the erection of blackboards, this contractor shall examine all correlated work and shall report to the architect in writing any inaccuracies or variation from the specification requirements which will in any way deleteriously affect work under his contract. Failure to so report defects, etc., if any, is construed as acceptance of the work executed and release of those responsible.

(B1a) **Carpentry Work**—(here refer to paragraphs under this heading of correlated work affecting this contract).

(B1b) **Lathing and Plastering**—(here refer to paragraphs under this heading of correlated work affecting this contract).

(B1c) **Painting**—(here refer to paragraphs under this heading of correlated work affecting this contract).

(B2) Diagrams and Cutting Schedules

This contractor shall furnish to the architect, in triplicate, for his approval the manufacturer's cutting diagrams and cutting schedules, showing disposition of joints and blackboard sizes for the various rooms; distinctly and accurately allocated.

(B3) Materials

(B3a) **Blackboards**—Blackboards shall be (Slatebestos) (Slatelock) (Slatoplate) as manufactured by Beckley-Cardy Company, 17-21 E. Twenty-third St., Chicago, Ill.

All blackboards shall have perfectly true and uniform surfaces, free from defects and from depressions or projecting particles. Joint edges shall be sharp and make 90 degree angles with top or hanging edge. The bottom edge shall be parallel with the top edge.

(B3b) **Cement**—Cement for spot cementing shall be Beckley-Cardy's "B-C" No. 4 Blackboard Cement.

Note: Omit if Slatoplate or Slatelock is specified.

(B3c) **Metal Blackboard Joints**—Blackboard joints shall be made with Simplex "H" Metal Joining Strips as manufactured by Beckley-Cardy. Finished to match color of blackboard. All joint mouldings shall be without surface defects, smooth and straight.

(B3d) **Tack Board**—All tack strips and bulletin boards shall be Beckley-Cardy Co.'s (Simplex Bulletin Boards and Tack Strips) or (Duplex Bulletin Boards and Tack Strips). Sizes as called for on schedules.

(B4) Sizes and Lengths

(B4a) **Widths**—All blackboard widths (height from chalk rail to top) shall be as designated on the detail drawings and schedules.

(B4b) **Lengths**—(for Slatebestos or Slatelock). All sections up to 6, 7 or 8 ft. shall be in one piece. All sections over 8 ft. and up to 16 ft. shall be in two pieces. Longer sections shall be in multiples of 6, 7 or 8 ft. or fractions thereof, but arranged with joints symmetrically spaced and with no piece for filling out less than 3 ft. in its horizontal dimension.

(B4c) **Lengths**—(for Slatoplate). All sections up to 12 ft. shall be in one piece. All sections over 12 ft. and up to 24 ft. shall be in two pieces. Longer pieces shall be in multiples of 12 ft. or fractions thereof, but arranged with joints symmetrically placed and with no piece for filling out less than 3 ft. in its horizontal dimension.

(B5) Storing

All blackboard material shall be properly stored at the building site in such manner as to adequately protect it from moisture or other damage.

(B6) Uncrating

(B6a) All material which is to be set by the Carpentry Contractor shall be shipped in separate crates and delivered to him crated as received from the manufacturer.

(B6b) All material to be erected by this contractor shall be uncrated in accordance with manufacturer's directions.

(B7) Distributing Sections

Distribute the material to the rooms and to the locations in each room in their order as indicated on the crates and sections to conform with the cutting diagrams and sections.

(B8) Sizing

On outside walls, not furred and not dampproofed back of plaster, thoroughly size the plaster surface back of blackboards with glue sizing.

Note: Include wherever dampness is apparent or possible sizing is advisable, otherwise the special spotting cement may be affected.

(B9) Setting

(B9a) The setting, leveling and cutting of blackboard installations shall be in accordance with the manufacturer's recommendations and standard specifications.

(B9b) Blackboards shall not be set until the plaster is completely dry and the final coat of finish has been applied and has dried on the wood blackboard trim (except loose tack mould).

(B9c) All blackboards shall be set by experienced mechanics so that all edges shall be adequately covered by the loose tack mould. The writing surfaces shall be plumb and in a true plane with $\frac{1}{8}$ in. clearance at top and $\frac{3}{8}$ in. clearance at bottom and ends.

(B9d) All blackboards shall be hung from top edge only, securely nailed to top ground with 4d nails.

Wire nails placed $\frac{3}{8}$ in. from edge and not over 18 in. on center, driven through drilled holes in board. Boards showing splits at nailing points below the finishing tack mould will be rejected and must be replaced at this contractor's expense.

(B9e) Slatebestos shall be nailed at top edge only. The balance of Slatebestos Blackboard Surface shall be secured to wall in the following manner: Cement back of blackboard in strips 3 in. wide the entire width (or up and down of the board) and spaced 18 in. apart. Between the cement strips place cement on blackboard in two rows of round spots about 3 in. in diameter and at a distance of 15 in. from top and bottom edges. Sufficient cement shall be used at the joints to firmly bed for a space of 1 in. on each side. Cement must not get into joints or on the surface.

(B9f) The boards shall be firmly pressed in position over the cement and leveled plumb and true. Sufficient pressure

shall be applied to assure thorough adhesion without springiness for the entire surface. After boards have been cemented into position, all tack moulding shall be immediately set in place and securely bradded.

(B9g) (Slatelock) or (Slatoplate) shall be nailed at top edge only, nails to be not over 18 in. apart and spaced according to location of studding or grounds. Then secure Slatelock or Slatoplate in position with tack moulding on all sides.

(B9h) All tack mould shall be carefully and accurately bradded in position by this contractor with firm, continuous contact at all edges and with brads neatly set for putting.

(B10) Joints

(B10a) Metal Joint Moulding—All joints shall be made with Simplex "H" Bar Metal Joining Strips. The joining strips shall be made the full width of the blackboard extending back of the tack mouldings which shall be neatly notched over them at top and bottom.

After plugs (provided by others) are in place and the blackboards ready to set up, attach the joining strip to one end of the blackboard and then nail through the wing of the strip into the plugs. Place the next section of board into the groove of the strip and level and plumb the board. Continue the operation until all joining strips are in place. Allow $\frac{1}{8}$ in. space at each joint when installing joining strips. Joining strips with surface imperfections or which are warped out of line shall not be used.

(B11) Tack and Bulletin Boards

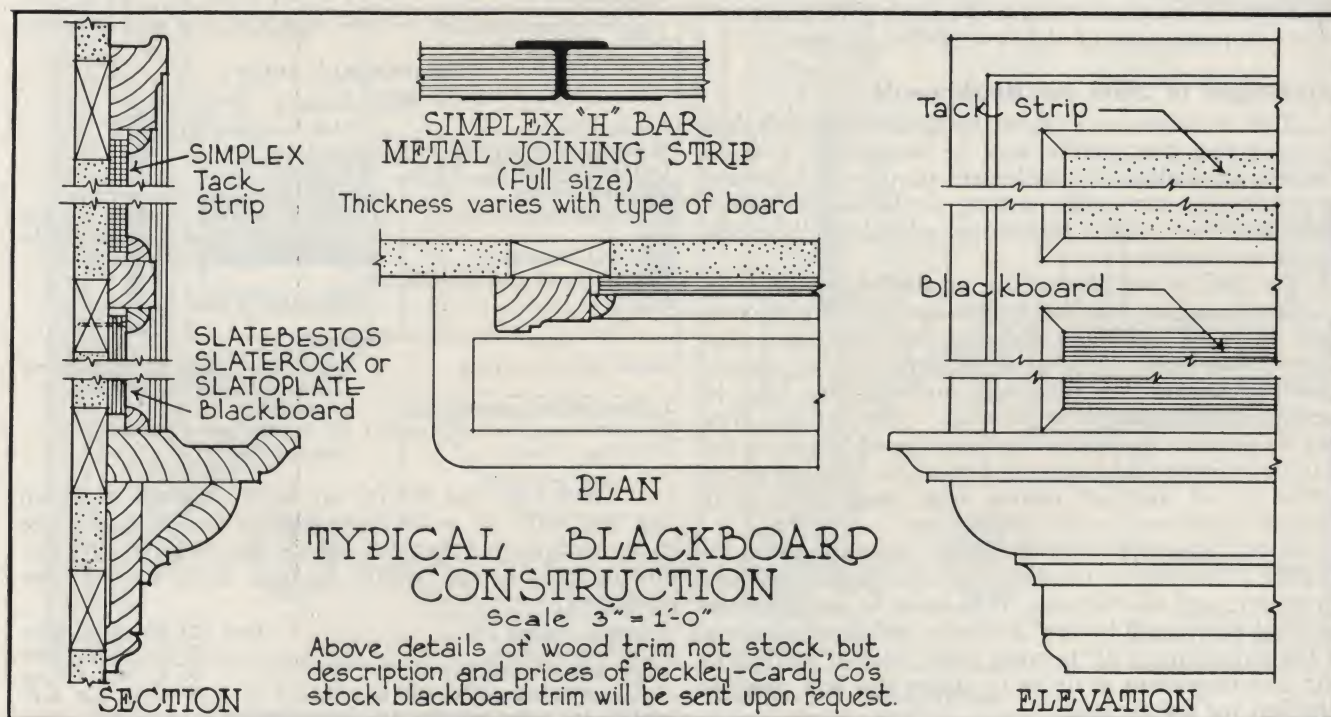
Set all cork tack and bulletin boards in accordance with manufacturer's directions. Where joints are required, same to be spaced symmetrically to correspond with blackboard joints and shall be covered with a thin strip of wood to match trim. Apply tack mouldings surrounding tack and bulletin boards as specified above for blackboards.

(B12) Final Cleaning

After the painter has applied the final coat of finish to the tack mould, this contractor shall do the final cleaning of all blackboard surfaces, charging the reasonable cost thereof to those responsible for any damage. All varnish spots or streaks shall be removed with steel wool; apply Beckley-Cardy Blackboard Surface, rubbed down with fine pumice and water, blending the spots with the rest of the board surface.

(B13) Direction Plate

Fasten permanently in each room, the metal plate; furnished by the blackboard manufacturer, bearing directions for breaking in and taking care of blackboard surface. Location as directed by architect.



NATURAL SLATE BLACKBOARD COMPANY

PEN ARGYL, PA.

MILLS AT SLATINGTON, WIND GAP, PEN ARGYL AND BANGOR

BRANCH OFFICES

ATLANTA, GA., 509 Walton Building
BUFFALO, N. Y., 1111 Walbridge Building
CHICAGO, ILL., 140 So. Dearborn Street
CINCINNATI, OHIO, 622 Broadway
CLEVELAND, OHIO, 1836 Euclid Avenue

KANSAS CITY, MO., 519 Manufacturers Exchange Building
MINNEAPOLIS, MINN., 538 Builders Exchange Building
NEW YORK, N. Y., Room 701, 110 East 42nd Street

PHILADELPHIA, PA., 1006 Fox Building
PITTSBURGH, PA., 1002 Union Bank Building
ST. LOUIS, MO., 721 Olive Street
WACO, TEX., 108½ South Sixth Street
WASHINGTON, D. C., 620 Bond Building

REPRESENTATIVES

BOSTON, MASS., NEW ENGLAND SLATE BLACKBOARD CO., 716 Columbus Avenue
MEMPHIS, TENN., MILLER-COCHRAN CO., 246 Court Avenue

DETROIT, MICH., MICHIGAN SLATE BLACKBOARD CO., Penobscot Building
TAMPA, FLA., COOKE & COMPANY, 508 Cleveland Street

AGENCIES IN ALL PRINCIPAL CITIES

Product

NATURAL SLATE BLACKBOARDS.

Service and Organization

Foremost in the minds of the various producers of slate who form the NATURAL SLATE BLACKBOARD COMPANY, is the necessity of giving the consumer all of the information which will enable him to advantageously use the material.

In order to assure to architects, constructors and owners the best available data, the NATURAL SLATE BLACKBOARD COMPANY has had the Structural Service Bureau of Philadelphia conduct extensive investigations into the production and utilization of natural slate for blackboards. The information thus obtained has been put into available form for use in laying out the blackboards and also for specifying the same in varying forms of construction.

Certain of this informative data is published in these pages, which also contain the specifications finally adopted. Detailed drawings on the following page show typical standardized methods of application.

In the pages of the Structural Slate Company within this issue of SWEET'S ARCHITECTURAL CATALOGUE will be found reference to a series of publications which contain much information of value concerning the characteristics and production of slate for structural uses.

Advantages of Slate for Blackboards

The structure and characteristics of natural slate are such that the surface may be brought to a finish which is unexcelled for blackboard purposes. It results in a smooth, even, dark writing surface upon which chalk marks are clearly legible and which may be easily erased or cleaned.

As slate is not affected by atmospheric changes in the classroom, its true, velvetlike surface remains constant under all conditions and does not wear out or require replacement. The first and only cost in natural slate blackboards is in furnishing and installing them at the time the building is constructed. In order that they may be properly erected it has been the endeavor of the NATURAL SLATE BLACKBOARD COMPANY to place at the service of all users of natural slate blackboards their years of experience in this installation.

The "Pyramid" brand, which name is given to all slate furnished by the NATURAL SLATE BLACKBOARD COMPANY, was adopted as a trade-mark to designate the material distributed by this company, and as a guarantee of the enforcement of the most rigid rules of workmanship and inspection in order to assure the best possible selection for the purpose.



Heights, Widths, and Areas Required

The ages of the pupils in the various grades should determine the height at which blackboards are to be placed above the floor. In a district school where children of all grades may be in a single room, the board is usually placed at an average height of 2 ft. 4 in. from the floor to the

chalk rail. In some cases the board behind the teacher's desk is set higher than the others as it may be used entirely for illustration work.

Nearly all states and the larger cities have adopted requirements governing the height of chalk rails and the area, height and width of blackboards. The tables and data here presented represent standard requirements compiled from the sources noted.

STANDARD HEIGHTS OF CHALK RAILS AND BLACKBOARDS

Grade	Height of chalk trough		Height of blackboard		Top of board above floor	
	New York ft.	Boston in.	New York ft.	Boston in.	New York ft.	Boston in.
Kindergarten	2	0	2	2	4	0
1st, 2d, 3d...	2	0	2	2	4	0
4th.....	2	6	2'4"	2'6"	6	0
5th, 6th.....	2	6	2	8	6	0
7th.....	3	0	2	8	6	0
8th.....	3	0	2	8	6	0
High schools	3	0	2	8	6	0

For colleges it is usual to set the board 3 ft. above the floor and use a 4-ft. width.

BLACKBOARD AREAS

High Schools

Lecture rooms.....Not less than 50 sq. ft.
Manual training room.....15x4 ft.
Drafting rooms.....15x4 ft.
Cooking rooms.....10x4 ft.
Chemical laboratory.....Board parallel to desk section and back of demonstration table.
Physical laboratory.....As much board as possible.
Botanical and zoological laboratory.....50 sq. ft. of board.

Colleges

Small lecture rooms.....Blackboard back of instructor's desk and full on one side.
Laboratories generally.....15 to 20 lin. ft.
Lecture room for mathematics.....All board space possible.
Drafting rooms.....About 15 lin. ft.

"Not less than 80 ft." of blackboard are required for the walls of each classroom by the Pennsylvania State Board of Education, which also requires the following heights and widths as best suited to the uses indicated:

Primary rooms.....21 in. above floor
Elementary rooms.....25 in. above floor
High school rooms.....30 in. above floor
Boards should be not less than 3 ft. 6 in. wide, but 4-ft. widths are more suitable for accommodating all grades.

ARCHITECT'S SPECIFICATIONS FOR BLACKBOARDS OF NATURAL SLATE

The following notes and specification paragraphs (1) to (11) have been prepared by the Structural Service Bureau of Philadelphia in collaboration with the NATURAL SLATE BLACKBOARD COMPANY and embrace the essentials of Simplified Practice Recommendations No. 15, on Blackboard Slate, of the United States Department of Commerce.

Notes: A complete specification for the furnishing and setting of blackboards affects the work of several different trades. In connection with this specification the specification for carpentry and millwork should call attention to requirements in regard to the grounds, trim, etc., to be furnished and set, and the kind of wood should be specified. It should be noted whether or not switches, thermostats, etc., are to be placed in trims of openings; and these trims designed accordingly. The location of switches, thermostats, etc., should be also specified under electrical work, heating work, etc.

Under masonry the setting of blocks or plugs to be built into the walls should be provided for. Under plastering it should be noted whether or not the walls back of the boards are to be plastered and under painting the finishing of the exposed frame and trim should be provided for.

(1) The general contractor shall furnish and arrange for the complete installation of Natural Slate Blackboards in every classroom (in the Manual Training room, the Domestic Science room, in all Laboratories and in the Assembly Hall) and in all other portions of the building where so shown or noted on the drawings.

(2) On all walls where blackboards occur they shall run full to corners and trim of openings. The heights of the slate to be as follows (state heights and whether single height or "double-tier").

(3) Where wardrobes occur in classrooms, place slate blackboards in each door, as follows (describe recessed panels, etc.).

(4) The slate shall be the finest quality selected blackboard stock, even in color, free from veinings or imperfections and not less than $\frac{1}{4}$ or more than $\frac{3}{8}$ in. thick. A maximum deviation of $\frac{1}{8}$ in. from this thickness will be permitted when an average thickness of at least $\frac{1}{4}$ in. is maintained. Each piece of slate shall be guaranteed to be Pyramid brand and shall

be surfaced in accordance with the NATURAL SLATE BLACKBOARD COMPANY'S standards.

(5) Slate shall be furnished with joints ground straight, true and neatly fitted. Spaces up to 5 ft. shall be in one slab; over 5 ft. but not exceeding 9 ft., in two slabs; over 9 ft. but not exceeding 13 ft. 6 in., in three slabs; over 13 ft. 6 in. but not exceeding 18 ft., in four slabs; over 18 ft. but not exceeding 22 ft. 6 in., in five slabs; over 22 ft. 6 in. but not exceeding 27 ft., in six slabs.

(6) The carpenter-contractor will furnish and set all grounds and will set all blackboards complete, with trim. All trim will be furnished by the millman. The complete installation shall be in accordance with the details and with the printed directions of the NATURAL SLATE BLACKBOARD COMPANY, consistent herewith.

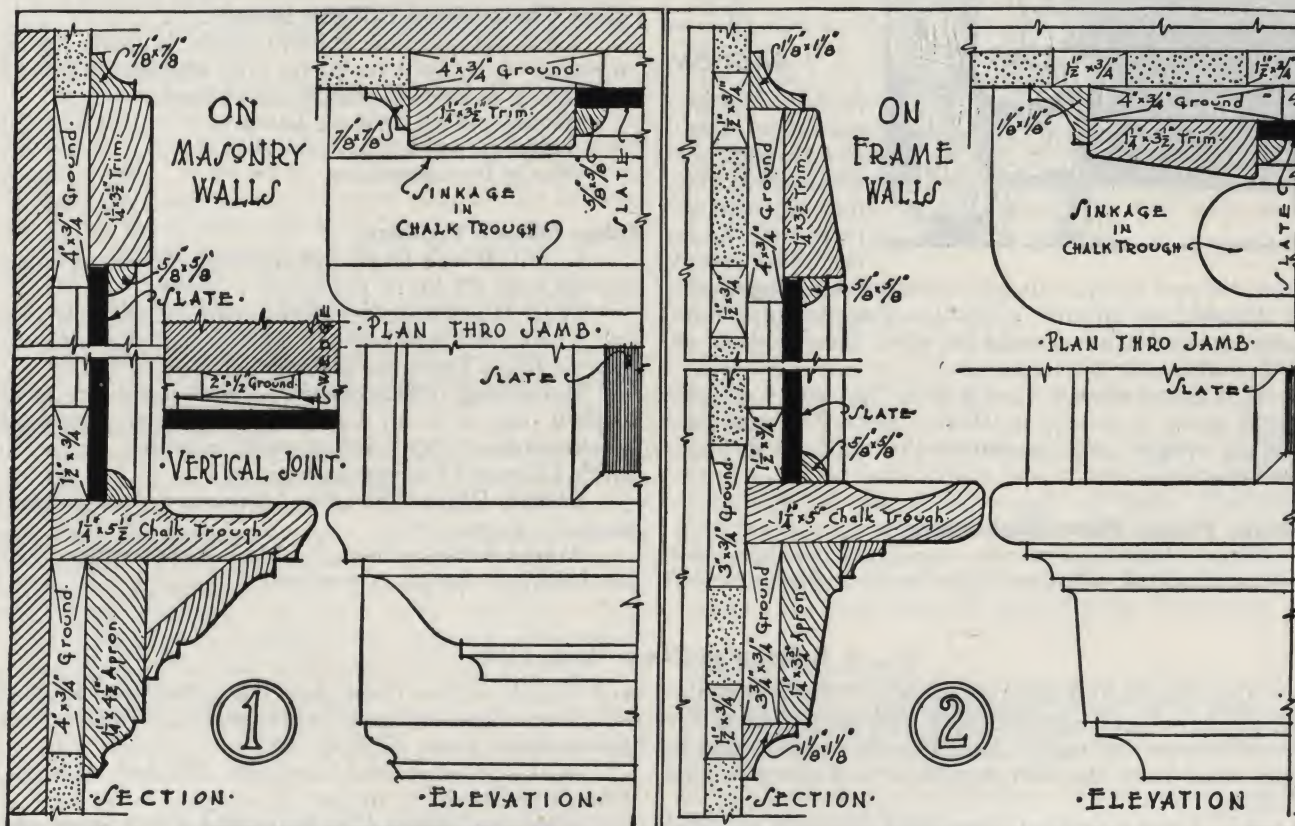
(7) Fasten securely to the walls, kiln-dried white pine "ground" strips $4 \times \frac{3}{4}$ in. at top, bottom and ends of all spaces to be occupied by blackboards (and intermediate strip near top if double-tiered). Back of all joints in slate securely place $2 \times \frac{1}{2}$ -in. white pine strips and, when blackboards are being set, tap wood wedges behind slate and glue and sprig the wedges to these uprights.

(8) To the "ground" strips, above mentioned, securely set $1 \frac{1}{4} \times 3 \frac{1}{2}$ -in. trim, slightly rounded at edges.

(9) At bottoms of blackboards place $5 \frac{1}{2} \times 1 \frac{1}{4}$ -in. countersunk chalk troughs carefully leveled extending under blackboards to face of wall (or studs) and securely nailed to "ground" strips and to $4 \frac{1}{2}$ -in. moulded aprons. Chalk trough shall be (moulded or rounded) on all exposed edges and returned at ends (or left open for cleaning), as detailed.

(10) As the blackboards are set, a $\frac{5}{8} \times \frac{5}{8}$ -in. quarter-round shall be well secured to surrounding trims and chalk trough, firmly holding slate in place. Any free standing end trims and all tops shall be back-banded with $\frac{7}{8}$ -in. coved scotia mould ($1 \frac{1}{4}$ in. if on frame walls).

(11) The joints between slate shall, after being wedged as before specified, be made tight with special glue or jointing compound, which shall be furnished with the slate, and after completion of setting, joints shall be shaved and scraped to have the appearance of a smooth plane with adjoining surfaces. All slate blackboards shall be left sound, clean-black, ready for use and in every way a complete and satisfactory installation.



Two Typical Details of Blackboard Installations

(1) Detail of installation on masonry walls, (2) detail of installation on frame walls. Scale as printed 3 in. equals 1 ft.

NEW YORK SILICATE BOOK SLATE CO.

TELEPHONE CONNECTION

 20-24 Vesey Street
 NEW YORK, N. Y.

 FACTORY
 HOBOKEN, N. J.

ANTISEPTIC GLASS AND SILICATE COMPOSITION BLACKBOARDS—CORK COMPOSITION BULLETIN BOARDS

Seloc Antiseptic Glass Blackboards

We have recently developed a glass blackboard which combines all of the virtues of the best natural slate with none of its defects. The board is a deep black and we guarantee it will not fade nor wear smooth. It has a velvety surface, free from all imperfections.

It is made under United States patent and consists of black plate glass with a suspended abrasive uniformly dispersed throughout the glass while

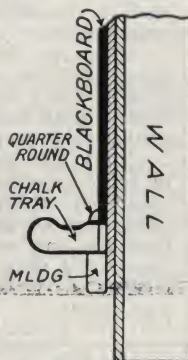
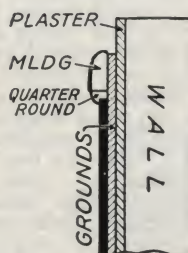


wears, the new surface always contains the same amount of abrasive as did the original. Experimental tests equivalent to 100 years wear have left the sample in as good condition as when new.

It is being offered in widths 3, 3½, and 4 ft. and lengths up to 8 ft. ⅝-in. thick. Price 75¢ a sq. ft., shipping weight and installation the same as for natural slate.

Silicate Veneer Plate Blackboards

These blackboards are composed of the best grades of wood pulp, the four veneers firmly united



SECTION

molten. The dispersion of abrasive through the glass means that, over a period of many years, as the blackboard

under great pressure. The marking surface is Silicate Black Diamond Slating. They can be put on any wall.

Blackboards come in sizes 3, 3½ and 4 ft. wide up to 12 ft. long, at 20¢ a sq. ft. for black, and 22¢ for green.

Write for discounts.

Specifications—Architects should specify Silicate Veneer Plate Blackboard made by the NEW YORK SILICATE BOOK SLATE CO.



Four-ply, ¼-in. Thick Silicate Veneer Plate Blackboard, Surfaced One Side

Cork Composition Bulletin Board

Cork composition bulletin board is made by cementing ¼-in. cork on ¼-in. pulp board.

Stock sizes cork composition board:

Widths: 12, 18, 24, 36, 42 and 48 in.

Lengths: 4, 5, 6, 7, 8, 9, 10 and 12 ft.

Write for quotations.

Other Silicate Products

Liquid Black Diamond Slating—Covering capacity, one coat, 25 sq. ft. per ½ pt. of liquid.

Wall Blackboards—Ready made. Sizes 1½x2 to 4x8 ft., finished both sides. Oak frames. Marking surface of Black Diamond Slating.

Revolving Blackboards—Firm stand of nicely finished oak, to fit all sizes of boards in regular stock. Blackboards of 6-ply silicate with marking surface of Black Diamond Slating, both sides.

Slated Cloth—Flexible blackboard for lecturers, teachers, stores, etc.

Marks finely, erases quickly. Rolls tightly, without injury to design or surface.

References Cover Wide Field

The Boards of Education of New York and Philadelphia have been supplied with Silicate products for over 40 years, and eighty-three Boards of Education in other cities have also been supplied for various lengths of time.

The United States Government has been supplied for over 40 years.

Many schools in Havana, Cuba, and Porto Rico,

and Manila in the Philippines have also been supplied. Bainbridge, Kimpton & Haupt, Inc., 218 Greenwich Street, New York, N. Y.

A. L. Salomon and Company, 546-548 Broadway, New York, N. Y.

American News Co., Inc., 9-15 Park Place, New York, N. Y.

Goods have been shipped to all parts of the world.

E. W. A. ROWLES CO.

Manufacturers of Blackboards

2345-2351 South LaSalle Street, CHICAGO, ILL.

Products

(A) **ENDURAROC BLACKBOARD SYNTHETIC SLATE**—Composed of asbestos fibre, cement and carborundum.

(B) **PERMAROC BLACKBOARD**—Body, gypsum rock and mineralized fibre boards; surface, heavy troweled-on slate surface.

(C) **DUROPLATE**—Body, pure wood fibre board, thoroughly waterproofed; surface, troweled-on slate surface.

(D) **ROWLES TACK BOARD**—High grade brown sheet cork securely cemented to wood fibre base.

For our page on Window Shades, see Manufacturers' Index.

Experience

The E. W. A. ROWLES Co., one of the largest manufacturers of blackboards in the United States, has been continuously in business under the same management for thirty-four years. The unqualified guarantees covering the company's products are backed by an established financial integrity.

Facilities

Our factory, a model of efficiency, devotes approximately 30,000 sq. ft. of space to the manufacture of blackboards. Plant capacity is from 5000 to 8000 sq. ft. of finished blackboard per day. All blackboards are manufactured under rigidly supervised, controlled processes. Uniformity of quality is positively guaranteed.

Cost Comparison

The comparative light weight, affecting handling and shipping costs, ease of erection by the average good mechanic (not an experienced, high priced blackboard setter), effect worthwhile economies. The following comparative costs of blackboards installed are affected somewhat by location and local labor conditions:

(1) **Enduraroc**—From 60 to 70 per cent of the cost of natural slate. Weight 3 lb. per sq. ft. crated.

(2) **Permaroc**—From 50 to 60 per cent of the cost of natural slate. Weight 2½ lb. per sq. ft. crated.

(3) **Duroplate**—From 35 to 40 per cent of the cost of natural slate. Weight 1 lb. per sq. ft. crated.

Enduraroc Blackboard

Enduraroc is a synthetic slate blackboard composed of asbestos fibre, finely ground slate, black mineral pigment, portland cement and carborundum, combined by our own distinctive process. The sheets are pressed into dense homogeneous slate colored panels under hydraulic pressure of 3000 lb. per sq. in. Enduraroc is black clear through. It has a wiry resiliency which resists breakage in handling and shipping. Its tensile strength, hardness and toughness increase with age. It is harder than natural slate and weighs only half as much. Surface is smooth and of uniform color, free of such defects as webs, metallic veins, streaks, hard and soft spots, etc.

Sizes—Enduraroc is carried in stock 3½ and 4 ft. wide in 5, 6, 7, and 8-ft. lengths. Finished thickness is full ¼ in.

Color—Black.

LOCAL REPRESENTATIVE

Permaroc Blackboard

Composition—Base or body is composed of gypsum rock, carefully ground and treated, pressed into uniform sheets between two layers of mineralized fibre board.

Permaroc is fireproof, moistureproof and guaranteed not to warp, contract or expand. It is readily cut to a clean, sharp edge with ordinary tools. The thick writing surface is applied over one surface of the body and consists of ground slate (slate flour), color carborundum, and other pigments. It is applied by trowel and ground down to a uniform slate finish free from defects.

Sizes—Permaroc is carried in stock 3, 3½ and 4 ft. wide in any length in even feet up to and including 8 ft. Finished thickness is full ¾ in.

Color—Black.

Duroplate

Composition—Base or body is composed of specially selected, long, wiry spruce fibres combined to prevent warpage. Each panel is scientifically kiln cured, waterproofed and surface filled under an exclusive original process. Duroplate is a fire retardant, permanently moistureproof and guaranteed, when properly installed, not to warp. It is readily cut to a clean, sharp edge with ordinary carpenters' tools. Writing surface, as previously described, is applied over one surface of the body and is identical with the surface of Permaroc, except that there are fewer coats or layers applied and writing surface is correspondingly thinner.

Sizes—Duroplate is carried in stock 3½ and 4 ft. wide in 6, 7, 8, 10 and 12-ft. lengths. Finished thickness is full ¼ in.

Colors—Blue-black and dark green.

Special Duroplate Clincher—Duroplate is held firmly and permanently against the wall with special metal clinchers (an exclusive feature).

Rowles Metal Joint

While Enduraroc and Permaroc blackboards may be erected with close blackboard cement joints, we advocate the use of Rowles Metal Joints for all blackboards. The zinc metal joint is accurately true, projecting but ⅛ in. above the board surface. It is finished in dull black, is inconspicuous and provides a permanent, practical joint cover and reinforcement with the advantage of ease and economy of labor. Due to the long lengths of boards the minimum number of joints are required.

Duroplate is always erected with Rowles Metal Joints (see illustration on second page following).

Rowles Tack Board

Composition—¼-in. thick brown cork cemented to a ¼-in. wood fibre base. Tack holes close on removal of tracks.

Size—Rowles Tack Board is carried in stock 12, 18, 24, 36, 42 and 48 in. wide in 48, 60, 72, 84 and 96-in. lengths, full ½ in. thick.

Adaptability—In all grade schools above and at the sides of all blackboards for the display of photos, charts, drawings and exhibits of all kinds.

In high schools, a sufficient number of 2 to 3-ft. wide bulletin boards in alignment with the blackboards for ample display in each classroom.

MASTER SPECIFICATIONS

(A) Preliminary Specification Requirements

Note: To assist in providing a perfect blackboard installation the following clauses should be included under specifications divisions where and when they apply.

Note: It is suggested that blackboards be included under a separate specification division.

(A1) Include Under Carpentry Work

(A1a) All blackboards, except as hereinafter otherwise mentioned, will be furnished and set by others.

(A1b) The following blackboards will be furnished cut to size and crated separately by the Blackboard Contractor to be set by this Contractor who shall be entirely responsible for their good condition after delivery.

Note: Here list blackboards which are to be set by the carpentry contractor such as those in wardrobe or other door panels, etc.

The list and sizes (allowing 1/4-in. clearance) shall be furnished by the Carpentry Contractor to the Blackboard Contractor.

(A1c) Provide accurately set grounds, in accordance with the detailed drawings, surrounding all blackboards and cork tack boards and bulletin boards. These grounds shall not only form proper nailing base for the blackboards, but shall provide nailing at the top (and bottom for Duroplate) for blackboards and form accurate screeds for plaster surfaces back of blackboards.

(A1d) In addition to grounds above provide horizontal grounds the full length of the blackboard space to receive Duroplate Clinchers. For boards 3 ft. wide provide 2 rows of horizontal grounds; for boards 3 1/2 and 4 ft. wide provide 3 rows of horizontal grounds.

Note: Omit if Endurac or Permaroc blackboards are specified.

(A1e) All grounds shall be sound S4S material free from knots, sap or other defects for (here specify thickness and number of coats for plastering).

Grounds shall be substantially secured in position every 16 in.

on centers, set absolutely true to line, level, plumb and in perfect surface alignment. All nails shall be slightly set.

(A2) Include Under Lathing and Plastering

(A2a) This contractor shall check all grounds for blackboards as specified in paragraphs pages under division of "Carpentry Work." Thickness of grounds shall be such that plastering back of blackboards is flush with ground surfaces.

(A2b) Plaster all spaces back of blackboards flush with grounds. Surfaces shall be in a true plane without projections beyond the face of ground work.

(A2c) The finished coat of plaster may be omitted back of blackboards, but the brown coat shall be floated to a true plane in perfect alignment with the grounds.

(A2d) Wherever blackboards are installed on outside walls which are not furred, the masonry back of plastering shall be given two good coats of dampproof paint.

(A3) Include Under Painting

(A3a) All blackboard trim (except inner loose tack mould) shall be completely finished before blackboards are set.

(A3b) The inner loose tack mould of blackboard trim shall be finished up to the last coat before installation. After blackboards are set and the inner mould attached, this contractor shall apply the last coat of finish.

(A3c) Great care shall be exercised by this contractor that no painters finish, by accident or otherwise, is applied to the blackboard surfaces. Any varnish or other finish appearing on blackboard surfaces will be removed and the surface refinished (or new boards erected) by the Blackboard Contractor at this contractor's expense.

(B) Blackboard Specification

Note: The following clauses shall be included under the blackboard specification where and when they apply.

(B1) Preliminary Work

(B1a) General—The following preliminary work is done under other contracts and is covered under the following specification divisions. Before the erection of blackboards, this contractor shall examine all preliminary work and shall report to the architect in writing any inaccuracies or variation from the specification requirements which will in any way deleteriously affect work under this contract. Failure to so report defects, etc., if any, is construed as acceptance of the work as executed and release of those responsible.

(B1b) Carpentry Work—(Here refer to paragraphs under this heading of preliminary work affecting this contract).

(B1c) Lathing and Plastering—(Here refer to paragraphs under this heading of preliminary work affecting this contract).

(B1d) Painting—(Here refer to paragraphs under this heading of preliminary work affecting this contract).

(B2) Diagrams and Cutting Schedules

(B2a) This contractor shall furnish to the architect, in triplicate, for his approval, cutting diagrams and cutting schedules showing disposition of joints and blackboard and tack or bulletin board sizes for the various rooms distinctly and accurately allocated.

(B2b) All blackboard shall be accurately cut by the manufacturer at the factory to sizes conforming with the diagrams and cutting schedules.

Note: The E. W. A. ROWLES Co. will cut all blackboards to special size at the factory. A small cutting charge is made covering the extra cost entailed. All waste in cutting is charged to the customer at the regular price. Waste is reduced to the minimum by cutting from the nearest standard length to the dimension required.

(B3) Materials

(B3a) Blackboards—Blackboards shall be [Endurac] [Permaroc] [Duroplate] as manufactured by E. W. A. ROWLES Co., 2345 South LaSalle Street, Chicago, Illinois, or equivalent meeting fully this manufacturer's standards of quality as described in detail in their catalogue contained in the twenty-fifth edition of SWEET'S ARCHITECTURAL CATALOGUES.

All blackboards shall have surfaces perfectly true and smooth, free of defects and from depressions or projecting particles. Joint edges shall be sharp and make angles of 90 degrees with top or hanging edge. The bottom edge shall be parallel with the top edge.

(B3b) Cement—Cement for spot cementing shall be Rowles Blackboard cement.

Note: Omit if Duroplate is specified.

(B3c) Metal Clinchers—Metal clinchers shall be as manufactured by E. W. A. ROWLES Co.

Note: Omit if Endurac or Permaroc are specified.

(B3d) Metal Blackboard Joints—Blackboard joints shall be made with Rowles Zinc Metal Joints, dull black finish. All joint mouldings shall be without surface defects, smooth and straight.

Note: Omit if butted cement joint is specified for Endurac or Permaroc. Always include with Duroplate.

(B3e) Tack Board—All tack and bulletin boards shall be Rowles Cork Tack Boards.

(B4) Sizes and Lengths

(B4a) Widths—All blackboard widths (height from chalk rail to top) shall be as designated on the detail drawings and schedules.

(B4b) Lengths—All sections up to 6, 7 or 8 ft. shall be in one piece; all sections over 8 ft. and up to 16 ft. shall be in two pieces; longer sections shall be in multiples of 6, 7 or 8 or fractions thereof, but arranged with joints symmetrically spaced and with no piece for filling out less than 3 ft. in its horizontal dimension.

(B5) Storing

All blackboard material shall be properly stored at the building site in such manner as to adequately protect it from damage.

(B6) Uncrating and Distributing

(B6a) All material which is to be set by the Carpentry Contractor shall be shipped in separate crates and delivered to him crated as received from the manufacturer.

(B6b) All material to be erected by this contractor shall be uncrated in accordance with the manufacturer's directions. Distribute the material to the rooms and to the spaces in each room in their order, as indicated on the crates and sections to conform with the cutting diagrams and schedules.

(B7) Sizing

On outside walls, not furred and not dampproofed back of plaster, thoroughly size the plaster surface back of blackboards with glue sizing.

Note: Wherever dampness is apparent or possible, sizing is advisable—otherwise the spotting cement may be affected.

(B8) Setting Blackboards

(B8a) The setting, leveling and cutting of blackboard installations shall be in accordance with the manufacturer's recommendations and their standard specifications.

(B8b) No blackboard shall be set until the final coat of finish has been applied and has dried on the blackboard woodwork trim (except loose tack mould).

(B8c) All blackboards shall be set so that all edges shall be adequately covered by the loose tack mould. The writing surfaces shall be plumb and in a true plane with $\frac{1}{4}$ -in. clearance on all sides.

Note: Clearance is necessary to allow for swelling of wood trim.

(B8d) Where nailing is required to secure or hang the blackboard sections use 4d wire nails placed approximately $\frac{3}{8}$ in. from the edge and not over 18 in. on centers driven through drilled holes in board. Boards showing splits at nailing points below the finishing tack mould will be rejected and must be replaced at this contractor's expense.

(B8e) [Enduraroc] [Permaroc] shall be hung on nails from the top edge only. The balance of the blackboard surface shall be secured to the wall with three horizontal rows of spot-cement with continuous strips of cement at all joints. Spot-cement shall be applied to the plaster in globules about half the size of an egg. The top and bottom rows shall be from 10 to 12 in. from the board edge and from 12 to 16 in. on centers horizontally. The spots of the middle horizontal row shall stagger centrally between the spots of the top and bottom rows. Sufficient cement shall be used at the joints to firmly bed these for a space of 1 in. on each side. The boards shall be firmly pressed in position over the cement and leveled plumb and true. Sufficient pressure shall be maintained for a period of from 5 to 7 days to assure thorough adhesion without springiness for the entire surface. Pressure shall be accomplished by wood cleats secured at top and bottom with wedges beneath, spaced in accordance with the manufacturer's directions, or otherwise as may be approved by him.

Note: Omit if Duroplate is specified.

(B8f) Duroplate shall be set as follows: Place horizontal rows of Rowles Duroplate Clinchers secured to each horizontal wood ground from 12 to 16 in. on centers (two rows are required on boards 3 ft. wide; three rows are required on boards 3½ and 4 ft. wide). First nail the blackboard at top edge allowing $\frac{1}{4}$ -in. clearance at trim. After the panel has been securely nailed along the upper edge, clinch each fastener by holding a padded block against the surface of the board and drive back

with a hammer. Allow $\frac{1}{4}$ -in. clearance at bottom trim. (Do not nail lower edge.) If more than one panel is required to fill the space, insert the metal joint before nailing the second panel in place.

Note: See A1d for clincher grounds.

Note: See B9a for metal joint.

Note: Omit if Enduraroc or Permaroc are specified.

(B8g) Tack mould shall be carefully and accurately braded in position by this contractor with firm, continuous contact at all edges and brads neatly set for puttingty.

(B9) Blackboard Joints

(B9a) Metal Blackboard Joints—All joints shall be made with Rowles Metal Joints. The moulding shall be the full width of the blackboard extending back of the tack mouldings which shall be neatly notched out over it at top and bottom. The moulding shall be shoved tight against the first board set and plumbed; shove the next section of board into the groove of the moulding as far as possible and level and plumb the board. Mouldings with surface imperfections or which are warped out of line shall not be used.

Note: The manufacturer advocates this joint on all blackboards. Metal joints should always be used on Duroplate.

(B9b) Cement Joints—All joints shall be butt joints in accordance with the manufacturer's standard detail. The joints shall be plumb and adjoining surfaces in a true plane, boards shoved tight and the joint well bedded in setting cement.

Note: Use only on Enduraroc or Permaroc. See B9a above.

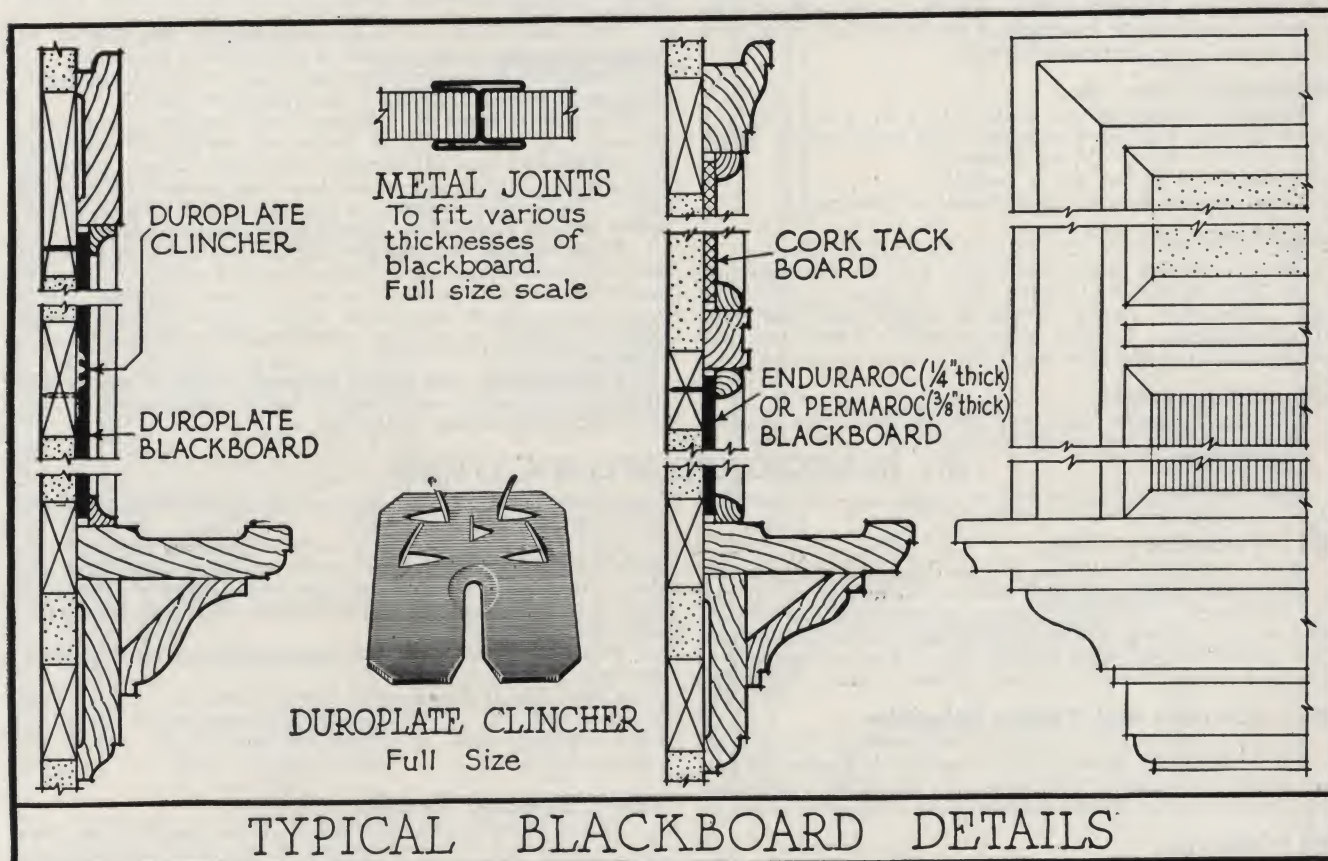
Note: Omit if Duroplate is specified.

(B10) Tack and Bulletin Boards

Set all cork tack and bulletin boards in accordance with the manufacturer's directions. Where joints occur these shall be symmetrically spaced to correspond with blackboard joints and shall be covered with a thin strip of wood to match trim. Apply tack mouldings surrounding tack and bulletin boards as specified above for blackboards.

(B11) Final Cleaning

After the painter has applied the final coat of finish to the tack mould, this contractor shall do the final cleaning of all blackboard surfaces, charging the reasonable cost thereof to those responsible for any damage. All varnish spots or streaks shall be removed with steel wool; apply Rowles Blackboard Surfactant rubbed down with fine pumice and water, blending the spots with the rest of the board surface.



WEBER COSTELLO COMPANY

MANUFACTURERS OF

Sterling Lifelong Blackboard and Old Reliable Hyloplate Blackboard
CHICAGO HEIGHTS, ILL.

Products

Sterling Lifelong Blackboard—A laminated cement-asbestos body with an elastic five-coat built-up surface.

Its satisfactory performance in thousands of schools proves its durability and excellence.

Old Reliable Hyloplate—A recognized standard of wood fiber board. Laminated live spruce wood-pulp body with a durable built-up writing surface. Nearly 50,000,000 sq. ft. have been sold and are giving satisfactory service in the United States, Canada, and twenty-one other countries.

Metal Rustproof Joint—Holds two adjoining boards together in perfect alignment in the same plane. Is flat and neat in appearance and slated to match the blackboards.

Labor and material considered, it is more eco-

nomical than any other type of joint. It provides a perfect, permanent blackboard joint.

The Company

A company with nearly fifty years of blackboard building experience and ample resources. Warehouses and reliable representatives are located in every section of the United States and Canada and many foreign countries. Prompt service is assured.

Guarantee

Every product of WEBER COSTELLO COMPANY must perform to the complete satisfaction of the user. We recognize our responsibility to our customers and will immediately investigate and adjust any complaint, should one arise, without expense or inconvenience to the customer.

STERLING LIFELONG BLACKBOARD

Construction

Body—Cement, long fiber asbestos, and black coloring matter thoroughly and permanently combined by laminating process and subjected to pressure of 9000 tons per slab, producing an extremely hard blackboard body of uniform composition, thickness and color. Not a wall board, but a special blackboard body constructed from exclusive formulas. It is made water resisting and warpproof by the extraction of all excess moisture and the application of special waterproof coatings.

Surface—Five specially mixed distinct coats of blackboard surface, applied to the face with mechanical precision. Each coat, individually, is thoroughly dried and rubbed. The surface is extremely elastic and resilient. Sterling, manufactured with mechanical and manual exactness, is uniformly free from every imperfection, irregularity and blemish.

Dimensions, Color, etc.

Sizes—Uniformly $\frac{3}{8}$ in. thick, 6 ft. 1 in., 7 ft. 1 in. and 8 ft. 1 in. long, $3\frac{1}{2}$ and 4 ft. wide. (An extra inch in length is provided for filling odd sized spaces.)

Weight—2.4 lb. per sq. ft. crated.

Color—Black, does not fade, mottle or turn gray.

Joints

Weber Costello Metal Rustproof Joint is recommended as the best method of joining two surfaces in the same plane. Eliminates careful fitting of edges and thus simplifies installation. Protects edges at joint. Labor and time considered, this is the least expensive.

Distinct Advantages

Writing Surface—Uniformly perfect, hard, close grained,

intensely black. Sterling surfacer coatings are ground and mixed from exclusive formulas, each one carefully applied and thoroughly dried.

Each of the coatings serves a definite purpose in the building up of the fine velvety writing surface.

The abrasive qualities are such that only sufficient crayon is used to make a distinct mark. Crayon marks are easily erased and the surface will not wear the eraser excessively.

The black color of Sterling surface absolutely prevents light reflection. Specially treated to prevent the surface from filling up and wearing slick and glossy.

The surface is elastic and thus permanent. It never cracks, checks or peels.

Few Joints—Due to long stock lengths, the number of joints required in a given space is reduced to a minimum.

Strength—It is extremely tough and strong and sufficiently resilient to prevent damage in handling and transit.

Fireproof, Does Not Warp—The material is absolutely fireproof. It is made by the laminated process and especially for the manufacture of Sterling. Only long fibered asbestos, high grade portland cement and first quality oxide of iron are used. All excess moisture is extracted and each board is sealed against moisture so that it never warps or buckles.

Economically Installed—Installation is easily and quickly accomplished without expert labor, since all edges are straight and true and the material is of uniform thickness. It is easily cut to exact sizes with simple tools available everywhere. Detailed installation instructions furnished with each shipment.

Economically and Safely Shipped—Light in weight (2.4 lb. per sq. ft. crated) and unusually flexible and resilient, so that it is not easily broken in transit.

(B) BLACKBOARD SPECIFICATIONS

Note: The following clauses shall be included under the blackboard specification where and when they apply.

(B1) Preliminary Work

Before erection of blackboards, this Contractor shall examine all preliminary work and shall report to Architect in writing any inaccuracies or variation from specification requirements which will in any way deleteriously affect work under this contract. Failure to so report defects, etc., if any, is construed as acceptance of work as executed and release of those responsible.

(B2) Diagrams and Cutting Schedules

This Contractor shall furnish to the Architect, in triplicate for his approval the manufacturer's cutting diagrams and cutting schedules showing disposition of joints and blackboard sizes for the various rooms distinctly and accurately allocated.

(B3) Materials

(B3a) Blackboards—Blackboards shall be Sterling Life-

long Blackboards as manufactured by WEBER COSTELLO COMPANY, Chicago Heights, Illinois.

All blackboards shall have surfaces perfectly true and uniform, free of defects and from depressions or projecting particles. Joint edges shall be sharp and make angles of 90 degrees with top or hanging edge. The bottom edge shall be parallel with the top edge.

(B3b) Cement—Cement for spot cementing shall be W. C. Sterling Cement.

(B3c) Metal Blackboard Joints—Blackboard joints shall be made with W. C. Metal Rustproof Joints slated finish. All joint mouldings shall be without surface defects, smooth and straight.

(B4) Sizes and Lengths

(B4a) Widths—All blackboard widths (height from chalk rail to top) shall be as designated on the detail drawings and schedules.

(B4b) Lengths—All sections up to 6 ft. 1 in., 7 ft. 1 in. or 8 ft. 1 in., shall be in one piece; all sections over 8 ft. 1 in. and up to 16 ft. 2 in. shall be in two pieces; longer sections shall be in multiples of 6 ft. 1 in., 7 ft. 1 in. or 8 ft. 1 in., or fractions thereof, but arranged with joints symmetrically spaced and with no piece for filling out less than 3 ft. in its horizontal dimensions.

(B5) Storing

All blackboard material shall be properly stored at the building site in such manner as to adequately protect it from moisture or other damage.

(B6) Uncrating

All material which is to be set by the Carpentry Contractor shall be shipped in separate crates and delivered to him crated as received from the manufacturer.

(B7) Distributing Sections

Distribute the material to the rooms and to the spaces in each room in their order as indicated on the crates and sections to conform with the cutting diagrams and schedules.

(B8) Sizing

On outside walls, not furred and not dampproofed back of plaster, thoroughly size the plaster surface back of blackboards with glue sizing.

Note: Wherever dampness is apparent or possible sizing is advisable—otherwise the spot cementing may be affected.

(B9) Setting

(B9a) The setting, leveling and cutting of blackboard installations shall be in accordance with the manufacturer's recommendations and standard specifications, furnished with each shipment of blackboard.

(B9b) No blackboard shall be set until the final coat of finish has been applied and has dried on the blackboard wood-work trim (except loose tack mould).

(B9c) All blackboards shall be set by experienced mechanics so that all edges shall be adequately covered by the loose tack mould. The writing surfaces shall be plumb and in a true plane.

(B9d) Tack mould shall be carefully and accurately bradded in position by this Contractor with firm, continuous contact at all edges and brads neatly set for puttying.

(B10) Joints

Note: Insert the joint selected.

Metal Joint Moulding—All joints shall be made with Sterling Metal Rustproof Joints. The joint shall be the full width of the blackboard extending back of the tack mouldings which shall be neatly notched out over it at top and bottom. The joint shall be shoved tight against the first board set and plumbed; shove the next section of board into the groove of the moulding as far as possible and level and plumb the board. Joints with surface imperfections or which are warped out of line shall not be used.

(B11) Final Cleaning

(B11a) After the painter has applied the final coat of finish to the tack mould, this Contractor shall do the final cleaning of all blackboard surfaces, charging the reasonable cost thereof to those responsible for any damage. All varnish spots or streaks shall be removed with steel wool; apply W. C. Liquid Blackboard Surfer rubbed down with fine pumice and water, blending the spots with the rest of the board surface.

(B11b) Any mars or defects at butt joints shall be repaired as above.

(B12) Direction Plate

In each room fasten permanently where directed by the Architect, the metal plate, furnished by the blackboard manufacturer, bearing directions for breaking in and care of blackboard surface.

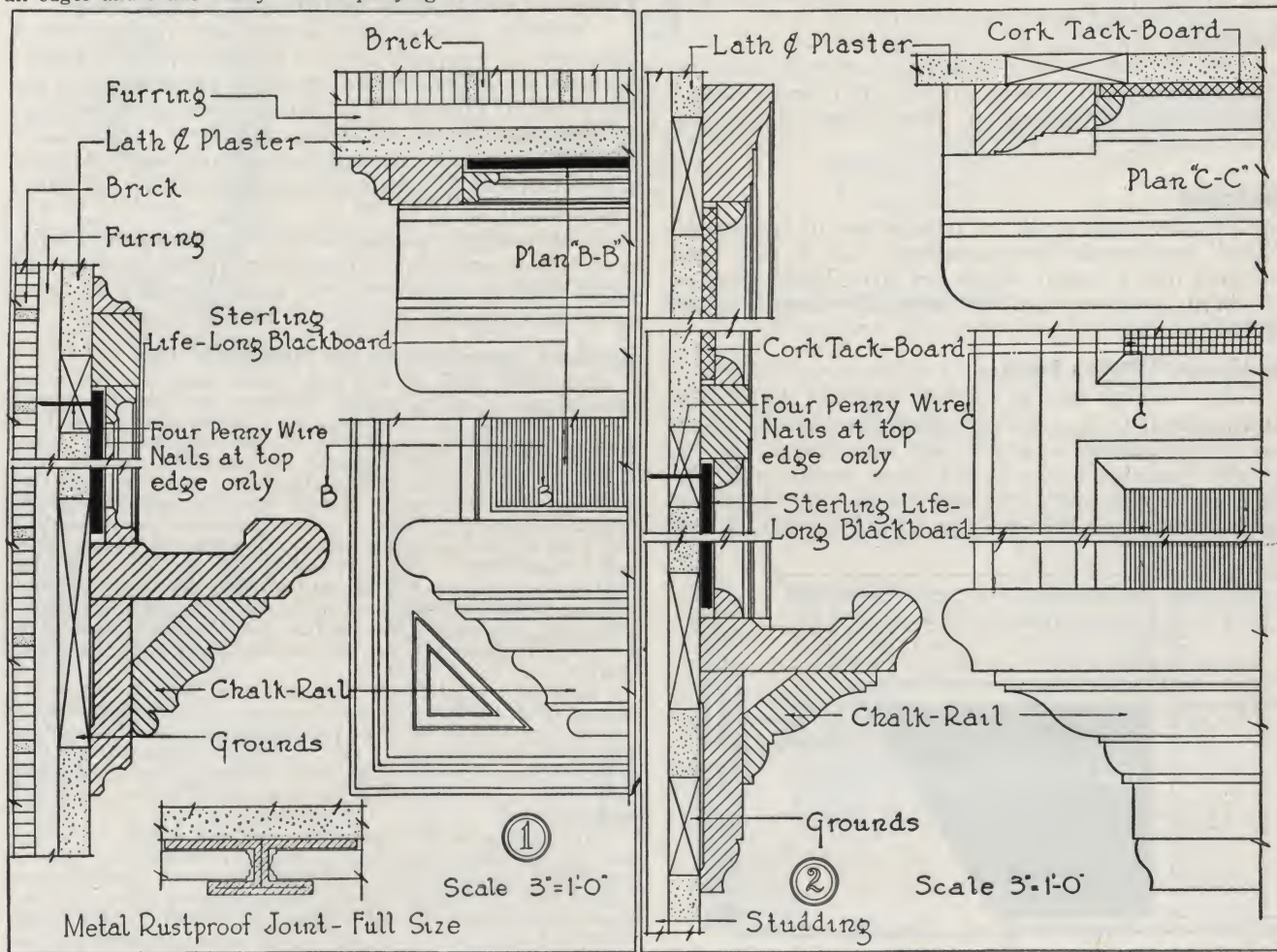
(B13) Breaking in Blackboard Surfaces

Note: Include where desirable. This Contractor shall break in all blackboard surfaces and leave in clean, perfect, ready-to-use condition as follows:

1—With the side of a piece of good quality crayon, chalk the entire surface of the blackboard. (Use only good grade crayon free from grease or grit. If the crayon is glazed or enameled it should be scraped off.)

2—Work the crayon into the surface slightly by erasing with a blackboard eraser. (No pressure is necessary.)

3—Erase with a clean eraser and follow with a soft cloth or a chamois skin.



THE VALLEYCO COMPANY, INC.

Manufacturers of Valleyco Certificate Blackboards,
Cork Bulletin Boards and Tacking Strips

116-118 E. Water Street
CINCINNATI, OHIO

Products:

VALLEYCO BLACKBOARDS:
CINOPLATE; CINOBESTOS; CINOBOARD
BULLETIN BOARDS; TACKING STRIPS

Management and Responsibility

The management of THE VALLEYCO COMPANY, INC., is vested in a group of men thor-



oughly experienced in the production and distribution of composition blackboards, and ever alert to anticipate the rapid changes of the era. The certificate of quality covering every purchase is supported by the company's established financial status and the known integrity of its personnel.

VALLEYCO CERTIFICATE BLACKBOARDS AND CORK BULLETIN BOARDS

Cinoplate

This is made with a foundation of board composed of pure wood fibres obtained by exploding fresh clean chips into a fibrous mass which is pressed into sheets of uniform thickness by means of tremendous hydraulic pressure and heat. Cinoplate is 100% pure wood; grainless and knotless; moisture-proof; contains no foreign substance. Cinoplate is certified not to warp or buckle and to withstand the moisture of freshly plastered walls and is especially adapted to withstand climatic conditions in localities where there may be a great deal of moisture.

Cinobestos

This is made with a foundation of long asbestos fibres and portland cement pressed into dense homogeneous sheets by lamination. Every sheet is uniform and is certified.

Cinoboard

This is made with a foundation of especially selected long wood fibres combined into a pulp and laminated into a board which lies flat. Each panel is kiln cured, water-proofed and especially treated by an original process.

Blackboard Writing Surface

The writing surface in all Valleyco Certificate Blackboards is of a rich black velvet appearance. Color is uniform, surface is smooth and nonporous. By the specially formulated process and secret method of application the writing surface is very elastic which prevents hairline cracks and checks. The writing surface is cer-

tified never to crack, check, chip or peel under ordinary conditions. Also certified not to gloss.

Sizes, Weights and Colors of Blackboards

Cinoplate—Green or black. Standard widths of 3 ft. 6 in.; and 4 ft. Lengths of 6, 7, 8, 10 and 12 ft.

Cinobestos—Black only. Standard widths 3 ft. 6 in.; and 4 ft. Lengths of 6, 7 and 8 ft.

Cinoboard—Black or green. Standard widths of 3 ft.; 3 ft. 6 in.; and 4 ft. Lengths of 6, 7, 8, 9, 10 and 12 ft.

Valleyco Cork Bulletin Boards and Tacking Strips

Valleyco Cork Bulletin Boards and Tacking Strips are made of best grade of cork sheets, especially manufactured for bulletin board, securely laminated with the best grade of glue to a 3-ply wood composition backing, or fibre backing if preferred, totaling a thickness of $\frac{1}{2}$ in. They can be furnished in any area desired; sizes larger than 4x6 ft. are made in sections. Over-all thickness standard at $\frac{1}{2}$ in.

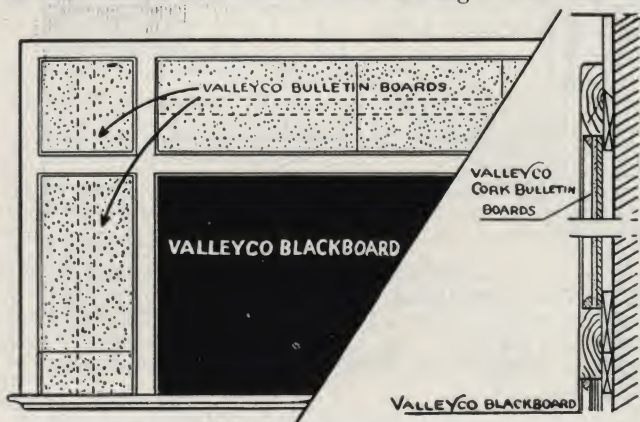
These bulletin boards do not require plastered walls as all that is necessary is that the carpenter provide and install wood grounds and trim upon the walls the same as for blackboards. If desired, we will install.

Standard Specifications for Architects' Use

Contractor shall furnish and install ready for use in all spaces shown on plans, genuine Valleyco Certificate Blackboard as manufactured by THE VALLEYCO COMPANY, INC., 116 East Water Street, Cincinnati, Ohio. Blackboards shall be (Cinobestos) (Cinoplate) (Cinoboard) or equivalent, meeting fully the manufacturer's standard of quality as described in detail in SWEET'S ARCHITECTURAL CATALOGUES, Twenty-fifth Edition. All blackboards shall be of a width (indicate standard widths) and shall be set and joined strictly according to the manufacturer's instructions. All blackboards shall be set in position against wood grounds and all butting edges shall be cut smooth. Valleyco rustproof metal joining strips shall be used for making all joints. The installation shall be completed and executed as per the manufacturer's instructions furnished with the blackboard.

Contractor shall furnish and install all bulletin boards and tacking strips as shown on the drawings. All bulletin board and tacking strips shall be Valleyco quality as manufactured by THE VALLEYCO COMPANY, INC., 116 East Water Street, Cincinnati, Ohio. They shall be $\frac{1}{2}$ -in. thick, consisting of $\frac{1}{4}$ -in. cork sheet mounted upon 3-ply $\frac{1}{4}$ -in. wood compo (or fiber) backing.

The contractor for carpenter work will install the necessary wood grounds and frames ready to receive the bulletin boards and tacking strips. This contractor shall install in these frames the cork bulletin boards and tacking strips in the most approved manner, provided sufficient additional grounds at the joints and elsewhere to insure a satisfactory installation.



DUDFIELD MANUFACTURING CO.

Manufacturers of Patented Chalk Rails and Metal Blackboard Trim

116 West Kansas Street, LIBERTY, MO.

SALES REPRESENTATIVES IN MOST OF THE PRINCIPAL CITIES

Manufacturer for Pacific Coast States: EMIL BROWN & COMPANY, 300 East Ninth Street, Los Angeles, Cal.

Products

DUSTLESS ALL-METAL CRAYON TROUGH with Eraser Cleaner; METAL BLACKBOARD TRIM; SANITARY METAL BASE.

Also Chair Rail Wainscot Trim and Fittings.

Dustless All-metal Crayon Trough, Dust Trays and Eraser Cleaner

The main trough is made of one piece of No. 24 gauge special tight long terne plate in 8 and 10-ft. lengths. Cast metal ends and mitered corners are used, adding to its stability and making installation easy. Sections are butted together when installed, the ends being held in position by a concealed metal bracket at the joints.

Dust trays are made of No. 28 gauge

of No. 28 gauge "Cop-R-Loy" galvanized iron in 47-in. lengths for ease in cleaning. Eraser cleaner is made of No. 20 gauge galvanized iron. The slotted construction gives a scraping effect the full width of the cleaner and being smooth does not cut the erasers.

All units except the dust trays and eraser cleaner are given a priming coat of good quality gray paint at the factory.

Distinctive features are as follows:

Sanitary — Eliminates chalk dust from the room.

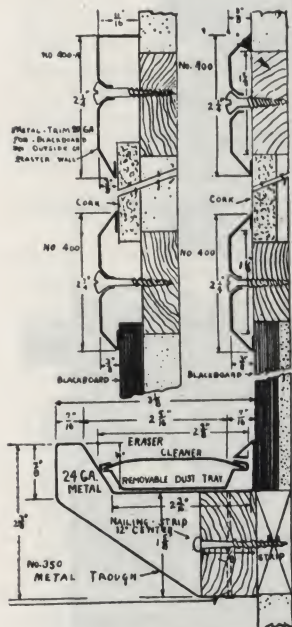
Time Saver—A slight rub on the screen keeps the eraser clean.

Fireproof—Made entirely of metal.

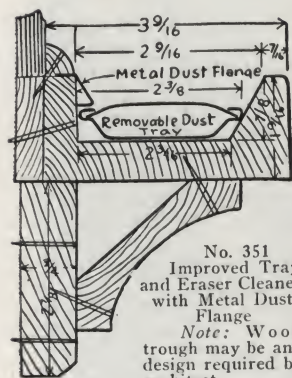
Artistic—Simplicity of construction enriches appearance.

Durable—Heavy gauge metal withstands hard usage.

Practical—Does not warp out of shape or away from the black-board.

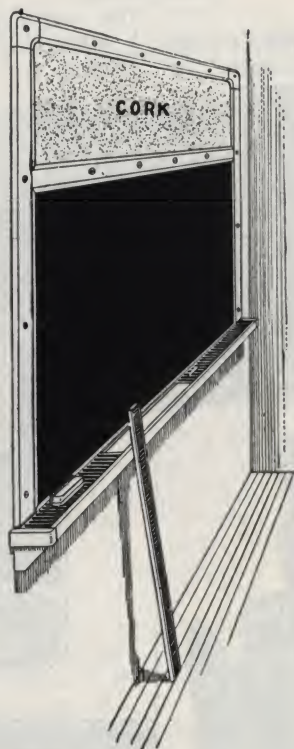


**No. 350 Detail of All-metal
Trough, No. 400
Metal Trim**

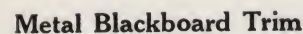


Sectional Views of Dudfield Dustless Crayon Trough

Only metal parts are furnished by the manufacturer. Metal trough, metal trays and blackboard trim cut to exact lengths when ordered; give outside measurements of blackboards over all. When ordering, state whether blackboards are set flush with or on outside of plastered walls.



**Dudfield Dustless All-metal
Chalk Rail and Metal
Blackboard Trim**

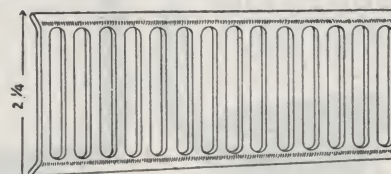


Made of No. 20 gauge special long terne plate in 8 and 10-ft. lengths. No. 400 pattern is for use on blackboards set flush with walls; and pattern No. 400-A for blackboards set on outside of walls. The No. 400 pattern is usually preferred for the reason there is no ledge to catch dust. Corner caps and "T" fittings furnished. The No. 400 pattern can be used as a wainscot cap, also chair rail interior and exterior angles furnished. Primed at factory with a coat of good quality gray paint.

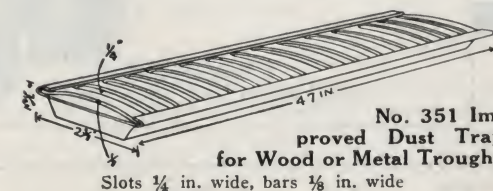
Official Endorsement and Samples

These products have been endorsed by State school superintendents, boards of health, architects, universities, colleges, sanitary and ventilating engineers.

Specifications for installation furnished on request. Write for samples, full size detail drawings and literature.



No. 51 Slotted Metal Eraser Cleaner
2 1/4 in. wide, 47 in. long. May be used as a chalk rail cover. Slots 1/4 in. wide, bars 1/8 in. wide



No. 351 Improved Dust Tray for Wood or Metal Troughs
wide, bars $\frac{1}{8}$ in. wide

Dudfield Sanitary Metal Base

No. 102 one-piece base for use with cement or composition floor.

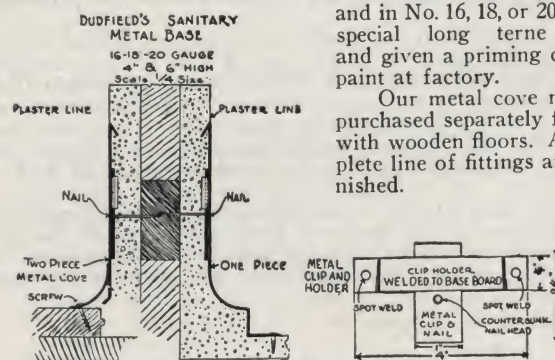
No. 103 two-piece base for use with wooden floors. It has a metal cove attached to the floor which compensates for shrinking or settling of rough job flooring.

Finish flush with plaster walls. Construction permits grouting behind with cement which forms a rigid, sanitary and fire-proof job.

Nails and clips provide an easy and swift method for adjusting base and compensating for unevenness of rough walls. Can be installed in much less time than most other bases of this type.

Furnished 4 or 6 in. high and in No. 16, 18, or 20 gauge special long terne plate and given a priming coat of paint at factory.

Our metal cove may be purchased separately for use with wooden floors. A complete line of fittings are furnished.



Details of Dudfield's Sanitary Metal Base

ANDREW HOFFMAN MFG. CO.

310 South Michigan Avenue, CHICAGO, ILL.

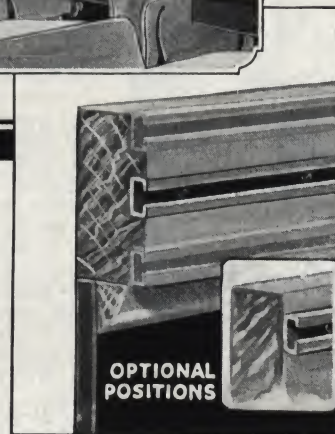
The Ideal Map and Display Rail

Used in Schoolrooms, Offices, Conference Rooms, Hospitals

Purpose

The Andrew Hoffman display rail is applied to the walls on old or new trim at a convenient height, for

the purpose of hanging map cases, maps, charts, posters, bulletins, drawings, and things of a similar nature.



The Ideal Map and Display Rail

Used in Schoolrooms, Offices, Conference Rooms, Hospitals

Description

This display rail consists of a substantial steel rail of special channel section, in which slide hooks and clips. In schoolrooms, the rail is screwed to the trim at the top of the blackboards. In rooms without blackboards, it is screwed at a convenient height to trim, grounds, or directly to the wall. The screws, which we furnish, are closely spaced for maximum strength.

To provide for the most efficient hanging of various objects, there are two types of hooks: one of very strong one-piece bronze construction that will support the heaviest map cases without turning or twisting—furnished, one to each five feet of rail; and a lighter spring-steel combination hook and spring clip that supports lighter maps, charts, posters, bulletins, etc.—furnished, one to each one and one-half feet of rail.

Either hook may be removed from the rail by lifting it out through the slot. The bodies of the hooks are *inside* the rail; consequently the hooks slide freely without interference, and the appearance is neater. Additional hooks may be inserted through the slots.

Finish

The display rail is finished in standard brown to harmonize with the trim customarily used.

Advantages

This display rail is designed and built to give a lifetime of satisfactory and trouble-free service.

Thumb tacks and cork pads are eliminated by the use of the combination hook and spring clip. When the spring hook is lifted, the poster, etc., may be placed beneath, where it is held firmly, yet without injury, by spring pressure, which is, we believe, the only permanently satisfactory method.

The rail may be mortised or rabbeted in any position on the face of the trim or may be screwed to the surface. The rail should be mortised in a groove to attain the most attractive appearance. A mortised rail blends into the ensemble so completely as to be very inconspicuous. See optional positions in small drawing.

The sections of the rail are self-aligning, through the use of the dovetail joint, thus assuring the smooth passage of hooks and clips. Being firmly fastened with screws, the rail cannot pull loose.

It is extremely versatile in its use: the two different hooks provide for the display or hanging of anything from a sheet of paper to a map case weighing 100 lb.

Sizes

The display rail comes in sections 30 in. long. It is $\frac{7}{8}$ in. high and $\frac{1}{8}$ in. thick. If the rail is to be mortised, the mortise should be only $\frac{1}{4}$ in. deep to prevent the hooks from scratching the trim.

A. J. NYSTROM & CO.

Manufacturers of School Room Equipment

3333 Elston Avenue
CHICAGO, ILL.

THE NYCO CORK LINED DISPLAY RAIL

Advantages

The Nyco Cork Lined Display Rail saves the finish on walls and mouldings, and at the same time makes it easier to display anything before the class. With it a teacher has a cork strip for pins or thumbtacks, a spring clip to hold sheets of any size and a rail with sliding hooks for hanging maps and bulletin boards anywhere in the room—front, back or sides. It permits maps of varying lengths to be quickly mounted. The displaying of visual aid material and pupils' work is encouraged.

Without the rail it means the forcing of pins into woodwork or the inserting of screwhooks into mouldings or walls.

Description

The Nyco Cork Lined Display Rail, No. 90, is made of steel, electroplated and finished with lacquer which prevents tarnishing. The channel is inlaid with cork to receive pins and thumbtacks invaluable for displaying announcements, drawing, student's work, etc.



The rail is provided with sliding hooks for hanging maps of all widths, bulletin boards and other heavy items. See illustration.

Dimensions and Sizes

The Nyco Cork Lined Display Rail is a moulding of 18 gauge, cold rolled channel steel, in which there is a cork inlay $\frac{1}{4}$ in. thick. The width of the rail is 1 in. and of the cork inlay $\frac{5}{8}$ in. Attached to the wall by means of screws at $7\frac{1}{2}$ -in. intervals. Screwholes with brass countersunk collars are provided.

The display rail comes in 3, 4 and 6-ft. lengths. By placing the lengths end to end a continuous rail is formed to equip any size room. It can be attached to moulding or will serve in the place of the moulding.

Electroplated and lacquered in attractive brown, the rail is very neat and unobtrusive.

Rail Furnished without Cork, No. 91

The Nyco Display Rail is also furnished without cork inlay. The cost is less. With this rail, hooks with spring clips are provided. The spring clip is attached to the extension tab and conveniently holds any size sheet. See illustration at left.

PRICES

	No. 90 cork lined	No. 91 without cork inlay
Less than 500 ft., per ft.....	36¢	20¢
500 to 1000 ft., per ft.....	33¢	18¢
Over 1000 ft. per ft.....	30¢	16¢

Hooks, plain, for use with No. 90, 10¢.

Hooks, with clip, recommended for use with No. 91, 15¢.

Installation

On wood blackboard rails, both cork inlay and plain rail types are screwed in place. When metal is encountered, bolts are used. Screws and bolts are part of equipment.

A Few Recent Installations of Nyco Cork Lined Display Rail

University of California, Los Angeles, Calif.
Gregory School, Chicago, Ill.
Oak Park Public Schools, Oak Park, Ill.
Shortridge High School, Indianapolis, Ind.
School No. 407, Baltimore, Md.
Mary Grove College, Detroit, Mich.
Oakleigh School, Grand Rapids, Mich.
Board of Education, Englewood, N. J.
Board of Education, Princeton, N. J.
The new Elementary School, Stratford Road and Mayford Street, Garden City, L. I., N. Y.
Board of Education, New York, N. Y.
Board of Education, Cleveland, Ohio



MASTERS STEEL FRAME COMPANY

Steel Blackboard and Bulletin Board Frames
1530 Chestnut St., PHILADELPHIA, PA.

FACTORY
LANSDOWNE, PA.

Product

MASTERS ALL-STEEL BLACKBOARD and BULLETIN BOARD FRAMES.

Description

Masters All-steel Blackboard Frames eliminate *all* the difficulties usually experienced with the use of ordinary blackboard frames. Their construction features are shown by the accompanying installation photograph and detail drawing.

Masters All-steel Blackboard Frames are built solidly into the wall. There is no possibility of anything coming loose, no risk of warping to throw boards out of alignment or cause cracks for the accumulation of dirt, no sinking under continued weight or pressure after years of service, no absorption of moisture.

Nearly all difficulties in the usual type of blackboard frame can be traced back to the foundation strip or ground, since it is almost impossible to fasten this securely enough to modern fireproof wall construction to carry the extreme weight placed upon it. Masters All-steel Frames use an 18 gauge cold rolled steel channel which acts as the plaster ground and blackboard frame and is bolted, toggled or screwed to the bare wall before plastering. The expense of resetting and reblocking of boards, commonly required every few years with other frames, is entirely obviated.

Masters All-steel Blackboard Frames are made entirely of steel. They are quickly and easily installed by any mechanic. They combine rigidity with strength. The steel clamps, shown in the detail drawing, permit perfect and permanent alignment of boards to an even surface.

Replacement of boards, should it be required, is made without difficulty. Waterproof cement may be used in the joints of boards instead of the solvent glue which must be employed with ordinary frames.

The perforated chalk tray of Masters All-steel Blackboard Frames does away with the old fashioned weekly cleaning of eraser dust. Once-a-year cleaning is sufficient, and this is quickly accomplished by vacuum cleaner or by unhooking the tray and emptying it.

Advantages

The features which make Masters All-steel Blackboard Frames superior to ordinary frames are: the ease of installation; permanence, life as long as the building; economy, absence of repairs and maintenance costs; sanitation; ease of access should replacement of boards be required; appearance which adds distinction to walls in which installed.

Sizes and Installation

Masters All-steel Blackboard Frames are made to accommodate boards of all dimensions and thicknesses. They work equally well with all types of blackboard material: slate, black

glass, or composition. The variations in thickness of slate blackboards are provided for by the clamps, shown in the detail drawing, which force the face of the board with a constant pressure against a straight bead. Thus the surface of a board $\frac{3}{8}$ in. thick will match perfectly with that of an adjoining board $\frac{1}{2}$ in. thick.

Finish and Cost

All concealed parts of these frames receive a baked prime coat. In specifying the architect should state the finish to be given the exposed surfaces. Any kind of finish can be applied and our method of construction at corner eliminates cut edges from showing.

The elimination of wood grounds in the Masters All-steel Blackboard Frames has placed their costs of installation on an equal basis with any good wood installation. Over long periods of service their economies reduce costs to a much lower level than that of wood frames.

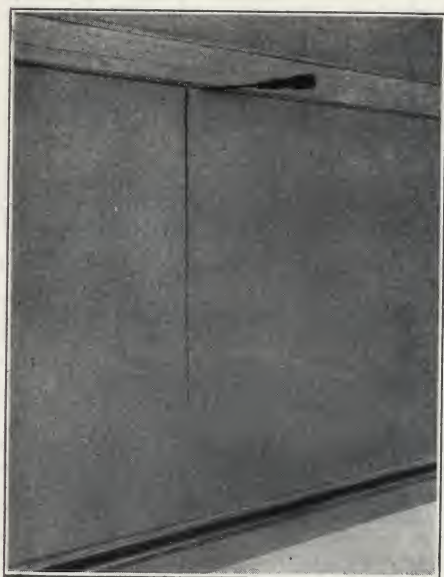
Specifications

Architects will cover all necessary points of installation for blackboards if they include in their specifications the following:

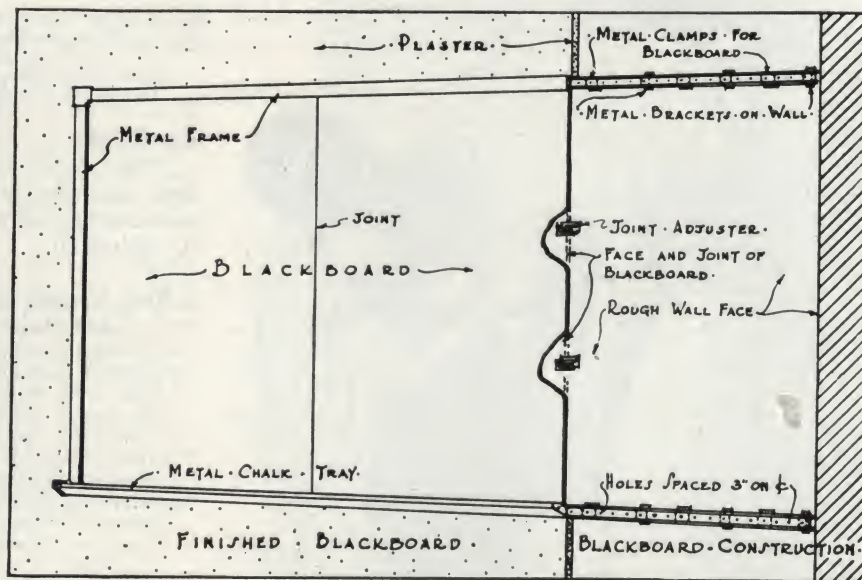
"Blackboards shall be installed in MASTERS ALL-STEEL BLACKBOARD FRAMES, Type ... (select type desired) with (or without) perforated chalk tray. Finish shall be ... (state finish desired). Frames shall be installed in accordance with the directions of the MASTERS STEEL FRAME COMPANY which will accompany all shipments."



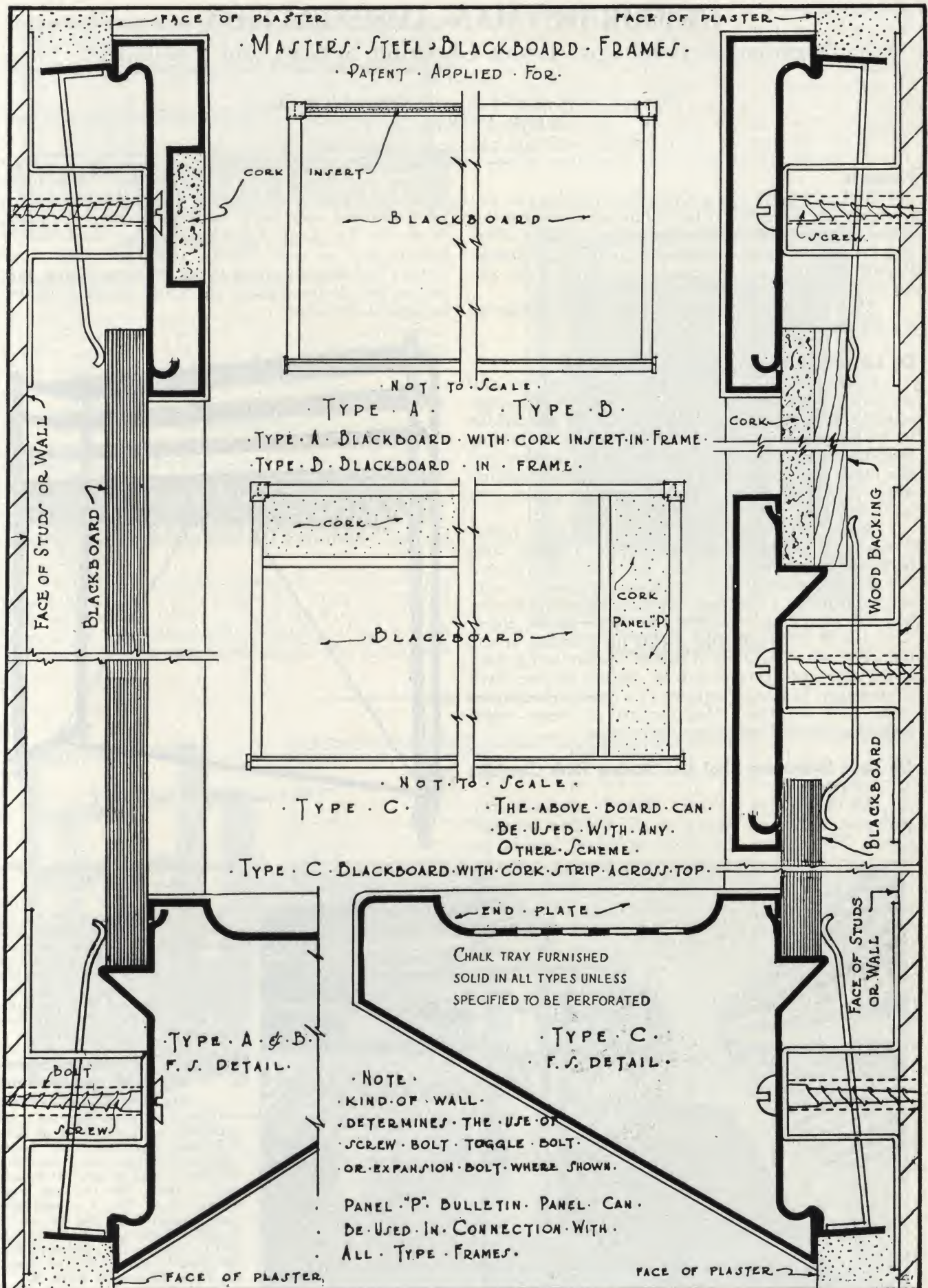
Blackboards, Bulletin Boards and Steel Frame Installed by Masters Steel Frame Company



Masters Steel Blackboard Frame Eliminates Loose and Sagging Blackboards



ELEVATION OF BLACKBOARD



GRIGOR-HEYMAN CORPORATION

Manufacturers of Coat Room Checking Systems and Equipment

OFFICES

Bryant Park Building, 55 West 42nd Street
NEW YORK, N. Y.

FACTORY: 510 West 25th Street, NEW YORK, N. Y.

Products

DE LUXE COAT ROOM CHECKING EQUIPMENT and SYSTEMS for convention halls, auditoriums, hotels, clubs, churches, community centers, institutions, schools, offices and factories; DE LUXE HOSPITAL and INSTITUTIONAL WARDROBE CHECKING SYSTEMS; SWIMMING POOL and SKATING RINK WARDROBE CHECKING SYSTEMS.

Also Theatre Dressing Room Racks, Make-up Tables and Shelving.

De Luxe Coat Room Checking Equipment

Constructed for durability, practicability and stability. Steel uprights of $1\frac{1}{2} \times 1\frac{1}{2}$ -in. No. 20 gauge square full welded. Cross members of angle full welded to tubing allowing shelf placement without shifting. Shelving made of seasoned wood sanded to a furniture-like finish, and constructed to form individual compartments for hats. White fibreloid number plates with black numbers, assuring visibility.

Brass deep weld hooks from which our special "Trueform" hanger is suspended with a double loop hook, one above and one below. The lower hook is used for checking umbrella and overshoe bags made of rubberized material. The hook and hat compartment numbered to correspond, checking four items on one check. This avoids confusion and speeds up checking in and out. The only equipment in case of overcrowding check room where two persons can be checked on one check if necessary, increasing capacity of a limited check room from 25% to 40%. Manufactured in three types: portable, wall and stationary floor racks.

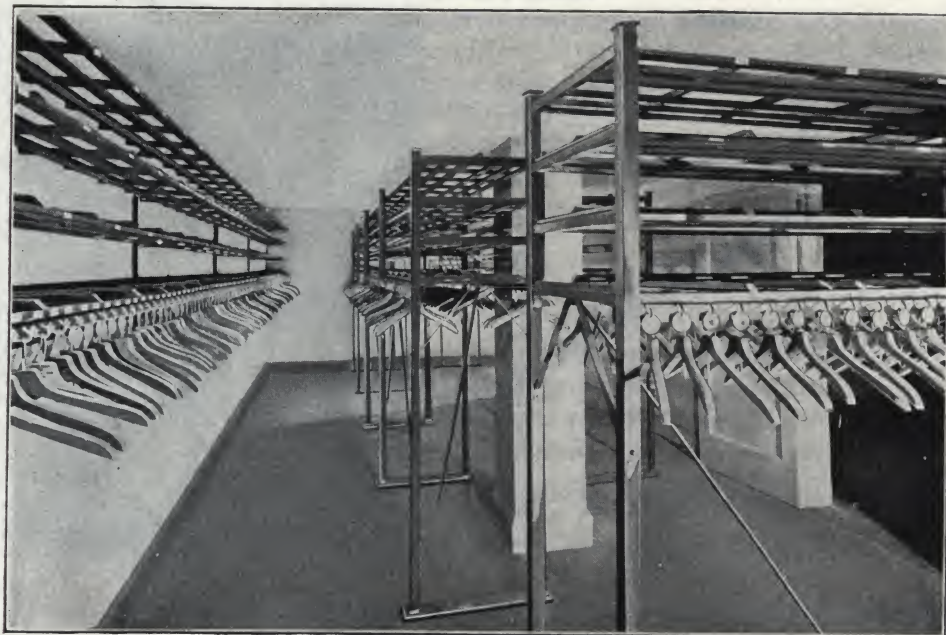
De Luxe Swimming Pool and Skating Rink Checking System

All clothing on a hanger, shoes in a special compartment, underwear, shirts, etc., in a special compartment. This system eliminates individual lockers for

bathers, conserving space in this manner. Heretofore bathers were given an individual dressing room in which their clothing was kept as long as they remained. With the De Luxe Checking System thousands of bathers can use one dressing room and check their clothes with the attendant at the coat room, thus protecting the clothes against theft and receiving clothes in perfect condition.



De Luxe Portable Rack No. 1

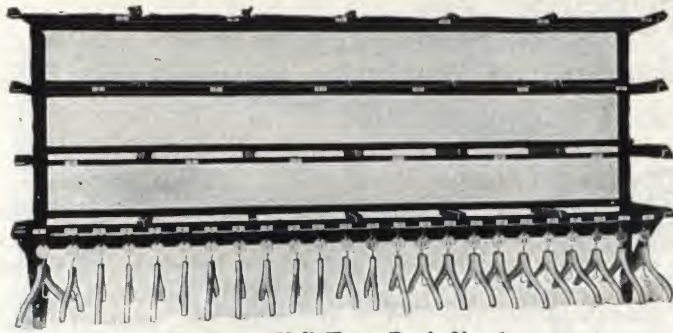


Description of De Luxe Portable Rack No. 1

Standard length 6 ft. 3 in., height 6 ft. 6 in., width 2 ft., mounted on 3-in. "Perfect" ball bearing casters. Each rack accommodates 48 persons. Every coat on a hanger, every hat has its individual space. Can be dismantled or erected in a few minutes and a check room had in any part of the building desired.

Typical Check Room Showing Wall and Stationary De Luxe System

The illustration shows a typical check room consisting of both wall and stationary floor racks carrying the De Luxe Checking System of four persons per square foot of rack. The De Luxe Stationary Rack No. 1 carries the same principle as the De Luxe Portable Rack, with the exception that the casters are eliminated and the base fastened to the floor. De Luxe Stationary Rack No. 1 used only in permanent coat rooms.



De Luxe Wall Type Rack No. 1

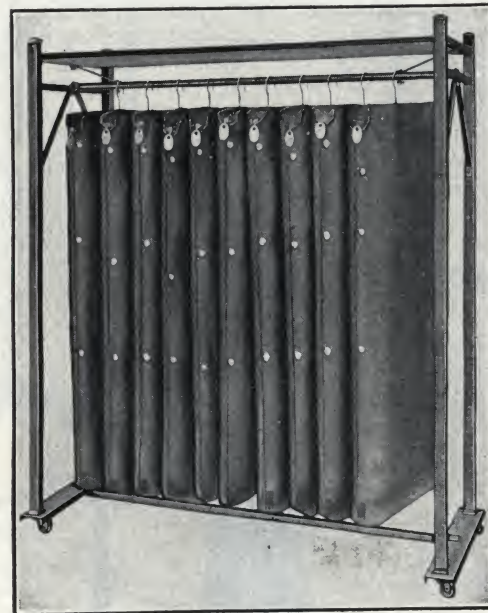
Description of De Luxe Wall Type Rack No. 1

With this type of equipment every inch of space in a coat room is made available for checking purposes. The wall rack is fastened to the walls on sturdy wall brackets backed by a 3 in. x 1 in. cleat fastened with either rawl plugs, toggle bolts or expansion bolts, depending on the type of wall. Accommodating four persons per foot, every coat on a hanger, every hat in its individual space numbered to correspond with the hanger. It is also recommended for offices and factories where checking facilities for employees' clothes are limited as well as when planning permanent coat rooms for hotels, auditoriums, convention halls, clubs and so forth.

Hospital and Institution De Luxe Wardrobe Checking System

Patients' or inmates' clothes, first sterilized, are placed on hanger. These hangers are hung on a special hook inside of wardrobe bag. Bags are 4 in. wide, 50 in. long, 20 in. deep, allowing clothes plenty of space. Each bag has an identification check numbered. As patients

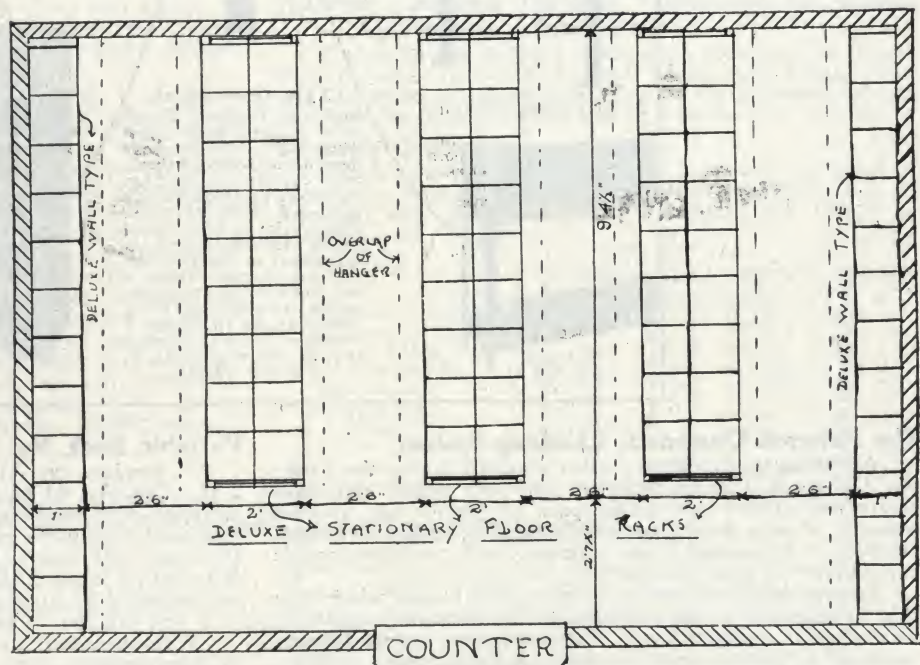
or inmates arrive, they are given a number which is tabulated on their receiving sheet and when discharged, their clothes are immediately available, eliminating all confusion and loss of time in searching for patients' wardrobe. The clothes are delivered to them in a presentable condition, instead of crushed and damaged as when they are put away wrapped in a bundle, and such bundles are generally lost or misplaced, causing a loss to patient or inmate.



De Luxe Wardrobe Checking System for Hospital and Institution

**De Luxe Umbrella Rack**

Manufactured in sections for 9, 12, 18, 27, 36 umbrellas

**Typical Layout for Coat Room**

Showing wall and stationary type, desired space necessary giving capacity for the architect's plans and specifications

Service

Consult our Engineering Department which will render all assistance in planning your check room, cheerfully laying out same, submitting estimates without any obligations whatsoever.

VOGEL-PETERSON CO.

Manufacturers of Peterson Checkroom and Wardrobe Equipment
307 W. Randolph Street, CHICAGO, ILL.

Products

PETERSON ALL-STEEL CHECKROOM and WARDROBE EQUIPMENT for clubs, hotels, leagues, association buildings, auditoriums, theaters, museums, churches, schools, banks, stores, offices, hospitals, etc., consisting of Stationary and Portable Floor and Wall Racks; Overshoe, Umbrella and Baggage Racks; Racks for Bathhouse Checkrooms; a complete line of Closet Equipment and Costumers.



T. M. Reg. U. S. Pat. Office

Service

Our long experience in solving checkroom problems fits us to plan arrangements which will insure the greatest all-round efficiency. We will gladly submit to architects, gratis, blue prints indicating the most practical checkroom arrangements. Complete catalogue describing the Peterson system and equipment sent on request together with list of prominent installations.

PETERSON ALL-STEEL CHECKING EQUIPMENT



The Peterson One-check Checking System

Advantages—Unlike any other checking system the Peterson One-check Checking System increases speed, eliminates errors and utilizes any given space to provide the greatest capacity. Coats, hats, packages, umbrellas, canes, overshoes are taken care of quickly and accurately with the least possible expenditure of space or effort.

Operation—Each coat goes on its own hanger where it is held in shape; it is not subjected to the damaging results of sagging on an ordinary hook. Each hat has its correspondingly numbered section above the hanger. Canes, umbrellas, rubbers, overshoes or luggage are disposed of with equal care by means of systematically numbered umbrella, overshoe and baggage racks.

Regardless whether one or all of the above items are checked, it is only necessary for the guest or patron to be given one check which identifies every item.

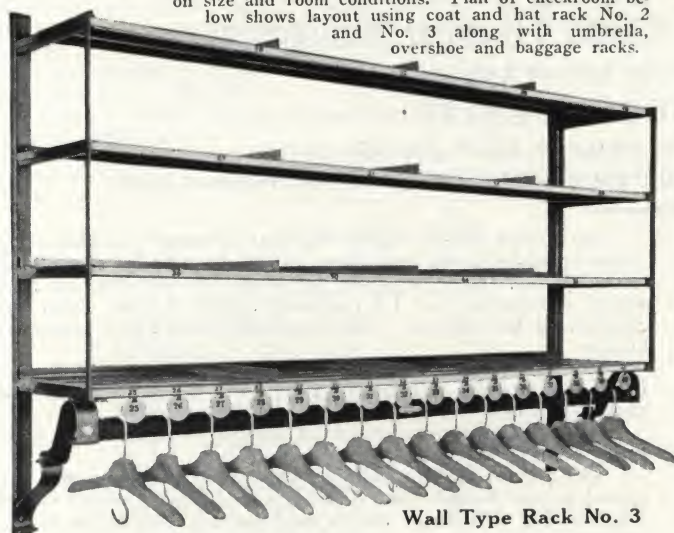
Only the Peterson One-check System offers this remarkable service.

Portable Rack No. 1

A standard unit—Length, 6 ft., height 6 ft. 7 in., width 2 ft. Capacity, 48 hangers and spaces for hats. Completely equipped with hangers, numbered shelves and guest checks imprinted with user's name. End frames are seamless tubular steel and all braces and shelves are electrically welded. Mounted on large, rubber, ball bearing casters. This rack can be assembled or knocked down without the aid of any tools in a few minutes. Can be stored in 2 sq. ft. of floor space.

With these racks a checkroom can be set up in any part of your building. It is easily moved from one location to another and will go through any ordinary doorway. This unit is very popular with users who find their permanent checkroom space too small or where no checkrooms are provided. The rigid construction and proper bracing in this unit prevents swaying. Standard finish: walnut-mahogany brown enamel. Wood panel end frames of special finish may be specified.

Note: Either one of these racks may be substituted for Rack No. 2 shown on preceding page or used in combination depending on size and room conditions. Plan of checkroom below shows layout using coat and hat rack No. 2 and No. 3 along with umbrella, overshoe and baggage racks.



Wall Type Rack No. 3

Stationary Floor Rack No. 2

Height, 6 ft. 7 in.; width, 2 ft., furnished in lengths 4 ft. and over. Capacity, 8 hangers and spaces for hats to every lineal foot of rack. Equipped with hangers, numbered shelves, guest checks imprinted with user's name, and all necessary hardware for installing. End frames are seamless tubular steel, and all braces and shelves are electrically welded. An installation of this unit with Wall Type Rack No. 3 gives the user the best permanent installation of checkroom equipment. Finish, walnut-mahogany brown enamel.

Note: Wood panel ends can be furnished with Rack No. 2 to match any woodwork.

Wall Type Rack No. 3

Extends 1 ft. from wall and installed at height to correspond with Stationary Rack No. 2. Furnished in any length, 3 ft. and over. Capacity, 4 hangers and spaces for hats to each 1 ft. length of rack. Brackets and shelves electrically welded. Furnished complete with hangers, numbered shelves, guest checks imprinted with user's name, and all necessary hardware for installing. This rack provides increased capacity in any room by utilizing the otherwise lost wall space. It is a very popular rack in the larger offices, providing a centralized wardrobe, and eliminating the use of bulky lockers. Finish, walnut-mahogany brown enamel.

Portable Wall Rack No. 9

A standard unit. Length, 6 ft.; height, 6 ft. 7 in.; width, 1 ft. 6 in. Capacity, 24 hangers and spaces for hats. Completely equipped with hangers, numbered shelves and guest checks imprinted with user's name. End frames are seamless tubular steel, and all braces and shelves are electrically welded. Mounted on large, rubber tired, ball bearing casters.

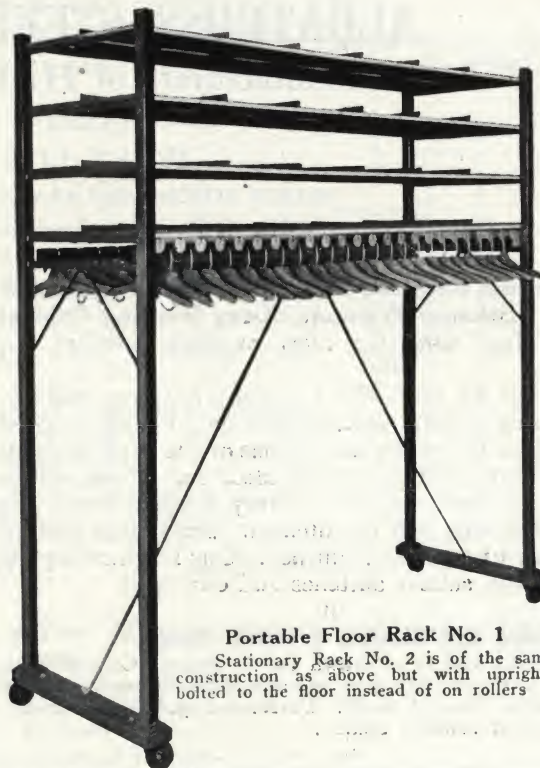
This rack can be assembled or knocked down without the aid of any tools in a few minutes. Moves easily from one location to another, and will go through the ordinary size doorway. The rigid construction and bracing prevents swaying. A very popular rack where space will not permit the use of a portable No. 1, or where a permanent installation of Wall Rack No. 3 cannot be made. With this unit, checkroom service can be set up quickly at the entrance to the dining room, coffee shop, or in barber shops, etc. Finish, walnut-mahogany brown enamel.

Umbrella Rack No. 4

Height, 36 in. to top of backboard; width, 1 ft.; furnished in lengths of 1 ft. 6 in. and up. Capacity, 16 umbrellas or canes to each 1 ft. length of rack. Equipped with guest checks imprinted with user's name. Drip pan has a pet cock for draining. This rack answers the question of what to do with wet umbrellas. Finish, walnut-mahogany brown enamel.

Overshoe Rack No. 7

Usually supplied in counter height, 15 in. deep, any width. Each compartment is 6x6x15 in. and accommodates one pair of rubbers or overshoes. Furnished in sizes to accommodate 24 pairs of overshoes and up. The question of handling wet and slushy overshoes is answered with this popular rack. It is sturdily constructed of heavy gauge steel, and handsomely enameled. Each compartment is numbered and numbered guest checks are also furnished. Finish, walnut-mahogany brown enamel.



Portable Floor Rack No. 1

Stationary Rack No. 2 is of the same construction as above but with uprights bolted to the floor instead of on rollers

Baggage Rack No. 6

Height, 84 in.; depth, 24 in. Furnished in 3-ft. sections, five shelves high, including top and bottom. Adjustable shelving, and with or without backs and sides. Capacity, 15 suitcases to each 3-ft. section. Finish, walnut-mahogany brown enamel.

Peterson Bathhouse Rack System

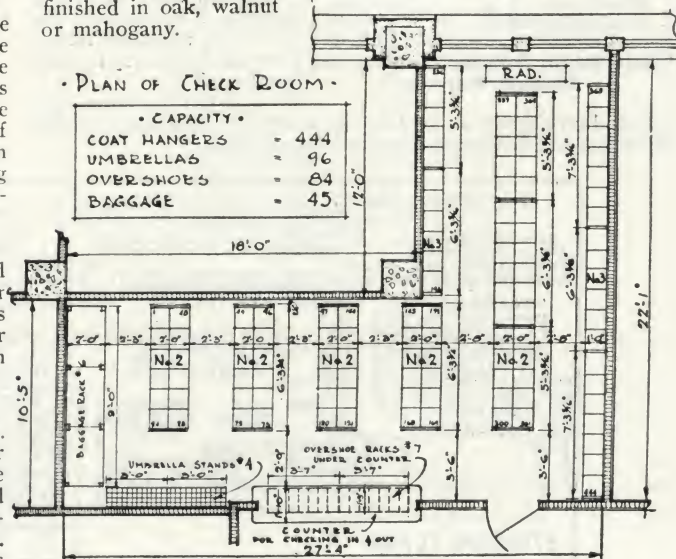
This equipment combines with the Peterson Checkroom Rack the convenience of a special hanger and bag to protect bather's apparel in the least possible space. It makes possible the handling of larger crowds and keeps the dressing rooms continually in use.

Peterson Garment Hanging Equipment for Hotels, Apartments, Clubs, etc.

This efficient equipment comprises a complete line of garment hangers for wardrobes—wall hooks, shelf hooks, extension and stationary closet rods. Complete information concerning these Peterson products will be furnished on request.

Peterson Costumers

These include various designs of costumers furnished in all-steel or wood construction. All-steel costumers may be furnished with umbrella attachment and drip pan. They are finished in oak, walnut or mahogany.



Plan of a Practical Checkroom Arrangement

ALBATROSS STEEL FURNITURE CO., LTD.

Manufacturers of Highest Grade Hospital Equipment

GENERAL OFFICES AND PLANT

WEST LOS ANGELES, CALIF.

BRANCH OFFICES: SAN FRANCISCO and OAKLAND, CALIF., SEATTLE, WASH.

For Bathroom and Fire Hose Cabinets, and Steel Toilet and Shower Partitions, see Manufacturers' Index

Albatross Recessed Instrument Cabinets, Blanket and Solution Warmers, X-ray Viewing Cabinets

They meet the most exacting hospital requirements.

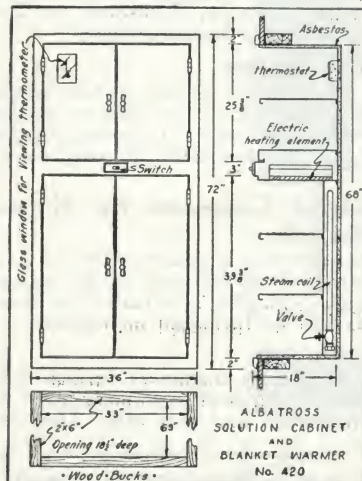
For 16 years this Company has been manufacturing this highly specialized line of quality products. Many of the newer institutions of the West are equipped with our product. Experience has developed models that are best suited for every hospital need. Special requirements will be supplied. Send plans and general outline of equipment needed. Our Engineering Department will submit sketches and estimates.

Solution and Blanket Warmer Data

Steam coil is of drawn copper tubing. Control valve supplied as shown. Steam traps are not included unless so specified. Asbestos covered walls. Perforated polished stainless steel shelves in solution section.

General Construction Specifications

(1) Steel sheets are of heavy gauge furniture steel,terne coated (lead coated) to resist corrosion.



Combination Solution Cabinet and Blanket Warmer

(2) Many bending and forming operations are combined in one sheet of steel to reduce number of joints and unsanitary crevices.

(3) The few necessary joints are welded and finished off smooth. Both electric and acetylene welded are employed.

(4) Hardware is correct in every detail. Hinges may be either of olive knuckle type as shown or of the butt type with plated barrel only showing. Handles are of plated cast brass. Locking devices bolt at three points. Paracentric locks of best standard makes are used and may be masterkeyed.

(5) Drawers are mounted on channel slides for easy operation even when loaded. The heads are double construction for strength.

(6) Doors are of hollow metal type, front and back each being stamped from one piece of steel, entirely eliminating mitred joints. Note carefully the detail drawing showing cork sound deadening and felt packing around glass. Also the reinforcing for rigidity. Albatross doors will never weave or buckle.

(7) Glass shelves are supplied with a bulb or rolled edge in front to prevent instruments rolling off. They are adjustable every 2 inches.

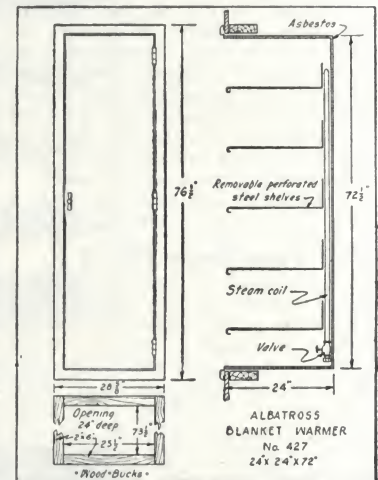
(8) A choice of 3 types of flanges is offered to meet every possible demand.

(9) Steam coils in blanket warmers are copper and are placed at rear to give even distribution of heat. Control valves are provided as shown. Steam traps are not included as standard equipment.

(10) Thermostats and electric heating elements in solution warmers are of our own design and are guaranteed to be foolproof. These are not stock products made for a variety of uses but were developed by us for this precise purpose. Temperature will not vary more than 2 degrees.

(11) Walls and doors of blanket and solution warmers are shown with asbestos insulation. They may be supplied without insulation if so specified.

(12) Finish consists of four coats of highest grade baked enamel of any color desired. Each coat is carefully sanded and baked before next coat is applied. Final coating on all exterior front surfaces is hand-rubbed with water and pumice to give smooth hard finish that is extremely tough and durable.



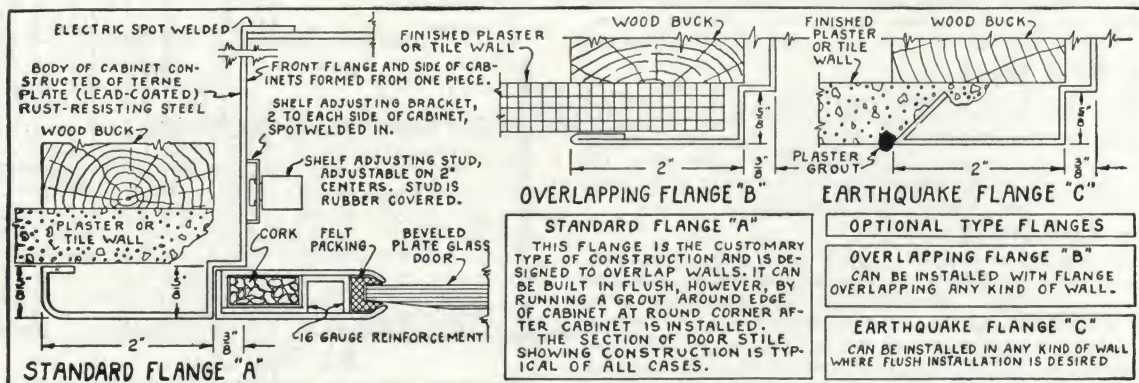
Blanket Warmer No. 427 Series

Write for a complete catalogue

SIZES ALBATROSS BLANKET WARMER

No.	Width, in.	Height, in.	Depth, in.	Doors	Shelves
427	24	72	24	1	5
427A	24	72	18	1	5
427B	30	72	24	2	5
427C	30	72	18	2	5
427D	36	36	18	2	2

Note: Above dimensions as to width and height are clear inside of cabinet, not over all but the depth is over all. Buck openings should be 1 in. larger in each instance.



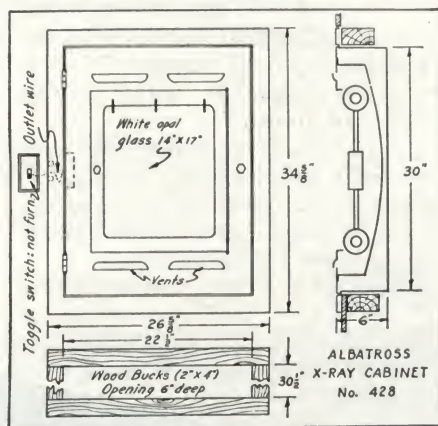
Construction Details

X-Ray Viewing Cabinet No. 428

For use in all surgeries and cystoscopic rooms. Flange is different than other cabinets shown in detail. It can only be recessed in two ways as shown in this drawing, i.e. overlapping plaster or tile or set flush before plastering. It may be fitted with side panels at extra cost, thus permitting it to hang on wall instead of recessing.

Case is double hinged permitting front to swing to any desired angle.

Four lamp sockets are provided (lamps not furnished). Inside and back is painted flat white to eliminate reflections.



X-Ray Viewing Cabinet

Instrument Cabinets

See general construction specifications.

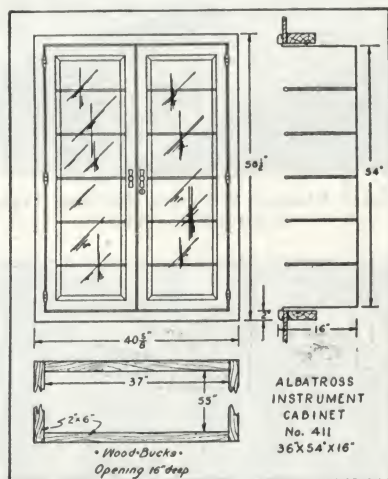
Note carefully:

(1) Cabinets with four doors have partitions in center dividing them into two complete cases of two doors each.

(2) Dimensions below as to width and height are clear inside of cabinet, not over all but the depth is over all. Buck openings to receive these cabinets should be 1 in. larger in each instance.

SIZES ALBATROSS INSTRUMENT CABINET

No.	Width, in.	Height, in.	Depth, in.	Doors	Shelves
411	36	54	16	2	5
411A	24	48	16	1	4
411B	36	60	16	2	6
411C	36	72	16	4	8
411D	72	60	16	4	12

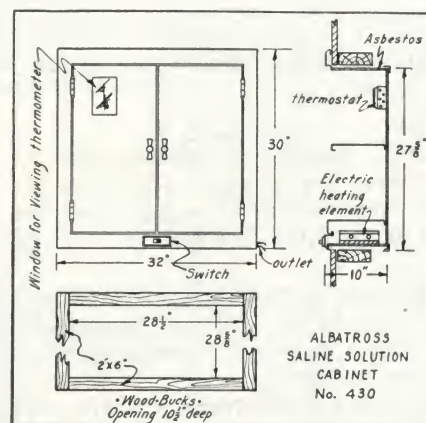


Instrument Cabinet No. 411 Series

Saline Solution Cabinet No. 430

See general construction specifications.

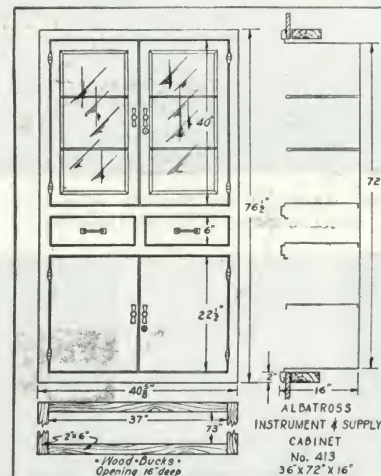
Note carefully data on thermostat and heating element. Asbestos insulated walls. Shelves are perforated, polished stainless steel.



Solution Cabinet

Just a Few Albatross Hospital Equipment Installations

Doernbecker Memorial Hospital, Portland, Ore.
 Good Samaritan Hospital, Portland, Ore.
 Shrine Hospital, Portland, Ore.
 Pacific Christian Hospital, Eugene, Ore.
 Deaconess Hospital, Great Falls, Mont.
 Peralta Hospital, Oakland, Calif.
 University of California Infirmary, Berkeley, Calif.
 St. Marys Hospital, San Francisco, Calif.
 Santa Barbara Cottage Hospital, Santa Barbara, Calif.
 Cedars of Lebanon Hospital, Los Angeles, Calif.
 Good Samaritan Hospital, Los Angeles, Calif.
 St. Joseph Hospital, Orange, Calif.
 Mercy Hospital, San Diego, Calif.
 St. Marys Memorial Hospital, Port Arthur, Tex.
 St. Marys Hospital, Grand Rapids, Mich.
 All Saints Episcopal Hospital, Fort Worth, Tex.



Instrument and Supply Cabinet No. 413

Please consult our Engineering Department regarding special cabinets for hospitals

ART METAL CONSTRUCTION COMPANY

Hospital Equipment
JAMESTOWN, N. Y.

For Branch Offices, see Bank, Office and Library Equipment Section

For Sectional Metal Office Partition; for Hollow Metal Doors and Trim; for Bank, Office and Library Equipment, see Art Metal Construction Company in Manufacturers' Index

Art Metal Hospital Equipment, such as illustrated below, is growing in popularity because it has ably proved its worth from the standpoints of sanitation, adaptability and appearance.

We illustrate a few examples of Art Metal case work in the Hillman Hospital at Birmingham, Ala., Berlin & Swern, Architects; H. B. Wheelock, Associate Architect.

Following is a brief summary of the advantages of Art Metal Hospital Equipment:

(1) Flush, built-in construction providing bond with tile or plaster at all faces.

(2) Two-piece cabinet design permitting frames to be installed with the building walls.



(3) Finished cabinets to be held until building is broom clean.

(4) Assembly without visible attachments or joints.

(5) Sanitary inside cove construction.

(6) Elimination of dirt pockets.

(7) Facilities for cleaning and dusting.

(8) Acid resisting, baked enamel finish.

(9) No-bolt shelf adjustment.

(10) Nationwide Service Organization.



A Well Planned Assembly of Shelves with Doors, Drawers and Cabinets, Hillman Hospital



Art Metal Blanket Warmers, Hillman Hospital, Birmingham, Ala.



Hollow Metal Counters in Hillman Hospital, Birmingham, Ala.



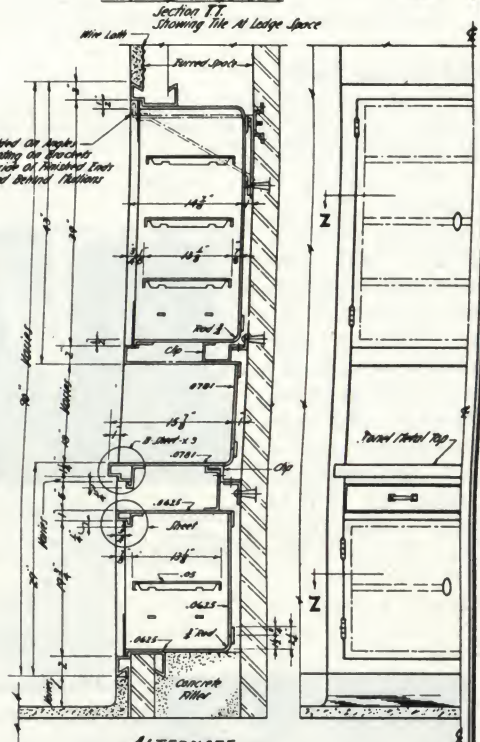
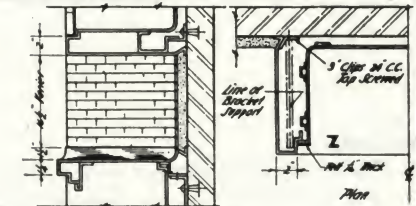
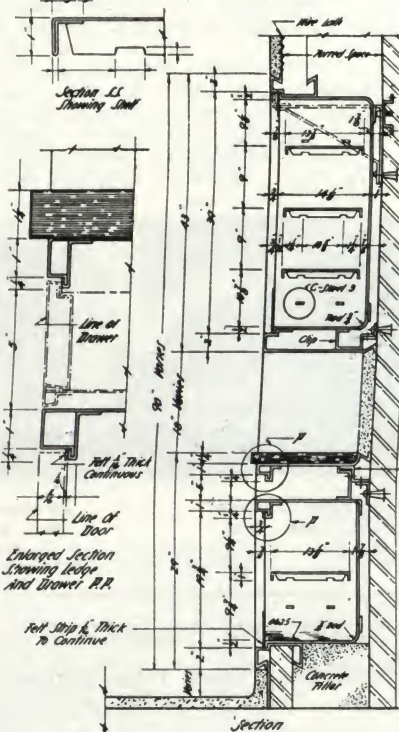
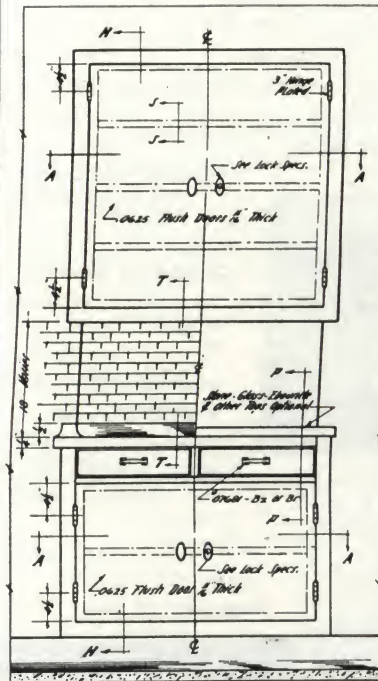
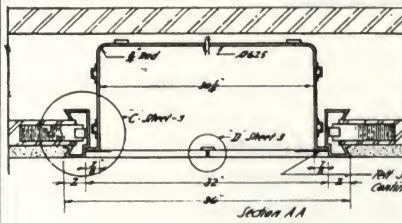
Modern Metal Equipment, Hillman Hospital, Birmingham, Ala.

HOSPITAL



CABINETS

We manufacture a complete line of Hospital Cabinets, Instrument Cases, Ether Cases, Blanket Warmers and Dryers, etc. Blueprints sent upon request.

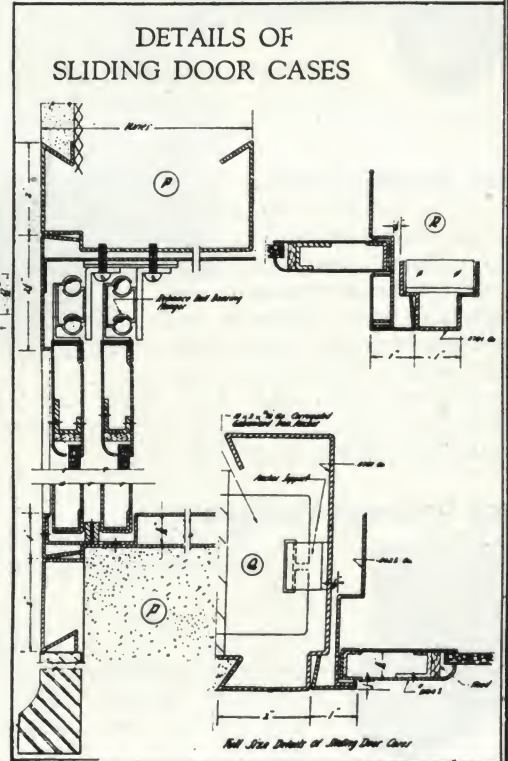
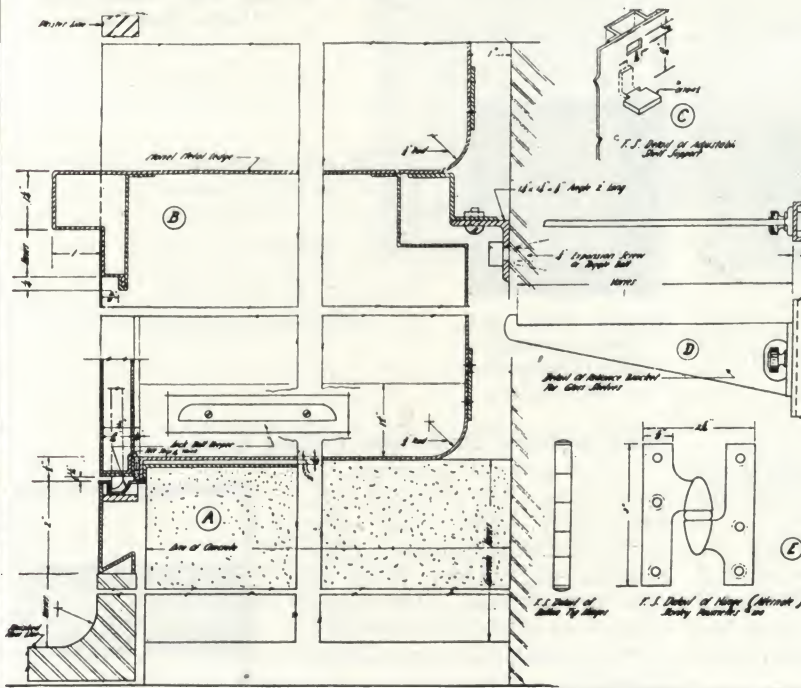


CABINET AS SHOWN TO CONTAIN

- 1 — Double Cupboard — Clear $30\frac{1}{2} \times 14$ — One Adj. Shelf. No Bolt Adj. 1" on Centers. Lock.
- 2 — Box Draws — $15\frac{1}{2} \times 5\frac{1}{2} \times 15$ — Clear $14 \times 4\frac{1}{2} \times 15$ — Channel Suspension. Gravity Steps.
- 1 — Double Cupboard — Clear $30\frac{1}{2} \times 37 \times 14$ — Three Adj. Shelves. No Bolt Adj. 1" on Centers. Lock.

ALTERNATE
Details of Wall Cabinet As
Shown Above

Note: Case Sizes May Vary To Suit Building Conditions



BUCK X-OGRAPH COMPANY

Manufacturers of X-ray Darkroom Equipment

8701-8715 Orchard Avenue
ST. LOUIS, MO.

Products

DEVELOPING TANKS. VENTILATORS.
FILM DRYERS. ILLUMINATORS, etc.
DARKROOM LIGHTS. TRANSFER CABINETS.



Prominent Hospital Installations

T. B. League Hospital, Pittsburgh, Pa.
De Paul Hospital, St. Louis, Mo.
Osteopathic Hospital, Philadelphia, Pa.
Duke University Hospital, Durham, N. C.
Doctors' Hospital, New York, N. Y.
Barnes Hospital, St. Louis, Mo.
St. Luke's Hospital, New York, N. Y.
Albert M. Billings Memorial Hospital, Chicago, Ill.
City Hospital, St. Louis, Mo.
Children's Homeopathic Hospital, Philadelphia, Pa.
Children's Hospital, Boston, Mass.

Engineering Staff

Send us the floor plan and required capacity (number of films to be processed per day) and we will submit a layout.

Blue prints and complete descriptions of our equipment for a completely and efficiently laid out darkroom supplied on request. The fact that we are familiar with modern hospital conditions and requirements make our recommendations of great value to the architect.



Children's Homeopathic Hospital, Philadelphia, Pa.

De Paul Hospital, St. Louis, Mo.

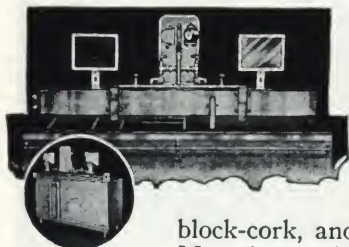
Doctors' Hospital, New York, N. Y.

Massachusetts General Hospital, Boston, Mass.

Scope of Service

We have made a special study of X-ray darkroom requirements. Our experience in designing and equipping should prove of value to architects.

SOME STANDARD EQUIPMENT



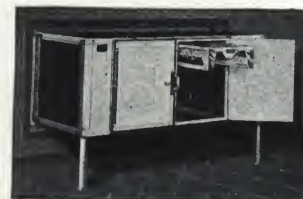
Thermonel Developing Tanks

Designed for controlling the temperature of the developing solutions. Built of tidewater cypress, insulated with 2 in. of block-cork, and lined with Monel metal. Manufactured in three standard sizes.

Special tanks built to order.

Buck Film Dryers

These have become a necessity to every X-ray darkroom. Not only hasten the drying of films, but promote order and efficiency. Manufactured in three models, both double and single. Special models of extra large size built to order.



In the Wall Model (I.W.) Opens Both Sides

Buck Transfer Cabinet

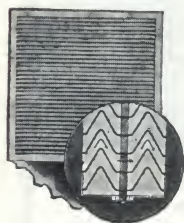
This cabinet mounted in the darkroom wall. For storing exposed and unexposed cassettes in a manner convenient to both darkroom and radiographic room. Saves many extra steps. Exterior of seasoned birch, lined with $\frac{1}{8}$ -in. sheet lead protected by galvanized iron. Automatic locks on doors. Nickel trimmings. Made in one size only.



Double Deck Side Opening Model (S.O.) Opens One Side Only

When designing the darkroom it is very important a free circulation of air be supplied to the film dryer by use of a maze entrance or ventilator of correct capacity. Damp air from the film dryer must be conducted from the darkroom.

Buck Darkroom Ventilator



The Buck Ventilator admits air to the darkroom without admitting light.

A necessity for supplying air to a film dryer as well as general darkroom ventilation. Size, 24x24x3 in. thick. Weight, 35 lbs. Supplies sufficient air for a single deck film dryer.

Buck Indirect Darkroom Ceiling Lamp

For general darkroom illumination. Delivers both ruby and white light. Has twin bowls of cast aluminum. Glass size of each bowl, 8x10 in. Enclosed wiring. All parts aluminum finish. Very substantial and practical. Made in one size only.



THE INTERNATIONAL NICKEL COMPANY, INC.

Monel Metal and Nickel and Allied Products

EXECUTIVE OFFICES

67 Wall Street
NEW YORK, N. Y.

MINES AND SMELTER: Copper Cliff, Ont., Canada
ROLLING MILL AND REFINERY: Huntington, W. Va.

REFINERY: Port Colborne, Ont., Canada
FOUNDRY: Bayonne, N. J.

For Our Other Products, see Manufacturers' Index

Products

MONEL METAL—available from stocks conveniently located throughout the country and made in all commercial forms required by manufacturers of hospital equipment. (See Manufacturers' Index, our section on Metals, for commercial forms and location of warehouses.) All necessary accessories, such as nuts, bolts, screws, rivets, etc., are also available.

Monel Metal

Monel Metal is a registered trade-mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Advantages of Monel Metal for Hospital Equipment

- (1) Absolutely rustproof.
- (2) Resists corrosion by food juices, fruit acids and hospital solutions.
- (3) Strong as steel; tougher than steel.
- (4) Easy to clean; therefore sanitary.
- (5) Beautiful appearance; has color of platinum.
- (6) Durable — proven by over 20 years of service.
- (7) Easily fabricated.

Proven Uses of Monel Metal

Metal cabinets should be of all Monel Metal construction where extreme durability and appearance are important factors. Enameled steel construction also is used with the following parts of Monel Metal:

Counter tops	Trim
Shelving	Base kick-plates

For over 20 years Monel Metal has been used in food service and clinical equipment. Many installations have been in actual service for over 15 years, and are functioning perfectly. The Monel Metal page in the Food Service Equipment section contains a list of the



more prominent installations illustrative of the lifetime quality of Monel Metal equipment.

Services

Architects and engineers are invited to make use of the extensive advisory service maintained by this organization. A call to any of our sales offices, listed in our section on Metals, will bring you a Monel Metal specialist. In co-operation with kitchen

equipment engineers, Monel Metal specialists can contribute materially in the application of metals to hospital equipment.

Available Publications

To assist architects and engineers to form a clearer conception of the possibilities for the application of Monel Metal to built-in cabinets, THE INTERNATIONAL NICKEL COMPANY, INC., has prepared a series of reference folders and booklets, available on request:

"Architects' Handbook of Metal Cabinet Equipment"—A reference book prepared for the profession. Contains complete information on the design and construction of metal

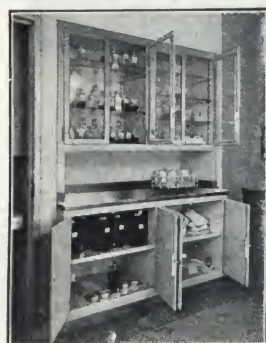
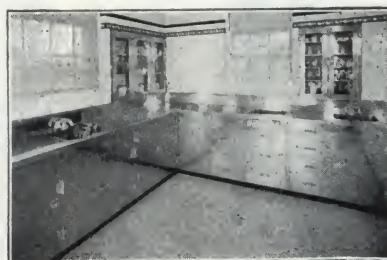
cabinets, choice of materials of construction, and illustrations of correct method of writing specifications. Also contains catalogue pages of many manufacturers of cabinets.

"Built-in Cabinets"—A four-page folder illustrating specific applications of Monel Metal to cabinet construction and uses of cabinets.

"And the Greatest of These"—A series of illustrated folders on the uses of Monel Metal in The Medical Center, New York, N. Y.:

Utensils	Clinical Furniture
Cabinets	Laundry

"Modern Hospital Equipment"—Latest annual edition covering the use of Monel Metal in all departments of the hospital.



EXCEL METAL CABINET CO., INC.

FORMERLY METAL CABINET & EQUIPMENT CO.

Manufacturers of Steel Cabinets for Hospitals

101 Park Avenue, NEW YORK, N. Y.

FACTORY: JAMESTOWN, N. Y.

Products

STEEL CABINETS and CASES of built-in and wall-type construction for every hospital need, heavily constructed and designed especially for hospital and institutional service.

Also Monel Metal Sinks, Tables and Equipment.

For our page on Kitchen and Pantry Cabinets, see Manufacturers' Index.

Service

We are prepared to submit a schedule of requirements or a complete layout of cabinets from the floor plans and to confer with architects on the type of equipment best suited for any particular job.

Data

The details and sizes shown in these pages cover our standard cabinets which are made up in quantity with resultant economy. These cabinets are furnished complete, glazed, and finished in any color desired ready for installation.

Special sizes of standard construction, and also special cabinets built to specification can be furnished.

A Few Installations and Their Architects

Southampton Hospital, Peabody, Wilson & Brown

Mather Memorial Hospital, Henry C. Pelton

Pennsylvania Hospital, Arthur H. Brockie

Doctors' Hospital, Crow, Lewis & Wick

Metropolitan Life Insurance Co. Sanitarium, D. Everett Waide

Mary Immaculate Hospital, William J. Boegel

Kings County Hospital, Dodge & Morrison

St. Luke's Hospital, Ernest Flagg

Columbia Presbyterian Hospital, James Gamble Rogers

Coney Island Hospital, Dodge & Morrison, New York, N. Y.

St. Vincent's Hospital, Ditmars & Reilly

Presbyterian Hospital, Newark, N. J., Sutton & Calkins

Norwalk Hospital, W. B. Tubby

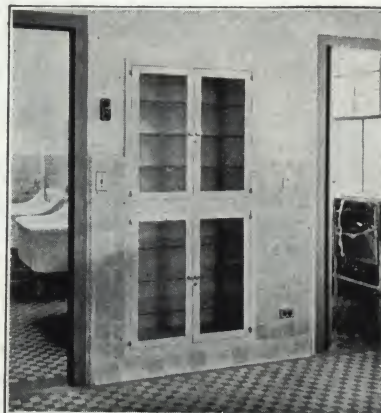
Girard Medical College, Philadelphia, Pa., J. T. Windrim

Kiefer Hospital, Detroit, Mich., Albert Kahn, Inc.

A Few Hospital Installations



Instrument Cabinet



Instrument Cabinet



Surgical Dressing Room



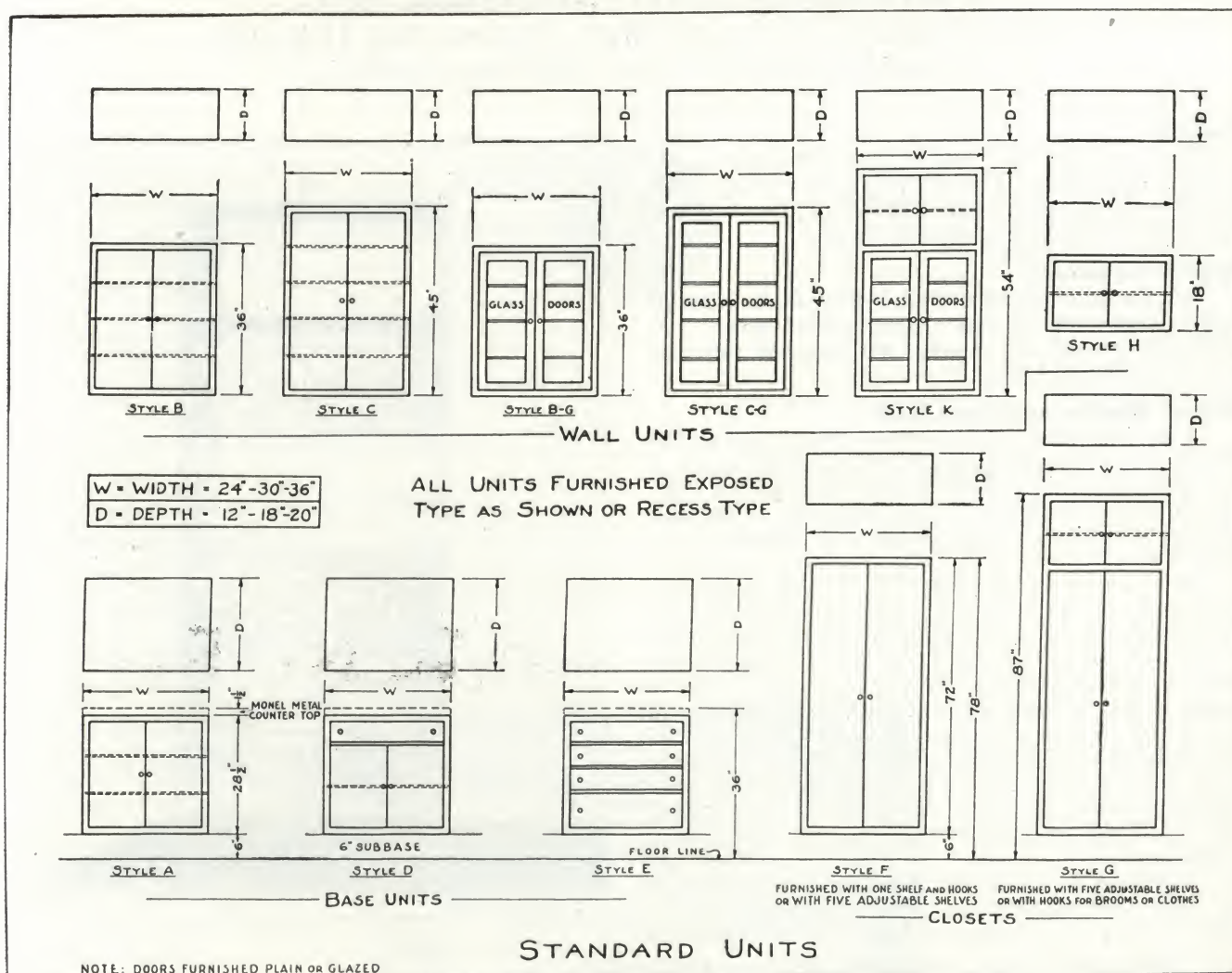
Kitchenette



Nurses' Station
Serving Room

Jewish Hospital, Brooklyn, N. Y.

Crow, Lewis & Wick, Architects



Metal Cabinet Specifications

Cabinets to be constructed throughout of No. 18 gauge No. 1 quality furniture steel.

All joints on face of cabinet to be mitered, acetylene-welded and ground flush and smooth, with no visible seams or joints on face of cabinet. All other joints to be electric spot-welded. The vertical stiles to be filled so as to make a hollow metal section. The bottom of all upper units to be filled so that bottoms are flush.

All doors and drawer fronts to be $\frac{5}{8}$ in. thick, hollow metal construction, and are to be recessed into frames so as to close flush with face of cabinet. All hollow doors to be reinforced with Z-bars.

Drawers to be equipped with channel suspension slides.

All shelves adjustable and removable, of No. 18 gauge steel, or glass, as indicated.

Glazed doors are to be constructed of one piece No. 18 gauge frame section, glass removable and secured by metal moulding, screwed in place on back of door.

Hinges are to be cast bronze, semi-concealed, French olive knuckle type, crodon-plated, with theftproof concealed pins. Hinges are to be mortised flush with edge of doors, which are to be reinforced at this point.

Knobs are to be cast bronze crodon-plated.

No screw or bolt heads are to be used on face of cabinet.

Base units with drawers 30 in. wide or smaller will be furnished with single width drawer. Where bases wider than 30 in. are used they will be furnished with two drawers with mullion between.

Counter tops are to be monel metal or linoleum as indicated.

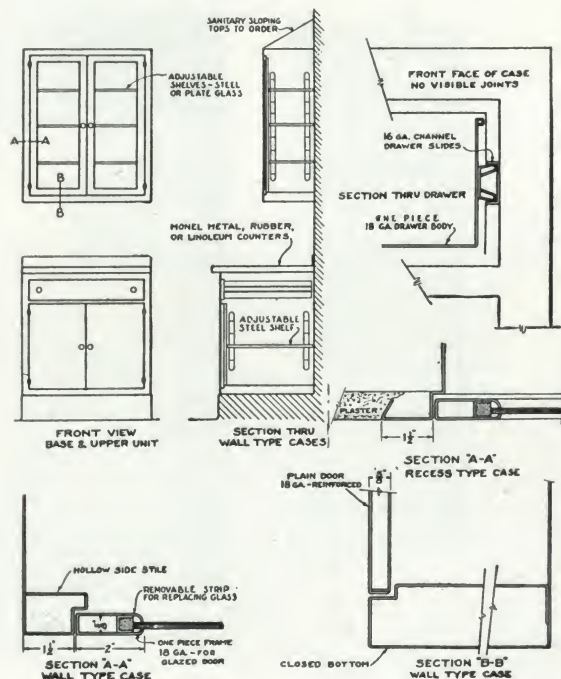
Metal tops are to be constructed of .031 thick polished monel metal stretched over No. 16 gauge steel frame, frame to be reinforced with channel stiffeners 18 in. on centers. (Heavy gauge monel can be furnished where required.)

Linoleum tops are to be constructed of No. 16 gauge steel body upon which is to be cemented $\frac{1}{4}$ in. battleship linoleum, edges to be bound with No. 18 gauge polished monel metal edge mould rabbeted into linoleum so as to make a smooth flush surface.

All counters turned up 2 in. at back and at side where against walls. **Finish**—All concealed surfaces are to be primed with baked enamel before fabrication so that no metal surfaces are exposed to corrosion.

All exposed surfaces are to be finished with four coats best quality baked enamel carefully sanded between coats.

Locks where indicated are to be Yale 4-in. tumbler type. Single locks on drawers, and 3-point locks on doors. Locks are keyed and master keyed as desired.



DETAILS of CONSTRUCTION

PETERSON AND NEVILLE, INC.

Manufacturers of Pressed Steel Products for Hospitals
365 Dorchester Avenue, BOSTON, MASS.

Products

HOSPITAL TABLES, FURNITURE, SHELVEING and BLANKET WARMERS. For our pages on Pressed Steel Products: Metal Sinks, Steam Tables and Combination Door Frames, see Manufacturers' Index.

Hospital Equipment

We specialize in hospital equipment made to architects' designs, of stainless steel, monel metal and furniture steel, such as custom built surgeons' cabinets, tables, shelving and sinks.

Blanket Warmer and Hot Closet

The illustration at right shows front view of the blanket warmer and hot closet with shelves raised to show construction. Made for the Massachusetts General Hospital, Boston, Dr. Frederick A. Washburn, Director; Coolidge, Shepley, Bulfinch & Abbott, Architects, Boston.

This cabinet is built into and is flush with plastered wall, no dirt crevices. Size of this cabinet is 96 in. high, 42 in. wide and 36 in. deep, frame made of No. 12 gauge and body of No. 16 gauge steel. Door is of hollow metal construction made of No. 18 gauge furniture steel, patent-leveled, hung with a pair and a half of heavy mortised butts. Door is insulated with mineral wool of high-insulating efficiency. Shelving is No. 16 gauge furniture steel, with special rolled edges, perforated to permit circulation of air. Shelves are supported by verminproof supports tapped into cabinet wall.

These supports hold the shelves about $1\frac{1}{2}$ in. from the walls (see illustrations), which allows perfect circulation of air and prevents accumulation of dirt.



Blanket Warmer, Massachusetts General Hospital

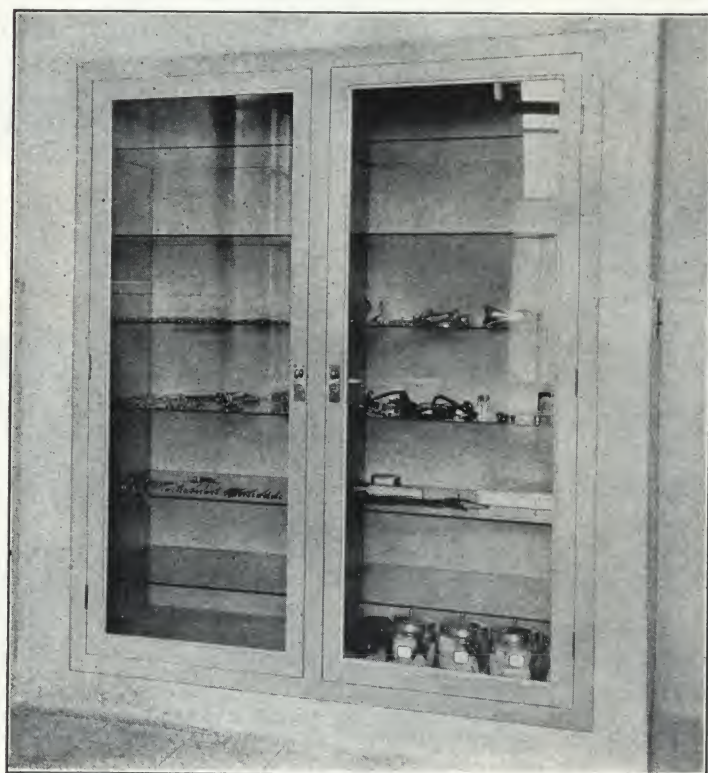
This warmer is heated by a radiator equipped with hand control valves and automatic thermostatic discharge valve. Cabinet and shelving are painted in lacquer to match walls of corridor.

Note: All equipment for the Baker Memorial, Massachusetts General Hospital, was designed by Dr. Frederick A. Washburn who is recognized throughout the hospital world as an authority on hospital design and management. For that reason we have made up a set of photographs of our work in this building and will be pleased to send them to architects and directors of hospitals.

Surgeon's Instrument Case

Major operating room, Morrill Wyman House and Woollson Building, Cambridge Hospital, Cambridge, Mass.; Kendall Taylor & Co., Architects, Boston, Mass.

The illustration at left shows the front view of one of the surgeon's instrument cabinets at the Cambridge Hospital. This cabinet is approximately 84 in. high, 60 in. wide and 15 in. deep, made of No. 16 and No. 18 gauge patent leveled furniture steel. Doors are glazed with plate glass. Shelves are of plate glass with ground and beveled edges, supported by racks that permit shelves to be spaced at different levels. Cabinet is painted in lacquer finish to harmonize with walls of operating room. Hardware consists of heavy chromium-plated butts and paracentric locks, master keyed, provided with chromium-plated knobs. The doors of cabinets are of heavy hollow metal door construction that provide quiet closing and prevent any tinny metallic sounds. This cabinet sets into, and is flush with, the plastered wall allowing no crevices for the collection of dirt and vermin.



Surgeon's Instrument Case, Cambridge Hospital

ALBERENE STONE COMPANY

Alberene Stone Laboratory Equipment

153 West Twenty-third Street, NEW YORK, N. Y.

For Branch Offices, see our page on Stair Treads

Products

ALBERENE STONE, the natural quarried stone, is produced and fabricated for:

Laboratory Table Tops and Backs

Sinks and Drainboards

Fume Hoods and Ducts

Shelving, Cabinets and Peg Boards

Baths, Tanks and Vats

Flooring and Bases

Other miscellaneous Laboratory Equipment

For our page on Interior and Exterior Architectural Uses and Sanitary Equipment, Tubs and Kitchen Sinks, see Manufacturers' Index.



we believe to be without an equal. Our engineers are regularly invited to advise with chemical executives and architects on the planning of the laboratory layout for any work they may have. This service is rendered freely, and without cost or obligation.

We have been intimately associated with the latest developments in laboratory planning for over 25 years, and bring to you a knowledge of the best ideas used in the notable modern laboratories.

Let us send you a copy of the Alberene Laboratory Catalog.

Alberene Stone for Laboratory Equipment

In this field Alberene Stone is generally recognized as the *standard material*, as is evidenced by its general use and ever-increasing adoption by schools, colleges, hospitals, industrial plants, and the United States Government.

A natural stone, chemically inert and highly resistant to acids and alkalis, it is capable of being sawed, shaped and fabricated in any desired form without chipping or spalling. It is proof against wear, heat, moisture—in short, it has every desirable characteristic for laboratory service. Yet Alberene Stone equipment costs no more than substitutes which can only be partially satisfactory.

Advisory Service in Laboratory Design

Because of the importance of Alberene Stone in the planning of a laboratory we have, through years of specialized experience, acquired a fund of knowledge on laboratory design which

A Few Representative Installations

Aluminum Co. of America, New Kensington, Pa.; Cleveland, Ohio; Bridgeport, Conn.; Arvida, Can.
American Sugar Refining Co., New York, N. Y.; Baltimore, Md.
Baltimore & Ohio R. R., Baltimore, Md.
Barrett Co., Frankfort, Pa.; Detroit, Mich.; Youngstown, Ohio; Toledo, Ohio; Bethlehem, Pa.; Edgewater, N. J.
Bell Telephone Laboratories, New York, N. Y.
Bellevue Hospital, New York, N. Y.
Beth Israel Hospital, New York, N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
Chicago University, Chicago, Ill.
Columbia University, New York, N. Y.
Crucible Steel Co., Harrison, N. J.; Pittsburgh, Pa.
E. I. duPont de Nemours & Co., Inc., Wilmington, Del.
Fifth Avenue Hospital, New York, N. Y.
General Electric Co., Harrison, N. J.; Schenectady, N. Y.; Pittsfield, Mass.
Goodyear Tire & Rubber Co., Akron, Ohio
Massachusetts Institute of Technology, Cambridge, Mass.
Merck and Co., Rahway, N. J.
Princeton University, Princeton, N. J.
Rockefeller Institute for Medical Research, New York, N. Y.
Standard Oil Co., Bayway, N. J.; Brooklyn, N. Y.; E. Providence, R. I.
Tide Water Oil Co., Bayonne, N. J.
Toronto University, Toronto, Ont.
United States Government:
Department of Agriculture, Washington, D. C.
Bureau of Chemistry, Washington, D. C.
Bureau of Standards, Washington, D. C.
Navy Department, Washington, D. C.
War Department, Langley Field, Hampton, Va.
U. S. Steel Corporation, Clairton, Pa.
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.
Yale University, Sterling Laboratory, New Haven, Conn.

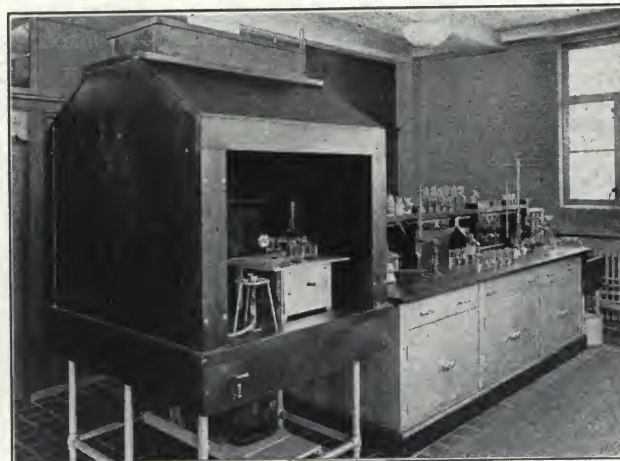


New U. S. Appraisers' Laboratory, New York, N. Y.

"Will outlast the building" is not a catch phrase. Here are the table tops and fume hoods which were used from 15 to 30 years in the old laboratory before being set up here



Alberene Stone Table Tops, Shelving, Sinks and Fume Hoods, Frick Chemical Laboratory, Princeton University



Alberene Baffle-type Fume Hood, with Duct Openings at Top, in New Aluminum Research Laboratories

CONCEALED BED CORPORATION

MANUFACTURERS AND DISTRIBUTORS FOR HOLMES DISAPPEARING BED CO.

TELEPHONE

CENTRAL 6423, 6424

OFFICE AND DISPLAY ROOMS

58 East Washington Street, CHICAGO, ILL.

FACTORY

WOODSTOCK, ILL.

Products

SPACE SAVING CONCEALED BEDS: Full, Three-quarter and Twin sizes (patented); Single-door Pivot, Two-door Pivot, Oscillating Center Pivot, Off Center Pivot, Twin Pivot with pivot center door, Twin Pivot with hinged center door; Wall, Couch and Recess Beds.

LOCAL REPRESENTATIVE

Service

Our Service Department is constantly in touch with architects and builders throughout the country, co-operating in working out special concealment and floor layout problems. The ideas secured through these contacts we offer to architects, contractors and builders without expense or obligation.

Features of Holmes Concealed Beds

These beds are unexcelled from the standpoint of construction, operation, comfort and design.

Construction

Holmes Beds have a standard one-piece head end which does not fold. They have fewer working parts, therefore their life and service are longer. The bed cannot jackknife nor can the head or foot ends collapse.



They are of special box spring construction and have full depth, retempered Premier steel wire coils.

Thousands of people throughout the country appreciate the cleanliness, comfort and convenience of Holmes Concealed Beds. They realize that they are sanitary, economical and reduce housework to a minimum. Holmes Beds are fast becoming the accepted bed for all sleeping accommodations and are serving

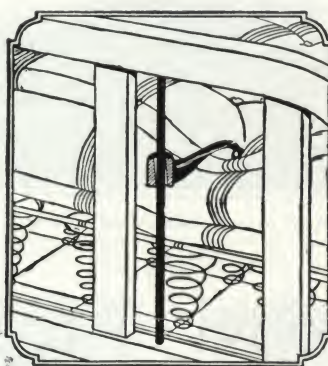
to make one room do the duty of two.

Minimum Floor Space Required

The Holmes Concealed Bed requires a minimum of floor space, regardless of the type of bed.

Easily Operated

"The easiest to operate" is a phrase that has come to be associated with Holmes Beds. They are so perfectly balanced that they can be raised or lowered with the slightest effort. Holmes Roller Beds ride on perfectly beveled $4\frac{1}{2}$ -in. rollers fitted with one set of roller bearings and two sets of thrust ball bearings.



Mattress Clamp

Mattress Clamps

Holmes Beds are equipped with two solid, non-breakable mattress clamps which hold the bedding and pillows firmly in place without slipping.

Designs and Finishes

In sizes and styles Holmes Beds meet every requirement and offer a price range to meet every condition. They are made in twin, single, three-quarter and full size.

Designs—Holmes created new beauty in concealed beds by making it possible to use wood head and foot ends, thus giving the beauty of period furniture in addition to economy and comfort.

Open ends have $1\frac{1}{2}$ -in. continuous square posts with seven or nine $\frac{1}{2} \times 1\frac{1}{2}$ -in. rectangular fillers; also with cane and solid steel panels.

Finishes—American walnut and mahogany finish on steel are standard. Durable enamel, baked-on in the proper degree of heat, can be furnished in all colors to suit the individual taste and harmonize with room furnishings.

Special Designs and Finishes—Twenty-three years' experience as exclusive concealed bed manufacturers and our new modern and enlarged plant place us in an exceptional position to fill special orders where exclusive designs and finishes are required.

Guaranteed Sleeping Comfort

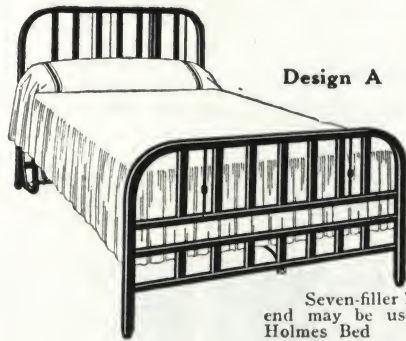
Holmes Beds use full depth, double-deck, helical top coil springs, twice tempered in oil, the entire width and length of the bed. This insures a spring of greater softness, longer durability and maximum comfort.

The spring is clamped to a rigid steel frame with heavy cross members. The large coil springs are tied together with small steel wire, helical springs giving amazing flexibility and comfort.

A new and exclusive Holmes feature is the special construction of the spring and the treatment of the wire ends. These are bent in to eliminate the possibility of snagging the mattress or tearing the bed clothing or wearing apparel.

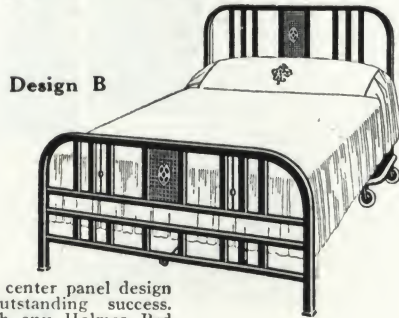
Holmes Box Springs are furnished when specified.

Standard Designs of Head and Foot Ends



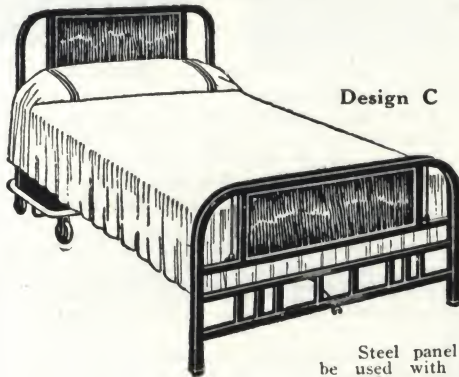
Design A

Seven-filler head and foot end may be used with any Holmes Bed



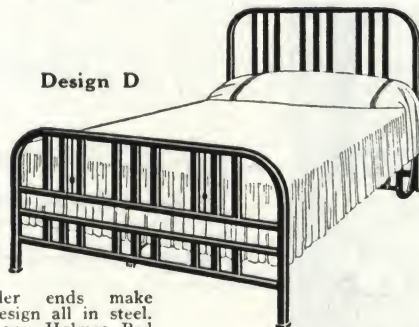
Design B

Cane center panel design is an outstanding success. Used with any Holmes Bed



Design C

Steel panel design may be used with any Holmes Bed



Design D

Nine-filler ends make attractive design all in steel. Used with any Holmes Bed



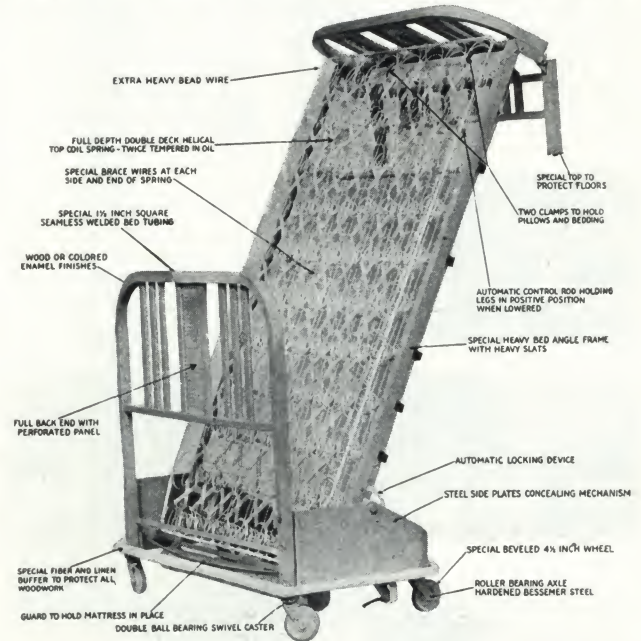
Design W

Wood ends. May be used with any Holmes Bed

Holmes Roller Bed (Model 39)

The Holmes Roller Bed in all standard widths and sizes is complete with head and automatic foot ends and equipped with special highly resilient, full depth, double-deck coil springs—sanitary, verminproof, easily cleaned.

Holmes special bumpers are designed to safeguard against possible damage to furniture, walls or woodwork. Specially designed ball bearing, highly polished, perfectly beveled, 4 1/4-in.



hardwood maple rollers, which operate easily and smoothly, are used to prevent floors from being marred or the carpets and rugs from being damaged. Bed may be placed in any part of the room. This is especially convenient in summer when it is desirable to place the bed near the windows. This type of bed is also very desirable where a porch is used as a lounging place in the daytime and a sleeping place at night.

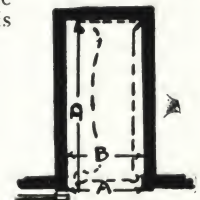
Hotels and clubs have found this bed most satisfactory, as it provides the guest with a living room during the day. As an auxiliary bed it effects a large saving in time and money as it can be easily rolled, ready for use, to the guest room requiring an extra bed.

An exclusive feature is the Holmes automatic lock which prevents the bed from jackknifing or folding over on top of the sleeping surface when the bed is down. The concealment of all mechanical parts makes this model a bed of distinction. There are no castings to break.

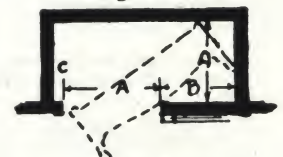
Stock size doors are used. If closet space is not available, we furnish canopy rods which are attached to the bed itself or to the wall, from which draperies can be hung that harmonize with the room furnishings and completely conceal the bed. Rods are furnished single or double, the double being used when a valance is desired.

CLOSET DIMENSIONS

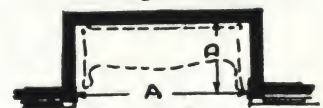
A—Door	B	C	D
Full Size Bed			
2' 2" x 6' 8"	2' 4"	5' 0"	
2' 4" x 6' 8"	2' 11"	5' 3"	2' 2"
2' 6" x 6' 8"	2' 9"	5' 2"	2' 11"
2' 8" x 6' 8"	2' 7"	5' 2"	2' 10"
2' 10" x 6' 8"	2' 5"	5' 2"	2' 8"
3' 0" x 6' 8"	2' 3"	5' 2"	2' 6"
2-2' 6" x 6' 8"		2' 0"	
Three-quarter (Small Double)			
2' 2" x 6' 8"	2' 4"	4' 6"	
2' 4" x 6' 8"	2' 6"	5' 2"	2' 11"
2' 6" x 6' 8"	2' 4"	5' 2"	2' 9"
2' 8" x 6' 8"	2' 2"	5' 2"	2' 7"
2' 10" x 6' 8"	2' 0"	5' 2"	2' 6"
3' 0" x 6' 8"	1' 10"	5' 2"	2' 5"
2-2' 4" x 6' 8"		2' 0"	
Single			
2' 2" x 6' 8"	2' 4"	4' 0"	
2' 4" x 6' 8"	2' 1"	5' 2"	2' 8"
2' 6" x 6' 8"	1' 11"	5' 2"	2' 6"
2' 8" x 6' 8"	1' 9"	5' 2"	2' 4"
2' 10" x 6' 8"	1' 7"	5' 2"	2' 3"
3' 0" x 6' 8"	1' 5"	5' 2"	2' 3"
2-2' 2" x 6' 8"		2' 0"	



Single Door



Single Door



Double Door—Closet Plans

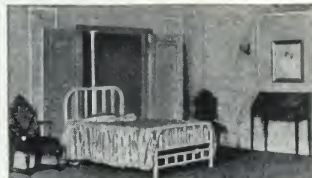
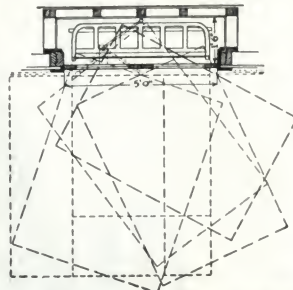
Holmes Pivot Beds

Special Pivot Bed No. 63

In the new Holmes Special Pivot Bed No. 63 we offer a new adaptation of the patented pivot, the use of which gives an entirely new flexibility to the arrangement of closets for concealed beds.

The architect specifying this bed is greatly assisted in planning the bed closet arrangement because of the flexibility of this new pivot bed and the small amount of space required, as it operates in a recess type closet having an opening 5 ft. wide and a depth of 18 in. from inside of doors to baseboard.

The Special Holmes Pivot Bed No. 63 can be lowered as an ordinary recess bed.



Hardware for Pivot Beds

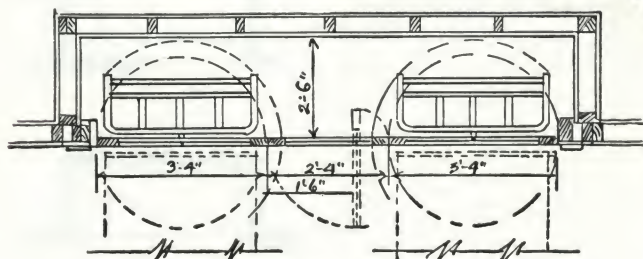
All hardware necessary for pivoting of beds furnished with beds. Hardware is always shipped separate from head and foot ends (except on Model No. 47), thus permitting all doors to be installed and finished before bed is attached. This may be done later by using six bolts.

Any carpenter can make the installation easily and quickly. Builder may use door or panels. Write us for other new methods.

Twin Pivot Beds (9-ft. Opening) Model 45

This installation is similar to the two-door pivot installation except that three doors are used. Side doors are pivoted at center and carry the beds. Center door is pivoted off center and gives access to closet at all times regardless of position of beds. Closet may be enlarged to form a dressing room. The opening is closed back of the sleeping surface, eliminating any direct draft over the head end.

Holmes Twin Pivot Beds occupy minimum closet space thus giving more room.



Dimensions and Operation Model 45 (9 Ft.)

Twin Pivot Beds (7-ft. Opening) Model 45

For opening of 7 ft., using three doors, one door is hinged to one of pivoting doors and revolves with it. This installation only needs 2 ft. 1 in. inside door, and requires but three 2-ft. 4-in. stock doors or panels. There is an overlap on either side of 8 in. from edge of door when beds are lowered into sleeping position, with a full 2-ft. 4-in. access between beds.

Two-Door Model 45

An exceptionally handsome and very popular model, requiring less closet and wall space than most pivot beds, thus reducing the amount of floor space with consequent reduction in building cost.

One of the doors is hinged and opens while the other pivots with the bed allowing it to be lowered into the room. Full access into the closet may be had through the hinged door when bed is lowered. This door may also be closed, completely closing the opening back of the bed when in use. The spread hides what little mechanism there is.

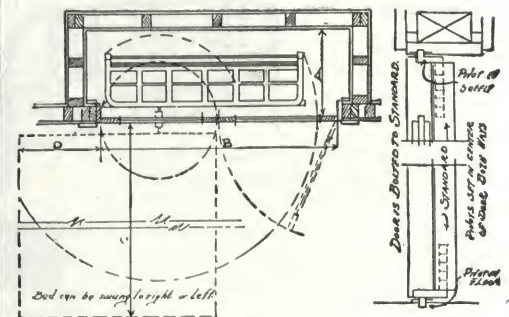
A steel standard, which carries the full weight of bed and pivoting door, eliminates the possibility of warping or twisting the door. With this construction French or mirror doors may be used. Regular mill stock doors are used. With the steel standard bar any thickness of door may be specified, without standard 1 3/4-in. doors are necessary.

Auxiliary legs are installed on all pivot models, with or without steel standards, taking all strain from door or standard, as the bed rests on four legs the same as any set-up bed. These auxiliary legs are automatically placed as bed is lowered into sleeping position.

An exclusive feature on all Holmes pivot beds is that they are easily adjusted without removing bed from opening, thus avoiding extra expense if building settles. Necessary hardware is furnished for installation of pivoting door. The only hardware the builder furnishes is hinges and lock for hinged door.



Model No. 45



Details and Operation, No. 45

Twin Model No. 45

CLOSET DIMENSIONS

Size of Bed	A	B	C	D
Full.....	2' 0"	5' 4"	7' 0"	2' 0"
Three-quarter.....	1' 11"	5' 0"	7' 0"	1' 8"
Single.....	1' 10"	4' 4"	7' 0"	1' 4"

Center and Off Center Pivot Bed

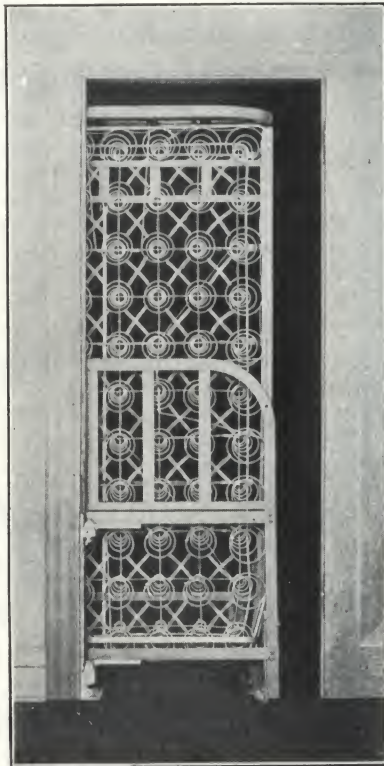
We are in position to furnish center and off center pivot installation beds in any design and finish of head and foot ends.

Holmes Piv-A-Door Beds

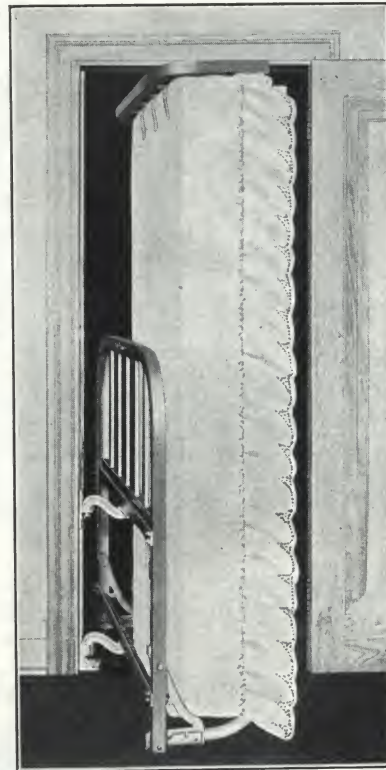
In announcing the Piv-A-Door Bed No. 55, Holmes is now in position to fill the demand of the architect and builder for a single-door, pivot bed.

Holmes Piv-A-Door Bed No. 55 has fewer working parts than any similar bed on the market.

Note the sturdy construction of the one-piece head end which does not fold. Helical top coil springs are standard equipment on Holmes Piv-A-door Beds. The one-piece foot control rod automatically operates



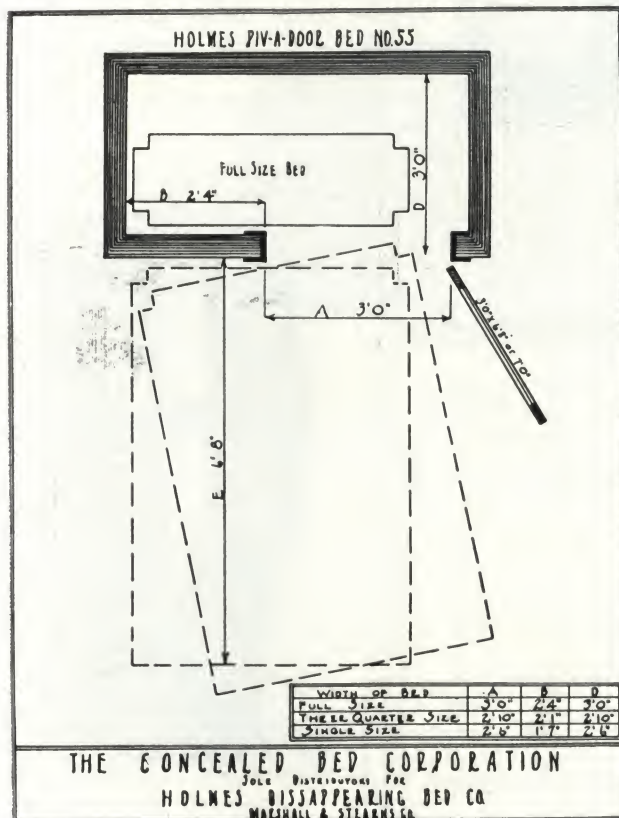
Holmes Piv-A-Door Bed No. 55 in the Closet with a Single 3-ft. Door Open



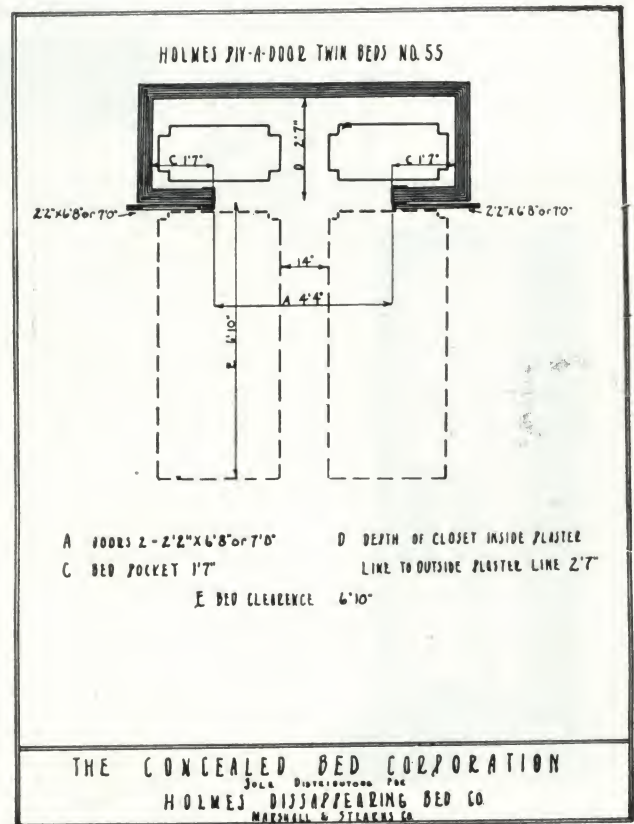
Holmes Piv-A-Door Bed No. 55 Fully Made with All Bedding Can be pivoted out or in the closet ready to be lowered into sleeping position

foot end as bed is lowered into sleeping position. Malleable mattress clamps securely hold all bedding and will not permit bedding to slip when bed is up-ended. The one main movable working part is on a 1/2-in. steel bolt. Special 1 1/2-in. square seamless welded tubing is used in head and foot end, fillers being 1/2x1 1/2-in. rectangular.

Height of door opening should be not less than 6 ft. 8 in. in the clear. Sleeping length of bed 6 ft. 4 in.



Minimum Closet Dimensions, Holmes Piv-A-Door Bed



Minimum Closet Dimensions, Holmes Piv-A-Door Twin Beds

MIDWEST CONCEALED BED CORPORATION

Affiliated Companies
EVANSVILLE METAL BED CO. LOS ANGELES WALL BED CO.

Manufacturers of All Types of Concealed Bed Equipment

MAIN OFFICE AND PLANT
EVANSVILLE, IND.

PACIFIC COAST DIVISION: L. A. WALL BED Co., LOS ANGELES, CAL.

SPECIAL REPRESENTATIVES

FRANK H. JOHNSON & SON, 228 No. LaSalle Street, CHICAGO, ILL.
OTTO F. STEGER, INC., 13 So. 21st Street, PHILADELPHIA, PA.

AGENTS IN PRINCIPAL CITIES

Products

All types of CONCEALED BEDS, including Portable Closet (roller type), Recess (stationery and swingout), Jamb and Right Angle types, Pivotol Door Beds.

Also a complete line of Metal Beds, Bed Springs, Da-Beds, Hospital and Dormitory Beds.

The Company

In the twenty-one years since the head of our parent company introduced his first concealed bed, many important advancements in this field have

been contributed by our company. In the Midwest Line of Concealed Beds these worthwhile features are incorporated.

Concealed Beds

The Midwest Line of Concealed Beds measures up to the needs of present day building construction. We understand these requirements, and stand ready to render a service to all who are interested in superior equipment of this character. Catalogue and complete data furnished upon request.

MIDWEST JAMB TYPE CONCEALED BEDS

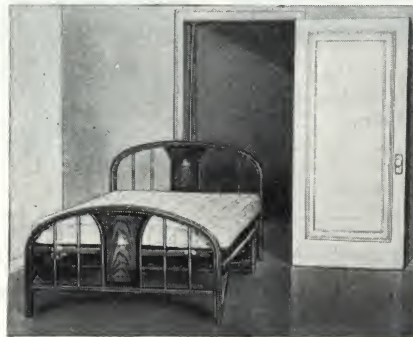
Installation No. 1

Beds can be pivoted to either right or left jamb as the occasion demands, provided there is sufficient pocket room.

Detail shows minimum dimensions to accommodate full sized bed.

Door width, 3 ft. Pocket clearance, 2 ft. 3 in. from face of jamb.

Depth of closet 3 ft. from inside plaster line to face of the door. Door clearance 3 ft. 2 in.



For

Three-quarter Size Bed—Door, 2 ft. 10 in.

Pocket clearance, 1 ft. 11 in.

Closet depth, 2 ft. 7 in.

For Twin Beds

—Door 2 ft. 8 in.

Pocket clearance, 1 ft. 7 in.

Closet depth, 2 ft. 7 in.

Opening widths allow a good clearance for passage of bed with doors opening full back or standing at right angle to the opening.

(Should there be sufficient wall space to allow door to open full back, width of opening may be reduced to

2 ft. 6 in. for Twin Size Beds.

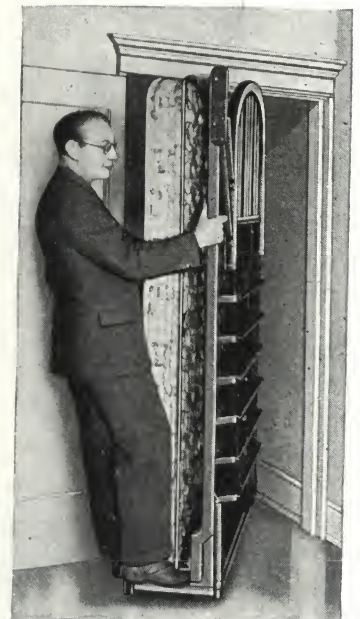
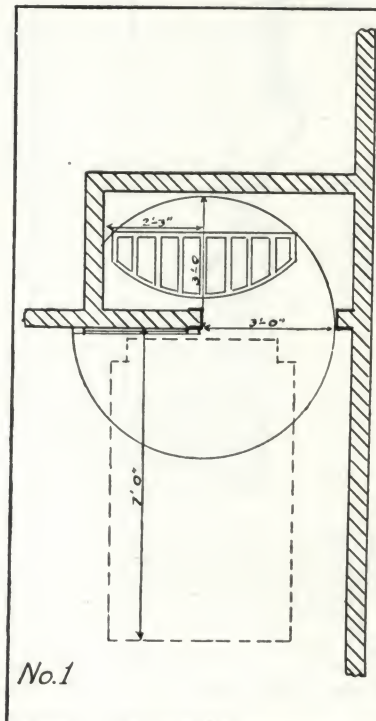
Minimum height of opening, 6 ft. 8½ in.

Door height, 6 ft. 8 in. regular stock thickness.

Note: Minimum depth measurement is from inside plaster line to face of door based on the use of regular stock door thickness (1⅜ to 1¾ in.). For openings having doors of greater thickness add the average to minimum depth measurement.



Showing vertical strut of bracket assembly. Jamb type installation. Top guide only is attached to jamb, but carries no weight, and rotates bed around jamb with but slight effort



Illustrating ability of our rugged construction to withstand both torsion and direct strain, which insures against sagging of bed frame. Bed frame clears floor by approximately 2½ in.

MIDWEST PORTABLE CLOSET BEDS—ROLLER TYPE

A scientifically, all-steel-constructed bed designed to occupy a minimum of space, which, being free of all cumbersome mechanism, can be rolled from concealment to desired position in room with but slight effort.

Individual Features—Circular carriage or base construction (no sharp corners) only 20½ in. in width; all contact surfaces fully protected with felt buffer strip.

Exceptional Balance—Solely by tension springs (eliminating excessive weight existing in counterbalance types).

Automatically Controlled Center Swing Leg—A positive guarantee against jackknifing or folding over of head end when bed is in lowered position.

Ball Bearing Casters—Faultless ball bearing "rubberex" casters, 4-in. diameter, insure easy rolling.

Spring Frames—When raised or lowered, swings well within back line of carriage, insuring against defacement of walls or interior trim.

Bed Ends—Art line tubing 1½-in. diameter furnished in variety of designs and finishes.

Finishes—Standard finishes: wood brown and hand grained American walnut. Our hand grained wood finishes are beautiful reproduc-



Midwest Bed

Upright position, showing narrow base only 20½ in. wide

tions of natural woods. These artistic finishes represent the handwork of experts whose artistry lend the tonal qualities lacking in the average commercial wood finishes. We produce an unexcelled finish, both in appearance and durability.

Note: In quantities of ten beds or over we will match any special color scheme or wood finish to order at slight additional cost over standard or stock finishes.

We are in position to manufacture and design special patterns of beds made up according to your designs, provided the quantity is twenty-five or more beds.

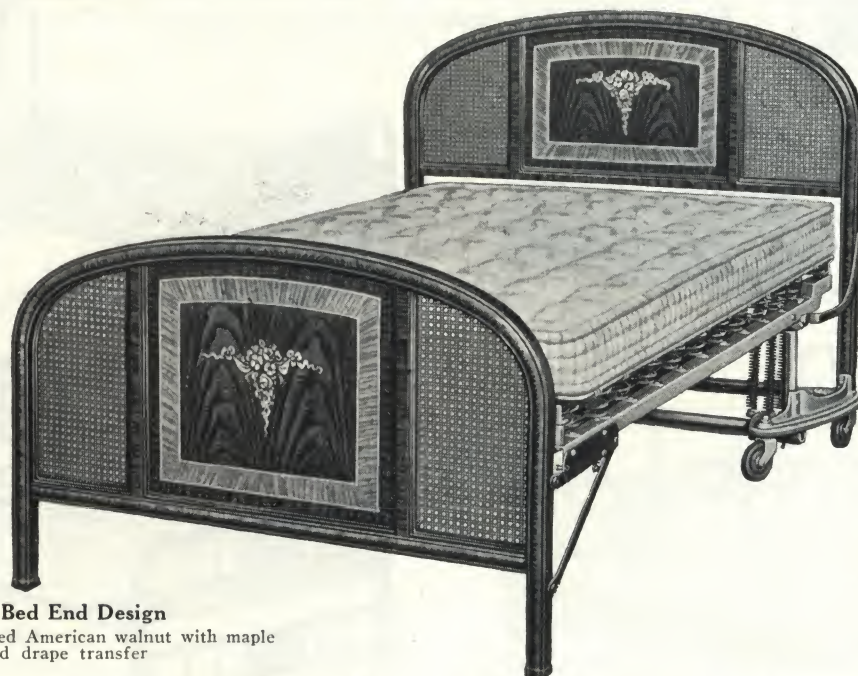
Spring Equipment—Full size springs contain 108 coils of high tempered Premier wire with soft helical tied top. Ample depth of coils insures maximum comfort. Furnished in both single and double deck types.

Midwest Beds are unusually attractive and their durable, compact construction, reduced to a minimum of weight, makes them one of the most desirable of their class offered.

Full details of the complete Midwest line on application.

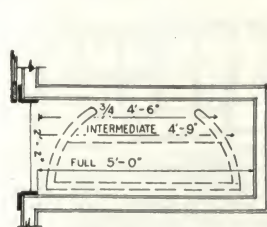
MIDWEST CLOSET BED

Size of bed	Over-all dimensions of carriage or base of bed			
	ft.	in.	x	in.
Full size.....	4	10	20 ½	
Three-quarter	4	4	20 ½	
Twin	3	7	20 ½	



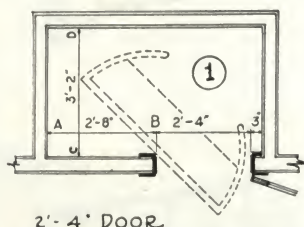
No. 104 Bed End Design

Finished in hand grained American walnut with maple inlay and drape transfer



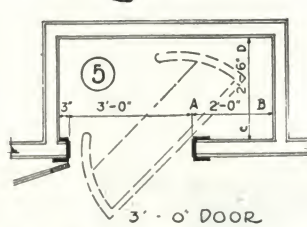
Minimum door width 2 ft. where door opens full back

Note: All dimensions are based on full size beds. On Plans 1 and 5—for intermediate size bed, closet can be 3 in. less between A and B and 1½ in. less between C and D. For three-quarter size bed, closet can be 6 in. less between A and B and 3 in. less between C and D. All doors 6 ft. 8 in. high.



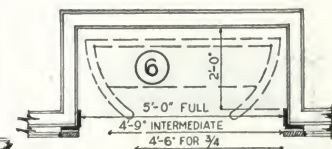
2'-4" DOOR

Minimum depth of closet in combination with a 2 ft. 4-in. door



3'-0" DOOR

Minimum depth of closet in combination with a 3-ft. door



TWO 2'-6" FRENCH DOORS

One pair of 2 ft. 6-in. doors, minimum depth of closet 2 ft.

MIDWEST PORTABLE CLOSET BEDS

MURPHY DOOR BED COMPANY

OFFICES AND DISPLAY ROOMS THROUGHOUT UNITED STATES AND CANADA

NEW YORK, N. Y., MURPHY DOOR BED Co., 19 West 44th Street
For Pennsylvania, West Virginia, Virginia, District of Columbia,
Maryland, Delaware, New Jersey, New York and the six New
England States
CHICAGO, ILL., MURPHY DOOR BED Co. OF CHICAGO, 173 West Madison
Street
For Illinois, Indiana, Ohio, Wisconsin, Minnesota, Iowa, Nebraska,
North Dakota, South Dakota
DETROIT, MICH., MURPHY WALL BED Co. OF DETROIT, Kresge Building
For Michigan
SACRAMENTO, CAL., JOHN BREUNER Co.
For Sacramento and San Joaquin Counties
NASHVILLE, TENN., MURPHY DOOR BED Co. OF ALABAMA AND TEN-
NESSEE, 306 No. Third Avenue

DENVER, COLO., COLORADO BUILDERS SUPPLY Co., 1534 Blake Street
For Colorado
ST. LOUIS, MO., MURPHY DOOR BED Co. OF ST. LOUIS, 315 No. 10th Street
For Missouri, Kentucky, Mississippi, Arkansas, Kansas, Oklahoma,
Texas and Louisiana
LOS ANGELES, CAL., MURPHY BED SALES Co., LTD., 1807 So. Main Street
For Southern California
ATLANTA, GA., MURPHY DOOR BED Co. OF ATLANTA, 254 Peachtree
Street, N. E.
For Georgia, Florida, North and South Carolina
SAN FRANCISCO, CAL., MARSHALL & STEARNS Co., Phelan Building
For San Francisco and adjoining Counties
SEATTLE, WASH., MURPHY DOOR BED Co., Terminal Sales Building
For Oregon, Washington, Montana, Wyoming and Utah

Products

All Types of DISAPPEARING BEDS, including Type "A" and "B" Pivot, Offset Pivot, Recess, Two-Door Pivot, Roller and Special Beds for extreme conditions.

For Murphy Cabranette Steel Kitchens, see Manufacturers' Index.

Bed Sizes

Standard sizes to take standard mattresses and operating through a 6 ft. 8 in. minimum height door.

Bed End Designs

Stock and custom built designs shown below, one and two-piece foot ends, continuous post of moulded "Graceline" tubing used throughout.



Castings

All castings of malleable iron.

Springs

Single and double-deck coil, flat fabric "Slumber King" and box springs. Helical tied.

Pivot Type Beds

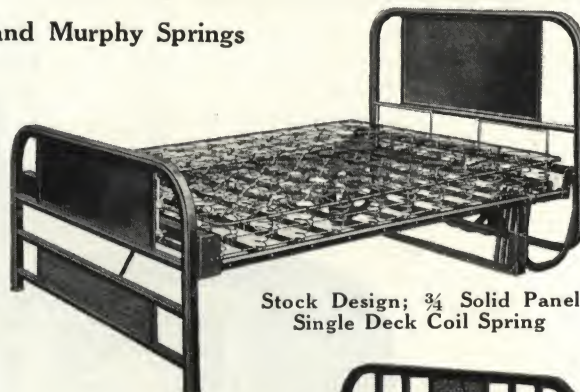
Type "A" Pivot—The finest model of all concealed beds. Perfectly balanced at all angles. The head stands out from the wall and the folding head end holds the pillows snugly in place while the bed stands in the closet.

Type "B" Pivot—Has one-piece head end. Comes down close to door or wall, occupying a minimum of floor space. Multiple spring balance, sturdy construction and economical cost.

Murphy Bed End Styles and Murphy Springs



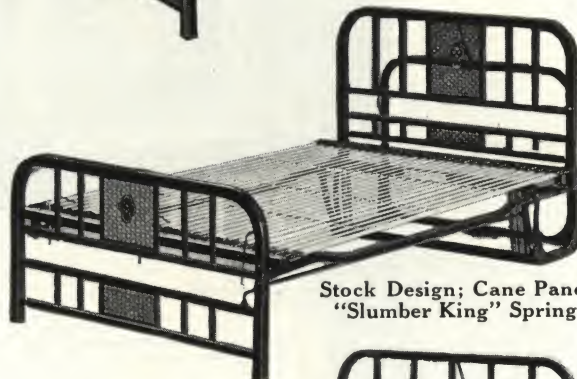
Custom Built
Design No. 17519



Stock Design; $\frac{3}{4}$ Solid Panel
Single Deck Coil Spring



Custom Built
Design No. 17518



Stock Design; Cane Panel
"Slumber King" Spring



Custom Built
Design No. 17517



Stock Design; Open Filler
Box Spring

Installation No. 1, Bed and Door on Opposite Jambs

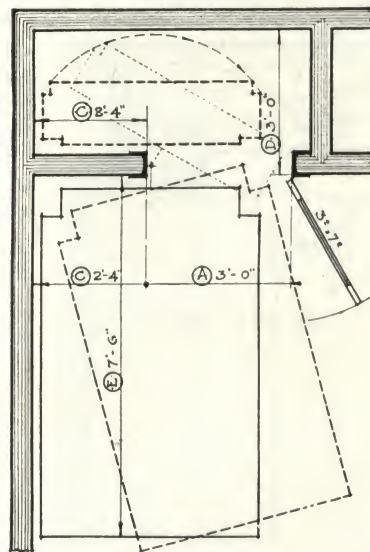


Type "A" Pivot, Open Filler Design, illustrated
Showing position of door and the bed ready for use. Standard stock door. Door and bed independent of each other

Installation No. 2, Bed and Door on Same Jamb



Type "B" Pivot, $\frac{3}{4}$ Solid Panel, illustrated
Showing position of door (behind bed) and the bed ready for use. Standard stock door. Door and bed independent of each other



INSTALLATION NO. 1
BED AND DOOR ON
OPPOSITE JAMBS

Minimum closet dimensions for Murphy Pivot Beds, Types "A" and "B."

A standard full size bed 4'6" wide. Accommodates standard mattress.

Bed can be pivoted to either right or left jamb—provided there is sufficient bed pocket.

A—Door: width 3'0"

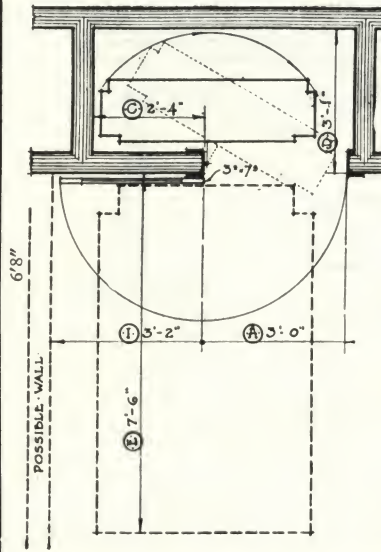
height 6'8" or 7'0"

C—Bed pocket 2'4"

D—Depth of closet 3'0" inside plaster line to outside plaster line.

E—Bed clearance 7'6" wall to foot end of bed when lowered in room.

Door knob height 3'0".



INSTALLATION NO. 2
BED AND DOOR ON
SAME JAMB

Minimum closet dimensions for Murphy Pivot Beds, Types "A" and "B."

A standard full size bed 4'6" wide. Accommodates standard mattress.

Bed can be pivoted to either right or left jamb—provided there is sufficient bed pocket.

A—Door: width 3'0"

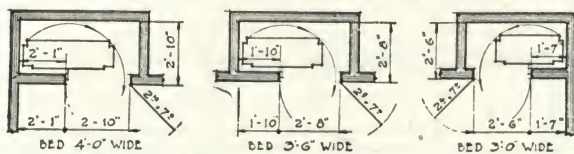
height 6'8" or 7'0"

C—Bed pocket 2'4"

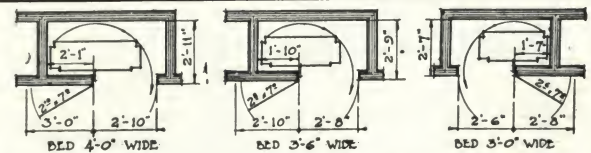
D—Depth of closet 3'1" inside plaster line to outside plaster line.

E—Bed clearance 7'6" wall to foot end of bed when lowered in room.

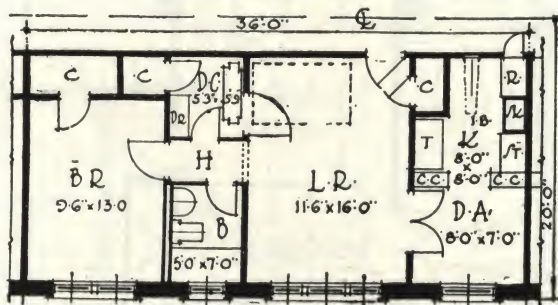
I—Door clearance 3'2"



MINIMUM CLOSET DIMENSIONS FOR OTHER WIDTH BEDS

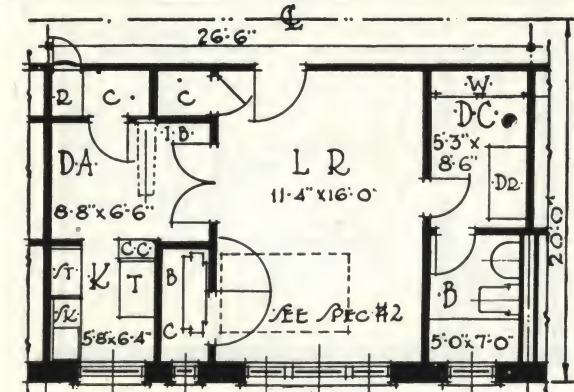


MINIMUM CLOSET DIMENSIONS FOR OTHER WIDTH BEDS



PRACTICAL APPLICATION—BED AND DOOR ON OPPOSITE JAMBS SO BED CAN BE DROPPED DOWN CLEAR OF WALL WITHOUT INTERFERENCE FROM DOOR

Installation No. 1



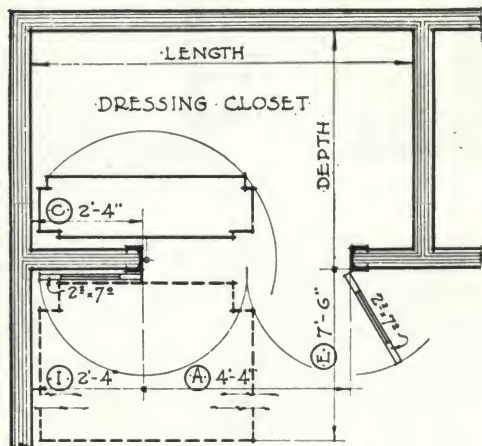
PRACTICAL APPLICATION—BED AND DOOR ON SAME JAMB, SO BED AND DOOR SWING CLEAR OF WINDOWS

Installation No. 2

Installation No. 4, Double Door



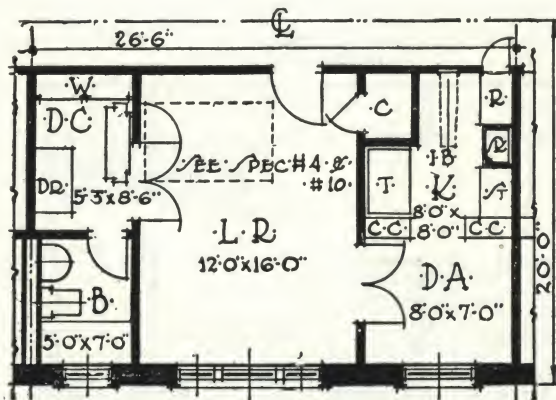
This installation is used where it is essential to have full entrance to and through the dressing closet to the bath or other room. (See floor plan below.) Bed independent of doors. Type "B" Pivot Open Filler, illustrated



INSTALLATION No. 4 DOUBLE DOOR

Minimum required dimensions for full size Murphy bed
4'6"x6'1" in dressing closet, where entry must necessarily be made
through bed opening

- | | | | |
|---------------------|--------------|-------------------------|------|
| A—Doors: width, two | 2'2" | E—Bed clearance | 7'6" |
| height | 6'8" or 7'0" | wall to foot end of bed | |
| C—Bed pocket | 2'4" | when lowered in room. | |
| | | I—Door clearance | 2'4" |



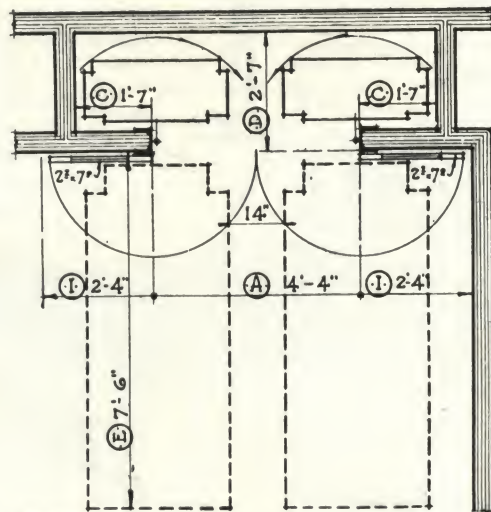
PRACTICAL APPLICATION—DOUBLE DOORS, WHERE ENTRY
MUST BE MADE THROUGH BED OPENING TO BATHROOM

Installation No. 4

Installation No. 7, Twin Murphy Beds, Both Beds Through Same Opening



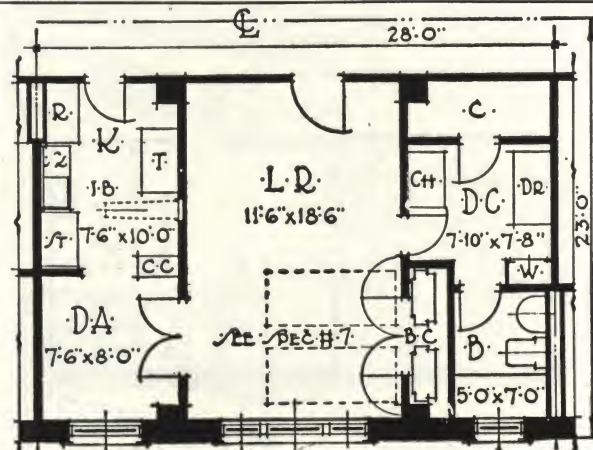
In-A-Dor type. Both beds through same opening. Beds independent of doors. Special Custom Design No. 17517, illustrated



TWIN MURPHY BEDS—BOTH THROUGH SAME OPENING

Minimum closet dimensions for Murphy pivot bed—twin arrangement for standard 3'0" beds.

- | | | | |
|-----------------------------|--------------|------------------|------------|
| A—Doors: width | 2'2" | E—Bed clearance | 7'6" |
| height | 6'8" or 7'0" | wall to foot | end of bed |
| C—Bed pocket | 1'7" | when lowered | in room. |
| D—Depth of closet | 2'7" | I—Door clearance | 2'4" |
| inside plaster line to out- | | Doors must | swing back |
| side plaster line. | | against wall. | |



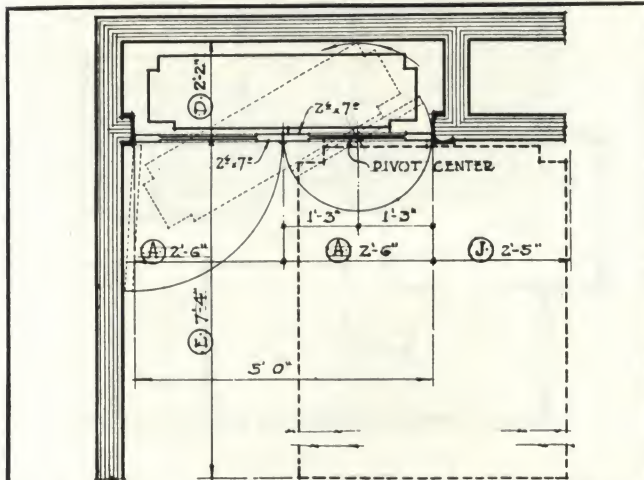
PRACTICAL APPLICATION

Installation No. 7

Installation No. 11A, Two-door Off Center Pivot

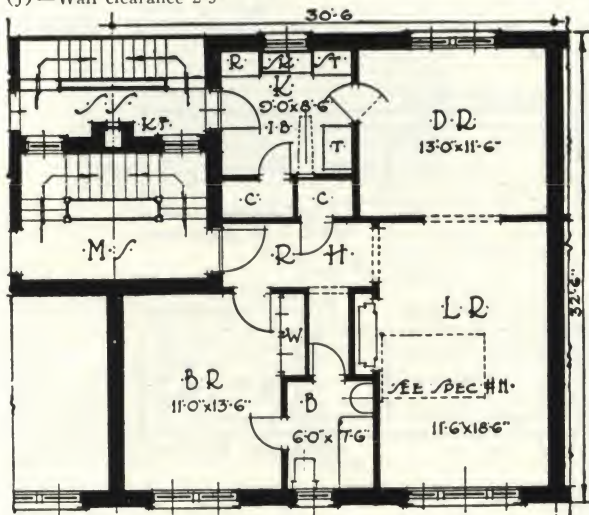


Requires two 2 ft. 6-in. doors, one hinged, the other center pivoted. Bed fastened to pivot door as shown. For access to closet through bed opening, bed must be pivoted into room as shown. Opening closed when bed is in room. $\frac{3}{4}$ Solid Panel, Special Finish, illustrated



DOUBLE DOOR OFF CENTER PIVOT INSTALLATION NO. 11A

Minimum closet dimensions for standard full size bed 4'6"x6'1" inside head and foot ends
 (A)—Doors: width, two 2'6" height 6'8" or 7'0"
 (D)—Depth of closet 2'2" outside face of door to plaster line in back of closet.
 (E)—Bed clearance 7'4" wall to foot of bed when lowered in room.
 (J)—Wall clearance 2'5"



PRACTICAL APPLICATION

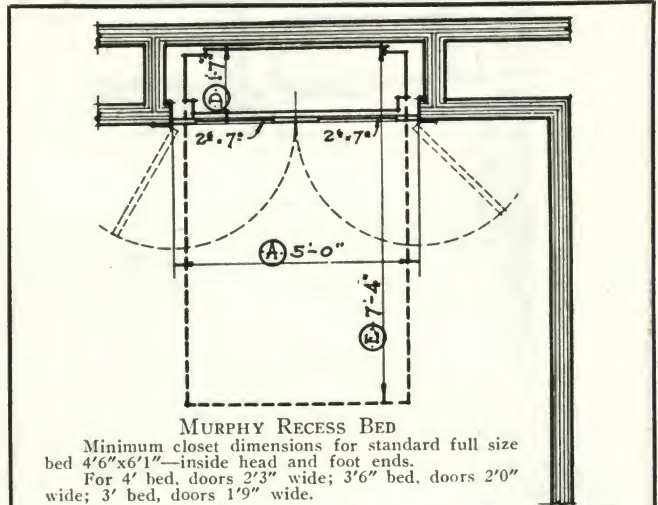
The double door off center pivot installation allows bed to lower away from sidewall or window and closet opening

Installation No. 11A

Installation No. 13, Murphy Recess Type



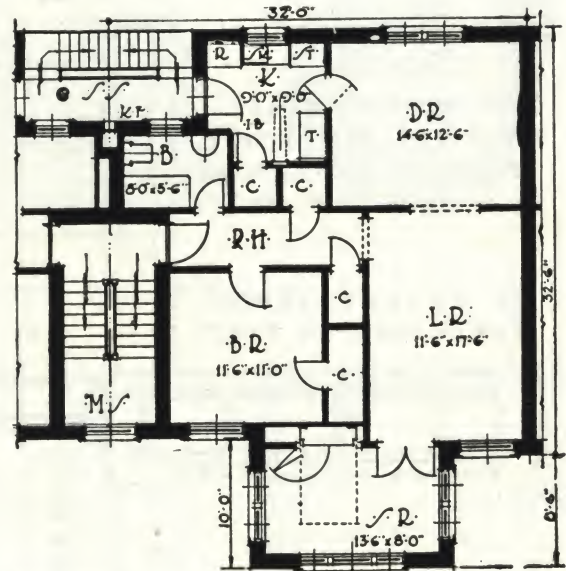
Fastened to floor in shallow recess—lowers straight to floor, does not pivot. When on floor, ready for use, bed is projected forward so head end is in line with door opening.
 Note: When closet can not be provided, a canopy rod can be furnished which permits concealing bed behind draperies. Cane Panel, illustrated



MURPHY RECESS BED

Minimum closet dimensions for standard full size bed 4'6"x6'1" inside head and foot ends.
 For 4' bed, doors 2'3" wide; 3'6" bed, doors 2'0" wide; 3' bed, doors 1'9" wide.

A—Doors: width, two 2'6" height 6'8" or 7'0"
 D—Depth of closet 1'7" inside to outside plaster line.
 E—Bed clearance 7'4" back of closet to foot end of bed.



PRACTICAL APPLICATION—TO USE RECESS BED IN VERY SMALL CLOSET SPACE WITHOUT REDUCING SIZE OF SUN ROOM

Installation No. 13

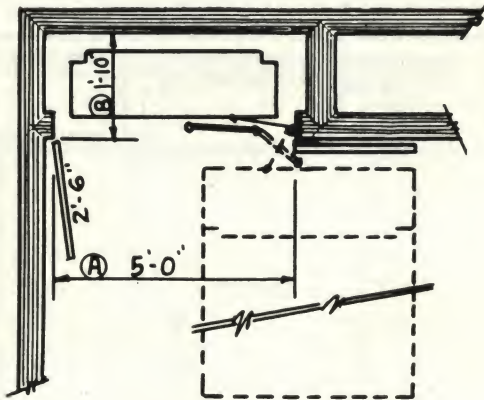
Installation No. 14 Murphy Offset Pivot Bed

A pivot bed in a shallow closet that swings away from sidewall clear of furniture or entrance door.

Illustration shows "B" Type Pivot Bed, $\frac{3}{4}$ solid panel design with one-piece foot end. This type bed is also available in stock and custom designs with one or two-piece foot ends.



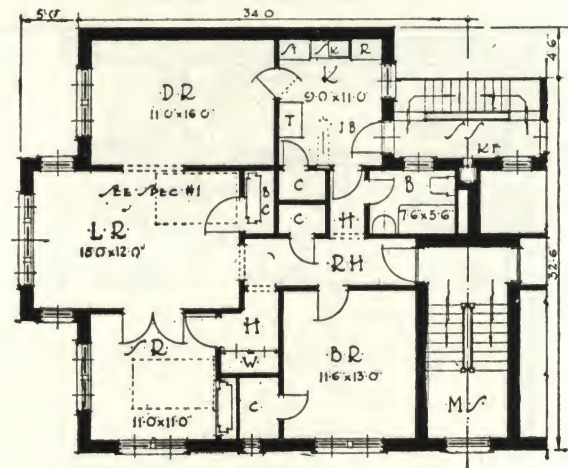
MURPHY "B" TYPE PIVOT



OFFSET PIVOT BED

Standard full size bed accommodating standard mattress. Bed can be pivoted to either right or left jamb.
 A—Doors (two) width
 Minimum height
 B—Depth of closet
 inside plaster to outside plaster

2'-6"
 6'-8" or 7'-0"
 1'-10"



PRACTICAL APPLICATION

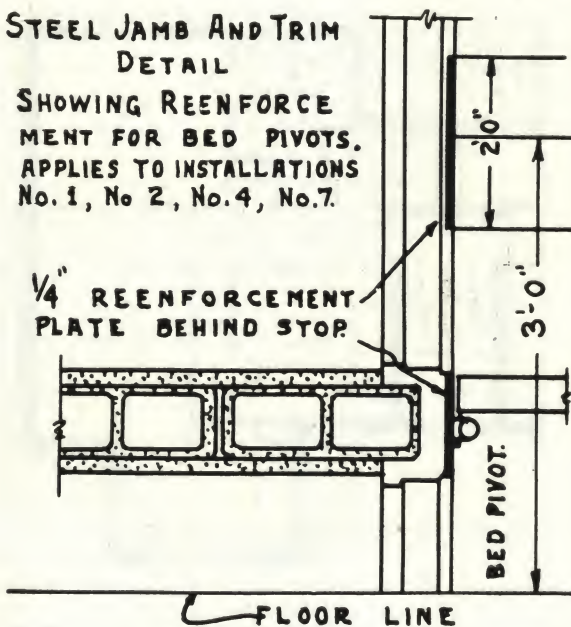
The offset pivot installation takes the bed entirely out of the recess and away from the side wall

Construction Details for Pivot Beds

STEEL JAMB AND TRIM
DETAIL

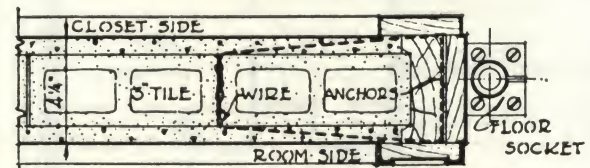
SHOWING REINFORCEMENT FOR BED PIVOTS.
 APPLIES TO INSTALLATIONS
 No. 1, No. 2, No. 4, No. 7.

$\frac{1}{4}$ " REINFORCEMENT
 PLATE BEHIND STOP

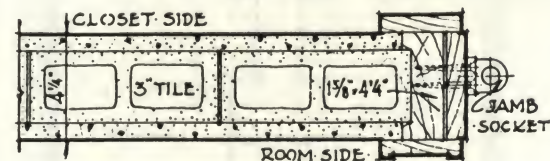


TILE PARTITION

WIRE ABOVE BUCK AND AROUND TILE 1'-0", 3'-0", 4'-0" ABOVE FLOOR



PLAN AT B-B



PLAN AT A-A

DETAIL SHOWING METHOD OF TYING WOOD BUCK TO TILE PARTITION

For all partitions other than the standard stud partition, the wood buck should be anchored with wire ties to the partition wall as shown on the detail above

Murphy "Easy Roller" Bed *"One Hundred Pounds Lighter"*

This modern "Easy Roller" bed is free from heavy counterweight, extremely easy to handle and brings no undue wear to floors and carpets. The ball bearing casters roll at a finger tug, even over small rugs.

Coil or "Slumber King" springs and choice of stock or special ends are available.



$\frac{3}{4}$ SOLID PANEL DESIGN
 One piece foot end, horizontal position

Outstanding Features

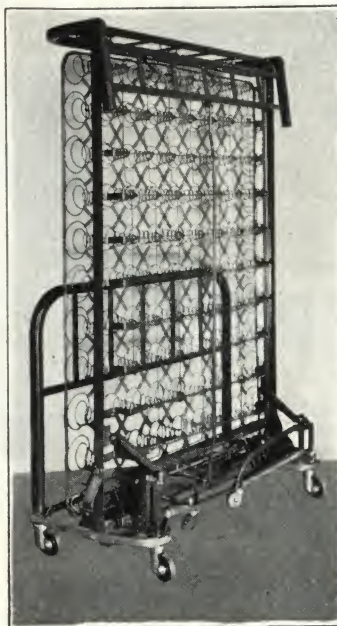
- (1) One hundred pounds lighter.
- (2) Ball bearing casters.
- (3) "Never-mar" and "No-stretch" bumpers.
- (4) Automatic opening and closing carriage.
- (5) Coil or "Slumber King" springs.
- (6) Smart styles.
- (7) Narrow base—23½ in. overall depth.



OPEN FILLER DESIGN
 Two-piece foot end, horizontal position



AS BED IS LOWERED, GATES OPEN



VERTICAL POSITION, GATES CLOSED

Ball Bearing Casters

Ball bearing in wheel and double ball bearing swivel, making it the easiest rolling caster obtainable.

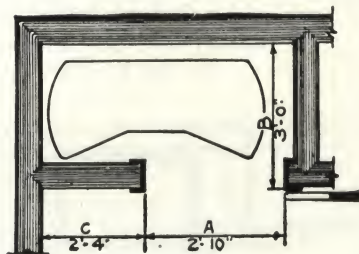
Wheels

Hard rubber wheel with soft rubber tread, vulcanized.

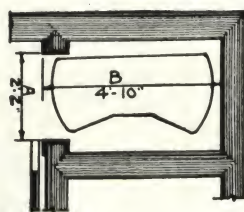


BALL BEARING CASTERS

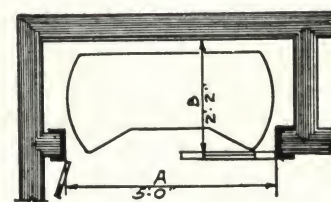
Minimum Closet Dimensions of Murphy "Easy Roller" Beds



Bed width	A	B	C
4' 6"	34"	36"	28"
4' 0"	32"	34"	24"
3' 3"	30"	32"	18"



Bed width	A	B
4' 6"	26"	58"
4' 0"	26"	55"
3' 3"	26"	46"



Bed width	A	B
4' 6"	60"	26"
4' 0"	56"	26"
3' 3"	48"	26"

SENG DUOFOLD CONCEALED BEDS

THE SENG COMPANY

1450 Dayton Street, CHICAGO, ILL.

Three Types, to Meet Every Need

For new or old buildings, without special construction. Average closet is large enough to accommodate them.

Save Half the Floor Space—Seng Duofold Beds are compact concealed beds for two. Roller and Pivot types take less than 5 sq. ft.; Recess type takes less than $3\frac{1}{2}$ sq. ft.; space saved makes larger rooms or added closets possible. In large apartments, an extra room or two is possible on each floor.



Duofold Roller
Bed Rolls
Easily

Quickly and Easily Installed—Duofold Beds come completely assembled. Only with Pivot type two brackets come loose for attaching to door-jamb. No springs or counterweights, no adjustments. No mechanical knowledge needed. No special construction required if closet for Pivot type already has a strong, solid door-jamb. Installation takes less than thirty minutes.

Safe and Easy to Operate—Duofold Beds are of steel: strength without weight. A woman or child can easily operate them. Balancing springs, not heavy counterweights, are used. Special device prevents beds closing when open for sleeping. In the Roller Bed the patented stabilizer keeps bed steady in all positions, preventing it from tipping forward or rolling away from the operator.

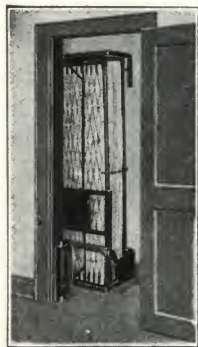
A Comfortable Bed for Two—Large enough for two people, and the famous sagless cable bedspring, with deeper action than average coil springs, will accommodate $3\frac{1}{2}$ -in. inner-spring mat-

tress and reasonable quantity of bedding. A child can sleep comfortably with a heavy person, because the spring will not slope toward the heavy person. This has been demonstrated frequently.

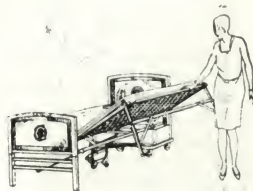
Sanitary, Easily Cleaned—The sagless cable, being flat, can be wiped off on both sides in a few minutes. No rough surfaces on metal parts; all smooth steel. Three types of bed ends are available. They provide variety in design as well as in price.

Maker Is an Old Concern—THE SENG COMPANY, maker of Duofold Beds, has held a high place in the furniture industry since 1874. The plant covers a full city block. They are one of the world's largest makers of furniture hardware specialties, and the originators and exclusive makers of the bed equipment used in Davenport Beds produced by leading furniture manufacturers.

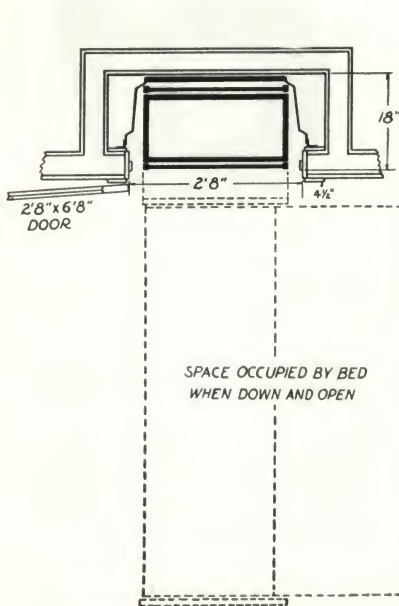
Measurements and Space Requirements—The Seng Duofold Recess Bed folded takes less than $3\frac{1}{2}$ sq. ft.; opened 27 sq. ft. Closet depth needed is but 18 in. from inside of door. A 2-ft. 8-in. x 6-ft 8-in. door is recommended, although a 2-ft. 6-in. door can be used. The Duofold Pivot Bed, swinging back out of the way, is most often used in connection with a closet in which clothes are hung or in which dressing space is provided. And whether the bed is in the closet or out and opened, there is plenty of space for a person to get into the closet. The closet need be but 30 in. deep from inside of door and 44 in. wide, although usually made 60 in. or more in width to be available for other uses. When upright, the Duofold Roller Bed occupies only 31 in. x 23 in. When the closet is made for the bed to enter the narrow way a 2-ft. x 6-ft. 8-in. door is generally used, and the depth of the closet is 31 in. from the inside of the door. If made for the bed to enter the wide way a 2-ft. 8-in. x 6-ft. 8-in. door is used,



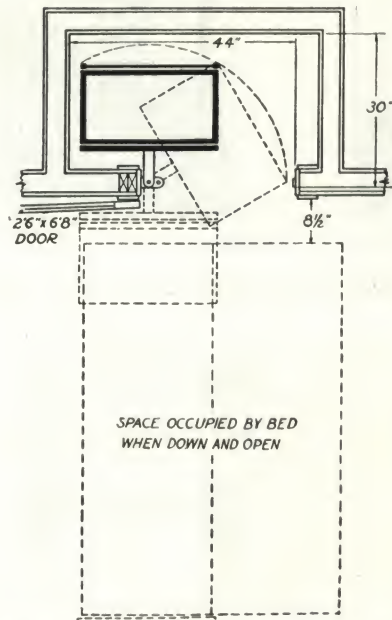
Duofold Pivot Bed
Shown in the Closet



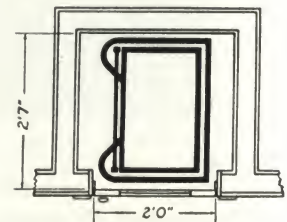
Duofold Recess Bed



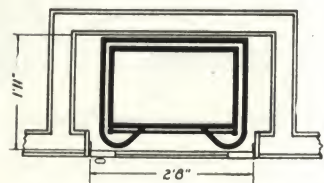
Duofold Recess Bed Closet
Measurement



Duofold Pivot Bed Closet Measurements



Duofold Roller Bed in Closet
the Narrow Way



Duofold Roller Bed in the
Closet the Wide Way

and the closet need be but 23 in. deep. If desired, doors 6 ft. 6 in. high can be used and the bed will still have ample clearance.

Weights—Average net weight of Pivot type (including brackets) 137 lbs.; shipping weight 185 lbs. Average net weight of Recess type 125 lbs.; shipping weight approximately 175 lbs. The average net weight of the Roller type is 135 lbs.; shipping weight about 185 lbs.

Three Types of Ends—Choice of three styles of (head and foot) ends: Grained Walnut with Burl Walnut Panel—No. 671 Roller, No. 681 Recess, No. 691 Pivot.

Grained Walnut Panel Ends: No. 672 Roller, No. 682 Recess, No. 692 Pivot.

Tubular Ends finished in Brown Enamel: No. 673 Roller, No. 683 Recess, No. 693 Pivot.

THE ARISTOCRAT—A DISTINGUISHED ROLLER BED MADE BY THE SENG COMPANY

The Aristocrat is designed for use in homes, hotels and apartments where the maximum of comfort is desired in a bed, and where convenience and quality and sightliness are regarded as essential.

Superlatively comfortable, because details of design and construction have been carefully worked out to make it so, The Aristocrat performs with distinguished excellence the first function of a bed—that of furnishing a place for restful sleep.

The coil bedspring in The Aristocrat is especially made, the coils being deeper and heavier than the ordinary, each coil electrically tempered, giving genuine resiliency with assurance that it is lasting. The bed-spring is handsomely finished with enamel, baked on.

Being a concealed bed, to be closed up by day, the next important function is that of safety. In this The Aristocrat offers several exclusive features. It is scientifically balanced by automatic stabilizers so that it will not tip when being lowered. When the bed is down it is positively locked; it cannot jack-knife. This is accomplished without heavy balancing counterweights, thus affording the required safety without the sacrifice of lightness and simplicity.

In appearance also, The Aristocrat is true to its name. Skillfully designed and nicely proportioned, it has sightliness as a distinct asset when open or closed. In this respect The Aristocrat departs from the common practice of giving the convenience of concealment at the expense of good appearance.

Contrary to the practice of omitting as much as possible in material, workmanship, styling and inspection, in order to make a cheap bed, The Aristocrat embodies every improved feature that sound engineering and good design could provide. It is a practical bed; in our judgment, the easiest to operate and the safest to use.

Instead of being content with the cheap angle-iron side rail, The Aristocrat has Seng Panel Rails at the



sides, shaped and proportioned exactly like the rails on the finest wood beds. These rails not only add materially to the finish and appearance of the bed, but they perform two very definite functions that add to the desirability of The Aristocrat: (1) they hide the maze of springs and the inside of the bed generally, and (2) they permit the tucking in at the sides of bedclothes. This last feature is important first because it aids in rendering the made-up bed more sightly, and second because when the bed is being raised or lowered, there are no moving masses of bedclothes hanging down over both sides.

The Aristocrat comes in two sizes: a double bed in the regulation 4-ft. 6-in. width, and a twin size in 3-ft. width. Each size may be had with a choice of two designs of ends as illustrated, one being a full panel and the other a center panel with fillers at each side. These ends are made with Graceline tubing. The finish on ends as well as panel side rails is in fine burl walnut with the natural grain. This finish is baked on.

The full size bed measures 76 1/4 in. high when closed, 78 1/2 in. long when opened. The carriage measures 58 1/2 in. wide overall, and is 23 in. deep. The twin bed measures 76 1/4 in. high when closed and 78 1/2 in. long when opened. The carriage of the twin bed measures 41 in. overall and is 23 in. deep. Thus both full and twin sizes are narrow enough when closed to pass through a 2-ft. doorway.

The full size bed with solid panel ends (No. 801) weighs about 195 lb. net, 275 lb. crated ready for shipment. The full size bed with panel-and-filler ends (No. 802) weighs about 185 lb. net, 265 lb. crated for shipment.

The twin size bed with full panel ends (No. 821) weighs 150 lb. net, 215 lb. crated for shipment. The twin size bed with panel-and-filler ends (No. 822) weighs 143 lb. net, 208 lb. crated for shipment.

Each bed is packed in individual crate. No assembling to be done on delivery. It is ready for instant use once the crate is opened and the bed rolled out.

Measurement details and suggested floor plans and closet arrangements will be gladly sent to architects or contractors on request.



THE "WHITE" DOOR BED COMPANY

Space Saving Beds and Other Conveniences

40 East 49th Street
NEW YORK, N. Y.

WESTERN SALES OFFICE: 130 North Wells Street, CHICAGO, ILL.

SALES AGENTS IN PRINCIPAL CITIES

Products

A complete line of Disappearing Beds, including "WARWICK" ROLLER BEDS, RECESS BEDS, JAMB-TYPE BEDS, SLIDING DOOR BEDS and PIVOT DOOR BEDS.

"WARWICK" BUILT-IN DRESSING CABINETS, DRESSING TABLES, TELEPHONE CABINETS and similar Space-saving Conveniences.

The Company

THE "WHITE" DOOR BED COMPANY has been known for many years as a leader in the manufacture of space-saving conveniences for residential buildings, and its products are to be found in many of the finest hotels, apartment hotels, apartment buildings and private homes from coast to coast.

Catalogues and Technical Data

The most popular installations of the various

Warwick

DISAPPEARING BEDS

"Warwick" Disappearing Beds are shown on the following pages. Our new catalogue shows a more complete range of plans and contains complete technical details and architectural data as well as many valuable planning suggestions. A copy will be supplied upon request.

Service to Architects

Our Architectural Plan and Service Department and agents will co-operate to the fullest extent with architects and will assist in adapting space-saving conveniences to any project on hand, so as to provide for maximum utilization of the space at your disposal.

Floor plans, estimates and specifications will be gladly furnished. This service is given without fee or obligation.

Features of the New "Warwick" Sliding Door Bed



Sliding Doors at Right Conceal the Twin "Warwick" Disappearing Beds

Installation may be made adjacent to windows as there are no hinged doors to interfere with ventilation

A new type of installation, created exclusively for "Warwick" Beds. Simple in construction and operation. Permits complete concealment of beds when not in use; also, closes closet opening when beds are down.

Beds when in use are completely outside the wall line. Perfect ventilation is always maintained.

The sliding doors conceal the extremely simple bed mechanism which always remains within the recess,

thus giving the appearance of a beautiful stationary bed.

A pair of twin size beds may be installed in a closet 7 ft. wide, 19½ in. deep and 7 ft. high.

Doors operate on channel tracks. They fit very simply and harmoniously into almost any type of room, without being conspicuous.

Beds are of the "Warwick" standard, accurately balanced, beautifully finished, strong and serviceable. Coil springs are standard equipment.



As Attractive in Appearance As Stationary Beds

Note that the closet is closed behind the beds, the wall line is maintained, and there are no doors jutting out

furniture if accidentally bumped. No danger of collapsing.

The patented system of leverage, operating on hardened steel bearings, automatically advances the carriage from the head frame as the bed is being lowered, thus eliminating entirely the necessity of any heavy balance weights on the carriage.

Inset Construction
 Bed occurs
 ordinary closet.
 rolled
 to suit
 or to
 the furni-

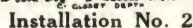
A black and white illustration of a man in a suit standing on a bed frame. The bed frame is shown in a perspective view, with the headboard and footboard visible. The man is standing on the middle section of the bed frame, which appears to be a platform or a set of slats. The illustration is simple, with bold lines and no shading.



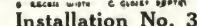
"Warwick" Roller Beds are real beds in comfort and in appearance. They may be had in six designs and many styles of finishes

Installation No. 1

Bed size	Door A	Closet offset B	Closet depth C
Twin	2'-6"	1'-10"	2'-7"
	2'-8"	1'-8"	2'-7"
	2'-10"	1'-6"	2'-7"
	3'-0"	1'-4"	2'-7"
Three-quarter	2'-6"	2'-6"	3'-2"
	2'-8"	2'-4"	3'-0"
	2'-10"	2'-2"	2'-10"
	3'-0"	2'-0"	2'-8"
Full	2'-6"	2'-10"	3'-5"
	2'-8"	2'-8"	3'-3"
	2'-10"	2'-6"	3'-1"
	3'-0"	2'-4"	2'-11"



Bed size	Door A	Recess width B	Closet depth C
Twin	Two 2'0"	4'-0"	2'-6"
Three-quarter	Two 2'6"	5'-0"	2'-6"
Full	Two 2'8"	5'-4"	2'-6"

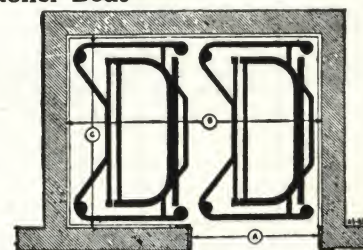


Bed size	Door A	Recess width B	Closet depth C
Twin	2'-6"	2'-8"	4'-0"
Three-quarter	2'-6"	2'-8"	4'-10"
Full	2'-6"	2'-8"	5'-2"

Installation No. 4

Door A	Closet offset B	Closet depth C	Closet offset D
2'-6"	3'-10"	2'-8"	1'-10"

Door A	Recess width B	Closet depth C
2'-6"	5'-2"	3'-11½"



Installation No. 5

Advantages of the "Warwick" Jamb-type Bed

The "Warwick" Jamb-type Bed affords the most modern design, the maximum of comfort and the highest degree of mechanical perfection obtainable in this type of disappearing bed. Above all else, it is a *real bed*—the equal of any stationary bed in luxury and appearance. In construction it is simple, sturdy and unfailingly dependable.

Ingenious New Operating Mechanism—The development of our own manufacturing engineers. Simple, efficient, durable. Distinctly superior in ease of operation.

Perfectly Balanced—Cannot "Jackknife"—Bed raises and lowers with the slightest effort and remains suspended at any angle. A clever mechanical feature removes any chance of "jackknifing."

Economical of Space—Requires small closet and also



takes less space in room when in use, for head end hugs close to wall.

Automatic Foot-end Device—Locks feet in position when bed is down in room.

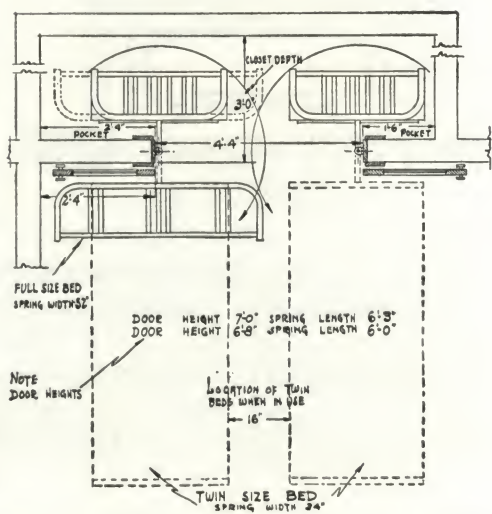
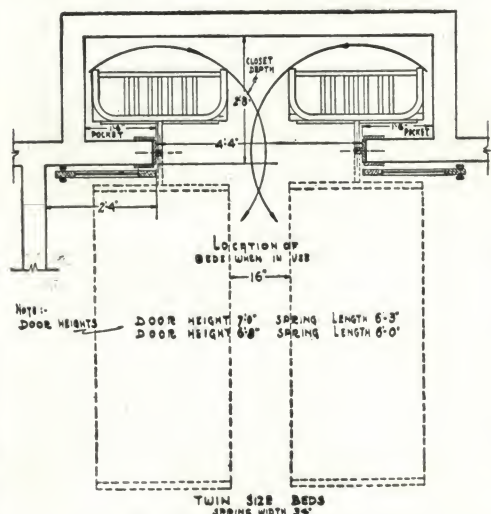
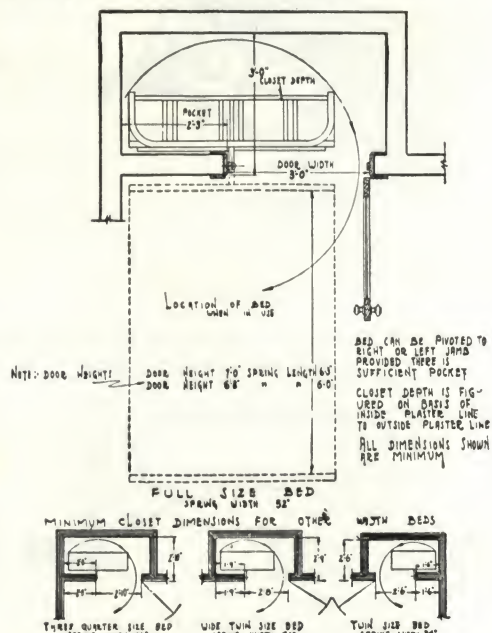
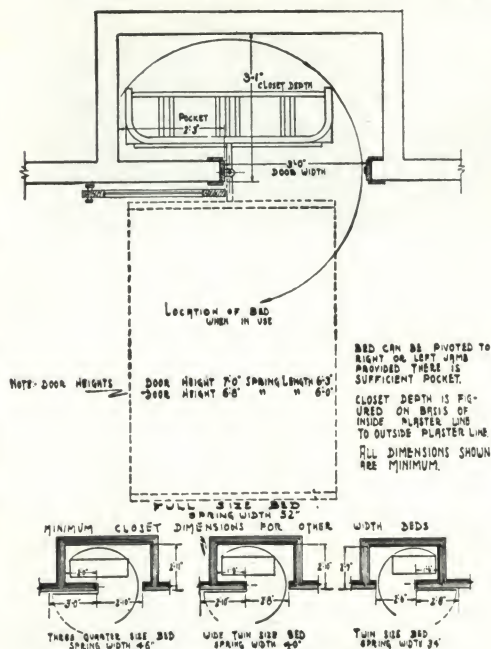
Perfect Resemblance to a Fine Stationary Bed—No unsightly superstructure on head end. Mechanical parts effectively concealed. Choice of six handsome designs and many finishes. May be had with box springs if desired.

Luxurious Comfort—High grade coil springs are standard equipment. Springs are same width as head and foot ends.

Easy and Inexpensive to Install—Nothing complicated. Complete hardware furnished. Closets use standard stock doors.

Fine Quality Construction Throughout—Made in our own factory and are the equal of the best stationary metal beds in every detail of structure and finish.

Many attractive installations are possible of which some of the most popular are shown in the plans below:



Advantages of the "Warwick" Pivot Door Bed

The pivot door type of disappearing bed installation has two outstanding advantages—(1) it affords perfect concealment of the closet while the bed is down in the room and (2) it permits access to the closet at all times, thus making it possible to use the closet for a private dressing room, usually with or adjoining bath. These two features are of great benefit in planning apartments and because of them, this style of installation has won a popularity with architects, owners and tenants alike.

THE "WHITE" DOOR BED COMPANY now present their newly developed line of "Warwick" Pivot Door Beds which brings new advantages both from a planning and mechanical standpoint. In construction, "Warwick" Pivot Door Beds are exactly the same as our jamb-type beds, except for the hanging device. They have the same clever new

raising and lowering mechanism, which, by means of the ingenious application of simple leverage, makes them operate with amazing ease and which is adjusted with such precision that the bed will remain balanced in any position.

The method of hanging the bed from the pivot door is an entirely new one devised by our engineers and has exclusive improvements over former types.

They have the exact appearance of high grade stationary beds for there are no unsightly superstructures or other mechanical parts visible, and there is a range of six handsome designs and many finishes to choose from. In comfort, too, Warwick Pivot Door Beds are the equal of regular beds, for luxurious coil springs are standard equipment, and box springs may be had if desired.



"Warwick" Model "A" Pivot Door Beds
8 ft. 6-in. twin installation

Warwick Pivot Door Beds give advantages in planning, too, and may be used in a large variety of arrangements all of which employ standard stock size doors of either 6 ft. 8 in. or 7 ft. high. Installation in the building is simple. We furnish complete hardware, including a ball bearing pivot plate which is adjustable to compensate for any settling in the building.

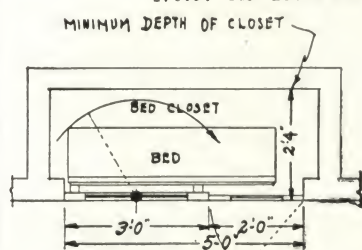
A few of the most popular closet arrangements are shown in the plans below. Our complete service sheets, which contain many other plans, as well as structural data, will be sent upon request.



"Warwick" Model "C" Pivot Door Bed
5-ft. full size installation

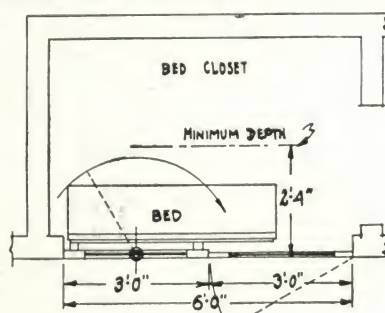
Closet Details for "Warwick" Pivot Door Bed Installations

Note: All doors are standard and may be either 6 ft. 8 in. or 7 ft. high.



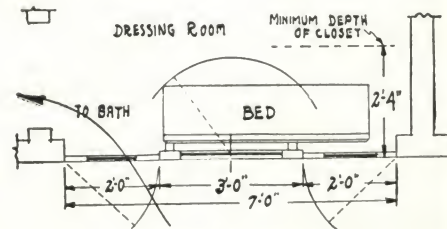
Full Size Bed (5 ft.)

Uses 3-ft. and 2-ft. doors. Bed is hung on center pivoted door; narrow door hinged to jamb. Closet concealed by doors when bed is in use. Similar installations for three-quarter and twin size beds.



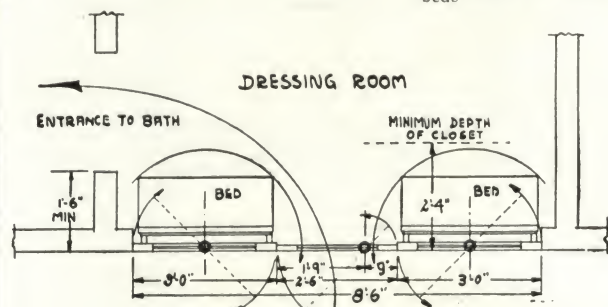
Full Size Bed (6 ft.)

Uses two 3-ft. doors, one center pivoted, the other hinged to jamb. Doors conceal closet when bed is in use but permit access thereto at all times. Similar installations for three-quarter and twin size beds.



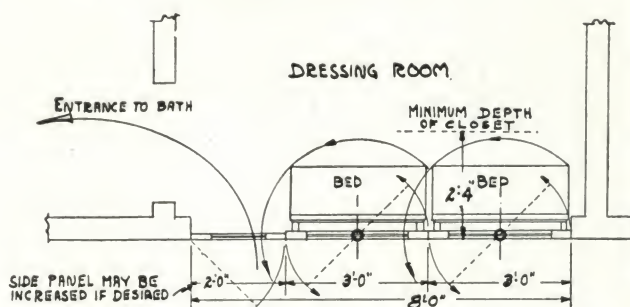
Full Size Bed (7 ft.)

Uses three doors. Bed is hung on 3-ft. center pivoted door; other doors are 2 ft. wide, hinged to opposite jambs. Doors conceal closet when bed is in use. Bed closet may be used as dressing room in which case it should be minimum of 5 ft. 6 in. deep to provide space for "Warwick" Dressing Cabinet. Dimensions shown are minimum. Similar installations for three-quarter and twin size beds.



Twin Beds (8 ft. 6 in.)

Uses three doors. Beds are hung on 3-ft. center pivoted doors. Center door is 2 ft. 6 in. wide, pivoted off center. Doors conceal closet when bed is in use but permit access thereto at all times. If closet is used for dressing room, minimum depth should be 5 ft. 6 in. to provide space for dressing cabinet. Dimensions shown are minimum.

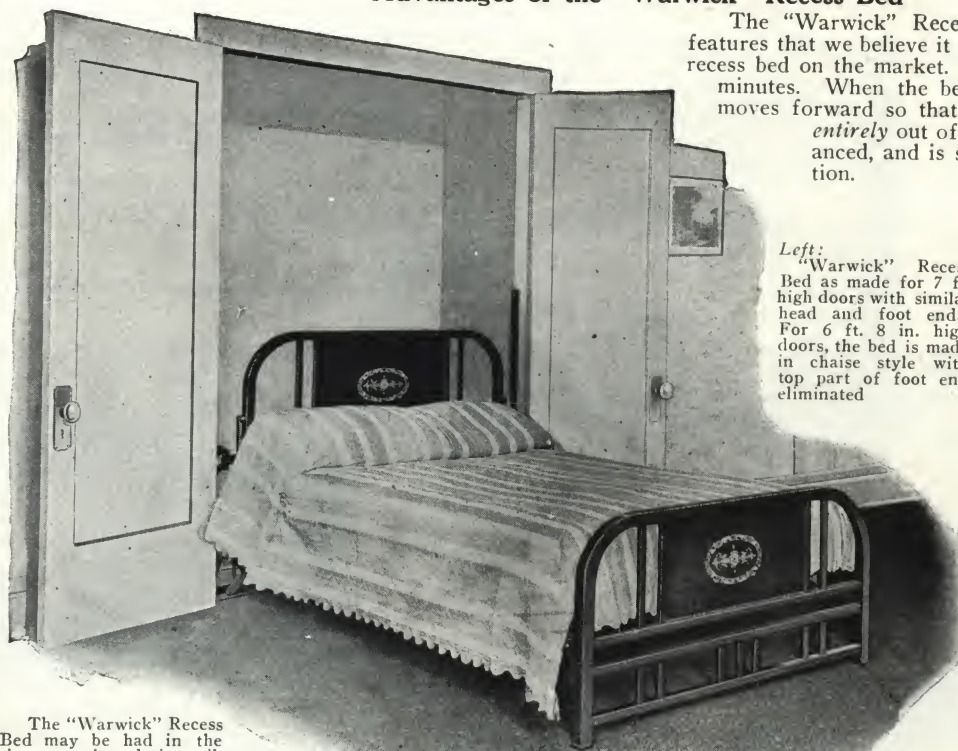


Twin Beds (8 ft.)

Similar to one at left except that bed doors are at one side. Beds are hung on 3-ft. center pivoted doors; entrance door is 2 ft. wide, hinged to jamb. Side door permits entry to closet, concealed when beds are in use. If closet is used for dressing room, minimum depth should be 5 ft. 6 in. to provide space for dressing cabinet. Dimensions shown are minimum.

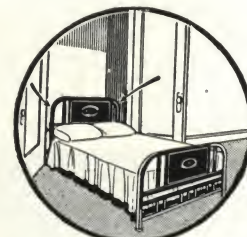
Advantages of the "Warwick" Recess Bed

The "Warwick" Recess Bed has so many unusual features that we believe it to be the most highly perfected recess bed on the market. It can be installed in 10 to 15 minutes. When the bed is lowered, it automatically moves forward so that, when down, the head end is *entirely* out of the closet. It is perfectly balanced, and is simple and foolproof in operation.

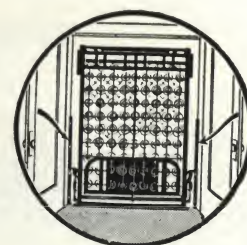


The "Warwick" Recess Bed may be had in the six attractive designs illustrated on the fourth preceding page.

Left: "Warwick" Recess Bed as made for 7 ft. high doors with similar head and foot ends. For 6 ft. 8 in. high doors, the bed is made in chaise style with top part of foot end eliminated



Note that the bed comes entirely out of the closet



Bed is installed by merely screwing the two upright angles to back of door jamb

The "Warwick" Recess Bed Has Six Important Features

(1) **Head of Bed Comes Entirely Out of the Closet**—When the bed is brought down into sleeping position, the head of the bed automatically comes *entirely* out of the closet and remains in line with the door frame. This is accomplished by a special leverage arrangement. There are no wheels or tracks to get out of order.

(2) **Bed Is Very Simple and Easy to Install**—The bed can be installed in about 10 or 15 minutes. The bed rests on the floor but is not attached to it. To secure the bed, it is only necessary to attach the two upright angles to the back of the door jamb using a few small screws.

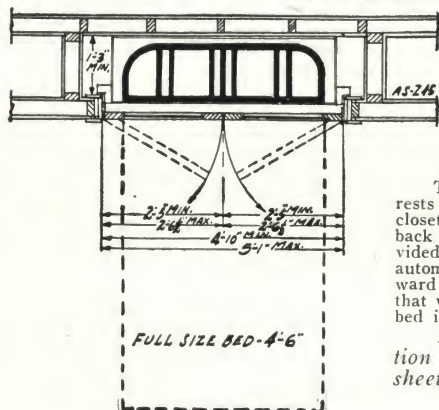
(3) **It Is Impossible for the Bed to "Jackknife"**—When the bed is lowered into sleeping position all spring tension is neutralized, so that even an extreme weight applied at the head end cannot accidentally raise the foot off the floor. The bed rests completely upon the floor without any strain on the door jamb.

(4) **Bed Will Remain Suspended at Any Angle**—The bed is so perfectly balanced that it will remain in any position in midair without closing up or dropping to the floor. Because of this balancing arrangement, the "Warwick" Recess Bed can be raised or lowered practically without effort.

(5) **Head Frame of Bed Holds Pillows in Position**—When the bed is raised, the head frame automatically forms a pocket which holds the pillows in place. The bed, therefore, can always be left ready for sleep with all bedding in normal position. The pillows cannot drop out when bed is in the closet.

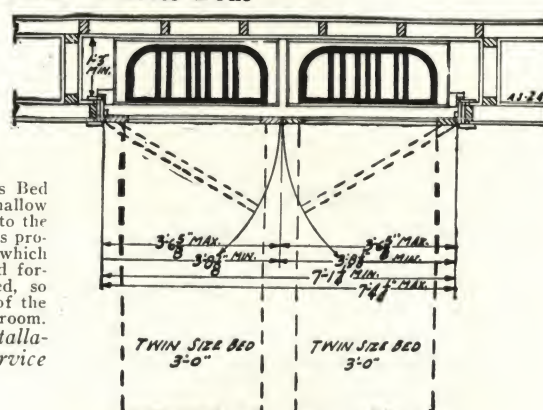
(6) **Bed Locks Automatically in Upright Position**—When the bed is in the upright position a locking arrangement in the bed mechanism holds it securely against the wall of the closet. The bed cannot drop forward when the closet doors are opened, but it is automatically released when an actual effort is made to lower it.

Installation Details of "Warwick" Recess Beds



Full Size Bed

Minimum depth of closet is 1 ft. 4 in. measuring from back of trim to rear wall. Average width of opening is 5 ft. between door jambs. Width of each of two doors is 2 ft. 6 in. regular installation—2 ft. 5 in. in minimum installation. Height of doors may be either 6 ft. 8 in. or 7 ft.



Twin Size Bed

Minimum closet depth is 1 ft. 4 in. measuring from back of trim to rear wall. Opening should be 7 ft. 4 in. wide between door jambs. This may be reduced if necessary to a minimum width of 7 ft. 1 1/4 in. Width of each of two doors is 3 ft. 8 in. in regular installation—3 ft. 6 1/2 in. in minimum installation. Height of doors may be either 6 ft. 8 in. or 7 ft.

The "Warwick" Recess Bed rests on the floor of a shallow closet and is attached only to the back of the door jamb. It is provided with a mechanism which automatically moves the bed forward as it is being lowered, so that when down, the head of the bed is entirely out in the room.

For complete installation details use our service sheet No. 17A.

The "Warwick" Cuisinette—An Ingenious Kitchen Cabinet for Hotels, Clubs and Apartment Hotels

The "Cuisinette" will transform the one-room apartment or guest room, into a kitchenette apartment without the expense, trouble and disorder prevalent with remodeling. To provide complete facilities for preparing a light meal, or serving refreshments with ease, it is only necessary to move a "Cuisinette" into the room,



"Cuisinette" Provides Storage for Dishes, Glassware and Food and Includes a Complete Mechanical Refrigerator with Standard Type Compressor and Three Ice Cube Trays

connecting to the wall plug outlet for the operation of the "Warwick" Refrigerator. It is delivered complete, ready to operate.

This unique piece of hotel or apartment equipment enhances the value of the rental return to the management, as it makes the room so much more useful to the guest or tenant. In a short time it will pay for itself.

The illustrations show that the "Warwick" Cuisinette is not only a useful addition to a room but a decorative one. It has the appearance of a fine walnut secretary. When opened, it is a complete modern buffet kitchenette with convenience for preparing a breakfast, luncheon or light supper.

The compartment at top contains three shelves, 12 in. deep, 37 in. wide. Here can be kept the china and provisions. There are also two drawers for linen and cutlery.

The cooking compartment above the refrigerator, lined with heavy sheet asbestos, provides ample room for grill, toaster and percolator. The drop leaf that covers the cooking compartment when lowered, provides a table or working space 35 in. wide, 31½ in. deep.

A "Warwick" Refrigerator in the base section is part of every "Warwick" Cuisinette. The interior of the Refrigerator is finished in a lustrous white enamel. There are three trays each affording fifteen cubes of ice, and two compartments for safely preserving foods and beverages. And all this in a space of 41 in. wide, 20 in. deep, and 6 ft. 9 in. high. Finished in walnut.



The "Cuisinette" Gives the Appearance of a High Grade Secretary Desk

With a fine walnut finish it presents an appearance that will balance with the decorative scheme of practically any room



Unit A, "Warwick" Sectional Wardrobe

"Warwick" Sectional Wardrobes

New Built-in Units that increase efficiency of closet space and offer many attractive conveniences.

The ordinary closet is indifferently equipped and often inconvenient, especially as a place of storage for linens and small personal effects. These ingenious "Warwick" Sectional Wardrobes offer facilities for the keeping of clothing and belongings in an orderly and accessible way, much more convenient than heretofore — yet by their extreme compactness they make possible a very substantial saving in space. They will be found equally effective when used with disappearing bed installations or for regular closets, and their sectional unit design permits great flexibility as to application.

Built in two sections: Unit "A" is for the storage of suits or dresses, hats and shoes and Unit "B" provides drawers, trays and compartments for linens and other personal belongings.

Built according to the best standards of furniture construction, with paneled back and ends; finished in walnut and rubbed to a beautiful satin finish. Delivered completely assembled and ready for installation.

Each unit is 21¾ in. wide, 17½ in. deep and 6 ft. 6¾ in. high, and is designed to fit into a space 2 ft. wide and 1 ft. 8 in. deep.

May be set into an unfinished recess which need not be floored, plastered, wired or painted, and may be concealed by standard 2-ft. doors. A carpenter can install both units in recess in approximately one hour's time.



Unit B, "Warwick" Sectional Wardrobe

CURTIS COMPANIES SERVICE BUREAU

Manufacturers of Curtis Sectional Kitchen Units

CLINTON, IOWA

For Branch Offices and Display Rooms, and for Curtis Architectural Woodwork, see Manufacturers' Index

An Entirely New Idea for Modern Kitchens—Large and Small—Home and Apartment

New additions made in 1929 to the line of Curtis Woodwork include sectional kitchen units which enable the architect to design kitchens of beauty and convenience, and utilize every available inch of desirable work and storage space. There are 48 individual units—all interchangeable—affording a limitless arrangement of kitchen combinations for homes, apartments, hotels, schools, etc.

New Idea

Curtis introduced an entirely new idea in these sectional kitchen units. Now, instead of trying to crowd bulky ready-made dressers or combinations into the room, you simply select those units which will assemble into the most practical and beautiful combination for the space available. They fit together as snugly as drawers in a desk.

The kitchens shown here are good examples of the beauty and flexibility of Curtis Kitchen Units. All are made up of individual units grouped and arranged according to the available space and after the housewife's ideas. Note particularly the treatment of the corners where the right angle has been eliminated.

48 Individual Units

There are 48 individual Curtis Sectional Kitchen Units. These go together as easily and simply as a set of blocks. This feature lowers supervision and installation costs. All units are, of course, furnished in the white.

There is a utility unit or mid-section consisting of a utility drawer that tilts forward when opened, and sugar and flour bins that tip downward, making them easily refilled.

Construction

An entirely new type of construction is used in these Curtis Kitchen Units. Beveled edged three-ply panels, glued to correspondingly beveled edged rabbets in corner posts, from the sides and backs of the cases, providing a smooth flush outer surface. The corner posts and top and bottom rails are mortised and tenoned

CURTIS
TRADE-MARK

together and make an extremely rigid assembly. The inside corners of the corner posts are cut on an angle, eliminating square inside corners, which makes cleaning easy. All doors and drawers are of lip construction that lends itself admirably to two-tone finish.

All cases are built upon a definite mathematical basis to insure perfect interchangeability. The dimensions of units mentioned here are over-all.

The widths of cases are in multiples of 4 in. An extra 18-in. section is included which permits any wall space to be filled to the nearest 4 in. and in most cases to within 2 in. The heights of cases vary by multiples of 16 in. The actual heights are 16, 32, 48 and 64 in.

The counter tops are $23\frac{1}{2}$ in. wide, $1\frac{1}{8}$ in. thick, and when mounted on standard 32-in. base sections which stand on 2-in. toe strips, the counter top is $35\frac{1}{8}$ in. above the finished floor.

Over-all heights of installations will be 66, 82, 98, or 114 in. Various room heights may be accommodated by varying the toe strips and the width of cornice mould used to trim the top of the cases.

The units which are used below the counter top are 22 in. deep, all upper cases are 14 in. deep. Certain of the 22-in. deep cases may be used above the counter top if desired.

All units are made of pine and are shipped in cartons, set up, unfinished and without hardware.

Sliding table tops are furnished in solid birch and in pine, Formica veneered.

Extreme Flexibility

The flexibility of Curtis Sectional Kitchen Units is unlimited. For residential work—single houses or developments—apartment houses, country clubs, hotels, lodge buildings and churches which incorporate large kitchens; in fact, for any of your work which includes a kitchen, you have at your command, an entirely new idea for designing kitchens of unusual beauty and of still more unusual comfort and convenience.



5000 Model Kitchens—Yet No Two Alike

Curtis Kitchen Units are built in a wide variety of styles and sizes and all these units are reproduced in Miniature Kitchen Sets, making it possible to plan ideal arrangements in advance. (At least 5000 different "model kitchens" are possible.)

Architects are finding the Curtis Miniature Set (all Curtis dealers have one) an invaluable aid in planning for women the kind of kitchens they would design for themselves. Many are inviting women clients to express their own ideas in kitchen arrangement—as in the illustration below. Its as easy as playing with blocks to design just the kitchen desired

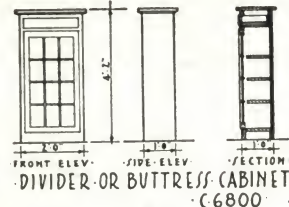


NOTE: C-6787 SLIPING TABLE (T-28, T-32, T-36, T-44);
MAY BE USED IN MID SECTION/ M-28; M-32; M-36; M-44.

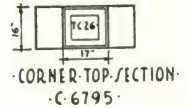


TOP SECTIONS
ALL 14" DEEP
C-6775

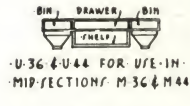
NOTE: GLAZED DOORS MAY BE
SUBSTITUTED FOR WOOD PANEL.
DOORS IN: C-6775; C-6776; C-6778;
C-6779; C-6795; C-6796.



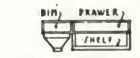
DIVIDER OR BUTTRESS CABINET
C-6800



CORNER TOP SECTION
C-6795

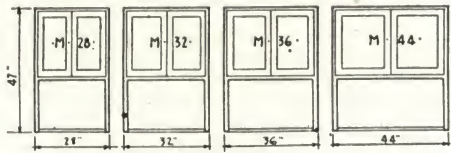


U-36 & U-44 FOR USE IN
MID SECTIONS/ M-36 & M-44



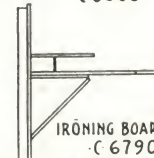
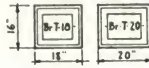
U-28 & U-32 FOR USE IN
MID SECTIONS/ M-28 & M-32

UTILITY UNITS: C-6777



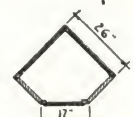
MID SECTIONS
ALL 14" DEEP
C-6776

C-6788
BROOM CLOSET
TOP SECTIONS
22" DEEP

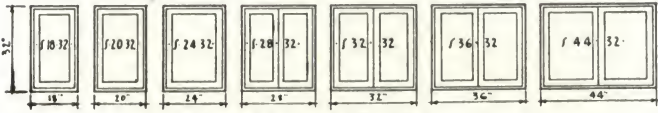


IRONING BOARD: IB-20
C-6790

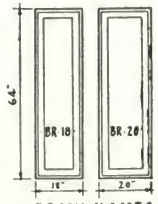
MAY BE USED IN PLACE OF
DOOR IN BR-20 OR SET IN
WALL BETWEEN STUFS 16" O.C.



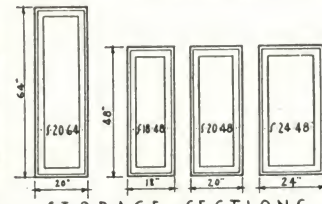
PLAN OF CORNER SECTIONS



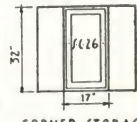
STORAGE SECTIONS
ALL 14" DEEP
C-6778



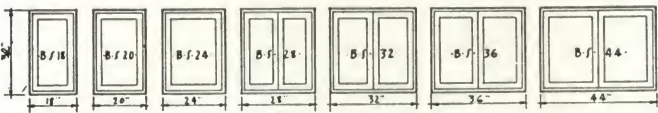
BROOM CLOSETS
22" DEEP
C-6789



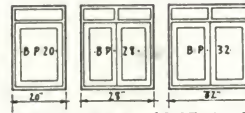
STORAGE SECTIONS
ALL 14" DEEP
64" HIGH C-6780 48" HIGH C-6779



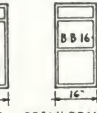
CORNER STORAGE OR
BASE SECTION
C-6796



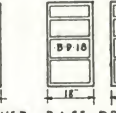
BASE SHELF SECTIONS
C-6781



BASE PAN SECTIONS
ALL BASE SECTIONS 22" DEEP
C-6782



BREAK DRAWER
SECTION
C-6783



BASE DRAWER SECTION
C-6784

KITCHEN UNITS SCALE 1/4" = 1'-0"

Details of Curtis Sectional Kitchen Units

Here are details of 42 of the 48 Curtis Sectional Kitchen Units. Additional units not shown in details above include top section 16 in. wide; storage sections 8 and 16 in. wide; base pan section 16, 24 and 36 in. wide. From these it is easy to imagine the great flexibility these Curtis units offer, and how easily they may be assembled into any practical combination desired.

Installation

In assembling these units in combinations, the vertical joints are drawn together by means of $\frac{3}{16} \times 2\frac{1}{4}$ -in. bolts. All units are bored for these bolts in the front corner posts and also near the rear top and bottom rails. These holes are spaced to permit complete interchangeability. No bolt holes show on exposed ends. All front edges of corner posts are rounded to $\frac{5}{8}$ -in. radius so that when bolted together, the joint presents a neat finished appearance.

The Curtis Dresser Units are exceedingly flexible in their adaptation for use in connection with other items such as sinks, refrigerators, etc. Refrigerators can generally be accommodated as to width by one of various units offered; as to height, first horizon-

tal dividing line above a counter can generally be used. Installation costs are low.

Hardware

Exclusive hardware by Stanley is available for kitchen units. This is the finest obtainable and is of solid brass with genuine chromium finish, which is non-tarnishable.

Literature and Details

Literature and information on Curtis Kitchen Units will be sent upon request.

Details are included in the architect's details. Presentation drawings based on your plans, 1 in. to the foot and in color, will be prepared and sent you free.

One ideal arrangement of Curtis Kitchen Units. This kitchen was designed in miniature first so the housewife could see just what it would be like before a single step was taken in building



There is beauty as well as practical utility in the Curtis-equipped kitchen. This arrangement of units—first built in miniature on a library table—helped this housewife to realize her "dream kitchen"

CIRCLE A PRODUCTS CORPORATION

Manufacturers of Circle A Kitchen Units

654 South 25th Street, NEWCASTLE, IND.

NEW YORK, N. Y., Farmers' Loan and Trust Building, 475 Fifth Avenue

BRANCH OFFICES IN PRINCIPAL CITIES

Product

CIRCLE A KITCHEN UNITS, including Stoves, Refrigerators and Auxiliary Units to fit perfectly any size of floor and wall space.

For Sectional, Folding, Rolling Partitions and Circle A School Wardrobes, see Manufacturers' Index.

Kitchen Units

Circle A now offers a line of kitchen units that cannot be surpassed for quality of materials, excellence of design or wide choice of units. Approximately 90 units give the architect and builder a combination to meet every possible need, and to fit any and every kitchen, kitchenette or pantry.

No changes in the building need be made. All Circle A units are built with extreme accuracy so that each one fits to the next and the entire ensemble fits perfectly the given space.

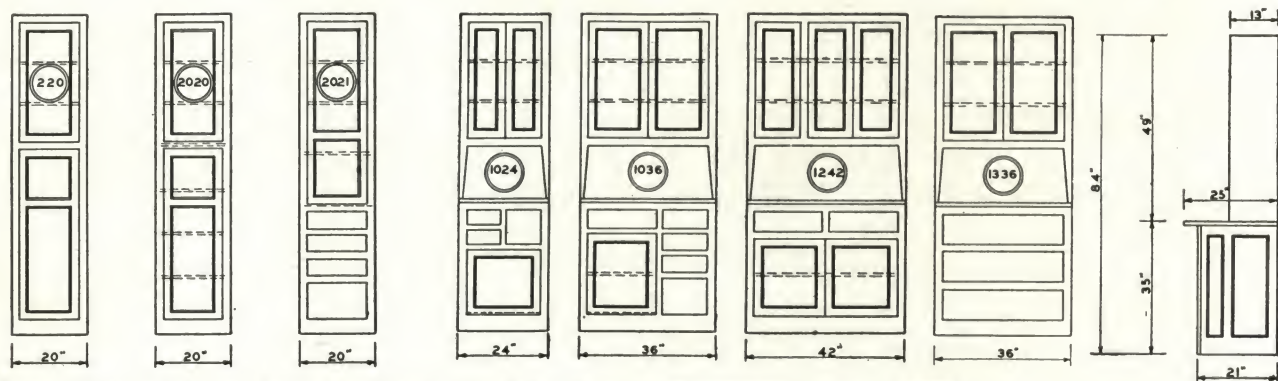
One of the outstanding Circle A features is the one-piece porcelain table top, sink, and splasher. There are no cracks or joints to catch dirt or to cause rust. The entire top, in choice of colors, is of one solid, sanitary piece. Hardware of heavy brass is chromium plated over nickel to prevent rust or tarnish. Glasnob pulls stay bright and clean. Mortised and glued joints will not loosen. Other features offer maximum help towards more efficient kitchen activity and greater sanitation.

Architectural Service and Catalogue

An efficient architectural department is maintained to serve the architect, contractor and owner in the selection and arrangement of the proper equipment.

Offices in the principal cities are pleased to submit layouts and quotations, and also handle installation if desired. Highly skilled crews are maintained in every locality for this work.

Write for file size catalogue and data. K. U.-30.



Some of the 90 Various Styles and Sizes of Circle A Units
Butlery cabinets, pantry cabinets, kitchen cabinets, refrigerator cabinets, china closets, linen closets, wall cupboards, etc.

Choice of Colors

A range of six colors—green, gray, ivory, blue, orchid or white are offered in heavy, high grade enamel finish. All work is done at the plant. Each coat is sprayed on, and sandpapered between coats. A kitchen color scheme can be followed.

Material, Construction, Features

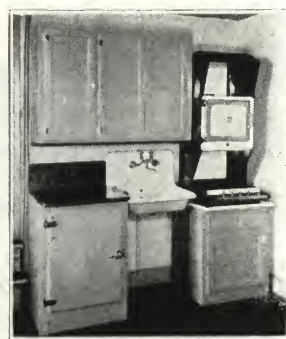
Only thoroughly seasoned, scientifically dry kilned hardwood is used. Shrinkage and warping are avoided. Panels are of three-ply laminated hardwood. Bread box, flour bin are of heavy, rustproof tin. All porcelain is of special 14 gauge steel with enamel in choice of colors. Refrigerators are of six-wall construction insulated with pure corkboard. Can be equipped for either ice or mechanical refrigeration.



An Attractive Kitchen Combination with Counter Top



A Complete Combination
Including refrigerator and sink and counter top of one-piece porcelain enamel colored to match kitchen



A Compact Arrangement for the Small Apartment

EXCEL METAL CABINET CO., INC.

FORMERLY METAL CABINET & EQUIPMENT CO.

Manufacturers of Steel Cabinets for Kitchens and Pantries

101 Park Avenue, NEW YORK, N. Y.

FACTORY AND EXECUTIVE OFFICE: JAMESTOWN, N. Y.

Products

STEEL CABINETS, CUPBOARDS, DRESSERS, BROOM CLOSETS, LINEN CLOSETS for kitchens and pantries of residences, apartments and institutions.

Also Cabinet Electric Platewarmers; Monel Metal Sinks, Tables and Equipment.

For our page on Hospital Cabinets, see Manufacturers' Index.

Data

For complete construction details, types, sizes and specifications, refer to pages on Hospital Cabinets.

While our cabinets have been designed especially

for hospital work, the same standard units are used for residences.

Advantages

Steel dressers are the utmost in kitchen and pantry equipment for the modern residence. They are sanitary, durable, moistureproof, verminproof, and fireproof.

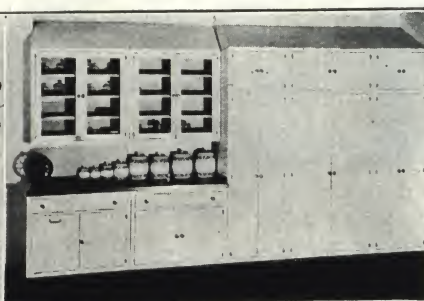
Service

We are prepared to submit a complete layout from your floor plans and offer suggestions for efficient arrangement.

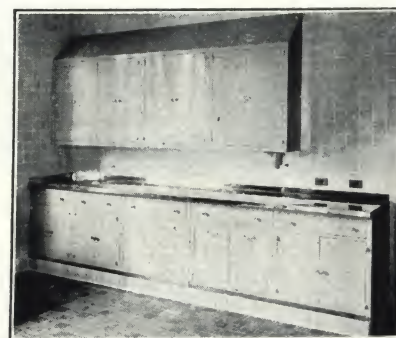
A Few Installations



Pantry



Kitchen, Residence, 43 East
68th Street, New York, N. Y.
ERNEST FLAGG, Architect



Kitchen, E. M. Statler Residence



J. W. Kiser Residence
Hiss & WEEKES, Architects



Pantry, Geo. D. Widener Residence
HORACE TRUMBauer, Architect

Among our installations are the following:

Residences

OWNER
E. M. Statler
Samuel L. Fuller
John W. Kiser
Jacob L. Reiss
Norma T. Johnson
George D. Widener
S. A. Kirkman
L. K. Jennings
Edw. H. Wells
Frederick Rockwell
W. D. McClintock

ARCHITECT
Geo. B. Post & Son, Inc.
Peabody, Wilson & Brown
Hiss & Weekes
Ernest A. Arend
Goodwillie & Moran
Horace Trumbauer
Ernest Flagg
W. B. Chambers
Lyon & Taylor
Taylor & Levi
Clarence E. Day

Apartments

720, 740, 780 Park Avenue
895 Park Avenue
76th Street and Madison Avenue
15 West 81st Street
El Dorado Towers

Rosario Candela
Sloan & Robertson
Bien & Prince
Emery Roth
Margon & Holder

ELGIN STEEL KITCHENS

PRODUCT OF
ELGIN STOVE & OVEN CO.

ELGIN, ILL.

Products

ELGIN STEEL KITCHENS.

Wall Cabinets, Kitchen Base Cabinets, Pantry Base Cabinets, Linen Cabinets, Broom Cabinets, Kitchen Dressers, Pantry Dressers, China Divider Cases, Package Receiving Cabinets, Recess Ironing Board Cabinets, Sink Fronts, Refrigerator Cabinets, Range Base Cabinets, Range Canopies, Gas Ranges, Gas Laundry Plates.

General

Elgin, whose name is universally known for producing products of sheer quality, has completed the design of a new standardized, sectional system, enabling the most exact requirements to be realized, eliminating custom-made costliness.

Elgin Steel Kitchens interpret the true spirit of progressiveness—they definitely meet the exacting standards of the modern apartment and home design.

It is especially significant that with the harmony of line and color and true distinctiveness of design, precision construction, the Elgin Steel Kitchens have that finished artistry of appearance, that immaculate beauty that can only be the product of expert craftsmanship and materials of highest quality.

Specifications

All cabinet bodies are constructed throughout with No. 20 and 22 U. S. gauge full cold rolled, double pickled stretcher level No. 1 furniture steel.

All joints are electric spot-welded by Elgin special process, eliminating the weld marks.

All doors and drawer fronts are $\frac{1}{8}$ in. thick, drawn from 20 gauge annealed No. 1 furniture steel. All doors and drawer fronts are reinforced with 18 gauge channels, electric spot-welded to the inside of the door and drawer front panel. The inside of all doors and drawer fronts are enclosed with No. 22 gauge No. 1 furniture steel lining.

All drawers are equipped with dual-acting frictionless suspension slides and automatic stops.

All hinges are die-cut from No. 1 rustproof electric steel, cadmium plated, and buffed to a satin finish. All knobs are machine-turned from electric steel, cadmium plated, and buffed to a satin finish.

Finishes—All surfaces are thoroughly cleansed in oakite. All surfaces, including concealed surfaces, are primed with special lead-base, high-heat priming material. All exposed surfaces with the exception of door and drawer fronts are finished with cordovan enamel. All door and drawer fronts are finished with pyroxylin. Further, all door and drawer fronts are finished in white only with a stripe corresponding with any of the four standard body color combinations.

Standard Color Combinations

No. 1—Sea-green bodies, white doors with sea-green stripe.

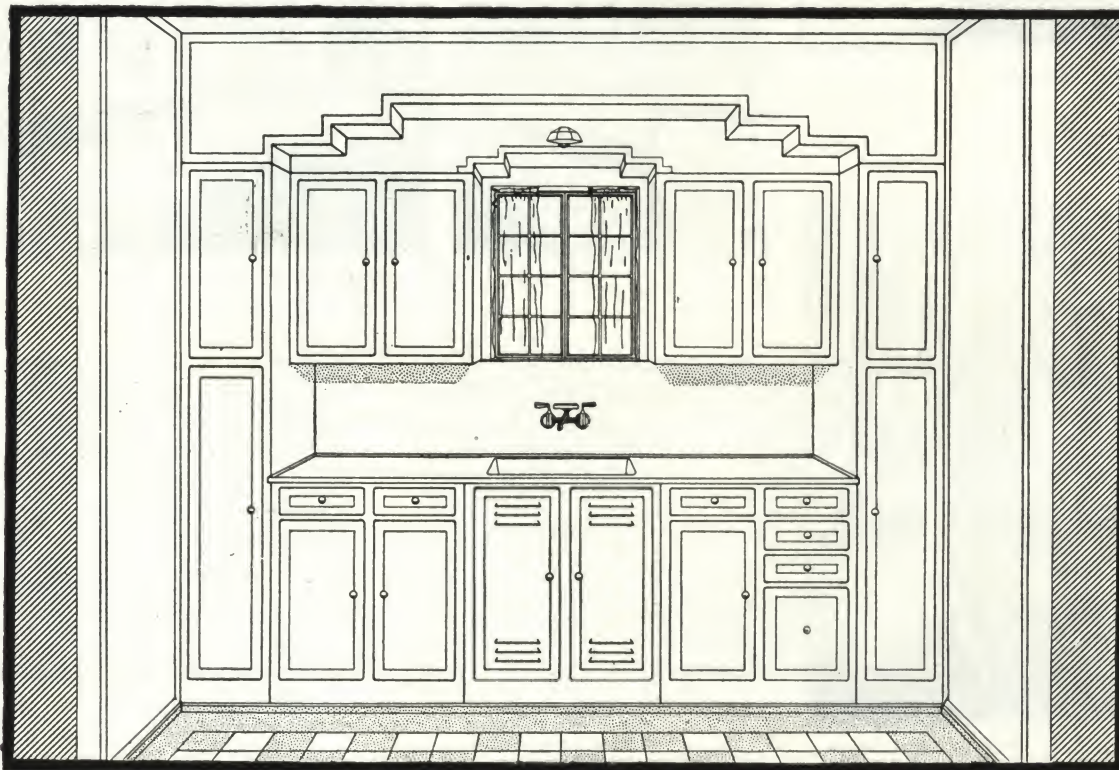
No. 2—French-gray bodies, white doors with French-gray stripe.

No. 3—Holland-blue bodies, white doors with Holland-blue stripe.

No. 4—Sunset-tan bodies, white doors with sunset-tan stripe.

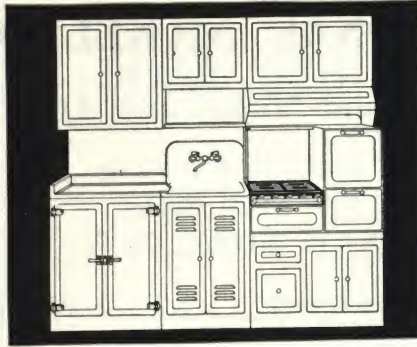
Architectural Department

Maintained at Elgin office. Further information sent upon request.





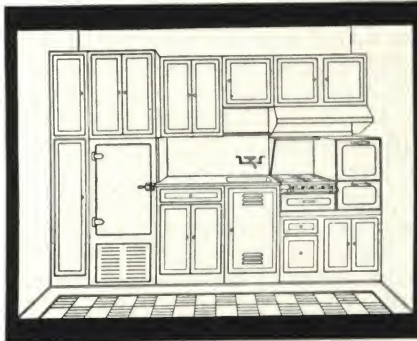
Kitchenette—as shown 5 ft. 8 in.
Similar assemblages 5 ft. 2 in., 5 ft. 4 in.,
5 ft. 10 in., 6 ft. 2 in.



Kitchenette—as shown 7 ft. 6 in.
Similar assemblages 6 ft. 6 in., 6 ft. 8 in.,
7 ft., 7 ft. 2 in.



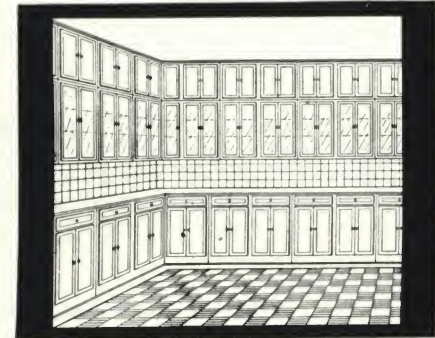
Kitchenette—as shown 6 ft. 6 in.
Similar assemblages 5 ft. 6 in., 5 ft. 8 in.,
6 ft., 6 ft. 2 in.



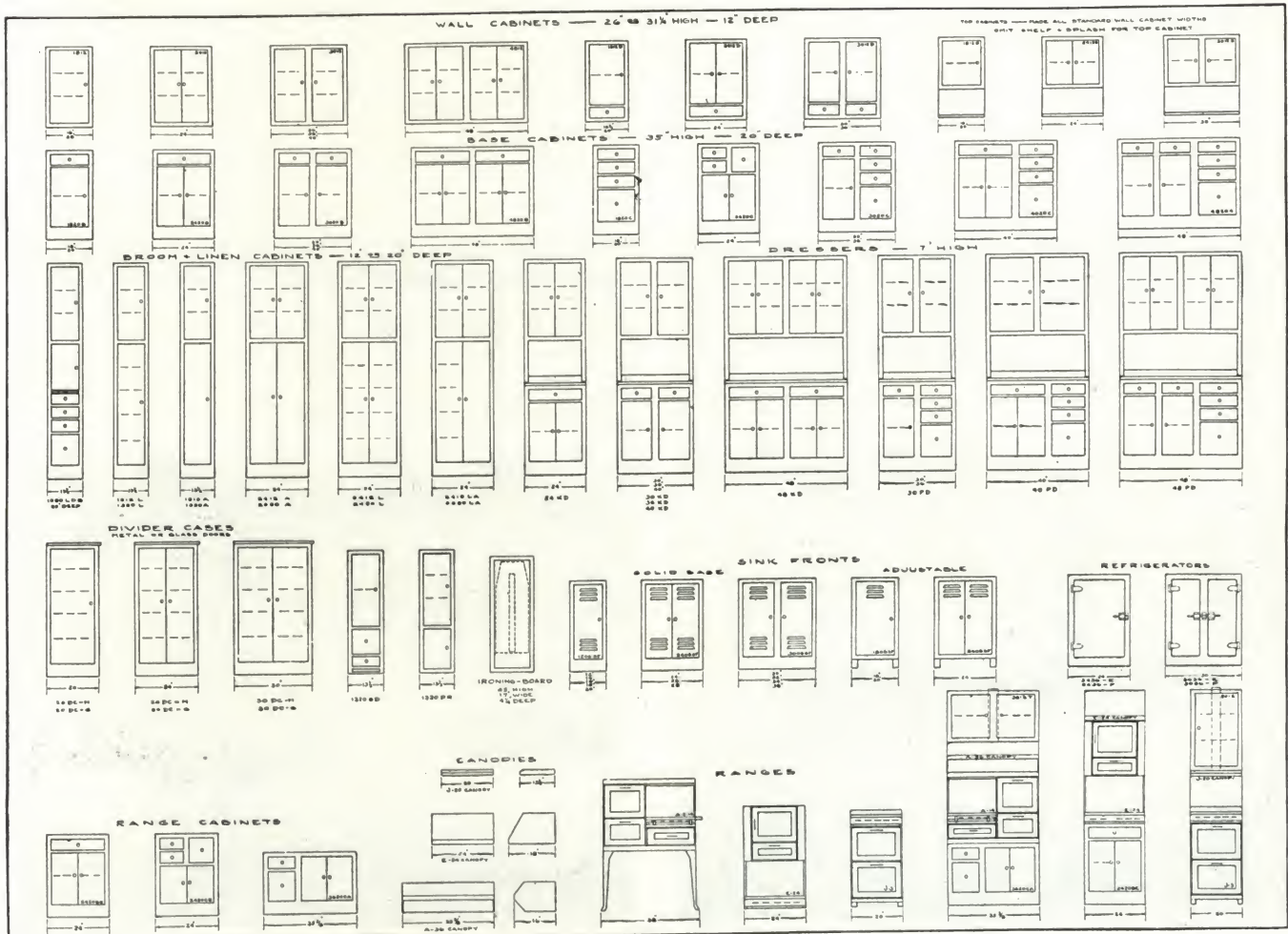
Complete kitchen—9 ft. 9½ in.
Similar assemblages unlimited widths



Split kitchen—7 ft.
Similar assemblages unlimited widths



Typical Hospital installation
Adaptable for institutions



Dimensional Drawings of Elgin Steel Kitchen Standard Units

THE INTERNATIONAL NICKEL COMPANY, INC.

Monel Metal and Nickel and Allied Products

EXECUTIVE OFFICES
67 Wall Street
NEW YORK, N. Y.

MINES AND SMELTER: Copper Cliff, Ont., Canada
ROLLING MILL AND REFINERY: Huntington, W. Va.

REFINERY: Port Colborne, Ont., Canada
FOUNDRY: Bayonne, N. J.

For Our Other Products, see Manufacturers' Index

Products

MONEL METAL—available from stocks conveniently located throughout the country and made in all commercial forms required by manufacturers of built-in cabinets. (See Manufacturers' Index, our section on metals, for commercial forms and locations of warehouses.) All necessary accessories such as nuts, bolts, screws, rivets, etc., are also available.



consult manufacturers of built-in cabinets, as the gauge best suited depends upon the dimensions of the cabinet and the type of construction. For the type of finish on Monel Metal, specify Inco No. 8. (This finish closely resembles a buffed pewter.) If a higher reflective mirror finish is desired, specify Inco No. 5. The Inco No. 8 finish is recommended for general service as cleaning with abrasive compounds coupled with day to day use adds to the lustre of the original finish—it actually looks better after years of service than the day it was installed.

Monel Metal

Monel Metal is a registered trade-mark applied to a technically-controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Advantages of Monel Metal for Working Tops on Built-in Cabinets

1. Beautiful, silvery appearance.
2. Smooth, hard surface, easy to clean.
3. Sanitary.
4. Rustproof.
5. Resistant to corrosion from food acids.
6. Strength of steel and resistance to denting.
7. Harmonizes with any color scheme.

Monel Metal is also widely used for pantry sinks, kitchen sinks, medicine cabinets, plate warmer linings, drawer linings, flour bins, laundry chutes, etc.

Instructions for Specifying Monel Metal

The words "Monel Metal" are sufficient to describe the material. For specification of gauge of material,

List of Manufacturers of Built-in Cabinets with Monel Metal Work Tops

The following manufacturers are in a position to furnish their cabinets with Monel Metal tops:

Janes & Kirtland, Excel Metal Cabinet Co., Olean Metal Cabinet Works, Inc., Rockford Steel Furniture Co., Zahner Manufacturing Co. and Wasmuth Endicott Co.

Consult their pages (see Manufacturers' Index) for details on cabinet construction. Names of additional manufacturers will be gladly furnished upon request.

Available Literature

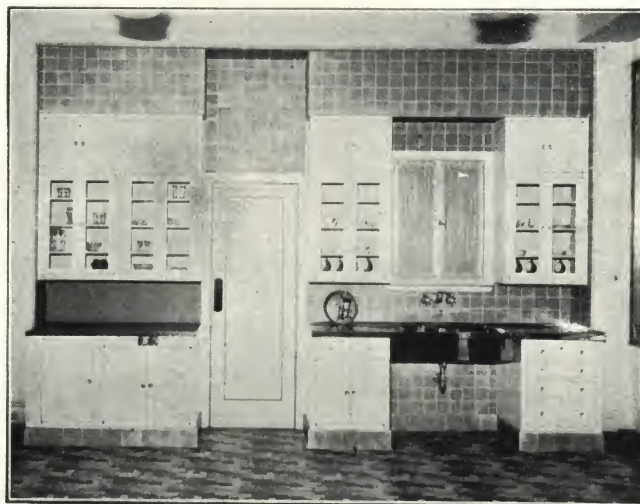
"Good Housekeeping Made Easier with Monel Metal Table and Cabinet Tops"

"A Monel Metal Laundry Chute for the Modern Home"

"Planning the Modern Kitchen"



Combination Sink, Working Top and Splash Back on Wood Built-in Cabinet



Monel Metal Pantry Sink and Monel Metal Plate Warmer Lining and Top on Enameled Steel Cabinet

MURPHY DOOR BED COMPANY

OFFICES AND DISPLAY ROOMS THROUGHOUT THE UNITED STATES AND CANADA

ATLANTA, GA., 254 Peachtree Street, N. E.
BALTIMORE, MD., 506 St. Paul Street
BIRMINGHAM, ALA., 513 No. 21st Street
BOSTON, MASS., 248 Boylston Street
BUFFALO, N. Y., 885 Ellicott Square Building
CHICAGO, ILL., 173 W. Madison Street
CLEVELAND, OHIO, 1140-1142 Hanna Building
DALLAS, TEX., 1919 Pacific Avenue
DENVER, COLO., 1534 Blake Street
DETROIT, MICH., 7th Floor, Kresge Building
EL PASO, TEX., Neff-Stiles Building
HOUSTON, TEX., 2301 Main Street
KANSAS CITY, MO., 1114 Grand Avenue
LOS ANGELES, 1430 South Alameda

MONTREAL, QUE., Keefer Building
NEWARK, N. J., 1060 Broad Street
NEW ORLEANS, LA., 319 Dryades Street
NEW YORK, N. Y., 19 W. 44th Street
OKLAHOMA CITY, 2414 No. Robinson Street
PHILADELPHIA, PA., 307 Lewis Building
PITTSBURGH, PA., 501 Keystone Bank Building
ST. LOUIS, MO., 315 No. 10th Street
SAN ANTONIO, TEX., 101 W. Pecan Street
SAN FRANCISCO, CALIF., Phelan Building
SEATTLE, WASH., Terminal Sales Building
TORONTO, ONT., 118 Alton Avenue
WASHINGTON, D. C., 1019 Fifteenth Street, N. W.
WINDSOR, ONT., 330 Dougall Avenue

Products

MURPHY CABRANETTE UNIT KITCHENS for small apartments.

MURPHY CABRANETTE DeLuxe PANTRY and KITCHEN UNITS for homes and large apartments.

Kitchenettes
Serving Pantries
Kitchen Cabinets
China Cabinets
Wall Cabinets
Linen Cabinets
Drawer Bases
Cupboard Bases
Broom Cabinets

Refrigerators, gas,
electric or ice
Ranges, gas or elec-
tric
Drainboards and table tops of
porcelain or stainless metal
Compartments for package
service



ALL-STEEL

Construction

All-steel for sanitation. Parts subject to wear are finished in vitrified porcelain for beauty, durability and easy cleaning.

Rigidly built of heavy gauge furniture steel, welded construction. Easy-pull drawers, noiseless doors and rust-proof hardware.

Colors

Various colors made to order. Stocked in Spring Green, Ivory or Dove Gray trim with white porcelain panels.

Service

Behind Murphy Cabranettes is a nation-wide organization with over twenty years experience in working with architects and builders of modern homes. Advisory service available at all Murphy offices.



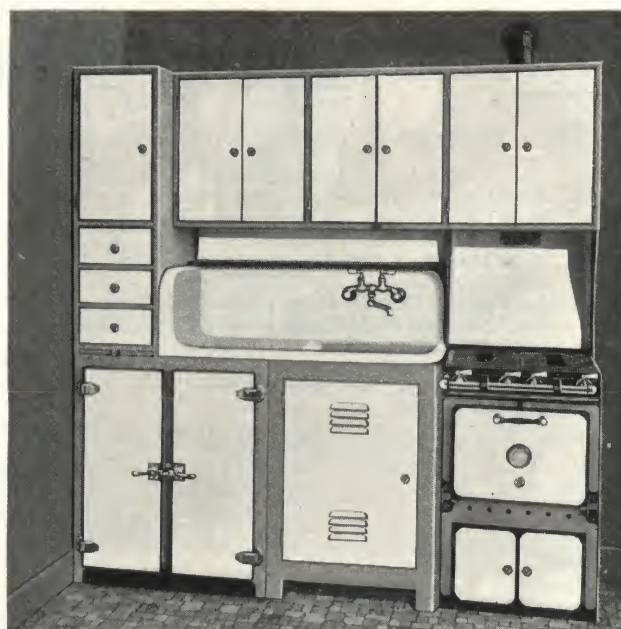
Pantry Unit Assembly, Murphy DeLuxe Cabranette

Broom and linen closet, drawer base, cupboard base, work top of stainless metal, porcelain wall cabinet with glazed doors



Typical Kitchen Unit Assembly, Murphy DeLuxe Cabranette

Cupboard base, drawer base, tilting bins base for flour and sugar, porcelain wall shield above stainless metal work-top, double tier of wall cabinets with all-porcelain doors



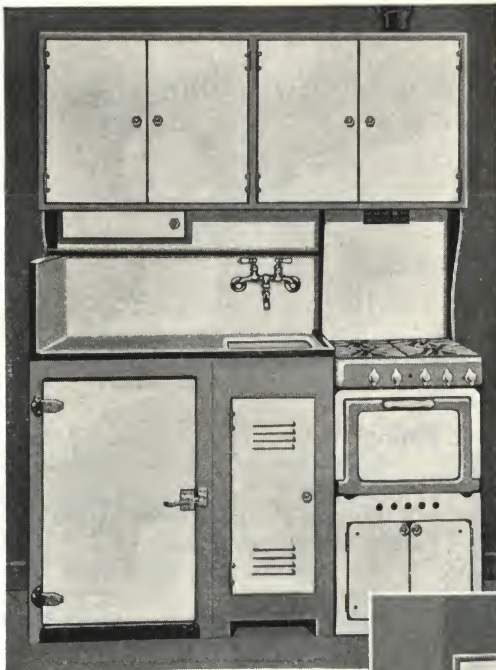
Murphy Cabranette 6 Ft. 6 In. Kitchen Unit A-780

Electric ranges occupying the same space as the gas range are available for all units.

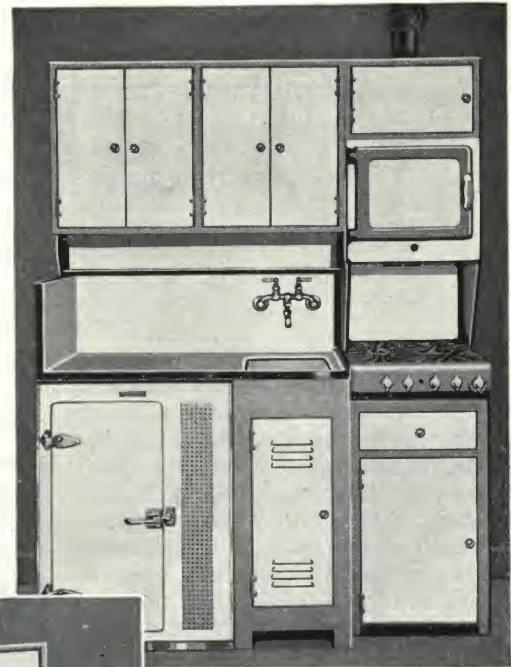
Typical Murphy Cabranettes

Many and varied are Cabranettes, in size, in arrangements and in colors. The complete range meets practically every building requirement.

Below
Cabranette A-665



Cabranette A-580



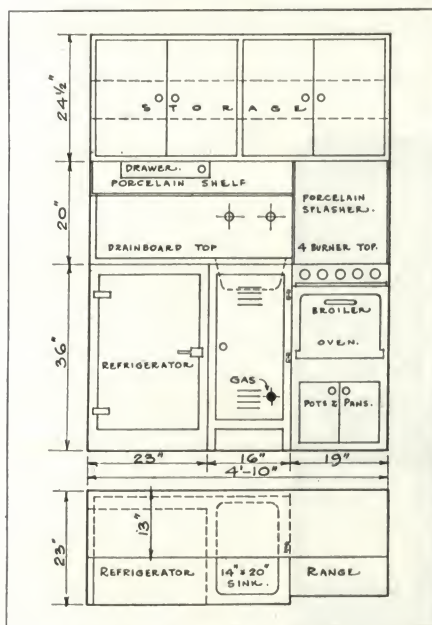
Cabranette A-625 with Electrolux Servel Refrigerator (EL-3)



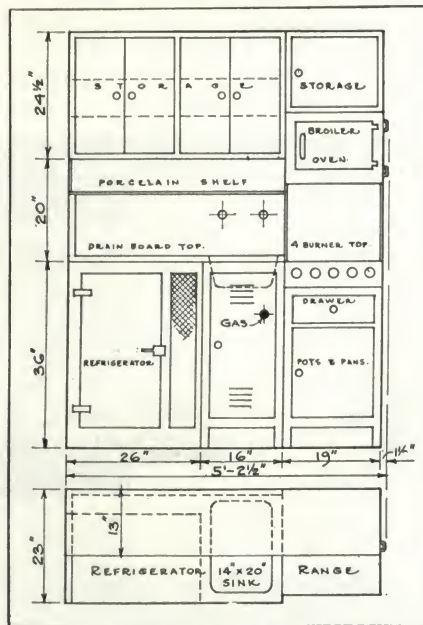
Cabranette A-665 with G-E Refrigerator (SD40)



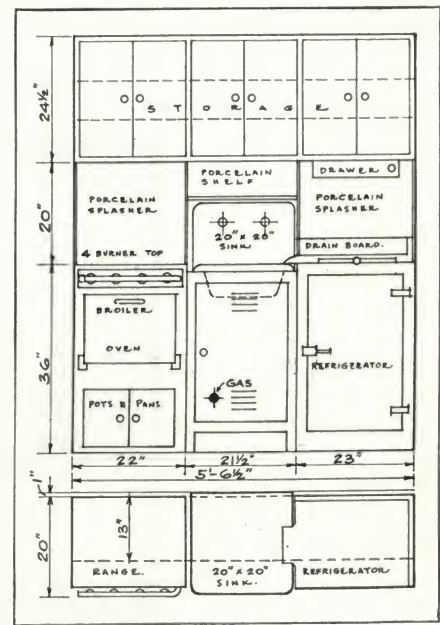
Cabranette China Cabinets



Dimension Drawing for A-580



Dimension Drawing for A-625



Dimension Drawing for A-665

JANES & KIRTLAND, INC.

Manufacturers of White House Line Patented Construction
Sectional Steel Units

MAIN OFFICE AND SHOWROOM

101 Park Avenue
NEW YORK, N. Y.

FACTORY, ST. CHARLES, ILL.

The White House Line

The equipment of the kitchen is now, more than ever before, a matter of first importance, whether in the home, the apartment, commercial and industrial building, hospital diet kitchen, or domestic science department. The use of steel for all cupboards, dressers, closets, etc., used in connection with the storing, preparing, or serving of food, is recognized as the utmost in equipment, and is rapidly replacing wood construction.

White House Steel Units, because of their construction and finish, fulfil the exacting requirements of sanitation, efficiency and durability.

The White House Line is manufactured in a unit system in a number of sizes and designs, the variety of which enables you to fill practically any space by combining units. The line comprises bases and upper units, regulation kitchen dressers, broom closets, side units for storage, sink units and tables. White House Units carry the approval of hundreds of satisfied customers over a period of 18 years.

Construction

White House Units are manufactured entirely of steel, electrically welded. Doors and drawer fronts are double construction, making them perfectly rigid. Openings for doors and drawers are made with our patented interlocking rabbetted construction on all sides, which gives a flush surface. The doors are hung on semi-concealed cast brass hinges (patented) and have friction catches and rubber bumpers, making it possible to open and shut each door independently, without noise.

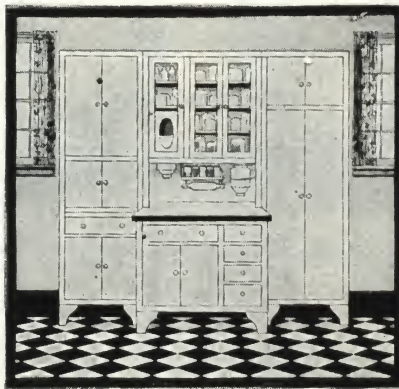
Finish

The finish is white enamel of the highest quality; three-coat work throughout, each coat baked. This exclusive enameling process insures a finish which is very tough and durable and makes a highly polished surface, easily kept clean.

The WHITE HOUSE Line

TRADE MARK REG. U. S. PAT. OFF.

SECTIONAL UNIT STEEL DRESSERS



Combination of White House Steel Units

Takes the place of built-in wooden cupboards, and consists of a working dresser in the center, with a storage unit on the left and a broom closet on the right. Complete

Layouts are also furnished in color when desired.

Fittings

Knobs are of glass or chromium plated brass.

Hinges are cast brass, semiconcealed, chromium plated.

All shelves are steel and adjustable.

Legs are cast iron enameled, 6 in. high, equipped with domes of silence. All sub-bases are furnished by others.

The counter top of all bases, when set on 6-in. legs or on a 6-in. subbase, and with our 1½-in. counter, is 36 in. from the floor, making a very good working height.

We recommend monel metal for kitchen counters, and linoleum on steel with monel metal nosing for pantry use.

Arrangement

Arrangement of bases comprises cupboards and drawers, all drawers, shallow drawers lined with felt for silver, flour and sugar bins (50 lb. capacity), flour and sugar barrel compartments, towel driers, soiled linen bins, electric plate warmers and many other combinations.

Upper units may be equipped with flour bins and sifters (24½ lb. capacity), platter rails and cup-hook shelves. Rolling ladders may be furnished for reaching high units.

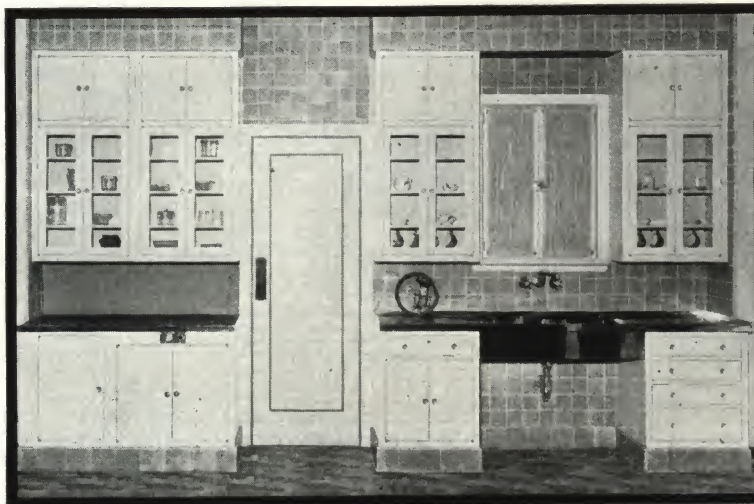
Monel metal pantry sinks are made to order to fit with our steel units.

Sizes

White House Units are furnished in the following widths: 14½, 16½, 18¾, 24, 26, 27½, 30, 36, 39 and 50½ in.

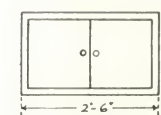
Every upper unit has a base unit corresponding in width. Upper units not made deeper than 14 in.

Base units can be made shallower than shown, with the exception of the bin base (minimum depth 16 in.). Plate warmer, and barrel base made only as detailed.

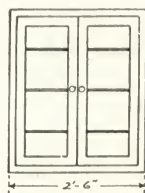


DETAILS OF DESIGNS AND SIZES OF WHITE HOUSE SECTIONAL UNITS

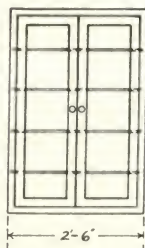
(30-in. width detailed)



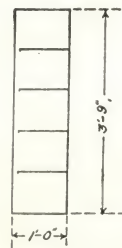
Half "C" Unit



"C" Unit



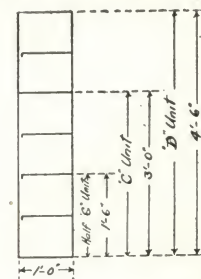
"E" Unit



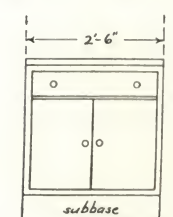
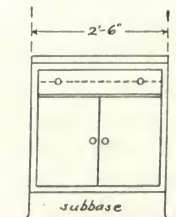
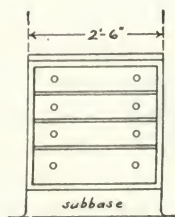
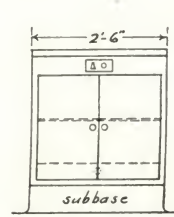
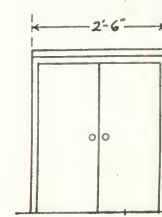
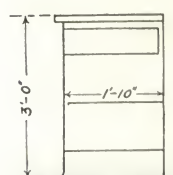
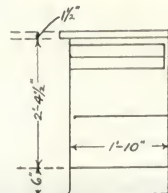
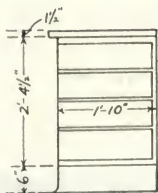
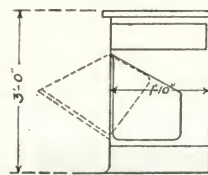
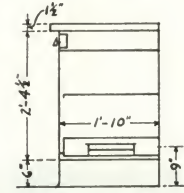
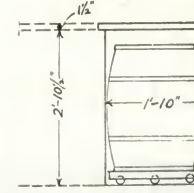
Section "E" Unit



"D" Unit



Section

Cupboard and
Drawer BaseBase with
Silver DrawersAll Drawer
BaseFlour Bin
BaseElectric Plate
Warmer BaseFlour Barrel
BaseSection of
Cupboard and
Drawer BaseSection of
Base with
Silver DrawersSection of
All Drawer
BaseSection of
Flour Bin
BaseSection of
Electric Plate
Warmer BaseSection of
Flour Barrel
Base

Installation

White House Units effect a saving in the cost of installation, especially where the walls are tiled. Each unit being a complete steel case makes it unnecessary to tile in back of the units.

Bases are set on our regular 6-in. legs, or more often are set on a composition base of 6 in. or less, made to take a facing of material to match the flooring.

Units are secured to the wall with bolts, etc., according to the construction of the walls: hollow tile walls, toggle bolts; brick wall, expansion bolts; lath and plaster wall, wood or lag screws in studding; gypsum block partitions, screws in wood grounds provided by builder.

Our service department makes a specialty of preparing estimates and suggested layouts of White House Units, on receipt of your floor plans.

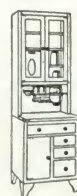
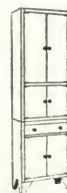
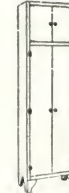
White House Units are furnished complete, ready for use—no hardware, glazing or painting necessary.

Uses

Our patented construction and unit system make White House Steel Units adaptable for many uses, because they are not only sanitary and durable, but also fire-resisting, moistureproof, verminproof and odorless.

Residence, Apartment or House—In the kitchen, pantry, cook's pantry and general service wing.

Wherever food is stored, prepared or served—use steel.

Dresser No. 27
27½ in. wide, 87 in.
high on legsDresser No. 39
39 in. wide, 87 in.
high on legs
Dresser No. 390, 69 in. high on legs
Dresser No. 550, 69 in. high on legsDresser No. 50
50½ in. wide, 87 in.
high on legsWhite House Side
Unit
26 in. wide, 12 in.
deep, 87 in. high
on legsWhite House
Broom Closet
18¾, 26 and 36 in.
wide, 12 in. deep.
87 in. high on legsWhite House Sink
Unit
14½, 36, 39 and 50½
in. wide, 6 in. deep,
18 in. high

Commercial and Industrial Building—Kitchens and serving rooms, test kitchens, demonstration kitchens.

Hospitals—Diet kitchens, utility rooms, linen rooms, pharmacal laboratory, operating rooms, etc.

OLEAN METAL CABINET WORKS, INC.

EXECUTIVE OFFICE AND FACTORY
OLEAN, N. Y.

SALES OFFICES

NEW YORK, N. Y., OLEAN METAL CABINET WORKS, INC., Room 1431,
101 Park Avenue

CHICAGO, ILL., HOWARD EVANS, 228 No. LaSalle Street

CLEVELAND, OHIO, WALTERS-SEIDEL Co., 2341 Carnegie Avenue

SAN FRANCISCO, CALIF., THOMAS M. GARDNER, 112 Market Street

DETROIT, MICH., WM. T. NELSON, Francis Palms Building

PHILADELPHIA, PA., WILKINSON EQUIPMENT Co., 53rd Street below
Whitney Avenue

ST. LOUIS, MO., H. C. UHLENHAUT, Railway Exchange Building

CORRESPONDENTS

BOSTON, MASS.
PITTSBURGH, PA.

ATLANTA, GA.
LOS ANGELES, CALIF.

DES MOINES, IOWA
KANSAS CITY, MO.

Organization and Personnel

The production of any fine piece of metal furniture requires the services of men highly trained in the engineering and manufacture of such merchandise. The entire executive, engineering, sales and manufacturing staff of the OLEAN METAL CABINET WORKS, INC., has been selected from the most efficient, best trained men in the industry. Its members are thoroughly versed in the layout, design, manufacture and installation of metal cabinets.

From its inception, the metal case industry has been called upon to furnish cabinets which will give carefree and economical service through a long life in

STEEL IS STYLE any building, be it a fine home, exclusive apartment or in the hospital and institution field. Now, in one factory and its offices, we offer to architects, contractors and owners, the knowledge and experience of a force of men highly skilled in their line.

The engineering and layout of any operation where-in our standard line or special built work is used is offered by this superior force of men. Your problems of engineering may be trusted to them with the assurance that the data submitted will be authentic, accurate and complete. Efficiency in design and detail at the start precludes the possibility of errors of either omission or commission so easily possible.



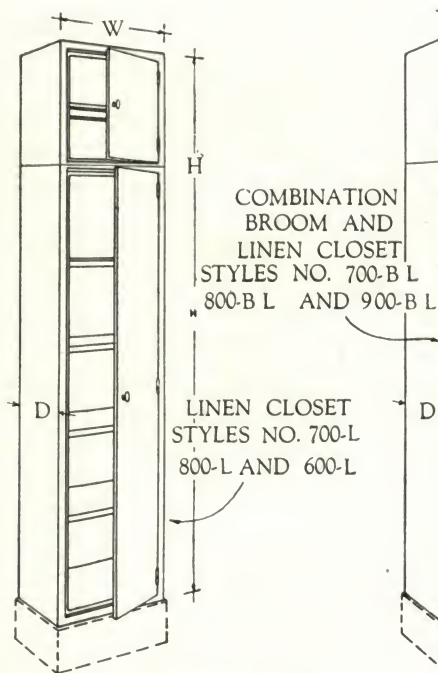
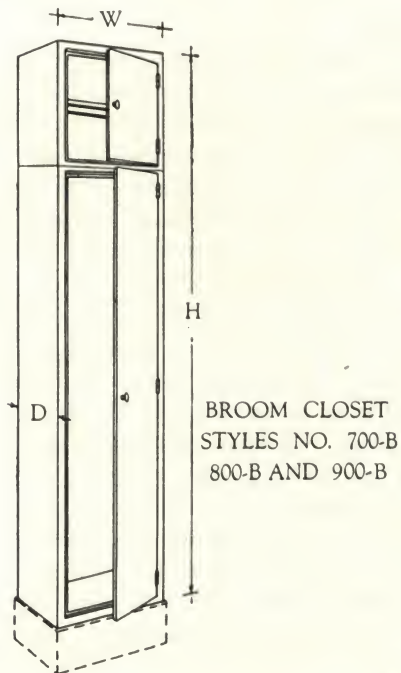
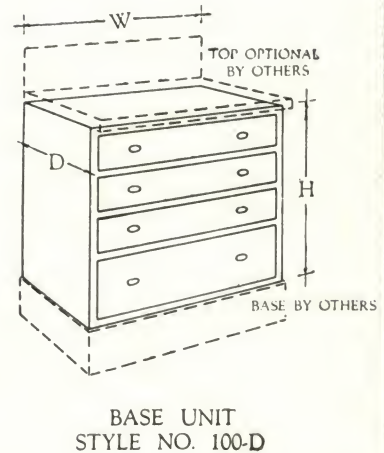
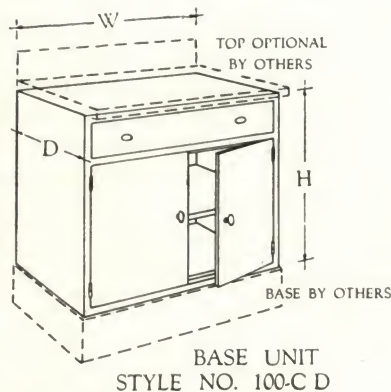
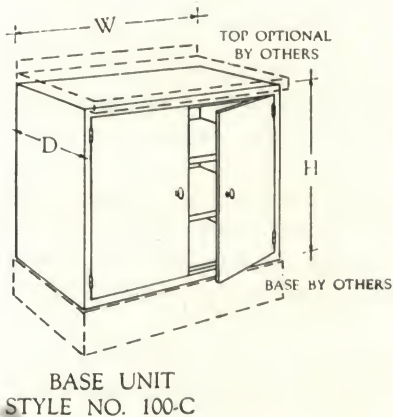
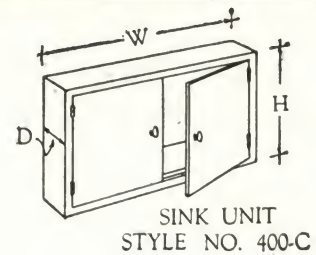
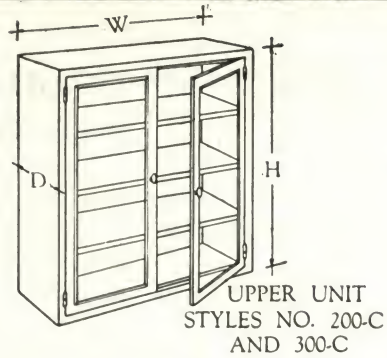
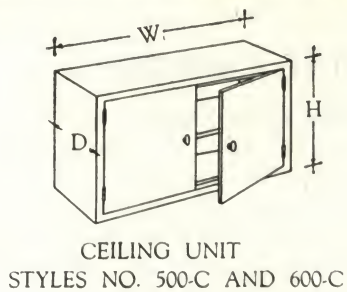
Cutting and Forming Department, Showing Punches, Breaks and Shears



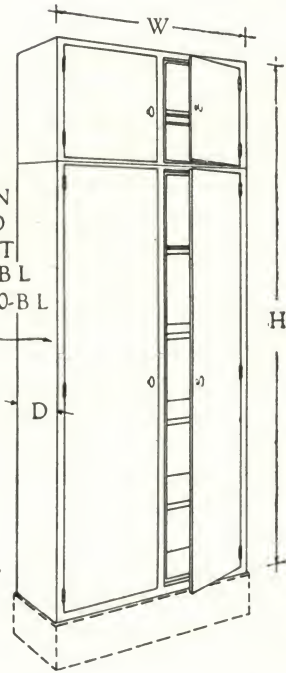
Finishing Room, Showing Battery of Three Electric Baking Ovens



Main Office and Factory—Olean Metal Cabinet Works, Olean, N. Y.



COMBINATION
BROOM AND
LINEN CLOSET
STYLES NO. 700-B L
800-B L AND 900-B L



DIMENSIONS OF STANDARD UNITS

KIND	STYLE	WIDTH																HEIGHT		DEPTH			
		SINGLE DOORS								DOUBLE DOORS								18"	28 1/2"	36"	42"	48"	54"
		12 7/8"	14 3/8"	15 7/8"	17 3/8"	18 7/8"	20 3/8"	21 7/8"	24"	27"	30"	33"	36"	36 7/8"	39"	42"	42 7/8"	18"	28 1/2"	36"	42"	48"	54"
BASE UNIT	100-C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	100-CD	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
UPPER	200-C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	300-C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SINK	400-C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CEILING	500-C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	600-C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
BROOM CLOSET	700-B	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	800-B	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	900-B	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
LINEN	700-L	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	800-L	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	900-L	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
COMB. BROOM & LINEN CLOSET	700-BL	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	800-BL	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	900-BL	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

FEATURES OF CONSTRUCTION OF OLEAN METAL CABINETS

A Distinctive New Line

In presenting this distinctive, entirely new line to the public for the first time, in catalogue, the makers and designers feel that a bit of salient information is in order.

Correct in every detail, all units have been designed with their ultimate use in mind. Olean cabinetry has true individuality, a quality not easily copied.

In finish too one finds the unexcelled duco process with its soft gloss both pleasing to the eye and distinctive in its texture. Easily cleaned, increasing in gloss with repeated rubbing—our finish process will delight the discriminating owner—giving long and lasting service.

On the page opposite we picture a section of upper and base units and have, from these, selected certain especially important details. These have been drawn in perspective and we would call attention to them as follows:

Panel or Glazed Door Construction

Detail "A" shows the construction of the panel or glazed door and its relation to the finished cabinet. Note the seamless tubing spotwelded to the one piece drawn moulding. The sides, top and bottom being mitred and acetylene welded to give an extremely rigid door, and can be fitted with either glass or steel panel. This section shows also the flush bottom cover plate, and illustrates in fine detail the narrow $\frac{7}{8}$ -in. frame of the case, a distinct advance in design.

Detailed Door Construction

Detail "B" illustrates again in more detail the door construction. Attention is invited to the oval knob, designed for appearance in connection with the finished whole, and for ease in operation, and lasting qualities. Drop forged from solid brass, chromium plated, these knobs will give permanent satisfaction.

Bottom and Back Plate Construction

The method of forming the bottom and attaching the back plate is shown at detail of section "C." The bottom is double with a cover plate forming the outside and the bottom plate forming the inside. The bottom plate is flanged downward all around and welded to the ends and back. At the front it is welded to the moulding forming the bottom edge of the cabinet and becomes a door stop. Adjustment holes are punched at each side of the back plate which is perfectly flat with no projecting points to catch dirt and cleaning cloths. The method of forming the side of the cabinet so that it leaves a recess behind the adjustment holes for the brackets is clearly shown.

Drawer Slide and Stop Construction

One of the finest achievements of our engineers is shown at detail of section "D" in the drawer slide and stop. Note in particular that the channel on the drawer is part thereof and as such serves the double purpose of added strength in the drawer body and as the channel member. This channel may be of stainless steel or monel metal, eliminating the wearing off of paint on the channel.

Our stopping device, sure in action and simple in construction, enables one to extend the drawer, fully loaded, without fear of the contents being dropped to the floor.

To remove the drawer for cleaning, pressure of the thumbs on the lever projecting through the channel is exerted and the drawer removed. Replacing merely means the simple operation of re-entering the body channel.

With this type of drawer channel it is impossible to misplace the channel members, insuring a free running drawer.

Narrow Margin

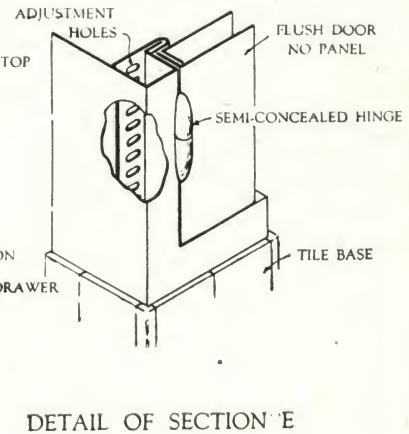
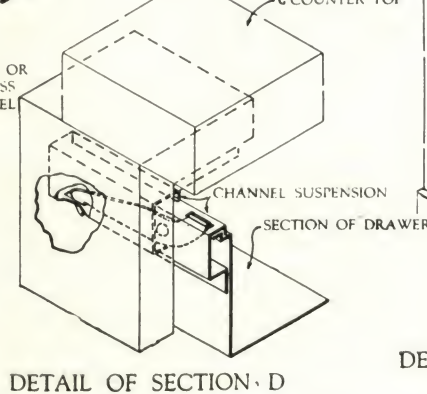
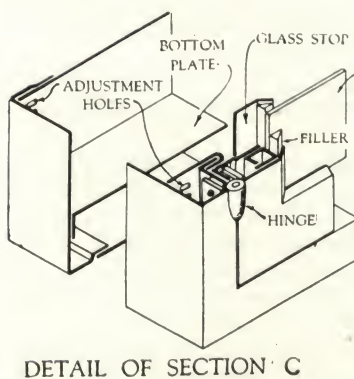
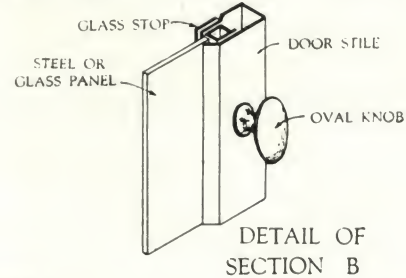
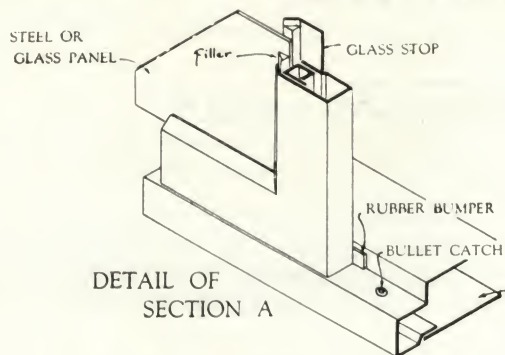
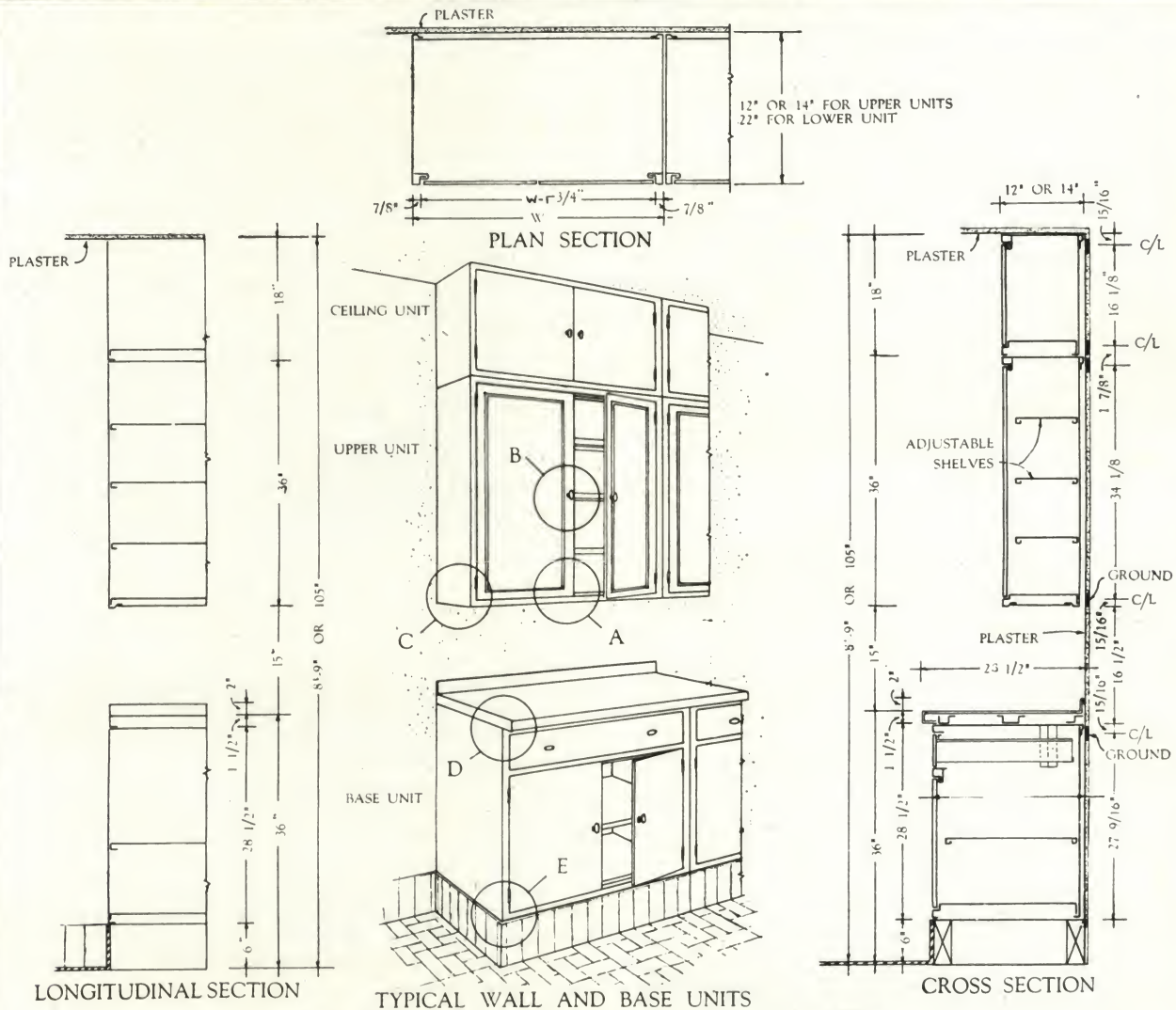
Detail "E" shows the narrow margin and special hinge developed for Olean Metal Cabinets.

In designing this new line of cabinets the fact that they are made of steel was kept constantly in mind with the result that they have a character all their own. Instead of the wide margin customary in wood construction for strength we have developed the long desired hollow style. The $\frac{7}{8}$ -in. margin has every advantage of narrow clean cut lines and the smart distinctive appearance obtainable only in fine metal work.

The interior of the cabinet is rectangular in form with no corners or recesses in which dirt can collect and which are hard to clean. Note how the shelf support is folded around to form part of and reinforce the door jamb and carried back to form a tight joint with the side thereby entirely closing the space behind the jamb. The shelf support slots are spaced $\frac{1}{2}$ in. on centers. The shelf bracket used is the standard Garden City type. Glass shelves may be substituted for steel if desired.

Semi-Concealed Hinges

The beautiful olive-shaped concealed pin hinge is shown in detail of section "E." This hinge, conceived by Olean engineers, is drop forged of solid brass, chromium plated. It is exquisite in line, sturdy in construction and very strong. It operates easily and noiselessly. It is set into the face of the door so that there are no projecting points to catch cleaning cloths and no surfaces on which dirt can collect.



SPECIFICATIONS—GENERAL

All metal cabinet work shall be manufactured and installed by the OLEAN METAL CABINET WORKS, INC., Olean, N. Y.

Steel

Steel shall be open hearth full pickled reannealed, resquared and oiled furniture stock free from pits, buckles and rust.

Not less than 20 gauge shall be allowed except in drawer bodies which shall be 24 in. and shelves, drawer slides and all other parts where strain occurs shall be of 18 gauge.

Hardware

Hardware shall be cast brass, chromium plated by an approved process providing for copper, nickel and double chrome plate. Hardware shall include hinges, knobs, handles, locks (3 and 1 point) and all other as detail or design may require.

Finish

Finish shall consist of following processes:

(1) All metal shall first be cleaned in a benzine solution (which solution shall be redistilled and cleaned after each dipping) to remove all grease, rust or other foreign matter.

(2) All metal to receive a coat of baking primer which shall be baked in electrically heated ovens to a temperature of 250° F. for two hours.

(3) All surfaces to be sanded thoroughly.

(4) A coat of surfacer to be applied and air dried for two hours.

(5) After which a filler shall be applied to fill all weld spots and other unevenness caused in fabrication.

(6) Surfacers and filler to be sanded to present smooth even bond surface for application of finish coats.

(7) Finish coats to be lacquer type, hand rubbed between coats and shall be applied in at least three coats or more as the pigment in the paint may require.

General Requirements

In addition to the general specification for gauge and hardware and finish the following shall be considered a part of the general requirements. All cases shall have mitered corners, which shall be welded and ground flush. Tops and sides shall be one piece construction. Bottoms shall be welded in, as shall back plates.

There shall be no projecting superimposed shelf brackets used—all shelves to be adjustable on 1/2 in. centers and to rest on supports in back of front stiles and cut out of back of cabinets. This construction insuring a smooth flush interior. There shall be no sharp edges of steel.

All doors shall be set in rebates and doors shall be 5/8 in. thick of heavy gauge construction—composed of a one piece drawn shape, to form the stile, into which shall be spot welded a seamless tubing, and to which the glass retainer strip shall be fastened by means of machine screws. Glass shall be set on wood strips or felt or rubber retainers.

Drawers shall be constructed with double heads and shall slide on channel suspension slide on the interior of the cabinet. The corresponding member on the drawer shall be integral with the drawer body and shall be of stainless steel in monel metal. Drawers shall be prevented from falling out when fully extended by means of a hidden catch. Screw heads shall be sunken into inside head of drawers. When drawers are heavily loaded provide suitable bumper on back of cabinet to release strain from head.

Where hollow construction doors occur, same shall be reinforced by means of channels spot welded to inside of inner pan, and the entire door to be electrically welded into one piece construction.

Hinges shall be sunken into the door stile and jamb and must not protrude more than 1/4 in. from the face of the cabinet. Hinge reinforcements shall be of bar iron 1 3/8 x 1/2 in. extending the entire length of the jamb and concealed.

All outer margins of cases to be not over 7/8 in. except in cases when units are to be set in walls when this is increased to 1 1/2 in.

HOSPITALS—THEIR EQUIPMENT AND LAYOUT**Experience**

Many years' experience has been fruitful in producing an attitude toward the planning of the modern hospital, which provides equipment meeting every need. The OLEAN METAL CABINET WORKS, INC., contributes to this efficient trend with metal casework embodying many unusual features. Distinctive in appearance, sturdy and accurate in construction, sanitary and easily cleaned, they have universal appeal. Those cases requiring mechanical or engineering skill in their conception have been designed by men of long experience and sound engineering ability. Their utility is assured by their repeated use in many of the largest institution and hospital projects.

The Olean Line Includes

Instrument cases, operating room cases, diet kitchens, serving kitchens, main kitchen. Cases in storage rooms, tray rooms, utility rooms, work rooms, sterilizing rooms, blanket warmers, bed pan warmers, specimen cases, viewing cases as well as the shelving and other units which must be adapted to the individual needs of the hospital.

The general specifications as outlined above apply except as follows:

Steel shall be 18 gauge and heavier as required

except drawer bodies which shall be of 22 gauge. Specification for steel as to quality shall be same as previous general specification.

Drawer slides shall be of monel metal or stainless steel. Where required, roller slides shall be used. Where drawers are heavily loaded or of extra depth, same shall be provided with stopping device at back of drawer to eliminate strain on drawer head.

The accompanying details of standard sections show the general types of work fabricated by OLEAN METAL CABINET WORKS, INC.

Types of construction and details thereof to follow as to size and type the standard sections previously illustrated.

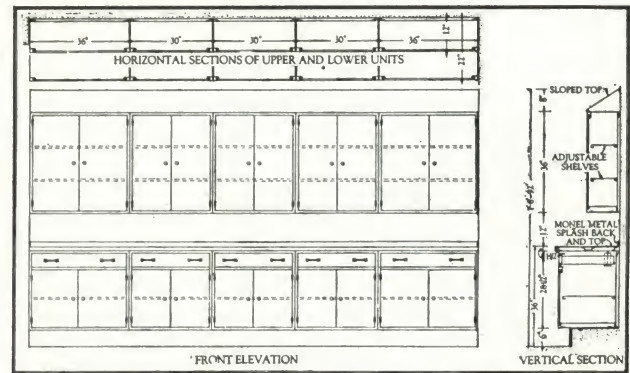
The line as here submitted includes a pot and pan closet, which we recommend strongly for use as a utility case in the hospital. It provides the maximum storage capacity with minimum space occupied, and is a place for everything in which everything has a place.

The hospital has long desired coved inner corners and the OLEAN METAL CABINET WORKS, INC., presents the new coved line—which can now be had at very small added cost. We can now supply the glazed door in stainless steel or monel metal, a feature which makes paint unnecessary.

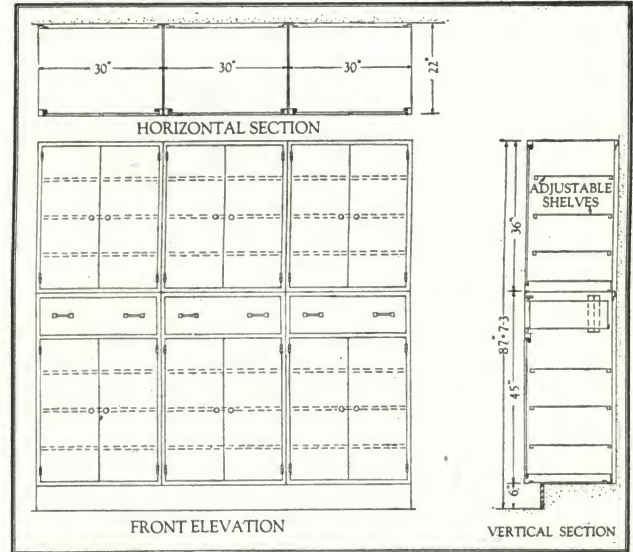
TYPICAL COMBINATIONS OF OLEAN METAL CABINETS



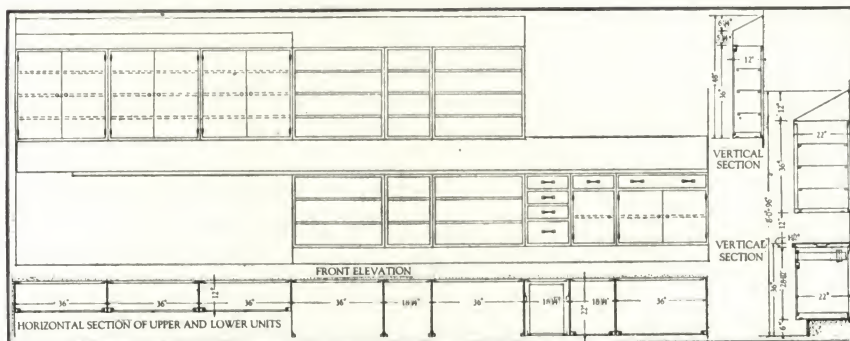
Nurses' Work Room
Cabinets: 100 CD (below)
200 C (above)
Linoleum Counter and Sanitary Cabinet Top

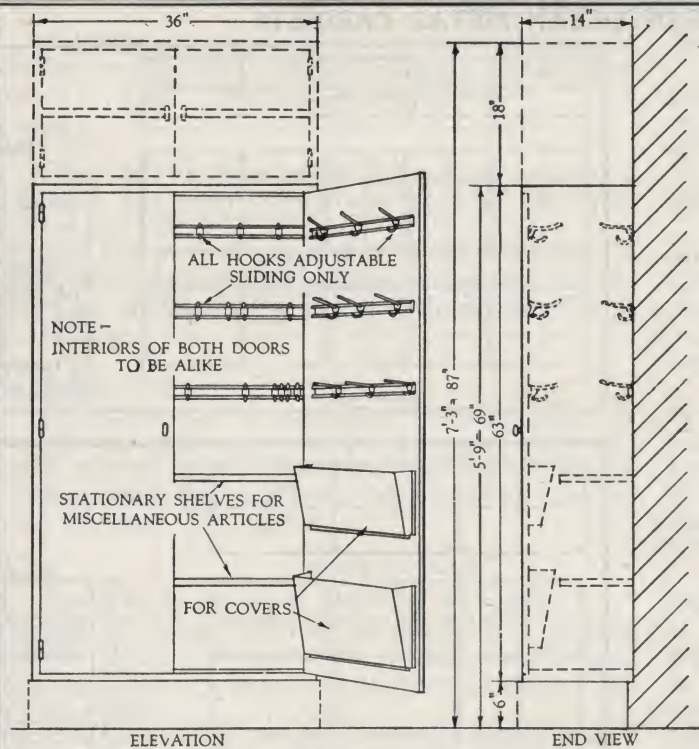


Utility Unit
200 C Units (above)
Special Units with drawers (below)

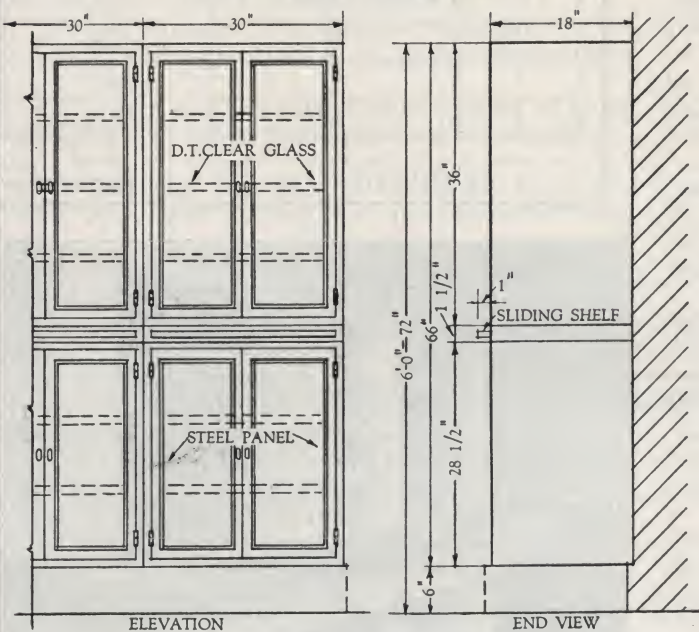


Diet Kitchen
Arrangement of Special Units for Tray Set-ups
Monel Counter Top and Back

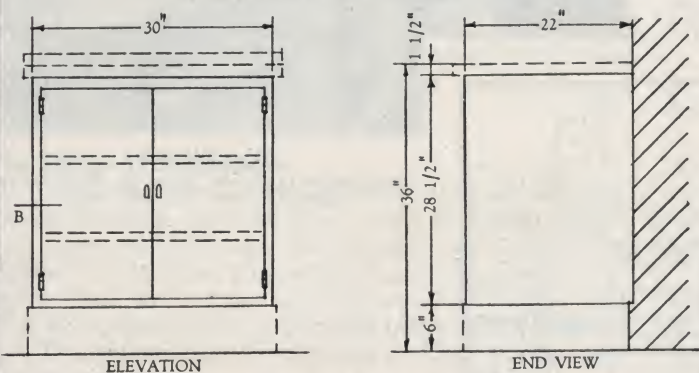




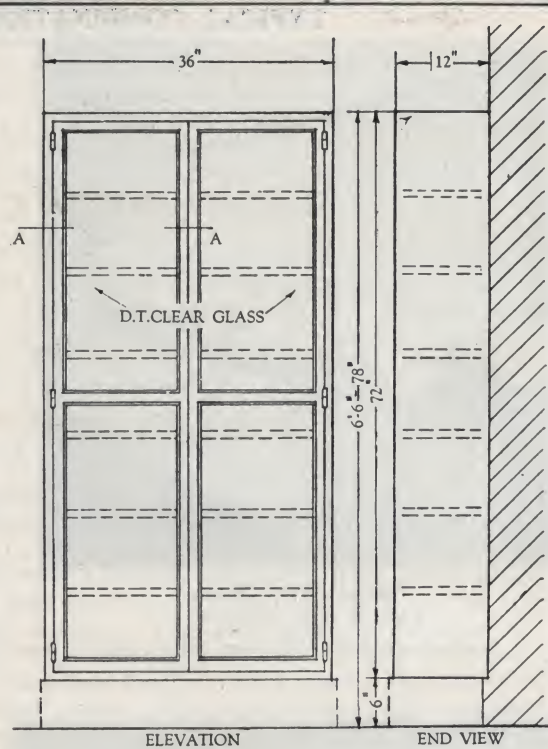
POT & PAN CUPBOARD



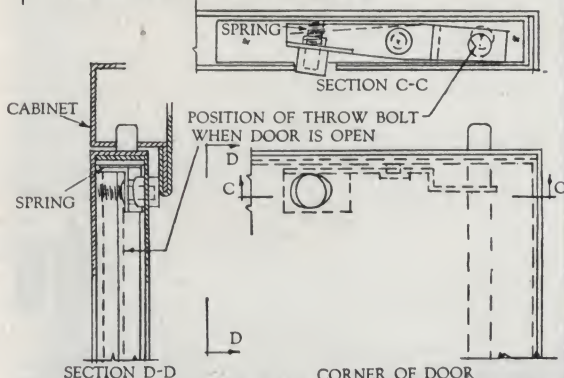
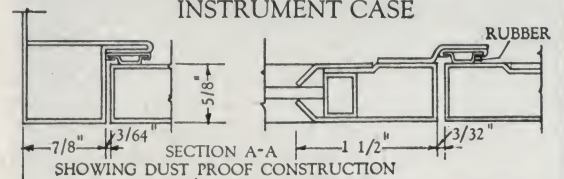
UTILITY CABINET



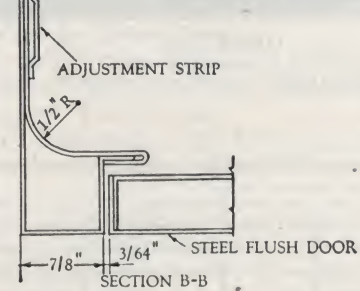
LOWER HOSPITAL UNIT



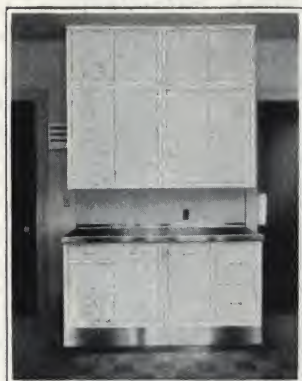
INSTRUMENT CASE



CORNER OF DOOR SHOWING ARRANGEMENT FOR HOLDING THROW BOLTS WHEN DOOR IS OPEN (DOOR SHOWN IN CLOSED POSITION)



A FEW TYPICAL SET UPS OF STANDARD UNITS FOR THE HOSPITAL



Work Centre in Kitchen of Daniel Shea Residence, Olean, N. Y.



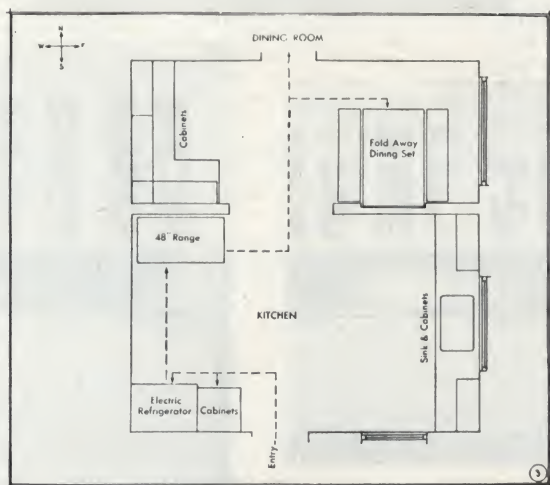
Daniel Shea Residence, Olean, N. Y.
A. W. E. SCHOENBERG, Architect



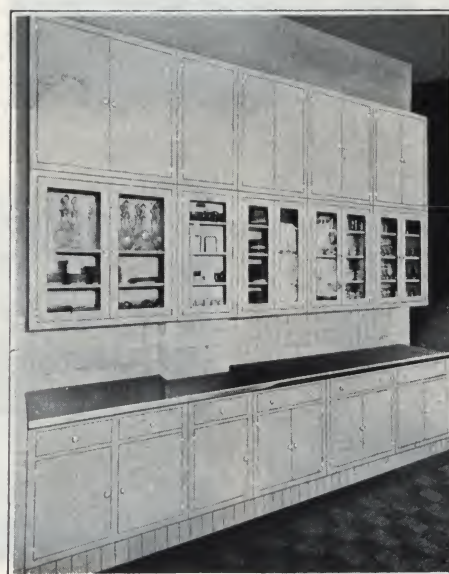
Butler's Pantry at the Daniel Shea Residence, Olean, N. Y.



Idealized Kitchen



Plan for Idealized Kitchen—Note Routing



Typical Butler's Pantry

TYPICAL INSTALLATIONS OF OLEAN METAL CABINETS IN RESIDENCE KITCHENS



TYPICAL HOSPITAL INSTALLATIONS OF OLEAN METAL CABINETS



LIST OF TYPICAL OLEAN INSTALLATIONS

Olean kitchen equipment gives lasting satisfaction because the designs are correct, because skilled Olean mechanics make all installations, and because the equipment is guaranteed for the life of the building. It is this enduring quality that has made Olean equipment the choice of so many homes and institutions where beauty and cleanliness are inseparable.

BUILDING	LOCATION	ARCHITECT OR CONTRACTOR
Marcus Ward Home	Maplewood, N. J.	John Russell Pope, Architect
Higgins Memorial Hospital	Olean, N. Y.	Private Purchase
St. Vincents Hospital	New York, N. Y.	DuParquet, Huot & Moneuse, Designers
J. P. W. Stuart Residence	White Plains, N. Y.	Randell Henderson, Architect
Barclay Apartments	New York, N. Y.	Cross & Cross, Architects
Percy Straus Residence	Port Chester, N. Y.	H. L. Meade, Contractor; Private Plans
Nyack Hospital	Nyack, N. Y.	H. G. Emery, Architect
Dick Hall House (Dartmouth University)	Hanover, N. H.	Bramhall Deane Co.
Bradford Hospital	Bradford, Pa.	Hendryx & Benton, Architects
Sherry-Netherlands Hotel	New York, N. Y.	Schultz & Weaver, Architects
St. Josephs Rectory	Bayonne, N. J.	Private Purchase
Rhode Island Hospital	Providence, R. I.	Private Purchase
Children's Hospital	Philadelphia, Pa.	Stewardson & Page, Architects
J. Morrell Foster Residence	Sioux Falls, S. D.	Sioux Falls Construction Co., Contractors
E. L. Phillips Residence	Plandome, L. I., N. Y.	E. L. Phillips Co., Contractors and Owner
Inner Circle Theatre	Nyack, N. Y.	Private Purchase
D. M. Holstein Residence	Syracuse, N. Y.	Howard T. Yates, Architect
Ford Administration Building	Detroit, Mich.	Albert Kahn, Architect
John W. Painter Residence	McKeesport, Pa.	C. R. Moffett, Architect
Rainbow Hospital	Cleveland, Ohio	Warner & McCornack, Architects
Niagara Falls Hospital	Niagara Falls, N. Y.	Kirkpatrick & Cannon, Architects
Highland Hospital	Rochester, N. Y.	S. Firestone, Architect
Herman A. Bayless Residence	Cincinnati, Ohio	Zettel & Rapp, Architects
St. Francis Home	Williamsville, N. Y.	Private Purchase
Park East Hospital	New York, N. Y.	Bloch & Hesse, Architects
F. Ambrose Clark Residence	Cooperstown, N. Y.	Private Purchase
Ideal Hospital	Endicott, N. Y.	Walter H. Whitlock, Architect
Central Park Clinic	Buffalo, N. Y.	Dr. J. T. Burke, Owner
Masonic Home	Utica, N. Y.	Kinne & Frank, Architects
E. H. Hutton Apartments	New York, N. Y.	Marc Eidlitz & Son, Contractors
Mrs. A. G. Wilson	Rochester, Mich.	Smith Hinchman & Grylls, Architects
Eddie Cantor Residence	Great Neck, L. I., N. Y.	A. F. Gilbert, Architect
Anthony Farrell Residence	Loudonville, N. Y.	H. F. Huber Co., Contractors and Designers
St. Luke's Convalescence Hospital	Greenwich, Conn.	Walter H. Mason, Architect
Master Building (Roerich Museum)	New York, N. Y.	Sugarman, Berger & Helmle, Architects
Jung Hotel	New Orleans, La.	Corbett & Harrison, Architects
M. R. Bettis Residence	Tuscaloosa, Ala.	John Van Range Co.
St. Joseph's Hospital	Jersey City, N. J.	Wm. Leslie Welton, Architect
Sharon Hospital	Sharon, Conn.	McKenna & Irving, Architects
State Hospital	Milledgeville, Ga.	Edward C. Smith, Architect
New York Central Building	New York, N. Y.	Daniell & Beutell, Architects
Cooper Residence	West Palm Beach, Fla.	Warren & Wetmore, Architects
M. F. Yount Apartments	Beaumont, Tex.	Watt & Sinclair Purchase
Union Gas & Electric Co.	Cincinnati, Ohio	Austin Co. of Texas
Jewish Hospital	Louisville, Ky.	Private Purchase
Mrs. Helen N. Smith Residence	Redbank, N. J.	Arthur Loomis, Architect
Goldman-Sachs Building (Director's Kitchen)	New York, N. Y.	Private Plan
United Hospital	Port Chester, N. Y.	A. F. Gilbert, Architect
St. Peter's Hospital	Albany, N. Y.	Hood, Godley & Foulhoux, Architects
Bank of Manhattan	New York, N. Y.	Robert J. Reiley, Architect
John Russell Pope Residence	Newport, R. I.	Nathan Straus & Sons (Kitchen Contractors)
Chas. A. Frueauff Residence	Meads Point, Conn.	John Russell Pope, Architect
Aetna Life Insurance Co.	Hartford, Conn.	Edgar A. Self, Architect
St. John's Riverside Hospital	Yonkers, N. Y.	James G. Rogers, Architect
Southern New England Telephone Co.	Seacliff, L. I., N. Y.	George P. Butler, Jr., Architect
Country Home for Convalescent Babies	Sands Point, L. I., N. Y.	Nathan Straus & Sons, Contractors
Wm. Randolph Hearst Residence	New York, N. Y.	Peabody, Wilson & Brown, Architects
W. K. Vanderbilt Apartment	New York, N. Y.	Private Plans
Busto's Restaurant	New York, N. Y.	Warren & Wetmore, Architects
Irving Trust Company (1 Wall Street)	New York, N. Y.	Oscar Cadmus, Architect
Northern Dutchess Health Service Center	New York, N. Y.	Voorhees, Gmelin & Walker, Architects
St. Moritz Hotel	Rhinebeck, N. Y.	Edward C. Smith, Architect
Jewish Theological Seminary	New York, N. Y.	Smith & Mossi, Inc., Contractors
St. Ann's Villa	New York, N. Y.	G. Richard Davis, Contractor
City Psychopathic Hospital	Convent Station, N. J.	Myers & Stanley, Architects
Saginaw County Hospital	Cleveland, Ohio	Herman Kregelius, Architect
	Saginaw, Mich.	Franz & Spence, Architects

THE PARSONS COMPANY

603 Milwaukee Avenue, East, DETROIT, MICH.

Meets Present Day Requirements

We believe there is no combination of kitchen equipment that so admirably meets the present day requirements of small homes, apartments, apartment hotels and summer cottages as the Parsons "Pureaire" Kitchen.

It offers decided advantages to architect, builder and owner through savings in first cost, floor space, upkeep, and in attracting and holding tenants by providing increased comfort, convenience and cleanliness.

Open, it puts within arm's reach the complete equipment of a 6-ft. kitchen—full size stove, refrigerator, sink and ample storage space—all compactly arranged in a beautiful pressed steel cabinet that is fireproof, verminproof, easily cleaned and occupies a space less than 4 ft. in width.

Closed, it is an attractive piece of furniture with the entire kitchen out of sight. Its unique design and attractive colors harmonize with any decorative scheme, giving added charm and brightness, while the ventilation feature eliminates the discomfort of heat, smoke and cooking odors.

Save Three Ways

First—The Parsons "Pureaire" Kitchen is built entirely of steel; it is sanitary; it will last indefinitely, and it will reduce redecorating costs.

Second—Unique design, sound engineering and mass production make its price actually less than the same equipment bought in separate units.

Third—It effects a great saving in floor space, since similar equipment in multiple units requires 50% greater area. This saving of space may be utilized by enlarging the size of the rooms or increasing the number of apartments.

Modernize This Modern Way

The Parsons "Pureaire" Kitchen cannot be excelled for remodeling old apartments, hotels and residences into

kitchenette apartments. It may be set against the wall or recessed, eliminating partitions and folding doors. Through its use, with a minimum investment, empty apartments and hotel rooms can be turned into modern kitchenettes that will attract and hold tenants.



Specifications

Ventilation—A 11 smoke, heat, cooking odors and steam are carried upward through a 6-in. vent which is connected with the flue. The grilled panels beneath the burners and the sink admit sufficient air, which circulates upward, giving perfect ventilation.

Stove—A full size

PARSONS

Pureaire

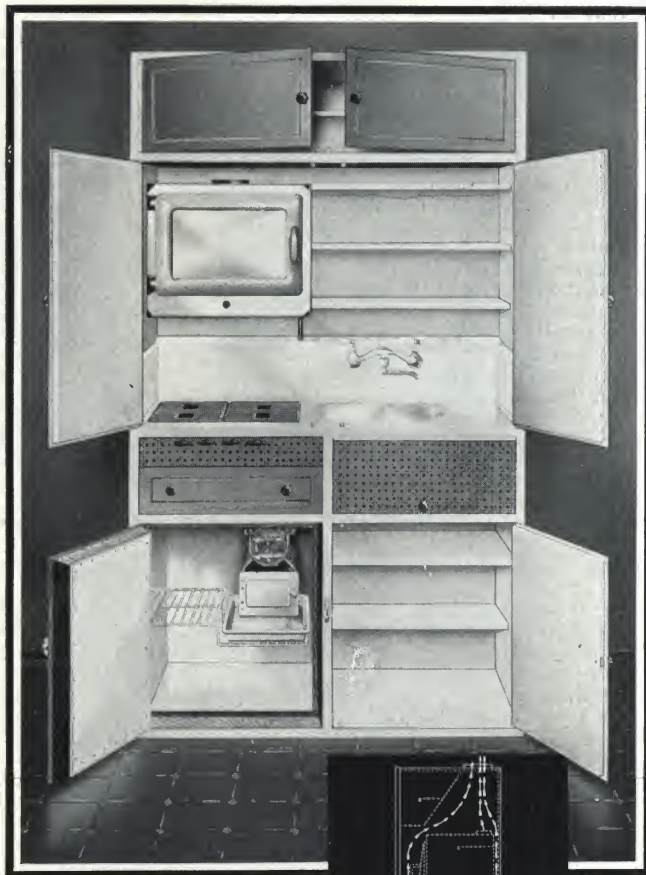
KITCHEN

4-burner, with a 16-in. oven and broiler, triple wall properly insulated. Below the burners is a white porcelain enameled tray which is also used as a drainboard when placed over the burners.

Refrigerator—This is of all-steel construction, except for the maple frame around the door. The insulation, Dry-Zero, is one of the most efficient known to refrigeration science.

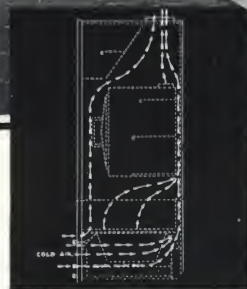
It is odorless, resists moisture, does not deteriorate, and reduces operating costs from 15% to 25%. The interior is finished in white enamel and equipped to take any standard electric refrigerating unit; or ice may be used as the refrigerant.

Sink—The sink, drainboard, back and side splashers are of fine white porcelain enamel, designed to take standard plumbing fixtures.



(Patented and Patents Pending)
Diagram Shows How Parsons "Pureaire" Kitchen Is Perfectly Ventilated

All heat, greasy smoke and cooking odors are carried up through a 6-in. vent connected with flue



Shelving and Drawer—There is a total of 20 sq. ft. of storage space. The utility drawer measures 20x20x4½ in., and has a padded compartment for cutlery.

Cabinet—The cabinet is scientifically constructed from heavy gauge furniture steel over cold rolled steel channel frame, acetylene welded. It is a rigid and solid unit. All parts are made in dies, standardized and uniform. Doors are hung with full length piano hinges, chromium plated.

Over-all Dimensions—80 in. high, 45¾ in. wide, and 22 in. deep.

Finish—The kitchen is beautifully finished in a special Jonquil Green and Ivory lacquer, striped in Persian Orange.

Weight—Net 400 lb. Crated 475 lb.

Note: The Parsons "Pureaire" Kitchen is also furnished with a standard electric stove.

KITCHEN MAID STANDARD UNIT SYSTEMS FOR KITCHENS

MANUFACTURED BY

Wasmuth-Endicott Company

ANDREWS, IND.

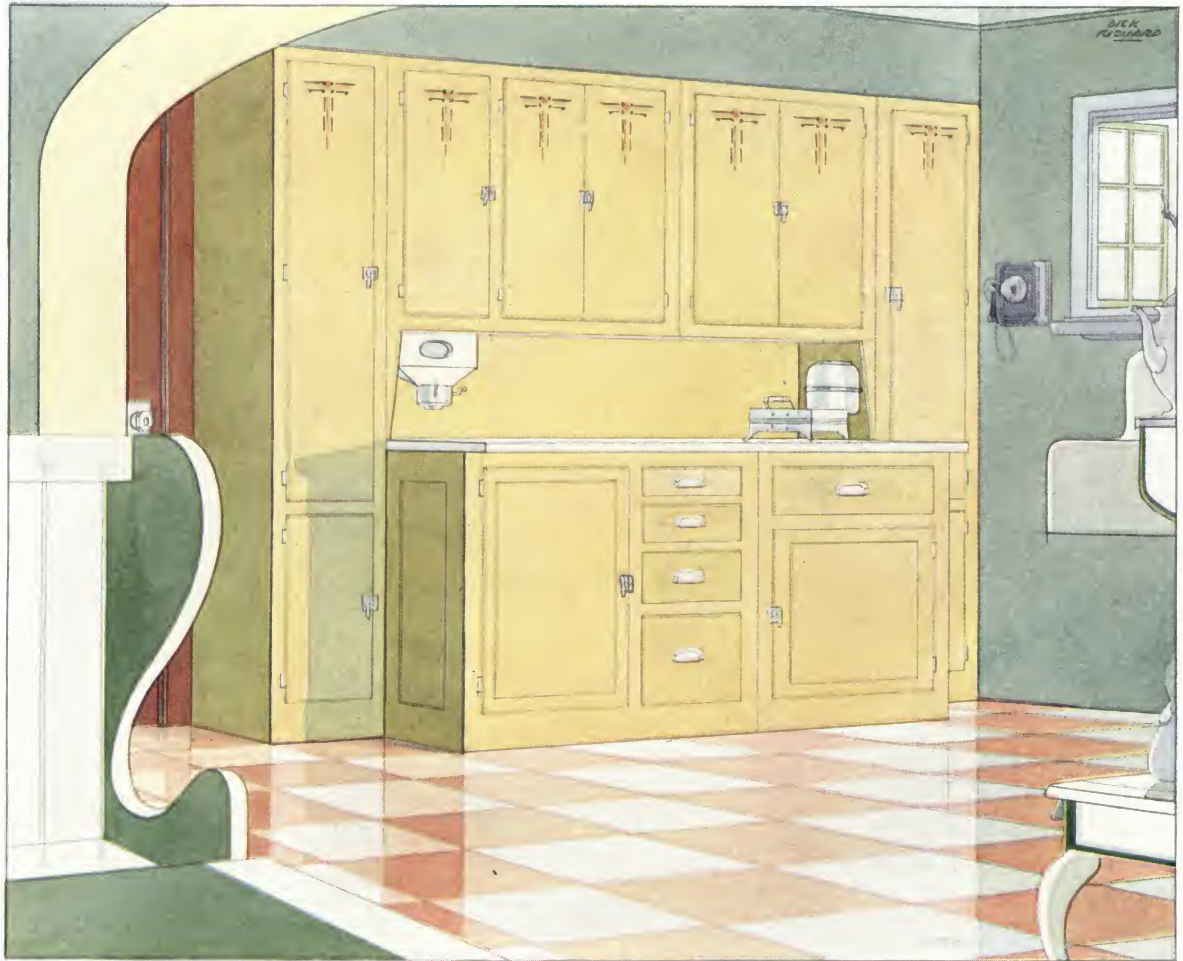
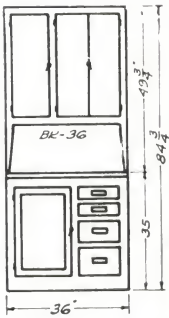
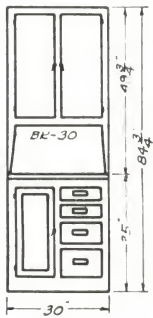
Products

Kitchen Maid Standard Units—Kitchen Cabinets, Kitchenette Assemblages, Refrigerators, Folding Ironing Boards, Linen Cupboards, Dish Closets, Wall Cupboards, Broom and Utility closets, Divider Cupboards, In-a-wall Chairs, Telephone Niches, Wardrobes.

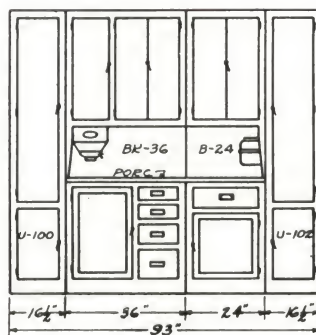
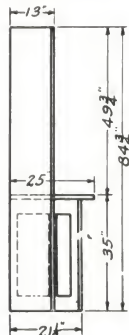
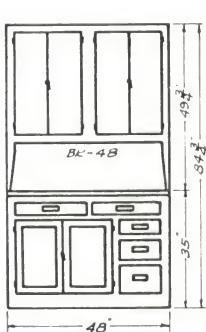


General

The Kitchen Maid line embodies all the newest and most important units of kitchen equipment. Each is complete in itself—may be used alone or in combination with other units. These units will fit into practically any size of space in kitchens already built, or may be built into

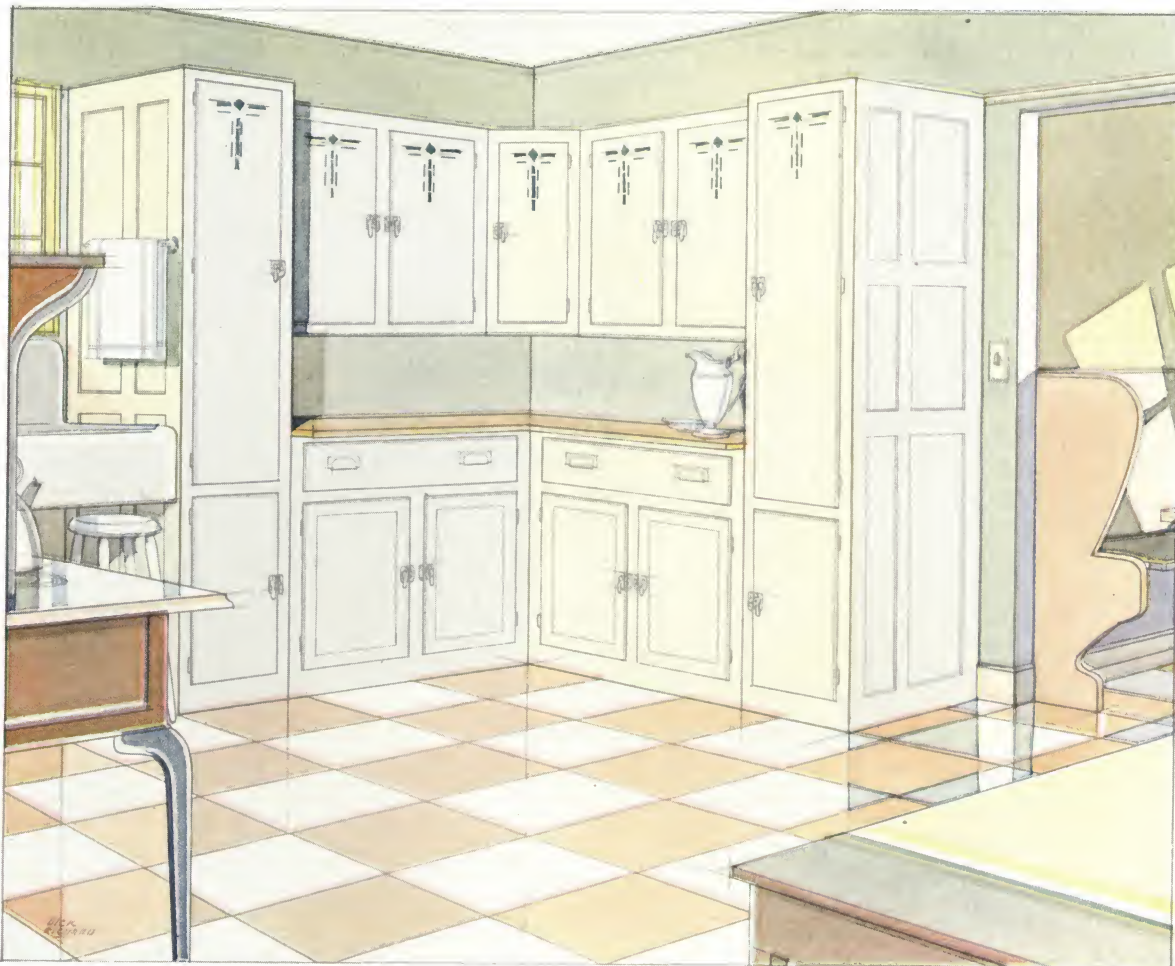


Kitchen Maid combination made up (from left to right) of broom closet No. U-100, Kitchen Cabinet No. BK-36 and Butlery No. B-24 using a single porcelain table top, and Dish Cupboard No. D-102. Any of the other Kitchen Cabinets, Butlery Units or Side Units may be used. Total width of combination varies accordingly.

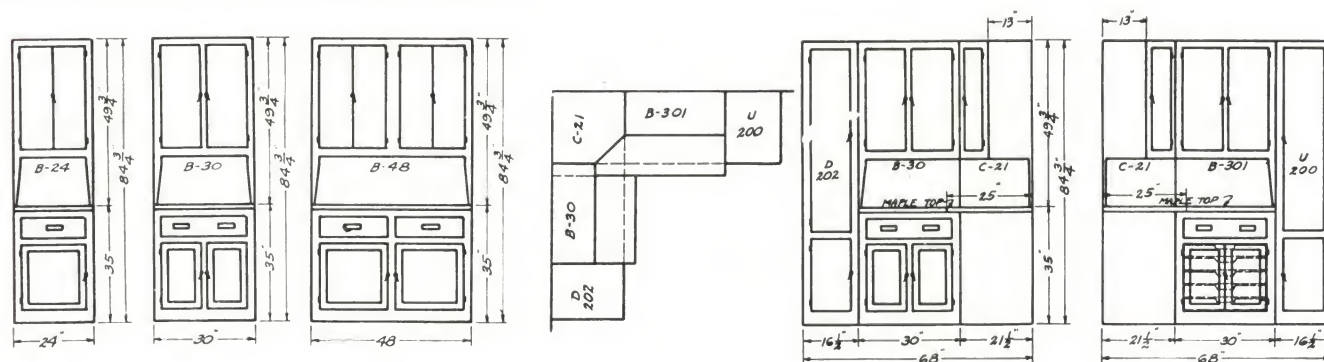


kitchens especially designed to receive them. The number of unit combinations is almost unlimited.

Kitchen Maid Units are built by specialists in kitchen equipment and represent the highest development of cabinet-making skill. They meet the architect's highest ideals. And, because of standardization and quantity production, the cost is less than built-in work of equal quality and completeness.



Corner combination consisting (from left to right) of full-depth Utility Cupboard No. U-200, Butlery Unit No. B-30, Corner Unit No. C-21, Butlery Unit No. B-301, and Dish Cupboard No. D-202. Any of the other Butlery Units, Kitchen Cabinets or Side Units may be used. Total width of combination varies accordingly.



General Description

The following specifications form a convenient, usable guide for the architect when he plans kitchens.

Materials—All units built of carefully selected, thoroughly seasoned, kiln-dried wood.

Front Frames—The 2" front frames allow doors to swing fully open. Full 1" thickness permits heavier joints.

Joining—All joints either mortised, dovetailed, or tenoned and carefully glued. Shelves mortised in.

Finish—Consists of two sprayed coats of undercoat and one sprayed coat of heavy oil-base satin enamel. Surface is carefully sanded and glazed after each coat.

Colors—Kitchen Maid Units are furnished in eight exclusive colors: Pastel Green, Dawn Gray, Travertine Ivory, Shasta White, Sunbronze Tan, Canary Yellow, Spanish Orchid, Horizon Blue. Each with tasteful decorations of contrasting colors.

Smooth Doors—Eliminate dust-collecting panels. 5-ply lumber core construction. Doors guaranteed not to warp or get out of line.

Rounded Inside Corners—All inside corners of Kitchen Maid Units are of rounded construction, leaving no square dirt-catching spaces.

Enameled Interior Bases—Always easy to clean and keep clean. Present a very attractive, finished appearance.

Table Top—Bolted Laminated Maple—practically indestructible.

General Description, Continued

Porcelain Table Tops—Kitchen Maid table tops are of vitreous porcelain. Guaranteed not to chip, crack, or become stained by common usage.

Hardware—All catches and strikes in Kitchen Maid Units are of cast brass chromium plated. Hinges of steel, chromium plated. Hinges are concealed—a patented feature.

Flour Bins—Made of heavy rustproof metal. Capacity 12½ lbs. Sifter attached to all bins.

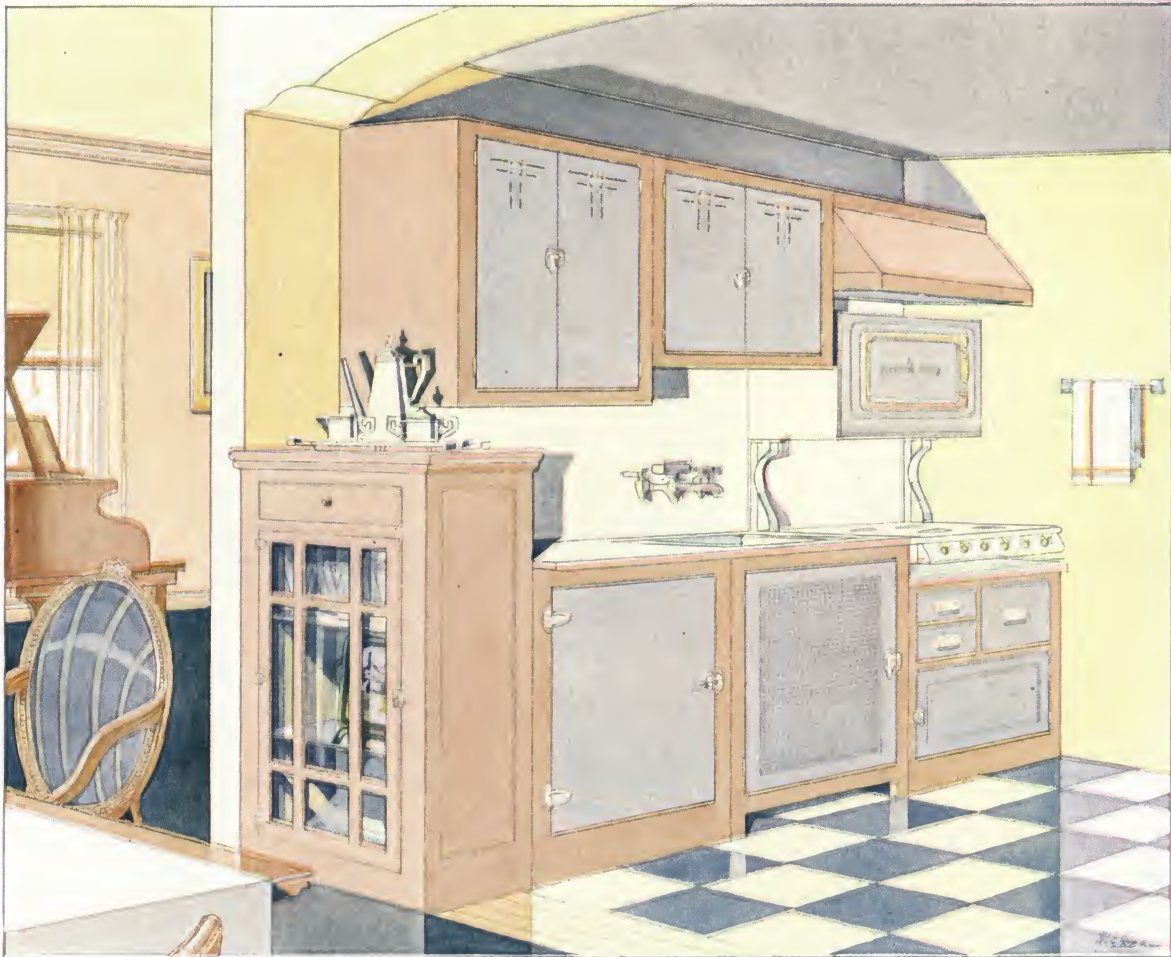
Condiment Sets—Provide practical units for sugar, coffee, tea and spices. Made of sparkling glass.

Non-sag Shelves—All shelves in Kitchen Maid Units made of strong ¾" lumber, making sagging next to impossible.

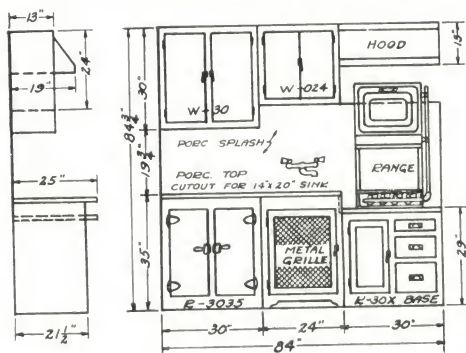
Indestructible Drawers—Made of enameled heavy gauge steel with wood fronts. Exceptionally strong and rigid. One drawer in each cabinet is equipped with felt lining for silverware. All drawer pulls are of opalescent glass.

Refrigerators—All steel construction. Insulated with two inches of pressed Corkboard dipped in odorless asphalt and a ¾" dead air space. Doors are steel-clad with fine enamel finish. Linings are of galvanized iron, enameled in food compartments. Each box equipped with Universal hangers for cooling coil and mechanical refrigeration boring.

Packing—Units carefully cartoned and crated at factory. No shipment leaves until given a final inspection and found in perfect condition.

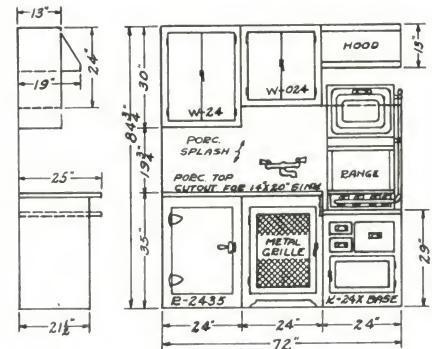


This is Kitchenette No. 7224. Neat, convenient and beautiful. So compact that everything is easily within reach. Occupies only 72" of wall space. Made up of Refrigerator No. R-2435, under sink enclosure, porcelain top cut out for flat rim sink, Kitchenette Base No. K-24, Wall Cabinets No. W-24 and No. W-024, range and hood. Dimensional drawing below.



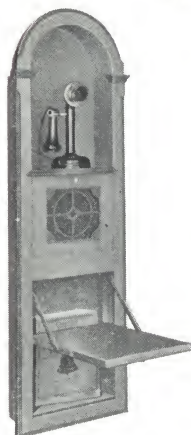
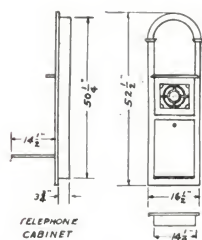
At the left is shown a dimensional drawing of Kitchenette Assemblage No. 8430.

These assemblages may be varied in width by changing refrigerator section, sink section, or stove section in size by use of other standard units. Kitchenette Assemblages do not include sink nor faucets shown in illustration.





Complete Kitchen Maid Assemblage around the sink consisting (from left to right) of Compressor Case No. C-24, Refrigerator No. R-2449, Top Unit No. T-2413, Butlery Base No. B-24, Wall Cupboard No. W-3424, Sink Enclosure, Kitchen Cabinet Base No. BK-48, and Wall Cupboard No. W-3448. This installation has been equipped with Tile Table and Splash Back.



Telephone Niche

Telephone Niche. Built to fit into wall. Uses no floor space . . . Note comfortable seat. May be finished in Brown Mahogany or Walnut varnish; in Olive Green or Mandarin Red lacquer; or in two-tone Olive Green or Mandarin Red lacquer. Also available unfinished.

Kitchen Maid Divider Cabinets

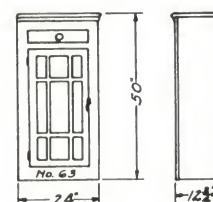
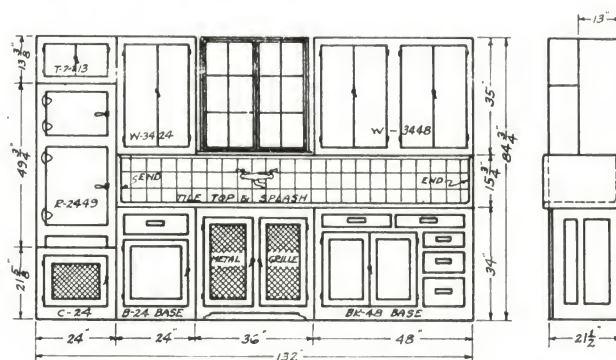
Kitchen Maid Divider Cabinets offer practical arrangements for dividing kitchen and dinette. No. 63 (shown at right) is made with conventional panelled glass door. No. 62 made with panelled door decorated with carved wood design.

Kitchen Kraft Standard Units

This is a complete line of Lower Price Units distinguished by many of the features that have won favor for Kitchen Maid Units.

It offers the builder of lower priced homes or apartments the same adaptability of installation, remarkable compactness and convenient unit assembly that characterize the Kitchen Maid line.

Just as in Kitchen Maid, metal drawers, operating in metal slides, insure easy operation. Panel door construction is employed throughout. The units are finished in your choice of eight beautiful enamels.



PETERSON AND NEVILLE, INC.

Manufacturers of Pressed Steel Products for the Kitchen

365 Dorchester Avenue, BOSTON, MASS.

Product

"KLEEN KITCHEN" METAL FURNITURE: Cabinets, Sinks, Steam Tables, etc.

For "Steelweld" Door Frames and Hospital Cabinets, Tables, Furniture and Shelving, see Manufacturers' Index.

Custom Made Kitchen Furniture

We are pleased to submit designs, and estimates to architects' designs, for Kitchen furniture made of furniture steel, stainless steel and monel metal.

We specialize in custom-made work of the highest quality. We find that the most satisfactory steel kitchen architects' designs, for Kitchen furniture made of furniture steel is made for each individual project. Our cabinet work is of extra heavy gauge metal; doors are double thickness, welded, hung usually with flush concealed hinges; all drawer fronts are of similar double construction that insure quiet closing and eliminate tinny, metallic sounds.



Kleen Kitchen

Kompact and Komplete Models—

We manufacture these in several sizes, consisting of refrigerator, gas or electric stove, sink and storage cabinets. Specifications, sheets and prices will be sent on request. These cabinets can be designed to take any type of refrigerator unit or we can furnish a refrigerating unit designed and built into these cabinets.

ROCKFORD STEEL FURNITURE COMPANY

Manufacturers of Steel Kitchen and Bathroom Furniture

ROCKFORD, ILL.

BRANCH OFFICES AND EXHIBITION BOOTHS

CHICAGO, 1616 Builders' Building
CINCINNATI, 622 Broadway

NEW YORK, N. Y., 280 Madison Avenue
BOSTON, MASS., 80 Federal Street

WASHINGTON, D. C., 219 Investment Building
PHILADELPHIA, 13 So. 21st Street

Products

"ROCKSTEEL" SECTIONAL UNIT KITCHEN CABINETS; "ROCKSTEEL" BATHROOM CABINETS; "ROCKSTEEL" VENETIAN CABINETS; "ROCKSTEEL" IRONING BOARD CABINETS; "ROCKSTEEL" REFRIGERATORS; "ROCKSTEEL" PORTABLE WARDROBES.



Finishes

Kitchen units are regularly finished in white, French gray, ivory, apple green, celestion green, tile green, turquoise blue, imperial red and rose beige, lacquer sprayed on over baked prime coats sanded and buffed by hand. Can be furnished in any color combinations desired or two-tone finish, at slight additional cost.

Construction

Individual design. Manufactured of heavy gauge furniture steel, free from pits, seams or other surface imperfections, assuring finest of finishes. Electrically welded, reinforced doors with muffled contacts. Fireproof, verminproof, odorproof, and sanitary in every detail. Fitted with concealed hinges and bakelite knobs with friction catches.

Kitchen Units

Built in sections to any specifications that would ordinarily apply to wood design. Combinations arranged to fit any detail of doors and windows and to include everything from refrigerator to stove. Units are fitted closely giving maximum storage space. Easy and inexpensive to install. Detail roughing-in dimensions furnished on request.



"Rocksteel" Combination No. 225 Sectional Unit Kitchen

This combination was designed for kitchenette apartments. Provides complete and compact kitchen equipment in a 6-ft. space; can also be furnished in 5-ft. 10-in. width. Here a refrigerator with a capacity of 6.32 cu. ft., four-burner gas or electric range, service cabinet, bread board, tin lined bread box and exceptionally large storage capacity, including grille under sink for vegetable storage, is combined for utmost in efficiency.

Combination No. 225 can be furnished in any of the standard "Rocksteel" colors.

Specifications—Unit R 30-35 Refrigerator, 2-door.

Unit 4 B 2/2-20 Service Cabinet with cutting board and bread box.

Unit C 1/1-12-16 1/2 Wall Cabinet.

Unit D 2-12-20 Wall Cabinet.

Unit D 2-12-22 Wall Cabinet with 4-in. center vent pipe.

Unit H 22 Canopy.

Unit Splash Back, 12x21 in.

Unit Aluminum Shelf, 6x20 in.

Unit Porcelain Drain Top, 20x16 1/2 in., with back and end up, right-hand lip.

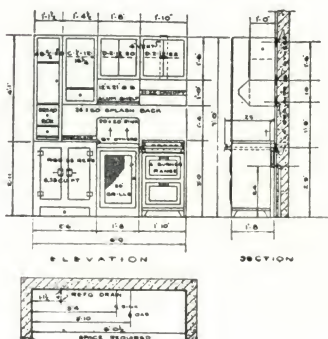
Unit 20-in. Grille Front, with return on right side.

Unit Splash Back, 24x60 in.

Unit No. 4 B Gas Range.

Unit 20x20-in. Roll Rim Sink furnished by others.

Furnished either right or left hand.



"Rocksteel" Combination No. 275 Sectional Unit Kitchen

This combination is designed for one and two-room kitchenettes where rental rate will not justify expenditure for more elaborate equipment. It combines, in a 6-ft. space, refrigerator of 4.80 cu. ft. capacity, four-burner gas range with oven and separate broiling compartment, three storage cabinets, two cutlery drawers, vented canopy to carry off cooking vapors, and grille beneath sink for storage of pots, pans and fresh vegetables.

Combination No. 275 can also be furnished in widths from 5 ft. to 6 ft. 6 in. It can be furnished in any of the standard "Rocksteel" colors.

Specifications—Unit R 24-35 Refrigerator, 1-door type, hinged left.

Unit C 2/2-12-24 Wall Cabinet.

Unit D 2-12-24 Wall Cabinet.

Unit D 2-12-24 Wall Cabinet with 4-in. center vent pipe.

Unit H 24 Canopy.

Unit Splash Back, 12x25 in.

Unit Aluminum Shelf, 6x24 in.

Unit Splash Back, 24x72 in.

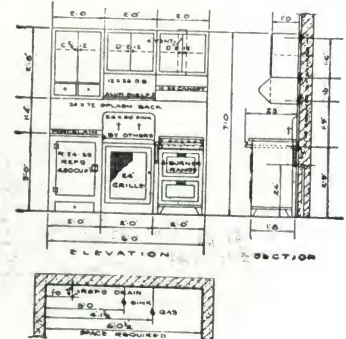
Unit Porcelain Drain Top, 21x24 in., back up 2 in., right-hand lip.

Unit 24-in. Grille Front with return on right side.

Unit No. 4 B Gas Range.

Unit 24x20-in. Roll Rim Sink, furnished by others.

Furnished either right or left hand.



Model "C" Venetian Bathroom Cabinet**Specifications—**

Three adjustable glass shelves.

Finish: white lacquer, or special colors on request. 20x32-in. beveled mirror.

Face dimensions: over-all height 32 in.; over-all width, 20 in.; cabinet depth, 4½ in. Roughing-in dimensions: height 25¾ in.; width 15½ in.; depth 3¼ in.



Model "C Jr."—Two glass shelves, 16x24-in. beveled mirror.

Face dimensions: height 24 in.; width 16 in.; cabinet depth 4½ in. Roughing-in dimensions: height 19¾ in.; width 13¼ in.; depth 3¼ in.

Also Model CC with 18x26-in. mirror.

Model "B" Bathroom Cabinet**Specifications—**

Recessed type. Open compartment below.

Finish: white lacquer, or special colors upon request. 14x18-in. beveled mirror. Hinges interlocking, ball tipped.

Face dimensions: over-all height 29¼ in.; over-all width 19¼ in.; inside depth 4½ in. Roughing-in dimensions: height 27¼ in.; width 16½ in.; depth 3¼ in.

Also Model "K" with 12x16-in. mirror.

**Model "A" Bathroom Cabinet****Specifications—**

Recessed type without open recess below. Adjustable glass shelves.

Finish: white lacquer, or special colors upon request. 14x18-in. beveled mirror. Hinges interlocking, ball tipped.

Face dimensions: over-all height 23¼ in.; over-all width 19¼ in.; cabinet depth 4½ in. Roughing-in dimensions: height 21 in.; width 16½ in.; depth 3¼ in.

Also Model "J" with 12x16-in. mirror.

Cabinet Ironing Board

(Approved by Good House-keeping Institute.)

The "Rocksteel" Cabinet Ironing Board is packed ready to put in place. Furnished in baked, prime coat finish so that the cabinet can be made to match the woodwork or walls of the kitchen. Can be furnished in colors to match kitchen if desired.

Roughing-in dimensions are as follows: Net width between studs, 14¼ in.; net depth, 4½ in.; net height between cross studding, 66 in.; top of lower cross studding, 15 in. from finished floor line.

Inside dimensions of cabinet: 4¾ in. net depth; 14 in. net width; 65¼ in. net height. Board, when lowered, extends 51 in. from plaster line into room.

An adjustment from right to left makes it possible to work on either side of board, in the best light.

The cabinet has a shelf at the top large enough to hold an electric iron and cord, and a hook on the door on which to hang a broom.

**"Rocksteel" Portable Wardrobe**

Made in two sections. Can be installed by combining as many sections as desired. Heavy gauge furniture steel, welded construction.

Finished in grained walnut or mahogany, or can be furnished in plain colors or prime coat, if desired.

Section WR 12 is the garment section with hat shelf above. It is equipped with garment rail. Dimensions: 36 in. wide, 20 in. deep, 6 ft. 6 in. high.

Section WR 13 is the drawer section with double shelf above. The drawers are lap type to assure their being dust-proof, and recessed in from the face of the cabinet so as to give clearance for the handles. Handles are chromium plated. Dimensions: 24 in. wide, 20 in. deep, 6 ft. 6 in. high.



CREO-DIPT COMPANY, INC.

Manufacturers of the Handi-Ironing Cabinet

GENERAL OFFICES

NORTH TONAWANDA, N. Y.

SALES OFFICES IN PRINCIPAL CITIES

FACTORIES

NORTH TONAWANDA, N. Y.

CLEVELAND, OHIO
SEATTLE, WASH.

MINNEAPOLIS, MINN.
VANCOUVER, B. C.

KANSAS CITY, MO.

CANADA: CREO-DIPT COMPANY, LTD., General Office, TORONTO, ONT.

Product

THE HANDI-IRONING CABINET, for installation in residences, apartments, clubs, etc.

Description

The Handi-Ironing Cabinet is a modern household convenience. The all-steel ironing board has a patented turntable attachment which permits the board to swing to right or left when in ironing position. When not in use, the board folds into the cabinet, which comes in gray, baked-on enamel that takes any finish you choose to give it. At the bottom of the cabinet is a fire-proofed compartment large enough to hold iron, cord and stand.

Qualities

The features accounting for the Handi-Ironing Cabinet's superiority are:

(1) **Economy of Space**—As it is built into the wall, the Handi-Ironing Cabinet can never be in the way. The turntable allows you to put the cabinet close to a corner or similar obstruction which would be impossible with a stationary board.

(2) **No Supports or Braces**—The Handi-Ironing Cabinet has no supports or braces to get in the way, loosen, warp or otherwise cause trouble.

(3) **Rigidity**—The Handi-Ironing Cabinet does not jiggle or buckle. It cannot warp or bend. Its life-time is equal to the house in which it is installed.

(4) **Fireproof**—Many fires start when a woman, called away from her work, leaves a hot iron standing on a wooden board. This is impossible with the all-metal Handi-Ironing Cabinet.

Approved by Good Housekeeping Institute

The Handi-Ironing Cabinet bears the Good Housekeeping Institute's Seal of Approval, which endorses the claims we make much more effectively than any statements by us.



Installation

The Handi-Ironing Cabinet can be installed between the studs in any residence or apartment. It is often desirable to build several cabinets into a house—for example, in the laundry, kitchen and certain bedrooms.

The Handi-Ironing Cabinet can be installed in old homes as well as new. The drawings shown on the next page cover all types of installation.

Specifications

It is recommended that the following paragraph be used when writing specifications:

Ironing Cabinets: A metal ironing cabinet shall be installed where indicated on drawings and shall be the "Handi-Ironing Cabinet" as manufactured by the CREO-DIPT COMPANY, INC., North Tonawanda, N. Y., and installed according to instructions supplied by the manufacturer.

Sold by Leading Lumber Dealers Everywhere

The Handi-Ironing Cabinet is sold by leading lumber dealers everywhere in the United States and Canada, most of whom have a cabinet on display. Ask the Creo-Dipt representative to arrange a demonstration showing how the cabinet works under actual ironing conditions.

Other Creo-Dipt Products

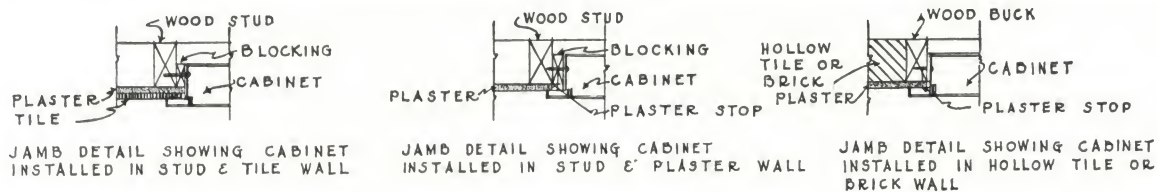
The Handi-Ironing Cabinet is sold by the manufacturers of Creo-Dipt Stained Shingles, known for twenty years among architects, home owners, dealers and builders for their color and durability.

Other Creo-Dipt products and the pages containing complete information concerning them will be found listed in the Manufacturers' Index.

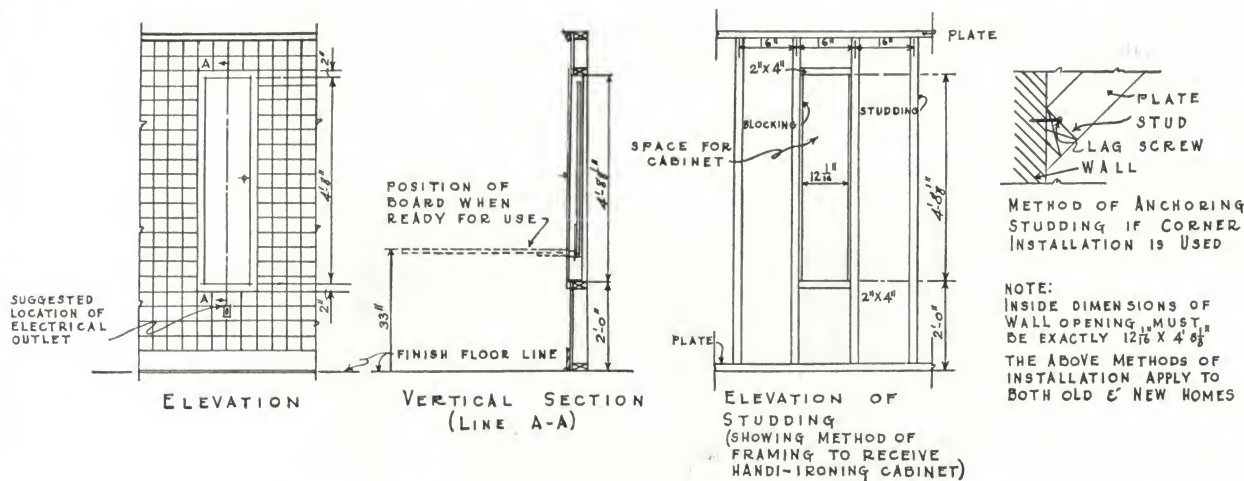


Out of the Way

When not in use, the all-metal ironing board folds snugly into the metal cabinet. This comes in gray baked-on enamel which can be finished in any other color.



METHOD OF INSTALLING CABINET IN VARIOUS TYPES OF WALLS



INSTALLATION DETAILS OF HANDI-IRONING CABINET

Complete Details for All Types of Installation in Both Old and New Homes or Apartments



Compartment for Iron

In the bottom of the Handi-Ironing Cabinet is a fireproofed compartment large enough to hold iron, cord and stand.



It Pivots

A patented turntable permits the board to swing around to either right or left. Notice that the Handi-Ironing Cabinet has no supports or braces to get in the way.

STERLING TI-DI-NETTE, INC.

MANUFACTURERS AND PATENTEES

EXECUTIVE OFFICE

228 North La Salle Street, CHICAGO, ILL.

THE MODERN SPACE SAVING DINETTE

Function

Ti-Di-Nette functions as a major factor in the efficient and economical use of floor area and wall surfaces. Also in the elimination of waste space and unnecessary motion in the modern home necessitated by economic requirements.

Description

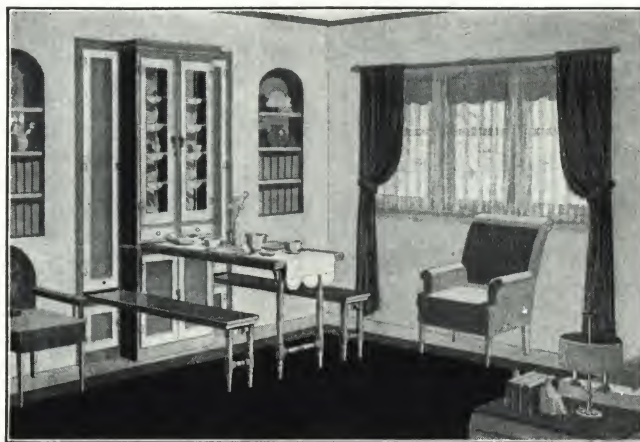
Ti-Di-Nette is a modern dinette unit utilizing foldaway dining table with seats and providing china cases, linen shelves, drawers for silver, ironing board, with optional arrangements for such auxiliaries as broom, electrical accessories, shoe shine rest, etc.

Ti-Di-Nette (of several models) is made in both the cabinet and recessed type and can be installed in all types of existing and new buildings.

The design of Ti-Di-Nette will harmonize with any architectural style or any period furniture.

Operation

To open or close the Ti-Di-Nette is a simple operation requiring but a few seconds to complete. Its simple and sturdy construction prevents anything from going wrong or "getting stuck," as its operation does not depend on adjusting hardware.



The Modern Space Saving Dinette

Advantages

Ti-Di-Nette supersedes the old-fashioned kitchen table and chairs and also provides modern dining facilities for serving a maximum of five people.

Ti-Di-Nette, installed in the kitchen of homes or apartments, eliminates the need of a breakfast room.

Ti-Di-Nette, installed in the living room of one-room apartments, provides two-room efficiency without additional cost. When installed in the dining alcove of two and three-room apartments, it provides three and four-room efficiency without additional cost.

Ti-Di-Nette is the *only space saving dinette* having foldaway table and seats used in conjunction with permanent and ample storage space accessible at all times for complete table service.

Ti-Di-Nette, installed in dining alcoves or breakfast rooms, adapts this space for additional uses. Ti-Di-Nette makes immediately available, floor area ordinarily occupied by cumbersome tables and chairs.

With Ti-Di-Nette the china and linen are always conveniently within reach and quickly out of the way after use. This feature releases corresponding space in other cabinets for storage.

DESCRIPTION OF MODELS

Model A—Recess Type—Comprises three sections. The center section contains the foldaway table, enclosed behind two swinging china cabinets. Drawers for silver are installed in the lower part of china cabinets. Below the china cabinets is a linen case, containing three shelves, enclosed with doors. Flanking the center unit are side units, each containing a foldaway seat with an 11x11x4-in. storage space below, large enough for storage of irons and other accessories. There is sufficient space behind each set to receive the ironing board which can be furnished in either seat unit depending upon where the Ti-Di-Nette will be installed. Model A is also made in the cabinet type for installation against the wall.

Model B—Recess Type—This is simply the center unit of the Regular Model A. It is the same in all respects to the larger model, except that it does not contain the foldaway seats or ironing board. Model B is also made in the cabinet type.

Model C—Cabinet Type—Comprises two sections. The upper section includes a center unit containing two swinging china cabinets and a foldaway table, and also two side units each containing five grooved shelves 14 in. long, 8½-in. deep. The lower section contains one double cupboard having shelves 27 in. long, 12 in. deep, with drawer above 27x12x4½ in. deep. On each side of the cupboard are 4 drawers—11½x10¾x4½ in. deep. Rebating the nosing and crown mould permits this model to be recessed into the wall.

The china cabinets in Models A, B and C accommodate 108 pieces of chinaware.

Model "Junior"—Recess Type—This is designed to be installed under window, and contains folding table and seats, as well as two swinging china cabinets housing 42 pieces of chinaware. Table is 28 in. wide and projects 4 ft. ½ in. from plaster line. Beneath the table is a two-door cupboard with two shelves of sufficient capacity to house silverware, toasters, etc. Can be furnished in cabinet type.

Specifications (All Models)

The fronts, folding tables and seats are birch. The shelving is white pine. The ironing board is pine. The backs of units and bottoms of drawers are $\frac{1}{8}$ -in. thick Masonite Presdwood which will not warp, shrink or swell.

Provide 63-in. wall space (width) for all models.

All shelves in china cabinets are grooved and fitted with wood guard on front edge to prevent dishes from slipping. Swinging china cabinets are hung on full length piano hinges. China cabinets are fitted with leaded French glass doors. Glass is shipped separately within the cabinet. All hardware is bronze, dull nickel finish. All drawers and doors have lipped fronts to make the units dustproof.

Foldaway tables can be furnished with Formica table tops

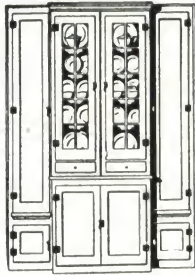
in attractive designs and colors at an additional charge. Architects should specify when Formica is wanted.

All models are delivered to the job "in the white" so that they can be finished at the building to harmonize with surroundings.

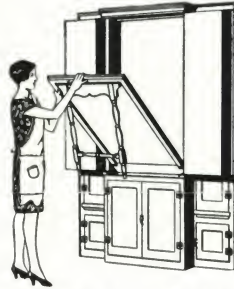
All models are made to recess into 4-in. stud partition with studs set flatwise back of center section. (See cut.) Can also be recessed into tile or metal partitions.

The patented construction of Ti-Di-Nette eliminates any possibility of the table or seats slipping or collapsing. The weight of table and seats when opened is supported independently of the doors.

Suggested kitchenette apartment floor plans furnished architects on request.

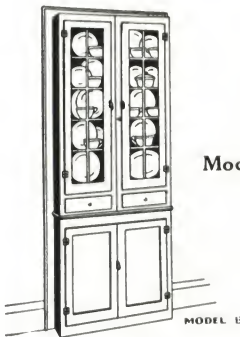
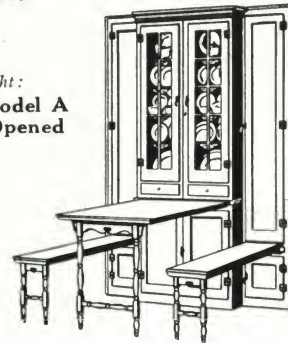
DETAILS OF VARIOUS MODELS

Left:
**Model A
Closed**



Model A—Opening

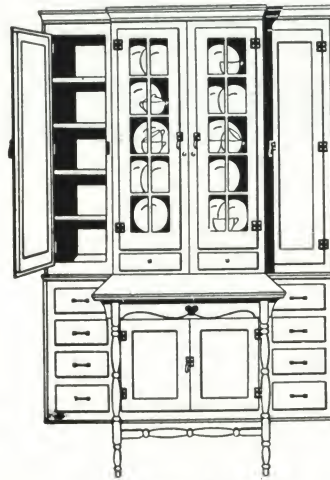
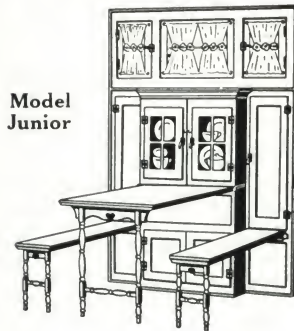
Right:
**Model A
Opened**



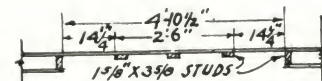
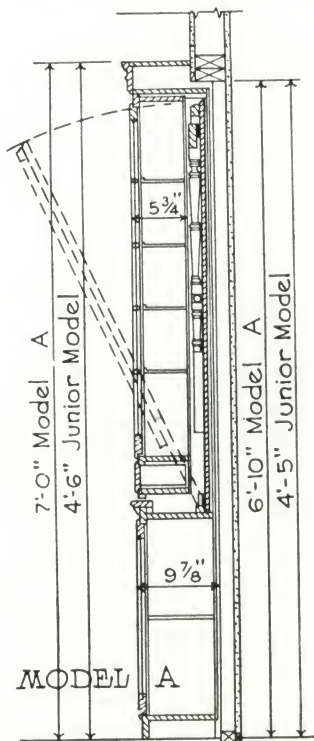
Model B

NOTE
When seats are in use, doors of seat cabinets can be closed, thereby eliminating interference.

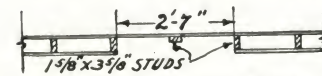
**Model
Junior**



Model C



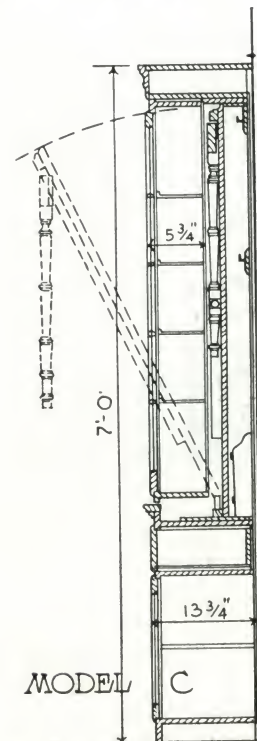
ROUGH OPENING MODEL A CABINET



ROUGH OPENING MODEL B CABINET



ROUGH OPENING JUNIOR MODEL



FAIN FOLD-AWAY DINING SETS

(FOREIGN AND DOMESTIC PATENTS)

MANUFACTURED BY

FAIN FOLDING FURNITURE CORPORATION

626-630 West 23rd Street, NORFOLK, VA.

NEW YORK OFFICE AND SHOWROOM, 19 West 44th Street
Telephone, Vanderbilt 6923CHICAGO OFFICE AND SHOWROOM, 236 East Erie Street
Telephone, Superior 9506

AGENTS IN ALL PRINCIPAL CITIES

The Windsor

For economic reasons dining rooms have been eliminated from modern apartments, but this does not relieve the necessity of providing acceptable dining conveniences to get and hold tenants.

In kitchen of the private home, in sumptuous and in inexpensive apartment, wherever modern conveniences are in demand, where beauty and good taste must be combined with utility and convenience, this new "Fain Windsor" Model has an outstanding appeal.

The accompanying illustrations show the "Windsor" recessed type open in the living room of an apartment, closed in the same living room, and same unit with a porcelain table top installed in kitchen.



Windsor Model—The Modern Dining Set

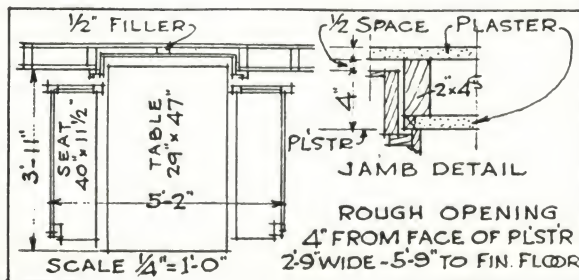
In the Living Room—Saves floor space by utilizing wall space. When open it in no way interferes with furniture, and has ample seating capacity for five people. Designed by one of America's leading furniture designers it harmonizes with the best period furniture. It fits in a 4-in. stud wall and when closed resembles a built-in book case. Made also in cabinet type to go on face of wall. Quantity production permits us to sell these sets at a price less than the cost of a good stationary mill-made breakfast set. Write for catalogue showing other models and prices.



In the Kitchen—Installed in kitchen the "Fain Fold Away" provides a better designed, more convenient and economical breakfast set.

By installing this equipment in the kitchen, cost of an alcove can be eliminated, saving several hundred dollars.

The porcelain table (29x47 in. in size) makes an excellent work table to sit at while preparing meal.



Specifications—Shipped completely assembled. Interior hardware polished nickel, exterior hardware dull brass, except when used in kitchen, where exterior hardware will be nickel. Interior parts No. 1 basswood and red gum. Exterior of No. 1 white pine. Stock finish light walnut throughout. For small cost we paint any color desired, or ship unfinished. Specify whether cabinet or recess type, wood or porcelain table top.

ATLAS METAL WORKS

Manufacturers of Steel Telephone Wall Cabinets

DALLAS, TEX.

The Increasing Use of Telephone Niches

Telephone niches have become popular in recent years. New buildings are few that do not include built-in niches of some description. They provide an "out of the way" place and, at the same time, an attractive receptacle for the telephone instrument and its accessories.

Considerable time and much thought has been expended in the past to fit the telephone into the decorative scheme—shades, screens, etc.—but these have made way for the wall niche which offers greater convenience along with a touch of beauty and distinction.

Atlas Steel Telephone Wall Cabinet

The design of the Atlas Cabinet is the result of much experimentation and conforms with the requirements of the telephone companies.

Sturdily constructed of fine steel for great strength and long life, it is small and compact with no waste space and is easily installed. It may be finished to harmonize with surrounding decorations.

Details of Construction

Material—No. 22 gauge steel—black or "rust-resisting."

Size—Inset is 12½ in. wide, 28½ in. high, 4 in. deep.



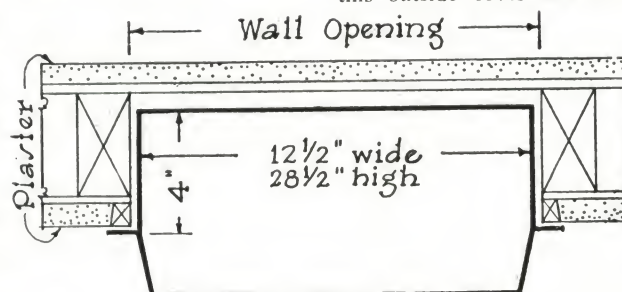
Bell Button—A bell button is provided in the right hand corner of the instrument shelf for ringing a remote bell for calling persons from other parts of the house to the telephone.

Bell Box Housing—Conveniently located in the lower portion of the cabinet behind a metal panel. It is proportioned to permit easy installation or repair of the bell box and accessories. The panel is readily removed and the housing is so designed that the ringing of the bell is not muffled.

Portable Wall Desk—The outside cover of the cabinet lowers as shown in the accompanying illustration and acts as a desk for the convenient use of the telephone book, making of memoranda, etc.

When not in use, the telephone book is housed between this outside cover and the panel over the bell box housing, falling into place for immediate use when the outside cover, or desk, is lowered into position.

Pilot Light—A shaded light is installed in the upper right-hand corner of the rear panel. It is indispensable when using the telephone book or dialing on the handset in the dark. The shade recedes into the panel extinguishing the light when not desired.



Detail Plan of Installation

Clearance must be cut or constructed 13 in. wide, 29 in. high, and depth of wall not less than 5 in. including lath and plaster so as to receive the cabinet which is 4 in. deep from the edge of the plaster line. These dimensions allow space for rough plaster in back of cabinet



Open Cabinet with Interior Panel Removed to Show Convenient Location of Bell Box Housing

Note rear view of pilot light and shade in upper corner of panel

With Portable Wall Desk Lowered

The lamp shield is extended to deflect light on the telephone book



The Closed Cabinet

Modern and clean-cut in appearance and may be finished to harmonize with surrounding decorations

GRIFFIN MANUFACTURING CO., INC.

Manufacturers of Recessed and Surfaced Steel Cabinets for Shoe
Cleaning and Storage of Polishing Supplies

67-69 Murray Street
NEW YORK, N. Y.

Product

GRIFFINET SHOE "CLEANING" CABINETS for installation in residences, apartments, institutions, dormitories, clubs, offices, etc.

Griffin Established Since 1890

Griffinet Cabinets are a product of GRIFFIN MANUFACTURING CO., INC., specialists since 1890 in manufacturing leather dressings and shoe polishing equipment. Griffin shoe polishes are the foremost leather dressings for saving "new shoe complexions." The Griffin Company maintains in these cabinets the same high quality standards of material, design and construction upon which their reputation has been built.

Griffinet Shoe "Make-up" Cabinet

The Griffinet is a modern, compact cabinet fixture for bathroom or other household use. It is a combination shelved receptacle for storing bottles, brushes, cloths, etc., and a firm shoe polishing footrest the proper height from floor. Griffinet Cabinets provide complete, concealed equipment in a convenient place for daily shoe grooming. They are simple and comfortable to use, conserve time of user and eliminate the annoyances of shoe care. They are the last word in cleanliness—clean to use and easy to keep clean. They operate quickly, easily, silently, and are built to last as long as the house.

Griffin patents cover the principles of construction.



Made in Recessed and Surfaced Types—Recessed in the wall or attached to the wall surface, Griffinet Cabinets require no special construction, retiling or extra space for installation. They can be inset in the wall or screwed on to the wall with a minimum of labor. They are made of heavy furniture steel with durable white enamel finish. Both recessed and surfaced type cabinets have the same construction features and are built of identically the same high quality materials.

Features of Construction—(1) Made of heavy 14 gauge furniture steel. (2) Super-durable, baked-on white enamel finish. (3) Special, strongly built hinges. (4) Positive friction catches insure tight-fitting, non-rattling door. (5) Shelves welded in place—non-adjustable. (6) Corners are rounded and spot-welded. (7) Fire, moisture, and vermin proof. (8) Ample screwholes for fastening. (9) Easily cleaned, will not crack, chip, stain, or warp from moisture or heat.

Griffin Footrests

The patented footrest, illustrated on following page, is of cast iron, strongly anchored, properly moulded to fit any shoe. The heavy wires on both sides of footrest hold polishing cloth firmly but lightly on the shoe, preventing it from shifting and eliminating back strain. Cloth goes over the shoe, then under the wire and upward on the outside. Thus the up and down motion effected by the bootblacks is given.



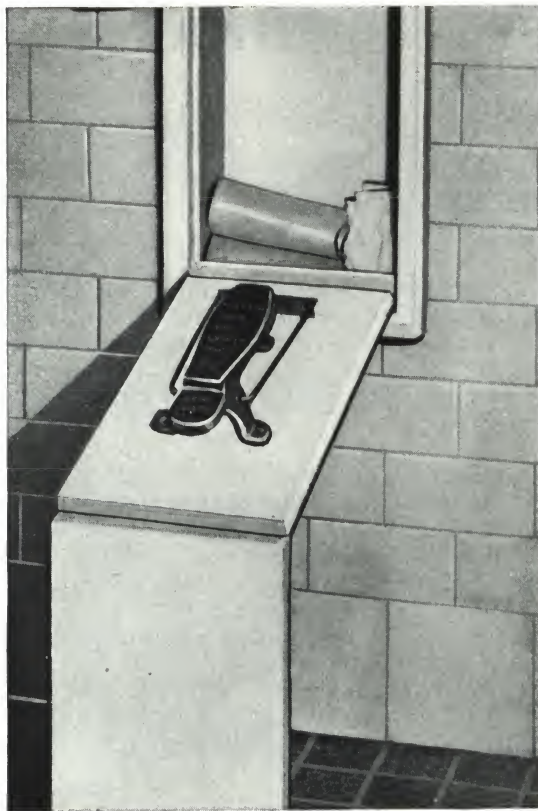
An Attractive, Modern Fixture for Household, Bathroom or Cloakroom



Operates Quickly and Easily with Friction Catches and Is Simple to Use



Opens Out Into a Firm, Substantial Footrest, the Proper Height from Floor



Follow the Trend

Every year sees new improvements for home and apartment that save time and work or add in some way to the conveniences of modern living. Griffinet Cabinets are in keeping with the trend of the times—in their construction, appearance, simplicity and usefulness.

A Rental and Sales Inducement

An increasing number of tenants and buyers of homes demand this extra convenience as insistently as they do electric refrigeration and incinerators. Wise builders are including Griffinets in their specifications. Figured from their angle, Griffinets are sure-fire sales and rental inducements and possess value far beyond their low installation cost.

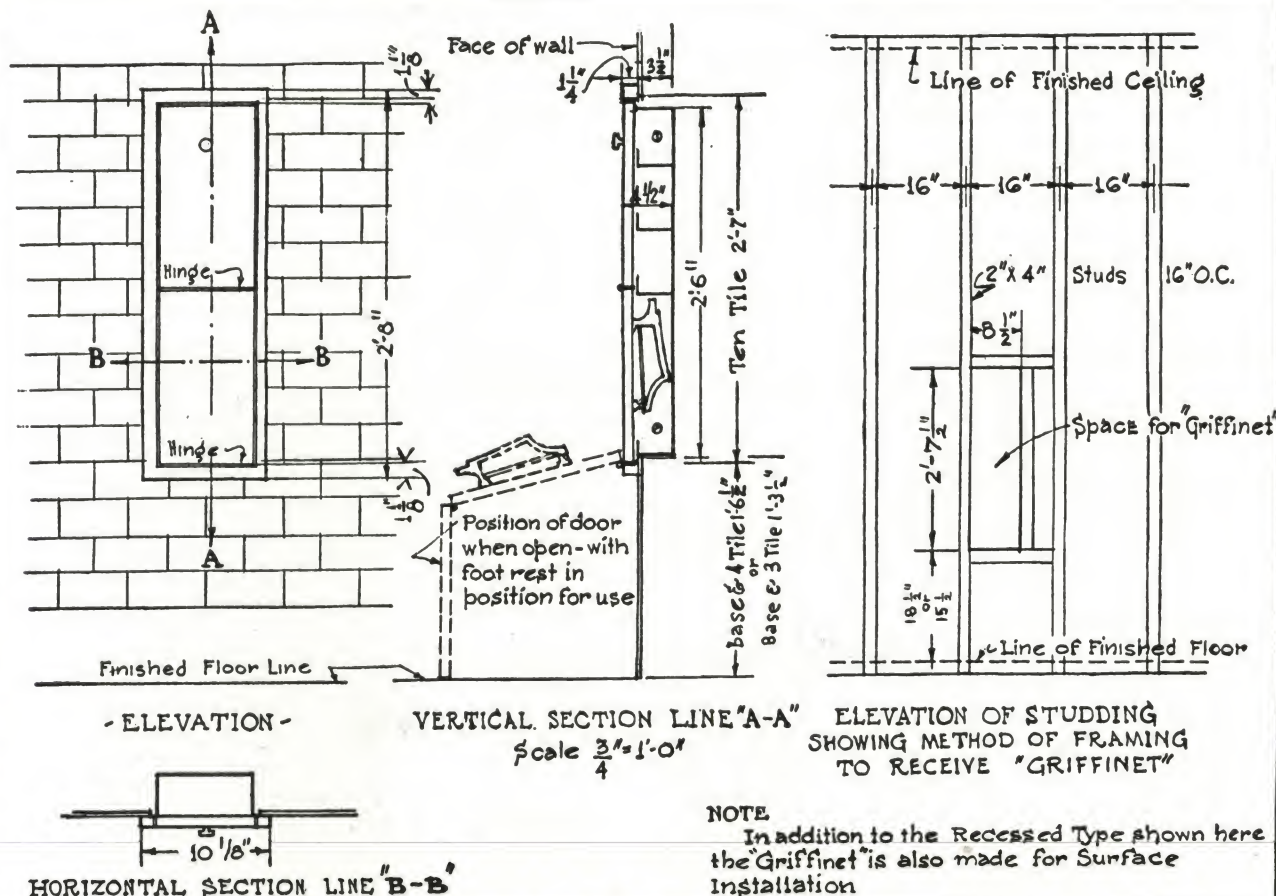
Colors

The Griffinet Cabinets are only made in white enamel finish. However, they will be finished in any color selected. There is a nominal charge for this service and a little delay in shipment.

Griffinet Cabinets on Display

Griffinet Cabinets displayed at the Architects Samples Corporation, 101 Park Avenue, New York, N. Y., and with dealers throughout the country. Write for further specifications or data whether requirements are one or one thousand.

Architects and construction engineers who include Griffinet Cabinets in their specifications may do so with fullest assurance of dependability and merit of product. The name Griffin is sponsor only for the best.



INSTALLATION DETAILS FOR "GRIFFINET" SHOE MAKE UP CABINET

CHURCHILL FOLDING DOOR TELEPHONE BOOTHS

MANUFACTURED BY
CHURCHILL CABINET COMPANY
2119 Churchill Street, CHICAGO, ILL.

DISTRIBUTED NATIONALLY BY
J. H. BUNNELL & COMPANY, INC.
215 Fulton Street, NEW YORK, N. Y.

Churchill Folding Door Telephone Booths

The Standard No. 1 Type Folding Door Booths are designed for group installations, being built in units having unfinished sides. Each booth is a complete unit in itself, a self-contained construction that assures rigidity and perfect operation. Finished end panels can be placed at exposed ends of the group of compartments with hardwood separators placed between adjacent units. Finished hardwood backs are used instead of soft wood backs where rear of booth is exposed. The use of separators is recommended where the ends and back of compartment group are not exposed.

Folding Door Construction

Churchill Booths are particularly desirable where space is limited, as the movement of the door takes but 3 in. beyond the face of the booth. No interference with the doors of adjacent booths. The folding door remains in any position, being both opened and closed by a slight pull. It folds back out of the way and within the booth itself.

The folding door with its ingenious middle hinge fastened for the full length of the door assures alignment and ease of operation. Sagging, the greatest maintenance trouble, has been eliminated. Climatic conditions do not affect the operation of this type of folding door. The upkeep cost is eliminated.

General Features

The interior is finished in wood panel or lined with steel as desired. Special woods furnished on request. The booth floors are covered with linoleum protected at the threshold with a safety tread. Each booth is fur-

nished with an elbow rest shelf. When specified, a seat made of the same material as the booth can be furnished. A space of $4\frac{1}{2}$ in. between ceiling and roof of booth is furnished for electric light relay or door switch equipment wiring, which can be supplied at a slight extra charge.

Special Features

Special Booths—Special booths for particular jobs or specifications of the architect can be supplied and estimates will be gladly furnished.

Special Finishes—Any color sample furnished will be matched with extreme accuracy.

Special Pulls—Pulls to match existing hardware will be supplied when requested.

U-hinge—Unless otherwise requested this hinge (pictured below) is supplied in black enamel finish.

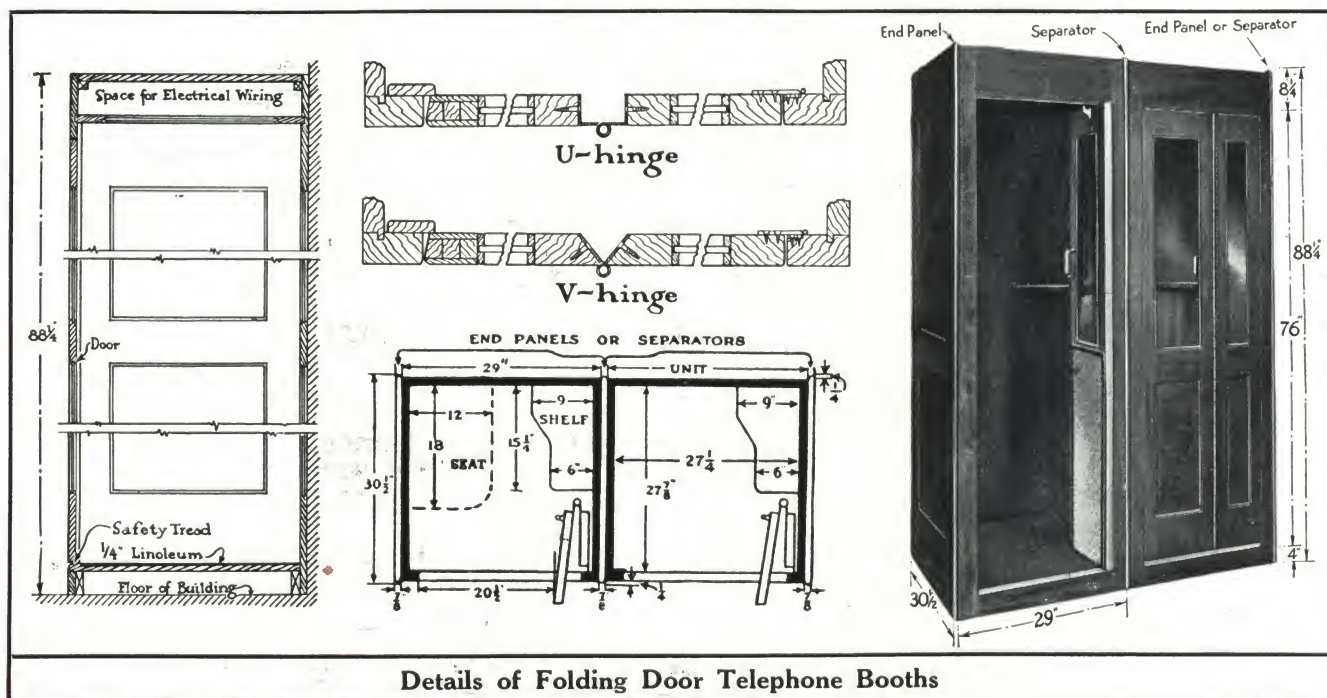
V-hinge—Also used on folding doors but supplied when specified. Finish oxidized.

Quotations—On request.

General Construction Details

Dimensions for standard booths: height $88\frac{1}{4}$ in.; width without end panels or separators attached, 29 in.; thickness of end panels or separators, $\frac{7}{8}$ in.; height of door only, 76 in.; height of seat from floor, 22 in.; size of seat, 12×18 in.; depth of booth, $30\frac{1}{2}$ in.; width of shelf, 6 in. at front and 9 in. at rear; height of floor 4 in., height of head rail $8\frac{1}{4}$ in.

Material: oak, mahogany, birch or walnut. Can be had in the white, that is, without finish, if desired. All booths are supplied glazed with two lights of $\frac{1}{4}$ -in. polished plate glass in the doors.



CIRCLE A PRODUCTS CORPORATION

Manufacturers of School Wardrobes

654 South 25th Street, NEWCASTLE, IND.

NEW YORK, N. Y., Farmers' Loan and Trust Building, 475 Fifth Avenue
BRANCH OFFICES IN PRINCIPAL CITIES

Product

CIRCLE A PAIR OPERATION and GROUP OPERATION SCHOOL WARDROBES.

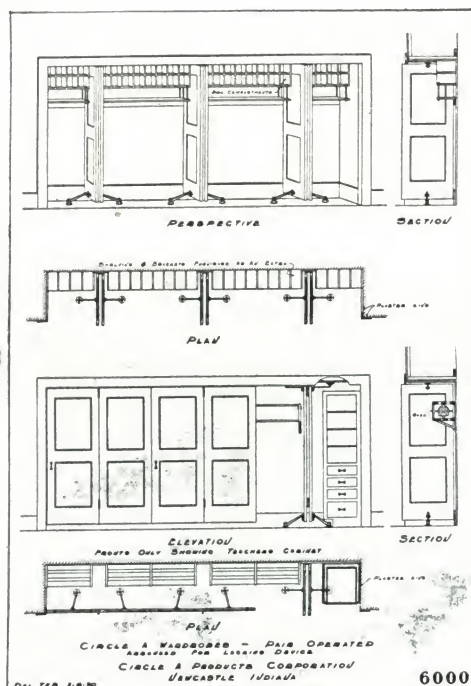
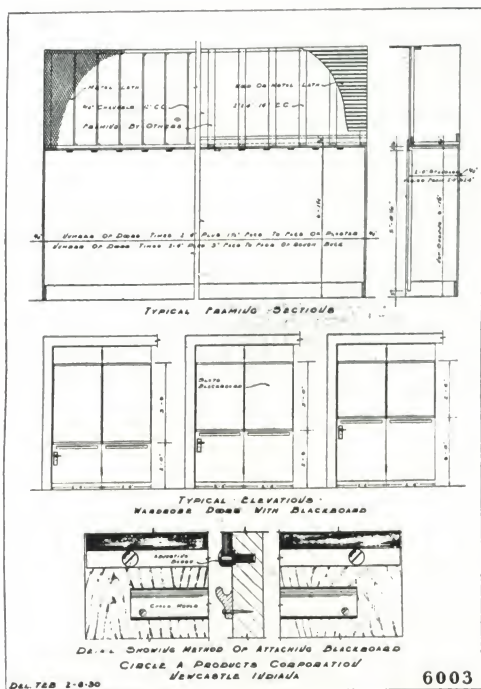
For Sectional, Folding, Rolling Partitions and Kitchen Units, see Manufacturers' Index.

Circle A School Wardrobes

Circle A has designed and built two styles of school wardrobes to meet every possible school wardrobe need—the Pair Operated and the Group Operated.

Pair Operated—Circle A Pair Operated doors have each pair as a separate unit—opened and closed individually. Locking equipment is optional.

Group Operated—Circle A Group Operated doors are connected to one main control, so that all doors open or close together. A locking device holds all doors closed. Movement of the first door releases and opens all Group Operated doors at the same time.

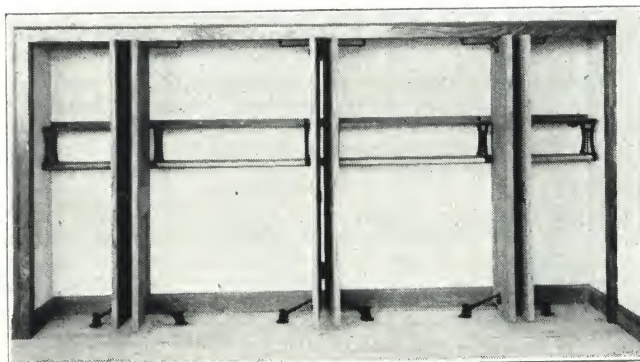


General Construction—Ventilation is provided by carrying exhaust circulation through the wardrobe. Circle A Wardrobes are especially designed for this. Simplicity and sturdiness are two of the outstanding features of Circle A Wardrobes. Doors supported in pairs require less hardware. The drop forged, ball bearing arms on which the doors swing are neat and rugged, and permit finger-tip operation. No chance for wobble or rattles. Blackboards fold together so that students cannot brush against them.

You take no risk when Circle A Wardrobes are specified. They are furnished and installed complete, with a guarantee of satisfactory service. The doors, representing the finest in cabinet work can be had in designs and materials to harmonize with the prevailing details in the building. Blackboard or cork surfaces are available. Hat and coat racks are provided.

Installation—Circle A Wardrobes are installed by Circle A installation engineers, and perfect operation is guaranteed.

Catalogue—Write for file data giving complete plans and information on these efficiently designed and carefully built wardrobes.



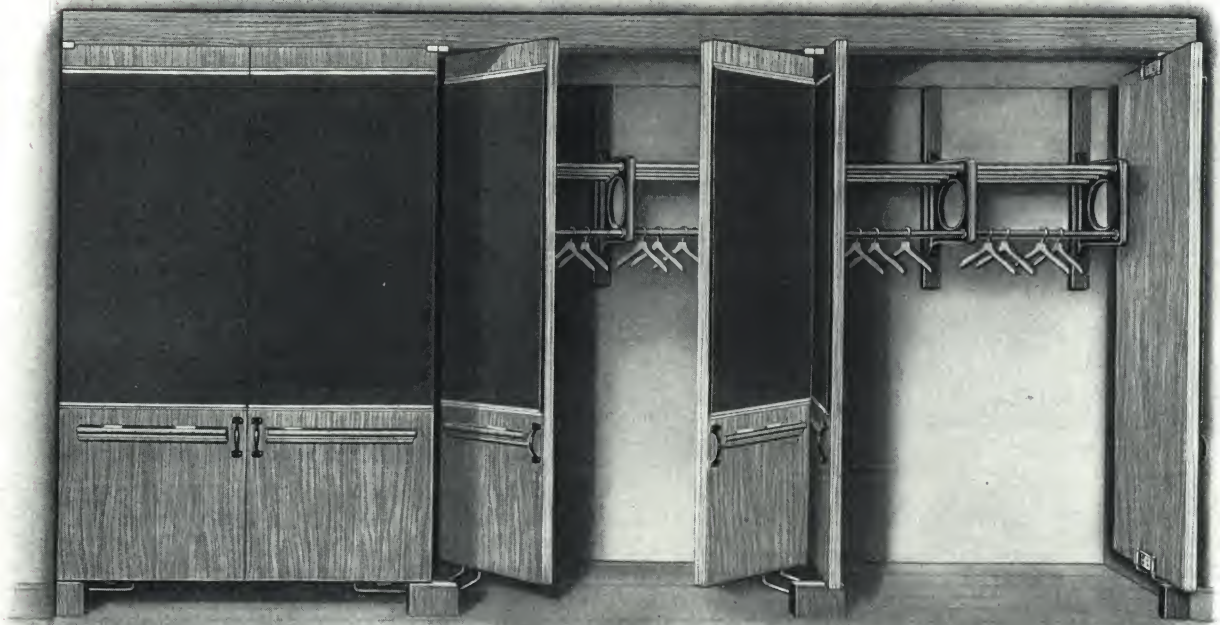
W. L. EVANS

Manufacturer of Vanishing Door Equipment

Main, South and Mill Streets
WASHINGTON, IND.

CANADA: WINDSOR, ONTARIO

EVANS VANISHING DOOR WARDROBE, CLASS B-B, WITH CLASS W HINGES



Specifications

Doors—Size of all doors 1 ft. 11 $\frac{1}{8}$ in. by 5 ft. 7 $\frac{1}{4}$ in. by 1 $\frac{3}{8}$ in., with one edge slightly rounded to permit doors to open without rubbing. Doors are flush type made "Evans Process," which consists of a series of alternate ribs and air spaces forming the core, covered with laminated cross bands and veneers. This makes a lightweight door which will not shrink nor swell in length or breadth. Doors sold in the white without filling or staining. Doors set a minimum of 4 $\frac{1}{8}$ in. above floor and are interchangeable.

Fillet—A wood fillet 1 $\frac{3}{8}$ in. thick and 4 $\frac{1}{8}$ in. wide is required above the doors. This must be stop rabbetted $\frac{7}{8}$ x 1 $\frac{5}{8}$ in. along the lower inside edge to allow the hinges to operate.

Blackboards—May be either "Sterling Lifelong" or genuine slate, but unless otherwise specified "Sterling Lifelong" is provided. Blackboards are 42 in. high and full width of doors. Brass mould is furnished for securing the blackboards, at top and bottom edges, to the doors. Chalk trough is also provided.

Hardware—The hinges are Evans "Vanishing Door" Hinge Class W, made entirely of steel and machined to accuracy. They will set the doors from a minimum of 4 $\frac{1}{8}$ in. above the floor up to any height desired. The hinges for a single door weigh 6 lbs. Safe load is 300 lbs. The hinges are held, top and bottom, with expansion bolts and screws. They are heavily copper plated and finished a black gunmetal. Metal door stops are also provided.

Interior—Consists of racks and garment hangers. Racks are composed of metal brackets with wood rods and a metal hanger rod. Garment hangers are the famous "Goodform" wood hangers with reinforcing bar. Brackets and rods finished in black lacquer; hangers finished in natural wood.

Recess—The lintel must be strong enough to prevent any sagging that would cramp the doors. Length of recess should be in even feet and preferably a multiple of four, as 4 ft., 8 ft., 12 ft., etc. Minimum depth 2 ft. 2 in. Height from floor to plaster lintel, 6 ft. 3 $\frac{1}{2}$ in. These are finished measurements. Ends, backs and ceilings plastered. All outside edges around recess to be protected with metal corner bead before plastering.

Ventilation—This is taken from the floor line into the wardrobe under the door and out through the vent stack which can be connected to the wardrobe at either the ceiling, end, or back—whichever will best meet the requirements.

Extras—Umbrella racks, shoe receptacles, and interior of 5-shelf bookcase in place of rack and hangers, can be furnished when specified.

Catalog "K"

A.I.A. file size, with specifications and price list. Catalog "K" fully describes, illustrates and details many types of "Vanishing Door" wardrobes. Sent promptly on request.

LIKLY-ROCKETT INC.

Manufacturers of Portable and Built-in Air-tight Wardrobes

1365 Euclid Avenue
CLEVELAND, OHIO

PITTSBURGH DISTRICT: DAULER-CLOSE FURNITURE Co., 636 Smithfield Street, PITTSBURGH, PA.
WASHINGTON DISTRICT: DULIN & MARTIN, Connecticut Avenue and L Street, WASHINGTON, D. C.

A Modern Way to Solve Your Clients' Clothing Storage Problem

Proper protection for clothing and furs is a matter of great importance, and in modern homes sealed rooms are being provided for this purpose. The Likly Air-tight Wardrobes are especially desirable, being so designed that fine dust or smoke cannot penetrate them, and they are mothproof. They are made in two styles, portable and built-in, both cedar lined.

In beautiful homes costing \$10,000 and upward, provision should be made in the plans to include Likly Air-tight Wardrobes. Here they may be arranged to give clothing and furs the same degree of protection that electric refrigeration gives to food.

The Likly Air-tight Wardrobe is a scientific improvement over the old-time clothes closet and the tightly sealed door assures safety for the contents. By means of a door closing on a patented tire, the wardrobe is sealed to keep out air, dust, dampness and moths.

The architect, by skillful handling of the plan, can give this needed protection in many unthought of places, from reception hall to third floor, at a surprisingly low figure.

Contractors, in the erection and sale of new homes, will find the installation of a Likly Air-tight dustproof, mothproof, cedar-lined wardrobe often a deciding factor in their favor.

In new homes, at least three closets in the upstairs bedrooms should be cedar-sealed so that your clients can enjoy the protection Likly-Air-tight Wardrobes afford. In home building, the studding can be properly spaced so that the $\frac{1}{8}$ -in. cedar panels can be quickly installed 7 ft. high. This eliminates the necessity of having the closet plastered, thus rendering a saving to the owner.

Experience

LIKLY-ROCKETT INC. has been manufacturing this type of air-tight wardrobe for over twenty-five years, and several thousand are in use in Cleveland and vicinity.

Uses

They are used principally in bedrooms, connecting halls, reception halls, storage rooms, summer homes; in the garage for uniforms; in apartments of all types; in churches for vestments; indispensable in business offices, clubs, private yachts, polo and golf clubs.



Modern Design—Model M

Construction Features

They are designed to harmonize with the present style in bedroom furniture. The Modern type illustrated is plain and simple, showing the beautiful markings in genuine mahogany. The Colonial model is made with a wood inlay of distinctive design with brown, tan and white colors in the pattern, making a decidedly beautiful effect. The Sheraton model is raised and tooled to harmonize with furniture of this period.

Finish—All standard models are finished in a beautiful brown mahogany. Any finish in the following woods is available to order: birch, oak, maple, birds-eye maple, walnut or circassian walnut. Send working sample which we will match exactly.

Color—The Likly Air-tight Wardrobe can be had in any color of enamel or duco. Furnish name, number and color of manufacturer's product and send working sample.

Portability—As the Likly Air-tight Wardrobe weighs but 150 lb. and is mounted on bakelite gliders, it may be easily moved, even when packed to capacity.

Capacity—24 or 36 especially designed thin model hangers permit the hanging, in either size wardrobe, of a great number of dresses and coats.

Sealing—The door seals on a rubber tire, absolutely keeping air out and preventing fine dust and moths from getting in.

Hardware—Standard models are furnished with solid brass hardware in a monumental bronze finish. The lock is newly designed which needs no key—the Sesamee combination lock.

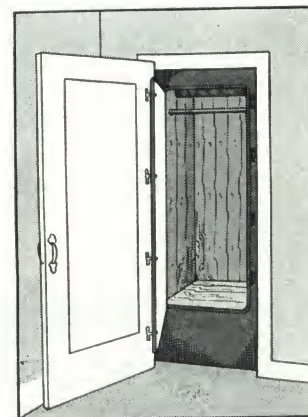
Material—The wardrobe exterior is made of 5-ply mahogany veneer with a cedar lining and chestnut core $\frac{1}{8}$ in. thick. This is carefully machined and joined to seal the wardrobe air-tight. Blue prints on application.

Sizes—The Likly Air-tight Wardrobe is made in two standard sizes. 36 in. long, 24 in. wide and 72 in. high, which is Style 36M. Also 45 in. long, 24 in. wide and 72 in. high, Style 45M. These sizes are made in all three models.

Send plans for estimate. Where a number are to be installed our union erection superintendent will be glad to go to any city to supervise and complete the job. This service is charged for at cost.

Information

Architects may obtain prices and other information by writing direct to LIKLY-ROCKETT INC., 1365 Euclid Avenue, Cleveland, Ohio.



Cedar-lined—Likly Patent

MILLER SCHOOL WARDROBES

MANUFACTURED BY
K-M SUPPLY CO.

123 West 8th Street, KANSAS CITY, MO.

REPRESENTATIVES

ARKANSAS: LITTLE ROCK—WONDER STATE SUPPLY COMPANY, 205 Moore-Turner Building

CONNECTICUT: SHORT BEACH, BRANFORD—MORRIS HIGGINS

IDAHO: BOISE—T. G. POWELL, Shaw Building

ILLINOIS: CHICAGO—O. R. NOYES, 123 W. Madison Street

IOWA: DES MOINES—HAWKEYE ENGINEERING Co., 301 Hubbell Building

LOUISIANA: NEW ORLEANS—NACHARY BUILDERS SUPPLY Co., 318 Carondelet Street

MARYLAND: BALTIMORE—F. B. MILLER, 8 Hadley Square

MASSACHUSETTS: BOSTON—LAMBERT-SAWYER Co., 528 Little Building

MICHIGAN: GRAND RAPIDS—GEO. F. REINHARD, Murray Building

NEBRASKA: OMAHA—EARL S. LEWIS & Co., 407 Sunderland Building

MONTANA: HELENA—RAYMOND GRANT, Power Block Annex

NEW YORK: ALBANY—CASSIUS J. LOGAN, 271 Washington Avenue

BUFFALO—J. J. O'LEARY SALES Co., 700 Main Street

ROCHESTER—W. G. CROSS, 319 Park Avenue

OHIO: SOUTH EUCLID—CLIFFORD CRIMI, 4401 Prasse Road

OREGON: PORTLAND—MERCER STEEL Co., INC., 194 No. 13th Street

PENNSYLVANIA: HAZLETON—J. M. MADDEN, P. O. Box 146

PHILADELPHIA—W. J. HOUSTON, 5839 No. 6th Street

PITTSBURGH—W. J. SHAW, 903 Law and Finance Building

TENNESSEE: NASHVILLE—BUILDERS SPECIALTIES Co., 1814 Church Street

TEXAS: DALLAS—UNIVERSAL BUILDING PRODUCTS Co., INC., 304 Construction Building

Miller School Wardrobe

The Miller School Wardrobe is a series of wooden doors in any kind of wood finish, either with or without slate blackboard or cork carpet, made in standard width of door, each door 30 $\frac{1}{8}$ in. wide, and with varying depth, 21 $\frac{1}{2}$ in. if no shelf is wanted or if a shelf and compartments are used the depth of the shelf or compartment plus 18 $\frac{1}{2}$ in. The correct height to leave the opening from the floor line to underneath side of rough buck is 6 ft. 2 in.

Doors swing open as shown giving access to the wardrobe from both sides. Legs are adjustable in height and a 4 to 5-in. opening underneath the doors affords proper ventilation at all times. Hooks are placed on shelves, walls and back of doors.

Miller Wardrobes are neat in appearance, do not take up needed wall space, and harmonize with the school atmosphere.

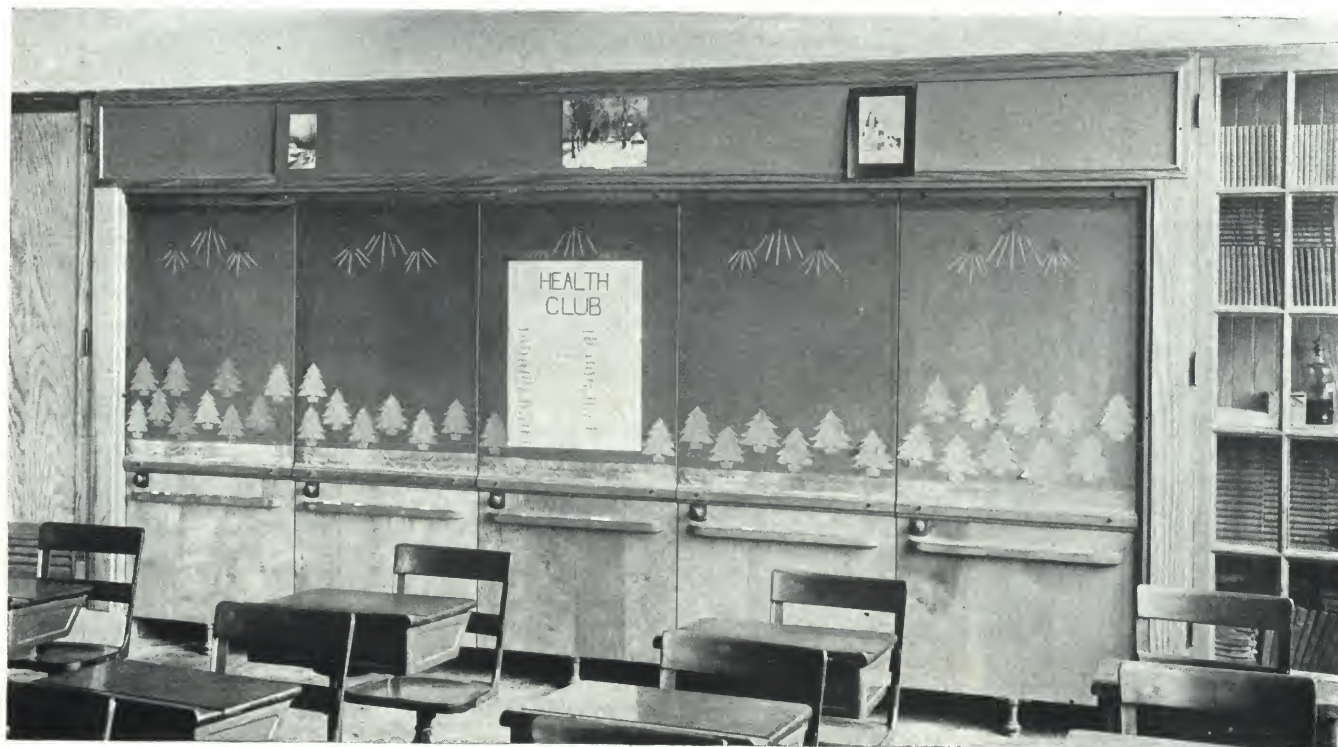
Types of Miller School Wardrobe

The Miller School Wardrobe may be singly controlled by teacher or by each individual, as desired.

Key locks for wardrobes are furnished at extra cost. Master key on first door controls all other doors on either of the following types:

Standard Type—Opening the first door on the left-hand side opens all doors; or any door may be opened individually.

"K" Type—Opening first door on left-hand side opens all doors; but no door may be opened individually.



Installation of a Miller School Wardrobe in a Buffalo School

FAIRHURST SCHOOL WARDROBES

MANUFACTURED BY

PARK, WINTON & TRUE COMPANY

101 Park Avenue, NEW YORK, N. Y.

FACTORY: ADDISON, N. Y.

Product

FAIRHURST SCHOOL WARDROBES.

For Fairhurst Folding Partitions, see Manufacturers' Index.

Fairhurst School Wardrobes

After designing, improving and perfecting school wardrobes over a period of 30 years, John T. Fairhurst offers these wardrobes not as luxuries, but as economic necessities for modern schools.

Mr. Fairhurst is giving his personal attention to all wardrobe and partition jobs.

Due to unique interior design, 44 pupils can be accommodated in a space 2 ft. deep by 8 ft. 8 in. wide, thereby reducing the necessary cubage of the building. Wardrobes of other dimensions are furnished when required.

Three Types of Operating Hardware—Any of three different types of Operating Hardware may be applied to the doors of Fairhurst School Wardrobes. The individual requirements of each school determine which of the following types to use:

Single Operating—Each door is opened and closed independently of the other.

Dual Operating—It is necessary to handle only the right-hand door of each pair of doors; the left-hand door moves automatically when the right-hand door is moved.

Multiple Operating—The entire battery of doors may be opened or closed by handling *only one door*, the *right or left-hand door of any pair*.

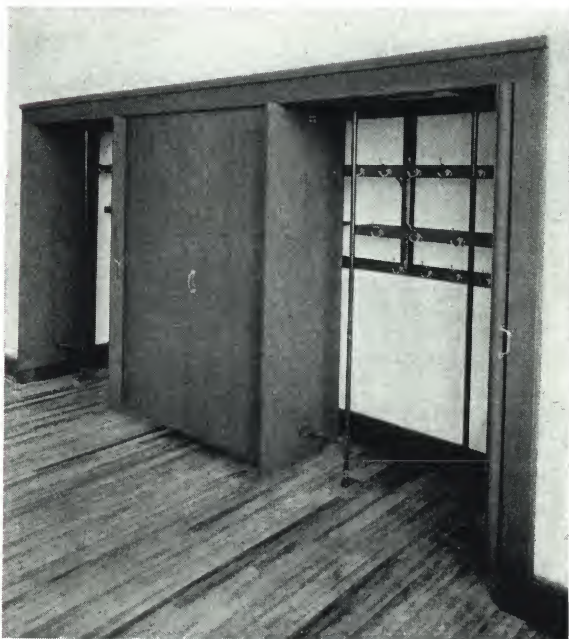
Advantages

The aisles and interiors of the wardrobes are free from obstruction at all times whether the doors are open or closed.

Continuous slate blackboard (optional—may be mounted on wardrobe doors) has close joints; board is protected when doors are open.

In the open position the doors are entirely out of the way at the ends of each compartment.

The interior arrangement of the wardrobe remains unchanged whether the doors are open or closed.



Three Compartments, Dual Operating, Fairhurst School Wardrobe, Hewlett School, Hewlett, N. Y.

The two end compartments, open, show how doors pivot completely out of the way

The doors pivot—there are no rollers or wheels, no track on the floor. The operation is simple, smooth and quiet.

Any of three types of control may be applied to any wardrobe installation—single, dual or multiple control—thus meeting the requirements of any school board or architect.

The multiple operating hardware is of such ingenious design that 12 or 14 doors (if you should ever want that many) can be operated at one time with practically no more effort than it takes to move a pair of doors. Anyone who is "mechanically minded" will be intrigued at once by the simple and positive action of this rugged, troubleproof hardware.

The entire wardrobe, if this is desired, may be locked by one lock conveniently located at one end of the wardrobe.

Construction Details

All metal parts which are subjected to strain and constant use are designed to stand up under much rougher treatment than could possibly be imposed upon them. All wardrobes are 2 ft. deep; the widths may vary. No track on the floor. Blackboards and chalk rails with close fitting joints are furnished when required, providing a smooth, even writing surface when the doors are closed.

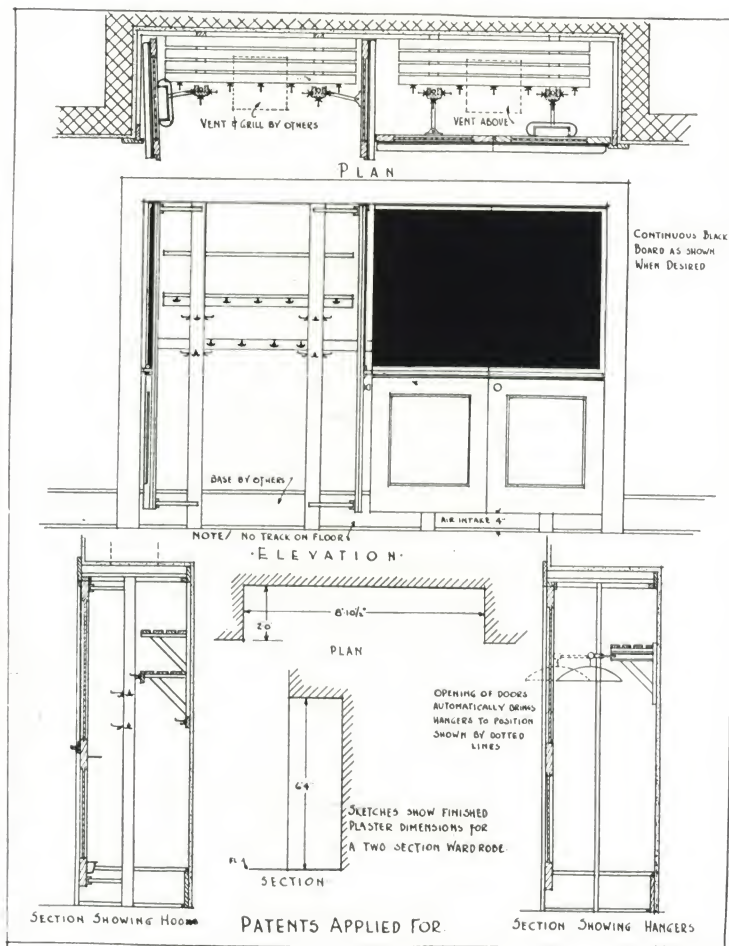
Specifications

Where indicated on plans, furnish and install Fairhurst single, dual or multiple operating type disappearing door wardrobes.

Wardrobes to be furnished complete with all hooks, shelves, etc. No track is to be used on floor.

Doors to be standard flush or panel design 1 3/4 in. thick, veneered on built-up cores (and equipped with continuous slate blackboard and chalk rails).

All hardware to be standard black finish, except hooks, latches or pulls, which are to be polished bronze plate.



HERMAN SOELLNER, INC.

Honeycomb Bottle Racks

336 East 59th Street (At the Queensboro Bridge)

NEW YORK, N. Y.

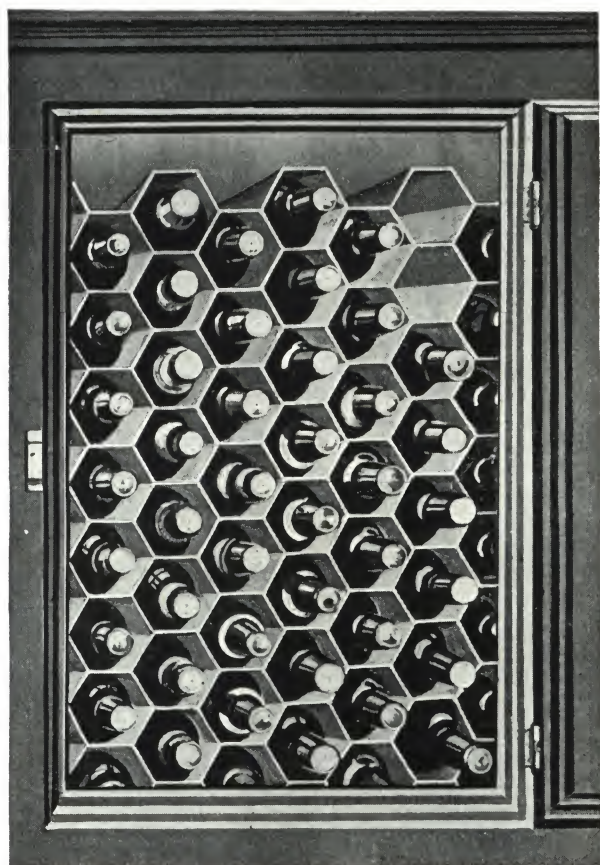
TELEPHONE
VOLUNTEER 4975

BRANCH OFFICE: MUNICH, GERMANY, HALLMAIERSTRASSE, 8

Honeycomb (Hexagonal) Bottle Racks

Sheet metal, hexagonal shelving, made to measure or furnished from stock in standard sizes.

Shipped knocked down (nested) in small, closed boxes; ready for re-assembling at the rate of over one thousand cells a day by a novice.



Advantages

Bottles are securely held within individual cells, within plain sight and convenient reach.

Corks are kept wet and tight, thus retaining gas-pressure and quality of contents.

Save 40% of wall space. More economical than wooden shelving.

Service

Over ten years' faultless record for local, long dis-

tance and export service attested to by architects from coast to coast.

Illustrated pamphlets, plans, estimates and practical suggestions for stockrooms and wine cellars free of charge.

Your inquiries will receive our prompt attention.

Price

\$20.00, approximately, per 100 cells, f. o. b. New York City; weight, packed, 40 lbs.



Re-assembling (Setting In) Hexagonal Shelving



COOKING REFRIGERATION

Aluminum Cooking Utensil Co.....	C4371-4373	Green, Robert M., & Sons.....	C4360-4361
American Stove Co.....	C4381-4390	Hobart Mfg. Co.....	C4369
Anstice, Josiah, & Co.....	C4366-4368	Illinois Refrigerator Co.....	C4443
Armstrong Cork & Insulation Co.....	C4478-4479	International Nickel Co., Inc.—	
Audiffren Refrigerating Machine Co.....	C4407	Food Service Equipment.....	C4378-4379
Automatic Refrigerating Co.....	C4408	Refrigerators and Equipment.....	C4444
Babcock-Davis Corp.	C4482-4483	Jamison Cold Storage Door Co.....	C4450-4453
Blickman, S., Inc.....	C4374	Jewett Refrigerator Co.....	C4445
Bohn Refrigerator Co.....	C4442	Kelvinator Sales Corp.....	C4424-4425
Carbondale Machine Co.....	C4409	Leonard Refrigerator Co.....	C4446-4447
Century Machine Co.....	C4365	Liquid Carbonic Corp.....	C4362-4363
Colt's Patent Fire Arms Mfg. Co.....	C4404	Market Forge Co.....	C4484-4491
Cork Import Corp.	C4480-4481	Marks, Charles G., Co.....	C4364
Cork Insulation Co., Inc.....	C4475-4477	McCray Refrigerator Sales Corp.....	C4448-4449
Crescent Washing Machine Div. of the Hobart		Prometheus Electric Corp.....	C4375
Mfg. Co.	C4405	Read Machinery Co., Inc.....	C4370
Detroit-Michigan Stove Co.....	C4391-4393	Standard Gas Equipment Corp.....	C4397-4399
Edison General Electric Appliance Co., Inc.—		United Cork Cos.	C4457-4474
Commercial Cooking Equipment.....	C4376-4377	Van, John, Range Co., Div. Albert Pick-Barth	
Electric Ranges	C4394-4395	Co., Inc.	C4380
Electromaster Inc.	C4396	Victor Products Corp.—	
Faspray Corp.	C4406	Refrigerator Doors	C4454-4456
Federal Metal Products Corp.....	C4415	Refrigerator Shelving	C4492-4493
Frick Co., Inc.....	C4410	Vilter Mfg. Co.....	C4411
Frigidaire Corp.	C4416-4423	Westinghouse Electric & Mfg. Co.....	C4400-4403
General Electric Co.	C4426-4440	Williams Oil-O-Matic Heating Corp.....	C4441
General Refrigeration Co.	C4412-4413	York Ice Machinery Corp.....	C4414

ESTABLISHED 1874

ROBERT M. GREEN & SONS

Manufacturers of Soda Fountains, Cold Lunch Equipment, Steam Tables

1413-1425 Vine Street
PHILADELPHIA, PA.**Products**

"AUTOPOLAR" ELECTRO-MECHANICALLY REFRIGERATED SODA FOUNTAINS.

Also Cold Lunch Equipment, Steam Tables, Carbonators.

Electro-Mechanically Refrigerated Soda Fountains

Green Soda Fountains are 100% electrically refrigerated and represent the highest attainment in modern soda fountain construction. They assure long continued service, economical operation and greatest convenience.

Built by an organization with fifty-seven years' experience in quality soda fountain production, they enjoy a remarkable freedom from repair bills and abnormal depreciation.

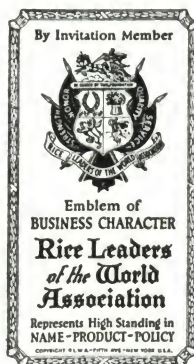
Features

The "Autopolar" Fountain is of all-stone and metal construction throughout and is made to accommodate any standard system of mechanical refrigeration (your choice).

"Super-Cyclone" soda water cooling system, exclusive in the "Autopolar," designed for handling a

Autopolar

TRADE-MARK

**Cost**

The cost of "Autopolar" Fountains is as low as careful management, coupled with modern methods can keep them, without impairing the high quality.

Guarantee

"Autopolar" and all Green Fountains are built by skilled mechanics and are guaranteed against defects in material and workmanship.

Special Service to Architects

A department of engineers is maintained to operate in conjunction with architects in planning soda fountain equipment. Be free to ask us for ideas and plans without obligation.

Qualified representatives always on quick call.

Catalogues and descriptive matter mailed on request.

General Information

The Green illustrated catalogue contains information on fountains of all lengths and layouts. The several plans shown on the following page give a general idea of our ability in this line.



"Super-Cyclone" Cooler
(Patent pending)



Green "Autopolar" Fountain Built for Stephen F. Whitman & Sons, Inc., Philadelphia, Pa.

large business. This system carries at all times a cold storage reserve sufficient to dispense 110 glasses of beverage.

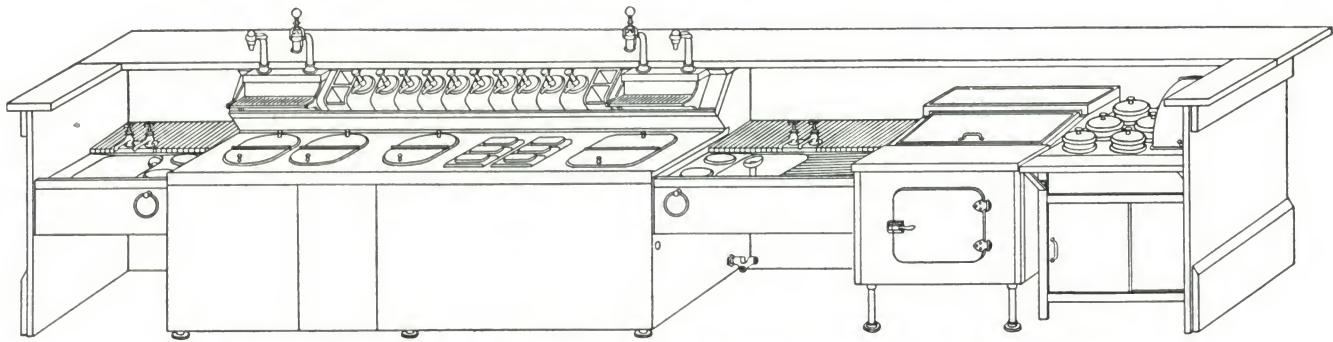
Cold rolled copper linings, 1½ lb. per sq. ft., reinforced. Patented automatic self-closing soda water draft arms. Milk pumps, rinsing water vats, automatic washers.

Nonpareil odorless cork insulation in layers with Ru-ber-oid. Patented silver-plated syrup pumps.

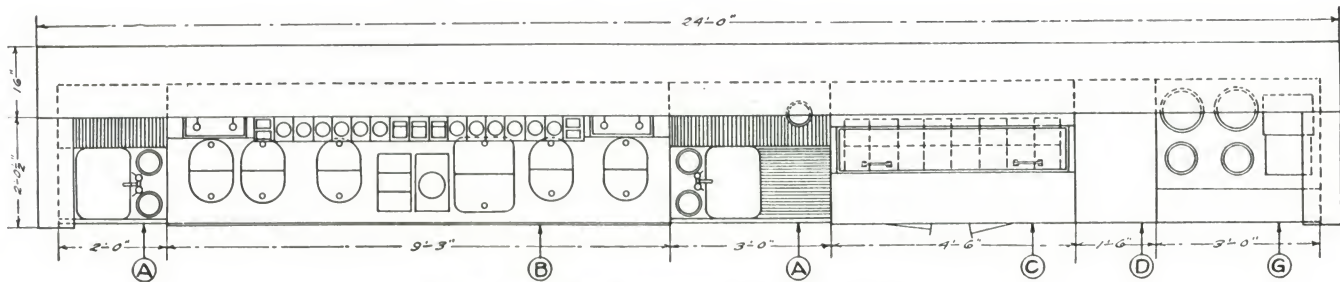
Inquiries Receive Prompt Attention

Special attention is directed to the prompt and efficient handling by the Green organization of all inquiries for plans and information relative to soda fountain equipment. If drawings or blue prints of floor plans are sent with requests for proposals, the data is immediately put into hands of draftsmen and no time is lost in supplying specifications.

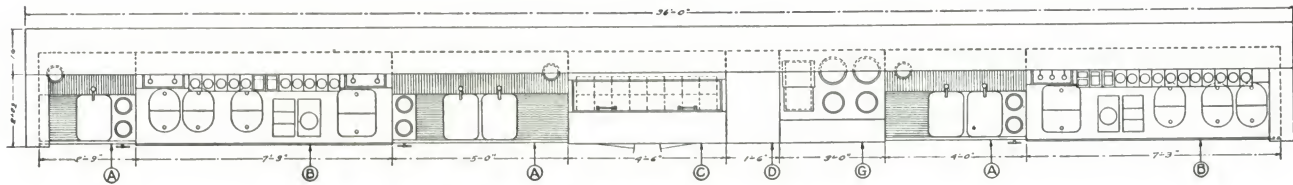
A FEW SUGGESTIVE PLANS FOR "AUTOPOLAR" FOUNTAINS



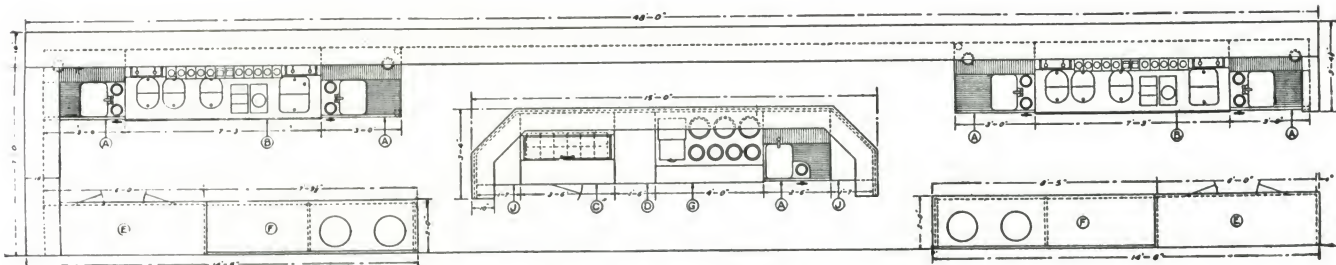
Isometric Drawing of a Soda Fountain, with Cold Lunch Bar and Steam Table



Soda-Lunch Plan Suggestion for 24-ft. Counter



Soda-Lunch Plan Suggestion for 36-ft. Counter



Soda-Lunch Plan Suggestion for 48-ft. Counter

**The Following Are Among the Many Contracts Placed by Prominent
Concerns for the Green "Autopolar" Fountains**

Abraham & Straus, Department Store, Brooklyn,
N. Y.
Bamberger Department Store, Newark, N. J.
Chas. Cash, Inc., New York, N. Y.
Columbia University, New York, N. Y.
Durham University, Durham, N. C.
Horn & Hardart Baking Co., Philadelphia, Pa.
Stephen F. Whitman & Sons, Inc., Philadelphia, Pa.

Interstate Company, Chicago, Ill.
Media Drug Company, Philadelphia, Pa.
Patterson Cigar Stores, Birmingham, Ala.
Peoples Drug Stores, Washington, D. C. and Branches
Walt Whitman Hotel, Camden, N. J.
Woodrow Wilson Hotel, New Brunswick, N. J.
John Wanamaker, Inc., Philadelphia, Pa., and New
York, N. Y.

THE LIQUID CARBONIC CORPORATION

Manufacturers of Soda Fountains and Luncheonette Equipment

3100 South Kedzie Avenue, CHICAGO, ILL.

BRANCH OFFICES

MILWAUKEE, WIS.
DETROIT, MICH.
CHICAGO, ILL.
INDIANAPOLIS, IND.
DENVER, COL.

MINNEAPOLIS, MINN.
PITTSBURGH, PA.
CLEVELAND, OHIO
LOUISVILLE, KY.
HARRISBURG (HIGHSPIRE), PA.

BUFFALO, N. Y.
CINCINNATI, OHIO
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NEW YORK, N. Y.
NEW ORLEANS, LA.

BOSTON, MASS.
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JACKSONVILLE, FLA.
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CANADIAN CARBONATE, LTD.

MONTREAL, QUE.
VANCOUVER, B. C.

DARTMOUTH, N. S.

TORONTO, ONT.

HAMILTON, ONT.
WINNIPEG (ST. BONIFACE), MAN.

EDMONTON, ALTA.

LIQUID CARBONIC PACIFIC CORPORATION

LOS ANGELES, CALIF.

SAN FRANCISCO, CALIF.

SEATTLE, WASH.

Products

SODA FOUNTAINS and SODA FOUNTAIN EQUIPMENT.

COMPLETE LUNCHEONETTE INSTALLATIONS, including Kitchen Equipment and Luncheonette Equipment.

Also Soda Water Carbonators.

The Company

The first soda fountain built by THE LIQUID CARBONIC CORPORATION, more than thirty years ago, embodied a number of original features that immediately won for it a high place in the esteem of users of this type of equipment. Throughout its history this organization has maintained a policy of pioneering research in its line, and of incorporating the



results of its thorough planning in constantly improving equipment, the details of which are described below.

Representatives of THE LIQUID CARBONIC CORPORATION are experts in luncheonette and soda fountain equipment, and are always ready to assist architects in planning, specifying and selecting the correct units of equipment.

Guarantee

All luncheonette and soda fountain equipment manufactured by THE LIQUID CARBONIC CORPORATION is unconditionally guaranteed against defects of workmanship, and is backed by one of the largest manufacturers in the world of this type of equipment.

Luncheonette Equipment

Experience of Engineering Staff

When the luncheonette idea first appeared the engineering staff of THE LIQUID CARBONIC CORPORATION were prepared to plan the necessary equipment because of more than thirty years of experience in planning soda fountain equipment. The specialized experience in luncheonette planning they have gained since that time in laying out installations for such well-known chains as Liggett, Interstate, Kresge, McCrory, Metropolitan, and many others makes them unusually well equipped to plan luncheonette layouts to meet all requirements with maximum efficiency.

Service Rendered by Representatives

The representatives of THE LIQUID CARBONIC CORPORATION, with headquarters in most of the populous centers of the country, are in close touch with the luncheonette business, and know its needs. Each representative is equipped to render the last word in service in assisting architects and owners to plan luncheonette equipment.

Production Facilities

The facilities of THE LIQUID CARBONIC CORPORATION are unsurpassed for large scale production of luncheonette equipment, being among the largest manufacturers of this equipment in the world. This results in economy of manufacture and speed in getting the job done. As an ex-

ample, a job recently completed for the Famous-Barr Department Store had over 600 ft. of counter space. Few other manufacturers could attempt to handle a job of this size.

Types of Luncheonette Equipment

The most successful principles of the numerous installations that have been planned by this organization have been combined in a series of stock units that are offered at attractive prices for equipment of this high character.

By way of demonstrating the complete range of luncheonette equipment offered, a large and an average sized installation are shown. The first illustration (Fig. 1) shows the luncheonette installation in the Famous-Barr Department Store in St. Louis, Mo. It contains over 600 ft. of counter space, sufficient for over 300 stools, and is thoroughly equipped for service on this scale. Fig. 3 shows a typical 24 ft. layout made up entirely of stock units, with the exception of the workboards.

Mechanicold Cooler Box—The Mechanicold cooler box shown (A) is 7 ft. 6 in. long, with a capacity of 30 gal. of bulk ice cream and 10 gal. of brick or package cream. It is equipped with a milk pump, crushed fruit jars, syrup pumps and draft arms (two soda and one water), all conveniently arranged for speedy service. Also made in stock sizes from 6 ft. 6 in. to 9 ft. 6 in.



Fig. 1. Famous-Barr Department Store Luncheonette Installation, St. Louis, Mo.

Mechanically Refrigerated Salad and Toaster Cabinet—The mechanically refrigerated salad and toaster cabinet (B) is 5 ft. 2¼ in. long. It contains ten deep inserts and one shallow pan, all made of porcelain enamelware. Also includes crumb drawer, plate rack, cutting board and shield. Any desired temperature can be maintained in the cooling compartment. The toaster section of this cabinet contains two drawers. The lower drawer is for loaf bread storage. Sliced bread is kept in the top tilting drawer which is provided with a partition.

Workboard—The workboard (C) is 4 ft. 6 in. long. It is of metal construction with built-in dishwasher. There are two shelves for dish and silver trays. Also includes extra basin, running water, dipper well and refuse chute. Also made in stock size 6 ft. long with four shelves.



Fig. 2. (E) Steam Table

Steam Table—The steam table (E) is set back against the wall. It is 5 ft. 10 in. long. Has six 1-qt. vegetable pots and two large meat pans with a metal hood and space for coffee urn. Lower part built with a warming oven.

Urn Stands and Pastry Cases—In addition to the units that comprise this layout, urn stands and pastry cases in stock units are also available.

The pastry cases are of plate glass and nickel silver construction.

Complete Layout—With these stock units as a basis an outfit to meet any average sized requirement can be assembled at a very moderate cost. No job is too large for THE LIQUID CARBONIC CORPORATION'S facilities and none too small to merit their most thorough attention to details.

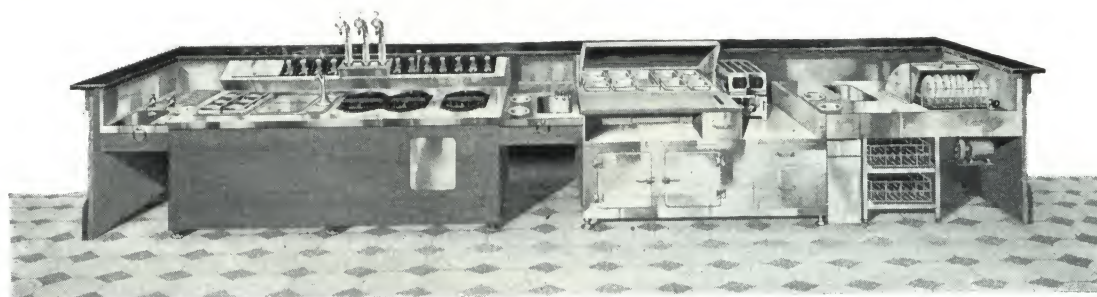


Fig. 3. A Typical 24-ft. Luncheonette Installation

(A) Mechanicold Cooler Box

(B) Mechanically Refrigerated Salad Cabinet and Toaster Section

(C) Workboard with built-in dishwasher

Soda Fountain Equipment

The mature experience of more than thirty years is built into "Liquid" Soda fountains in the form of hidden value details of which the following are typical:

Stub Brine Tank (Fig. 4)—Makes possible the maintenance of a uniform temperature throughout the entire ice cream can, top to bottom. Result, ice cream of uniform consistency, no shrinkage.

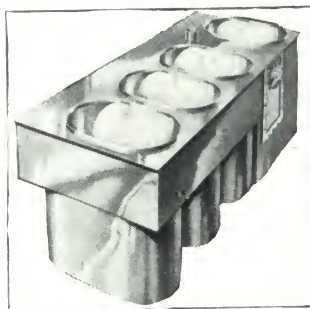


Fig. 4. Stub Brine Tank

Refrigerated Syrup Enclosure (Fig. 5)—By means of mechanical refrigeration an ice formation is maintained at the bottom of the syrup enclosure in which the syrup jars set. This insures cold, fresh syrup and prevents spoilage. Pure corkboard surrounds the entire enclosure and strips of non-conducting material break the metal contact, insuring complete insulation.

"Alvey" Syrup Pump (Fig. 6)—One furnished with each fountain. Patented construction makes it throw a set amount of syrup. Standard double support pumps, and a

special heavy duty pump for chocolate syrup, etc., are also supplied with each cooler box. "Bakelite" insulating tops add a pleasing note of color and prevent loss of refrigeration.

Insulated Draft Arms (Fig. 7)—Made of pure nickel silver, silver plated. Pure corkboard is packed around the block tin delivery tube to conserve refrigeration. Represent a distinct departure in artistic design.

Non-conducting Rings and Insulated Cover (Fig. 8)—The rings around the sleeves of the ice cream compartment are made of non-conducting material. Perfect fit effectively breaks metal contact, reducing the escape of refrigeration. Covers are of same material, and in addition have 1¼-in. cork insulation. The pitch of the top prevents water from running into the cans. Ring and cover effectively seal cans against air circulation.

Marble Cooler Boxes (Fig. 9)—Constructed of marble, will not warp, twist, corrode, or deteriorate in any way. Completely insulated with pure cork.

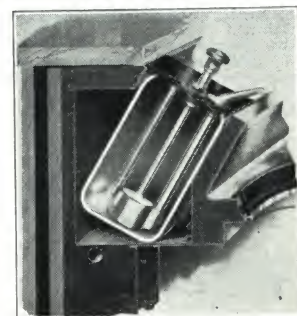


Fig. 5. Refrigerated Syrup Enclosure

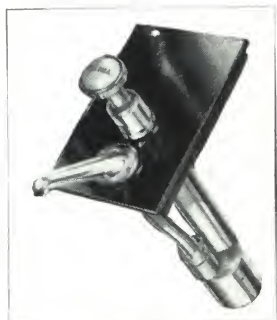


Fig. 6. Positive Measuring "Alvey" Syrup Pump

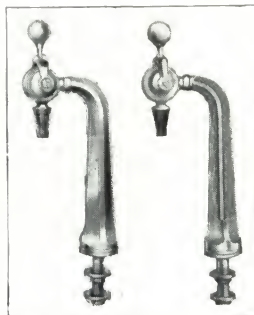


Fig. 7. Insulated Draft Arm



Fig. 8. Non-conducting Ring and Insulated Cover



Fig. 9. All-marble Cooler Box with Pure Cork Insulation

INCORPORATED

CHARLES G. MARKS CO.

Sunné Steel, Fibre, Wood and Rubber Products

TELEPHONE
MAJESTIC 3853193 Sweet Street
WAUKEGAN, ILL.CABLE ADDRESS
"SUNNE"**Products**

STOOLS, round, square, fluted, hexagonal or triangular, in steel, iron or bronze.

SEATS, wood, fibre, metal, upholstered.

TABLES, wood, fibre, metal.

TABLE and COUNTER TOPS, rubber, linoleum or linotile.

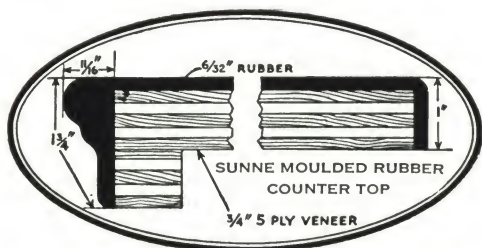
Colors

Rubber Colors—Refer to Manufacturers' Index for Wright Rubber Products Co. Color Chart.

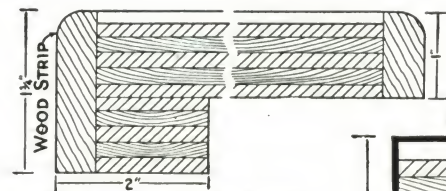
Linoleum Colors—Gray, green, brown, black, orange and red, also refer to Manufacturers' Index for Armstrong Cork Company and see their color chart.

Features of Construction

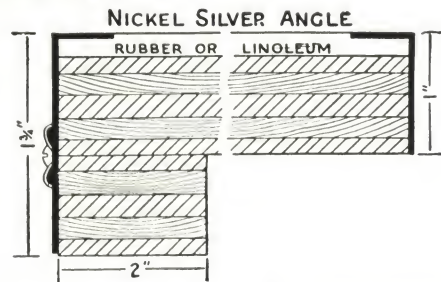
The following cross-sectional views of Marks moulded rubber, linoleum, or linotile table and counter tops show the edge of the same material, wood or nickel silver, the latter being recommended for constant wear.



Cross Section of Waxed and Moulded Rubber Table and Counter Top



Cross Section of Table Top with Wooden Edge



Cross Section of Table Top with Nickel Silver Edge

Stool Construction and Installation

Cross section shows our 12 1/2 C all-steel, non-wabbling or rocking machined tripod with automatic seat return for keeping stool seat and back in perfect alignment when unoccupied.

This automatic seat-return works on a gravity principle, swings up an incline and the weight of the seat swings it back in place. Seat can make a complete revolution. No springs or clamp to break. Foolproof and as simple as an old fashioned swinging gate.

The cross section of the ball bearing steel tripod shows its construction. All parts of stool and tripod are machined and fitted with ball bearings that eliminate wear and friction.

The 12 1/2 C steel tripod can also be equipped with ball bearings.

Fastening Stools to Floor—For wood floors, we drill four screw-holes in base and use wood screws.

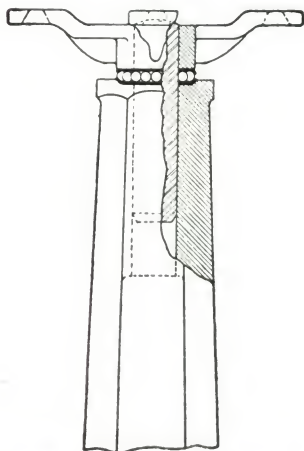
For setting on tile or concrete, where it is possible, use a bolt through

a plate, up from the underside of floor and set as instructed below. An expansion bolt may be used.

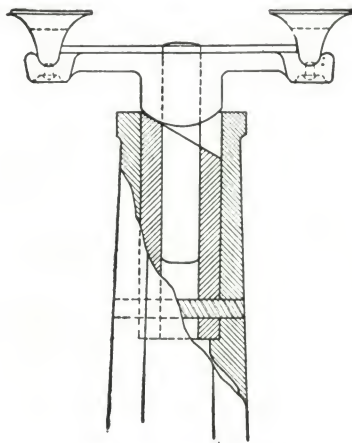
Drill a hole after floor is laid, or arrange when floor is being laid for a hole, 2 in. in diameter, from 2 to 3 in. deep with laterals as shown in cross section. Heat and set in the hole a 1/2 x 4-in. square head machine bolt. Fill the hole to level of floor with molten sulphur, thread nut in the bolt and place lock washer on top of the bolt.

Screw the stool onto the bolt through cross bar in bottom of stool. The lock washer permits from one to three turns of stool after it is fairly tight to set the automatic seat return. The low level of lug in collar of stool must face the counter and the way you want the seat to face when not in use.

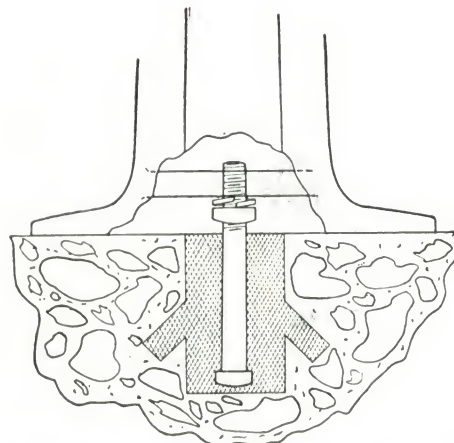
Set stools with backs on 26-in. centers and 11 in. from edge of counter to center of seat.



Cross Section of Ball Bearing Steel Tripod



Cross Section of 12 1/2 C All-steel Tripod



Cross Section of Recommended Fastening of Stool to Concrete Floor

THE CENTURY MACHINE COMPANY

Kitchen and Bake Shop Equipment

4410 Marburg Avenue, OAKLEY, CINCINNATI, OHIO

Products

CENTURY BAKE SHOP OUTFITS and CENTURY GIANT MIXERS.

Also Flour Blenders, Flour Bins, Elevator and Sifters, Flour Hoppers, Tempering Tanks, Standard Speed Dough Mixers, High Speed Dough Mixers, Combination Divider and Sealers, Two-pocket Dividers, Rounders, Automatic Proofers, Moulders, Cake or Kitchen Machines and Cookie Droppers.



Standard Equipment—All Giant Mixers, except Model "B," are equipped with two bowls, two wire whips, two aluminum beaters and one dough hook. The 15-qt. mixer with one bowl and two beaters.

Detail Information and Service

Complete details, and service of trained field representatives sent on request.

Century Bake Shop Outfits

Consist of flour storage bin, elevator and sifter, automatic flour weighing hopper, automatic water tempering and weighing tank, standard dough mixer. Cake or kitchen machine optional.

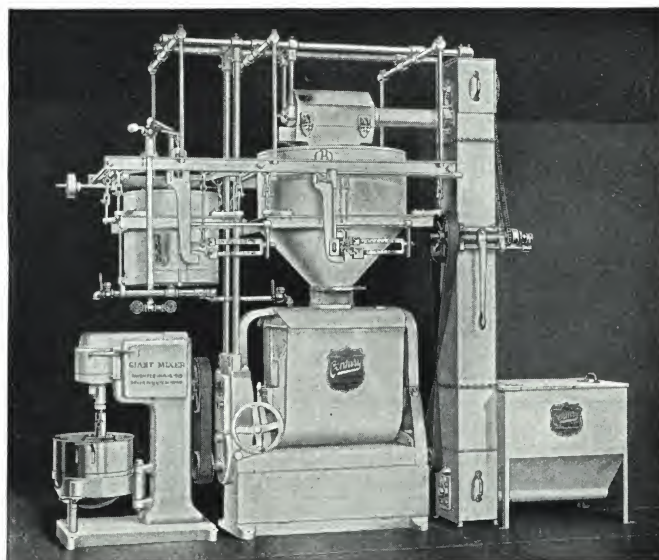
Individual motor drive on each machine. Steel construction throughout, self-contained and automatic. Can be placed against wall as all work including lubrication is done from the front.

Century Giant Mixers

Will mix bread, cake and pastry dough; whip eggs and cream; crush fruits; make purees; mash potatoes, etc. In addition Model "U" with jacketed bowl will heat or cool batches while mixing.

All Century Giant Mixers, except Model "B," operate at four speeds. One single lever controls all speed changes without passing through intermediate speeds or disengaging gears. It is impossible to strip gears on a Century Giant Mixer.

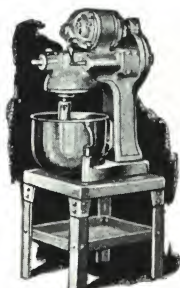
Many operating conveniences such as swinging bowl, interchangeable locking attachments, etc., are provided.



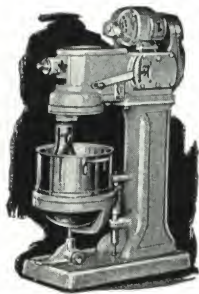
Century Self-contained Bake Shop Equipment, Automatic Control

COMBINATION SPECIFICATIONS

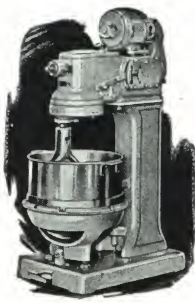
At right are given various suggested dough mixing combinations	1-bbl. dough mixer 3-bbl. storage bin 2-bbl. hopper 35-gal. water tank	1½-bbl. dough mixer 3-bbl. storage bin 2-bbl. hopper 35-gal. water tank	2-bbl. dough mixer 3-bbl. storage bin 2-bbl. hopper 50-gal. water tank	2-bbl. dough mixer 5-bbl. storage bin 3-bbl. hopper 50-gal. water tank	3-bbl. dough mixer 5-bbl. storage bin 4-bbl. hopper 50-gal. water tank	4-bbl. dough mixer 5-bbl. storage bin 5-bbl. hopper 65-gal. water tank
Floor space, width by length "A".....	4 ft. 9 in. x 9 ft. 10 in.	4 ft. 9 in. x 10 ft. 1 in.	4 ft. 9 in. x 10 ft. 1 in.	4 ft. 9 in. x 12 ft. 1 in.	4 ft. 9 in. x 13 ft. 0 in.	4 ft. 9 in. x 13 ft. 4 in.
Ceiling height "B"....	10 ft. 4 in.	10 ft. 9 in.	10 ft. 10 in.	11 ft. 8 in.	13 ft. 3 in.	14 ft. 3 in.
Weight of equipment loaded, without cake mixer, lb.....	6000	6500	6700	7600	9700	11000
Horsepower of motor..	2	2	3	3	5	7½
Capacity of mixed dough per batch, lb.....	300	450	600	600	900	1200



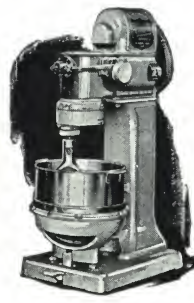
Model "B" 15-qt. Century Giant 3-speed Mixer



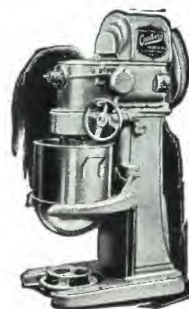
Model "J" 16 to 36-qt. Century Giant 4-speed Mixer



Model "J" 36 to 80-qt. Century Giant 4-speed Mixer



Model "U" 36 to 80-qt. Century Giant 4-speed Mixer



Dolly Giant 110-qt. 4-speed Mixer

JOSIAH ANSTICE & COMPANY, INC.

Potato and Vegetable Peelers—Silver Cleaners and Burnishers

FACTORY AND GENERAL OFFICE
ROCHESTER, N. Y.

Sterling Peelers and Silver Burnishers

In the Sterling line there is a size and model for every requirement—from the smallest lunchroom to the largest hotel, restaurant, institution, club or ship.

STERLING

TRADE-MARK

Sterling products are designed and manufactured by specialists.

Rugged construction throughout assures years of use with minimum upkeep expense.

Abrasive Action STERLING POTATO AND VEGETABLE PEELERS

Potato and vegetable parers are most efficient when both cylinders and discs are lined with abrasive. In the Sterling line, carborundum—the hardest, sharpest and most lasting known abrasive—is used on both cylinders and discs.

The patented Sterling wavy disc with upturned lip on the entire periphery gives a gentle rolling motion to the vegetables while they are being peeled, the lip lifting the vegetables as they meet the cylinder wall which prevents bruising, flats, and waste of vegetables.

Features of Construction

Gears are fully enclosed and run in a bath of oil. All bearings are bronze and of the sleeve type. Motor is mounted above the machine which is the safest location. Electric current switch is within easy reach of the operator whether standing in front of or at either side of peeler. An automatic, overload circuit breaker is built into the switch. Belt drive relieves the motor of starting shock—simple, safe, quiet, fully guarded.

Hinged covers for vegetable peelers are dangerous in that they may fall, crush hands and fingers. The Sterling cover is hingeless.

Sterling Built-in Peel Trap

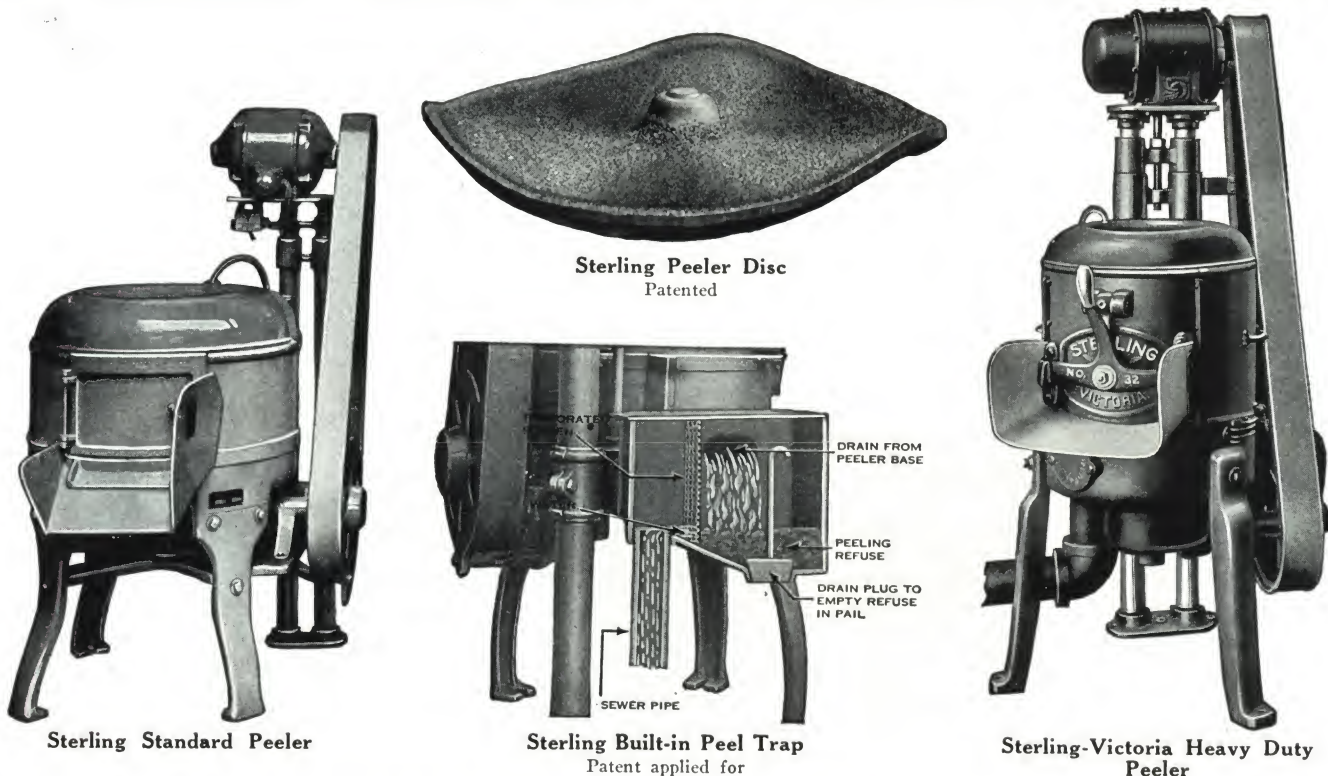
The Sterling sanitary, built-in peel trap is not a separate accessory requiring special connection to the peeler, but is a cast iron box bolted directly to the peeler base, becoming a part of it, with tapped hole for sewer connections, heavy brass strainer to separate peeling refuse from wash water with opening at bottom under which pail is placed and into which peeling particles fall when plug is drawn.

For Heavy Duty—The Sterling-Victoria Peeler

Similar to machines built for the Government under the most exacting Navy Specifications. Designed for the hardest kind of service on land or sea, the Sterling-Victoria Heavy Duty Vegetable Peeler should be specified where conditions of service are particularly severe.

CAPACITIES OF VEGETABLE PEELERS

Model.....	13-15	16-25	20-40	26-50	Heavy Duty	
					31	32
Pounds of vegetables peeled in an average time of 1 to 1½ minutes.....	15	25	40	50	25 to 30	50 to 60



See the second following page for layout and installation data.

STERLING SILVER CLEANERS AND BURNISHERS

The Sterling Silver Cleaner and Burnisher will polish bright and remove food stains from forks, knives, and spoons of all kinds, the inside and outside of coffee and tea pots, cream pitchers, sugar bowls, and similar articles in solid silver and plated ware.

Preserving silverware and saving labor, the Sterling Silver Cleaner and Burnisher soon pays for itself.

Description—Sterling Silver Cleaners and Burnishers are provided with thick section cast bronze burnishing barrel. The control lever is convenient to the operator. The bronze and steel worm gears are enclosed in an oil-tight gear housing filled with lubrication. All Sterling Burnishers are fitted with special Sterling Ball Traps which not only prevent the burnishing balls which may have been spilled in the tub of the machine from reaching the sewer, but also provide a sewer gas trap.

Model 55

8x12 in.

Capacity

60 pieces of flat silver each run.

Other silver in proportion to size.

Floor Space

28x26 in.

Shipping weight, 325 lbs.

Price, \$345.00

Model 56

8x24 in.

Capacity

120 pieces of flat silver each run.

Other silver in proportion to size.

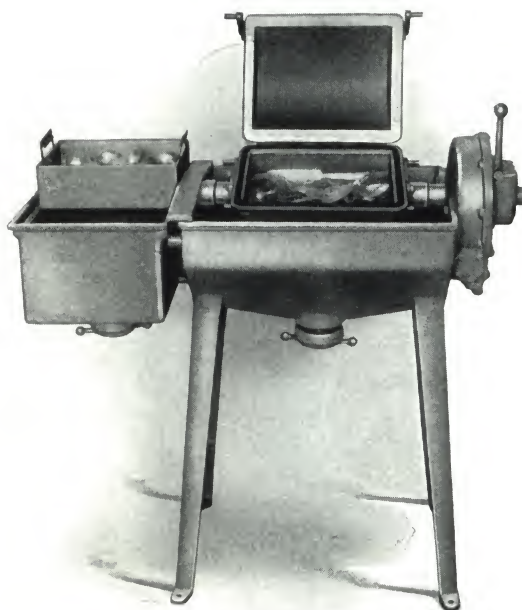
Floor Space

47x26 in.

Shipping weight, 575 lbs.

Price, \$485.00

Note: These Models are not furnished with silver basket nor rinse tank.



Patent Applied For

Model 60

9¼x12 in.

Capacity

80 pieces of flat silver each run.

Other silver in proportion to size.

Floor Space

42x26 in.

Shipping weight, 425 lbs.

Price, \$500.00

Model 61

9¼x24 in.

Capacity

160 pieces of flat silver each run.

Other silver in proportion to size.

Floor Space

26x61½ in.

Shipping weight, 725 lbs.

Price, \$700.00

Note: These Models are furnished with silver basket and rinse tank.

Models 60 and 61 are fitted with baskets to remove silver after it has been burnished, and built-in rinse tank connected for hot water supply and overflow drain. The silver basket protects the operator as it is dangerous to feel around in the burnishing balls for burnished silver when this silver consists of sharp knives and sharp fork tines. Burnished silver should be rinsed at once and the Sterling built-in rinse tank is very convenient for this purpose.

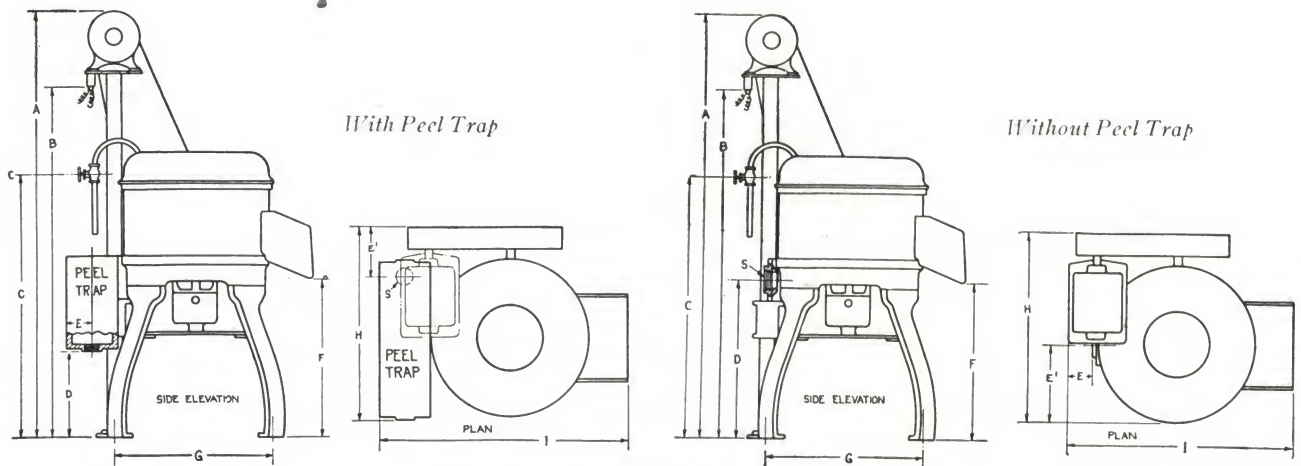
Models 60 and 61 have 27% more volumetric capacity than the Models 55 and 56 which have burnishing barrels 8x12 in. and 8x24 in. respectively.

Sterling Silver Cleaners and Burnishers are shipped complete, set up, and ready to run. They are supplied with "Silvergleam" burnishing balls, automatic safety electric switch, and a sufficient supply of Scap, the non-poisonous, free from abrasive, cleaning compound to last several months.

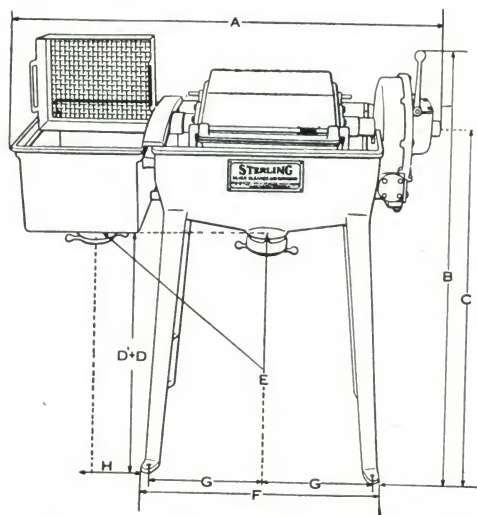
See following page for layout and installation data

ROUGHING-IN DIMENSIONS OF STERLING PEELERS

With Peel Trap		Model 13-15	Model 16-25	Model 20-40	Model 26-50	Model 31	Model 32
A.	Over-all height	49 in.	55 in.	59 in.	59 in.	63 in.	69 in.
B.	Height to motor wires	42 in.	44 in.	48 in.	46 in.	52 in.	54 in.
	Motor	$\frac{1}{4}$ hp.	$\frac{1}{2}$ hp.	$\frac{3}{4}$ hp.	1 hp.	$\frac{1}{2}$ hp.	1 hp.
C.	Wash water supply $\frac{3}{4}$ in. all models. Cut thread and fit with shut-off valve at height from floor not to exceed	31 in.	34 in.	36 in.	35 in.	38 in.	41 in.
D.	Floor to center sewer connection	14 in.	13 in.	14 $\frac{1}{2}$ in.	12 in.	13 in.	13 in.
	Size of opening, threaded flange, standard thread	2 in.	2 in.	3 in.	4 in.	3 in.	4 in.
E.	Center sewer connection to extreme back of peeler	3 $\frac{1}{2}$ in.	3 $\frac{1}{2}$ in.	3 in.	4 in.	23 in.	12 in.
E ¹ .	Center sewer connection to right side of peeler	12 in.	14 in.	18 in.	20 in.	3 in. to right side	9 $\frac{1}{2}$ in.
F.	Floor to discharge trough	21 in.	22 in.	21 $\frac{1}{2}$ in.	19 in.	26 in.	25 in.
G.	Distance between hold-down bolts and feet	14 in.	14 in.	17 in.	20 in.	22 in.	27 in.
H.	Over-all dimensions (side to side)	19 in.	24 in.	30 in.	35 in.	29 in.	46 in.
I.	Over-all dimensions (front to back)	26 in.	30 in.	36 in.	48 in.	30 in.	45 in.
	Shipping weight with peel trap	275 lb.	450 lb.	675 lb.	800 lb.	575 lb.	900 lb.
Without Peel Trap							
Note these exceptions to table above							
D.	Floor to center sewer connection	18 in.	17 $\frac{1}{2}$ in.	23 in.	20 $\frac{1}{2}$ in.	22 in.	22 in.
	Size of opening, threaded flange, standard thread	1 $\frac{1}{2}$ in.	2 in.	3 in.	4 in.	3 in.	4 in.
E.	Center sewer connection to extreme back of peeler	45" down 3 $\frac{1}{2}$ in.	4 in.	4 in.	2 in.	11 in.	11 in.
E ¹ .	Center sewer connection to left side of peeler	8 in.	9 in.	12 in.	14 in.	8 in. to right side	7 in.
H.	Over-all dimensions (side to side)	19 in.	24 in.	30 in.	35 in.	29 in.	37 in.
I.	Over-all dimensions (front to back)	21 in.	28 in.	33 in.	41 in.	30 in.	45 in.
Note: It is well wherever possible to leave 18 in. free space all around peeler for convenience of operator.							
	Shipping weight without peel trap	240 lb.	400 lb.	600 lb.	700 lb.	500 lb.	800 lb.



Dimension Diagram of Sterling Peelers



Dimension Diagram of Sterling Silver Cleaner and Burnisher

ROUGHING-IN DIMENSIONS OF STERLING SILVER CLEANERS AND BURNISHERS

	Model 55 8x12 in.	Model 56 8x24 in.	Model 60 9 $\frac{1}{4}$ x12 in.	Model 61 9 $\frac{1}{4}$ x24 in.
A.	Over-all length	28 in.	47 in.	42 in.
B.	Over-all depth (front to back)	26 in.	26 in.	26 in.
C.	Height to motor conduit box	40 $\frac{1}{2}$ in.	40 $\frac{1}{2}$ in.	40 $\frac{1}{2}$ in.
D.	Height to $\frac{1}{2}$ -in. standard pipe connection to connect traps to sewer. Use short nipple and elbow to run line back to wall so pail can be placed under trap to catch balls when cover is removed.	26 in. ($\frac{1}{8}$ hp.)	26 in. ($\frac{1}{4}$ hp.)	26 in. ($\frac{1}{8}$ hp.)
	Note: It is not absolutely necessary to connect trap to sewer. Pails under traps can be used.	19 $\frac{1}{4}$ in.	18 $\frac{3}{4}$ in.	19 $\frac{1}{4}$ in.
D ¹ .	Height to rinse tub trap pipe connection			
E.	Waste water traps		20 $\frac{3}{4}$ in.	20 $\frac{3}{4}$ in.
F.	Distance between legs	21 $\frac{5}{8}$ in.	35 $\frac{5}{8}$ in.	21 $\frac{5}{8}$ in.
G.	Distance between legs (front to back)	19 in.	20 in.	19 in.
H.	C/L of tub trap to legs	10 in.	19 $\frac{3}{4}$ in.	10 in.
	C/L of rinse tank trap to legs		6 $\frac{1}{2}$ in.	6 $\frac{1}{2}$ in.
	Shipping weight	325 lbs.	575 lbs.	425 lbs.

THE HOBART MANUFACTURING CO.

Makers of Electrical Food-Preparing Machines for Commercial and Institutional Kitchens and Bakeries

TROY, OHIO

NEW YORK OFFICE, 40 East 22nd Street

CHICAGO OFFICE, 308 West Randolph Street

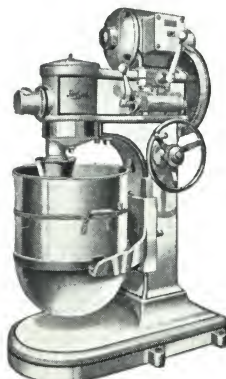
SALES AND SERVICE OFFICES IN ALL PRINCIPAL CITIES

Products

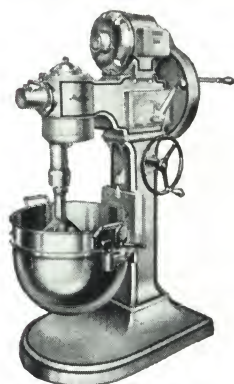
Hobart Products include the following items of KITCHEN and BAKERY EQUIPMENT: Mixers (which operate a full line of attachments), Food Cutters, Meat and Food Choppers, Coffee and Spice Mills, Potato Peelers, Vegetable Slicers and Meat and Bread Slicers. These machines are built complete in the Hobart Factories and are powered by *fully guaranteed* Hobart-built Electric Motors.

Where Used

Hundreds of thousands of Hobart Machines are in daily use and are regarded as standard equipment by outstanding hotels, hospitals and other institutions, restaurants, cafes and bakeries. A list of users will be furnished on request.

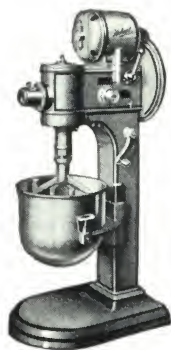


Hobart Super Mixer
Capacity of bowl is 80 qts. 40, 30 and 20-qt. bowls available



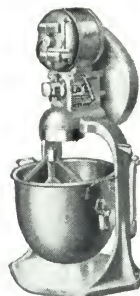
Hobart Model S-60 Mixer

Capacity of bowl is 60 qts. 30-qt. bowl also available



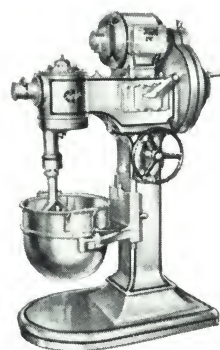
Hobart Model KP-20 Mixer

Capacity of bowl is 20 qts.



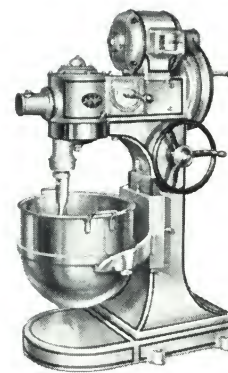
Hobart Model C-10 Mixer

Capacity of bowl is 10 qts. 3-qt. bowl also available



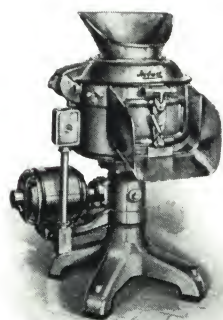
Hobart Model S-30 Mixer

Capacity of bowl is 30 qts. 20-qt. bowl also available



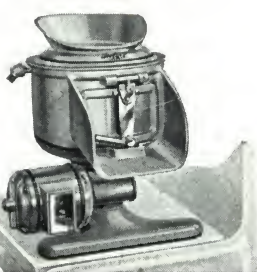
Hobart Model T-80 Mixer

Capacity of bowl is 80 qts. 40, 30 and 20-qt. bowls also available



Hobart Potato Peeler
Model 6020

Hobart Potato Peelers are built in three sizes ranging in capacities from 12 to 45 lbs. of potatoes peeled in 90 seconds with a new low level of 10% peel loss



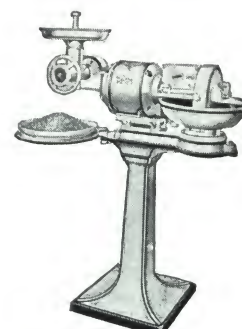
Hobart Bench Type Potato Peeler
Model 6015

Hobart Vertical Mixers

Sizes—Hobart Mixers are built in 3, 5, 10, 15, 20, 30, 40, 60 and 80-qt. sizes. There is a model to fit any size kitchen or task. The motors range from $\frac{1}{16}$ to 2 hp.

Functions—Hobart Mixers will mix bread, rolls, pie, cake and all pastries; blend mayonnaise and other dressings; mash potatoes; beat eggs, batters, custards, and other mixtures; whip cream, icing, marshmallow, meringue, etc.

With attachments they chop meats, fruits, vegetables, etc.; grind coffee, spices, cereals; slice potatoes, vegetables, fruits; crumb dry bread, cakes, crackers; sieve fruits, sauces, pumpkin, etc.; strain soups, purees, etc.



Hobart Food Cutter
Model T-215-GA

Hobart Food Cutters are made in two sizes. They represent a great advance over ordinary cutters in speed, thoroughness, safety, ease of cleaning and economy of space. They will cut all vegetables and firm fruits, coconut, citron, nuts, boiled eggs, meats—practically any food

Service Department

Hobart is ready at all times to co-operate with architects. The Architect's Data Book, A.I.A. File No. 31h2, which contains weights, dimensions, capacities and technical details of all Hobart Machines, will be furnished on request. A nation-wide corps of Factory-trained Service Men can quickly make any necessary adjustments or repairs.

Advantages

Hobart Machines are speedy. They prepare all foods with great savings in time, labor and materials. Their vigorous mechanical action and perfect blending of all ingredients improve the flavor of all foods.

READ MACHINERY COMPANY, INC.

Manufacturers of Bakery Machinery

YORK, PA.

SALES AGENCIES IN ALL PRINCIPAL CITIES

Products

Complete EQUIPMENT for BAKERIES; MIXING MACHINES for hotels, restaurants, hospitals, institutions, etc.

Service Department

The READ MACHINERY COMPANY, INC., is a specialist in modern bakery equipment. An extensive service department is maintained and is available at all times to architects. Our engineers will gladly co-operate with and assist architects when planning bakeries, kitchens for hotels, hospitals, restaurants and institutions without cost, and will furnish drawings and specifications.

Layouts, data sheets, general catalogues, photographs, standard specifications and preliminary drawings are supplied on request and are part of the service offered by this Company.

Read Vertical Mixers

For use in bakeries, also pastry and kitchen departments.

The mixer is made in five models. Entire operation of machine controlled by one lever, accessible from three sides, which starts and stops motion of beaters and gives variable speeds.

Beaters are rapidly attached or detached by spring clip.

Bowls are mechanically raised by hand wheel and are easily removable.

All parts accessible and easily cleaned. Supplied with motor or belt drive.

All models are of heavy construction, simple to operate, silent running and practically foolproof. Maintenance cost is low. Wide range of work. Used for every kind of mixing, beating, whipping and creaming operation.

An auxiliary drive socket is placed on the left side of Types "G," "D," "H" and Master Mixer at no additional cost for the operation of attachments, such as—meat grinder, coffee mill, vegetable slicer, bread crumbler, nut grater, ice crusher, etc.

CAPACITY, DIMENSIONS AND WEIGHT, VERTICAL MIXERS

Type	Max. cap., qt.	Motor, h.p.	Floor space, in.	Height, in.	Weight, lb.
G	30	1½	24 x 34	63	900
G	60	¾	24 x 37	63	900
D	80	1	24 x 44	69	1,400
H	100	2 & 3	27½ x 44	69½	1,850
Master	140	3 & 5	34 x 43½	66	2,435

Read "Mixonette" (General Use)

The "Mixonette" has been designed to perform the various kitchen duties in hotels, restaurants, hospitals, institutions,



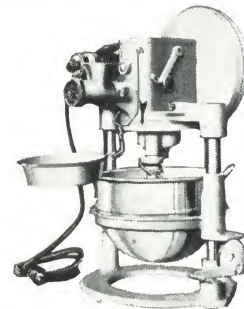
cafeterias, clubs, soda fountains, and also for mixing work in bakeries and candy factories.

Used for mixing, beating, whipping, grating, slicing, straining, mashing, grinding, etc.

Has all the favorite and exclusive Read features—the frame is of rigid construction with all parts accurately machined; selective type of transmission two speeds; gears run in grease; oilless bushings used throughout; one lever controls the speeds and starts and stops the motion of the beater. A driving socket is provided at head of machine, used for operating special attachments.

Standard equipment supplied—12-qt. bowl, wire whip and batter beater. 5-qt. equipment furnished at slight additional cost.

The driving socket can be used for operating meat grinder, coffee mill, vegetable slicer, bread crumbler, nut grater, and other attachments which can be furnished when ordered.



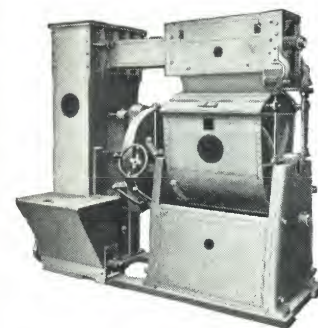
Read "Mixonette"

"MIXONETTE" CAPACITY, DIMENSIONS AND WEIGHT

Capacity, qt.	Standard motor, h.p.	Base size, in.	Height, in.	Weight, lb.
5 and 12	¾	19x14½	28	175

Read No. 5 Automatic Sifting and Mixing Outfit

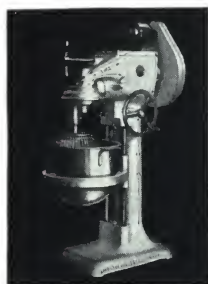
Outfit consists of a flour dump bin, elevator, conveyor, cone sifter and single-arm mixer. (The size of the mixer determines the size of the outfit.) It is a self-contained unit and is shipped completely assembled. Flour is automatically carried from the dump bin to the cone sifter where it is thoroughly cleaned and aerated and then deposited into the mixer. Doughs are rapidly and thoroughly mixed in the single-arm dough mixer.



Read No. 5 Automatic Sifting and Mixing Outfit

CAPACITY, WEIGHT AND DIMENSIONS, READ NO. 5 OUTFIT

Size, lb. of flour	Capacity, liquid, gal.	Weight, lb.	Over-all height, in.	Floor space, in.
200	58	2,800	82	92½ x 46
300	82	3,600	88	96 x 49
400	110	3,909	90	99 x 52



Model G



Model D



Model H



Master Mixer

THE ALUMINUM COOKING UTENSIL CO.

NEW KENSINGTON, PA.

BRANCH OFFICES

BALTIMORE, MD., 608 Lexington Building
BOSTON, MASS., 1027 Statler Building
CHICAGO, ILL., 111 West Washington Street
CINCINNATI, OHIO, 1200 American Building
CLEVELAND, OHIO, 962 Hanna Building
DALLAS, TEX., 907 Southwestern Life Building

EAST ST. LOUIS, ILL., 33rd Street and Missouri Avenue
MINNEAPOLIS, MINN., 704 First National-Soo Line Building
NEW YORK, N. Y., 393 Seventh Avenue
OAKLAND, CAL., 45th and Adeline Streets
PHILADELPHIA, PA., 1306 Commonwealth Title & Trust Co. Building
PORTLAND, ORE., 306 Title & Trust Building

Products

"WEAR-EVER" ALUMINUM STEAM JACKETED KETTLES and URNS; RANGE UTENSILS.

The Company and Its Products

For 30 years THE ALUMINUM COOKING UTENSIL CO. has manufactured and distributed "Wear-Ever" aluminum cooking utensils for use not only in homes, hospitals, hotels and on shipboard, but everywhere that cooking is done.

Constant advertising during these years has brought a recognition of the value of aluminum from housekeepers, chefs and stewards. Each year it has also secured the approval of an increasing number of architects.

Advantages of Aluminum for Cooking Utensils

Lightness—Bulk for bulk, the weight of aluminum is about one-third that of iron or tin, three-tenths that of copper and one-quarter that of silver. This difference in weight means much in the hot, hurried conditions of some kitchens.

Heat Conductivity and Specific Heat—In heat conductivity, aluminum ranks twice as high as tin and three times as high as iron. In specific heat (heat retaining ability) aluminum outranks all metals by a large margin. The combination of these two characteristics makes aluminum pre-eminently suitable for cooking. By its use an even cooking temperature is easily maintained. Aluminum vessels cook not only from the point under which heat is applied, but also from every other point where the utensil is in contact with the food.

Non-effect of Acids on Aluminum—Aluminum is not affected by food acids. Theoretically there is some action—practically there is none. Most important of all is the fact that any



such action that could possibly take place would not produce a combination that would be poisonous.

Aluminum never forms a poisonous compound with any food. It is therefore unnecessary to tin the surface of an aluminum utensil as is the case with other metals such as copper.

Economy and Durability—"Wear-Ever" utensils are good for years of continuous service. They are decidedly economical,

for not only is there no tinning expense, but there is no time lost in sending out the utensils to be tinned. One large nationally known hotel put in a complete equipment of "Wear-Ever" at a total cost of \$2300, and, according to their own statement, have saved \$100 in tinning bills every month since the equipment was installed.

Sanitary Qualities and Non-absorption of the Surface—The metal used in "Wear-Ever" equipment is rolled under tremendous pressure, giving a sheet that is hard, dense, and smooth. It is easy to clean, and because of its density, food will not penetrate the pores of the metal and later contaminate other foods cooked therein.

Special Consultation Services to Architects

At each of the branch offices listed above, there is a man who, through years of training and experience is able to render valuable assistance to an architect in laying out kitchen equipments and in writing specifications. These men are glad to render assistance when asked to do so.

Catalogue

An 80-page book and catalogue showing the complete line of jacketed equipment and range utensils will be sent promptly in answer to a request sent either to the home office or to any of the branch offices.



Horn & Hardart Baking Co., New York, N. Y.



Georgetown University, Washington, D. C.



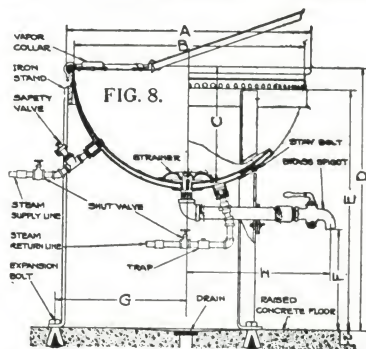
State Hospital, Morgantown, N. C.

A Few Typical Installations of "Wear-Ever" Kettles



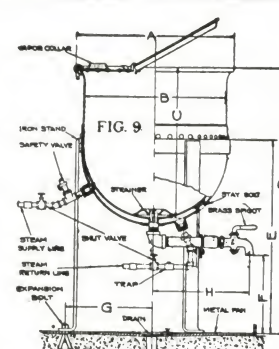
Steam Jacketed Kettle Type 1

This kettle is jacketed to the top, insuring maximum results. Its uses are many and varied—roasting meat, canning and preserving fruits, etc. Being shallow and broad, it is ideal for cooking cereals of all kinds and dried fruits. The fruit is not crushed by its own weight as it would be in a deeper, narrower kettle.

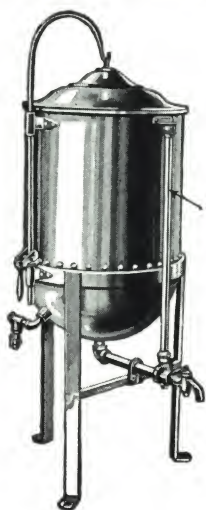


Steam Jacketed Kettle Type 3

This kettle is jacketed two-thirds of the way up and offers maximum cooking capacity for the floor space occupied. It is particularly recommended for cooking delicate foods. Scorching is prevented by the evenness of the heat distribution and the ease in controlling the amount used. Foods and meat allowed to stand in "Wear-Ever" steam jacketed kettles will not darken.

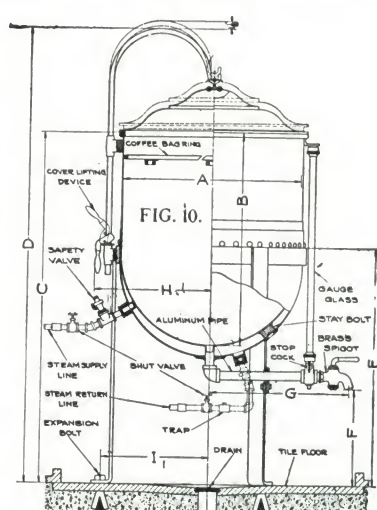


DIMENSIONS OF TYPE No 1 STEAM JACKETED KETTLES													DIMENSIONS OF TYPE No 3 STEAM JACKETED KETTLES																	
CAPACITY IN GALLONS	5	10	15	20	25	40	50	60	75	100	125	150	5	10	15	20	25	30	40	45	50	60	75	80	100	125	150	200	250	300
A	18 1/2	22 1/2	25 1/2	27 1/2	29 1/2	33 1/2	37 1/2	39 1/2	41 1/2	44 1/2	50 1/2	52 1/2	15 1/2	18 1/2	20 1/2	22 1/2	23 1/2	23 1/2	26 1/2	26 1/2	28 1/2	30 1/2	33 1/2	36 1/2	43 1/2	46 1/2	55 1/2	55 1/2	57 1/2	
B	17 1/2	21 1/2	24 1/2	26 1/2	28 1/2	32 1/2	36 1/2	38 1/2	40 1/2	42 1/2	48 1/2	50 1/2	14 1/2	16 1/2	18 1/2	20 1/2	21 1/2	21 1/2	24 1/2	24 1/2	26 1/2	28 1/2	30 1/2	32 1/2	39 1/2	42 1/2	51 1/2	51 1/2	53 1/2	
C	8 1/2	10 1/2	12 1/2	13 1/2	14 1/2	16 1/2	18 1/2	19 1/2	20 1/2	21 1/2	24 1/2	25 1/2	10 1/2	15 1/2	18 1/2	20 1/2	21 1/2	21 1/2	24 1/2	24 1/2	26 1/2	28 1/2	30 1/2	32 1/2	39 1/2	42 1/2	51 1/2	51 1/2	53 1/2	
D	29	30	31 1/2	32 1/2	34 1/2	37 1/2	38 1/2	39 1/2	41 1/2	42 1/2	43 1/2	45 1/2	32 1/2	36 1/2	37 1/2	38 1/2	39 1/2	41 1/2	44 1/2	45 1/2	47 1/2	48 1/2	50 1/2	52 1/2	52 1/2	50 1/2	52 1/2	51 1/2	56 1/2	59 1/2
E	26 1/2	27 1/2	28 1/2	29 1/2	30 1/2	33 1/2	34 1/2	35 1/2	37 1/2	38 1/2	39 1/2	41 1/2	29 1/2	29 1/2	28 1/2	31 1/2	31 1/2	31 1/2	33 1/2	33 1/2	34 1/2	35 1/2	36 1/2	36 1/2	38 1/2	38 1/2	38 1/2	42 1/2	42 1/2	43 1/2
F	14 1/2	13 1/2	12 1/2	12 1/2	13 1/2	14 1/2	13 1/2	13 1/2	13 1/2	11 1/2	11 1/2	10 1/2	15 1/2	12 1/2	12 1/2	12 1/2	14 1/2	14 1/2	13 1/2	13 1/2	13 1/2	12 1/2	13 1/2	13 1/2	13 1/2	13 1/2	13 1/2	12 1/2	12 1/2	12 1/2
G	10 1/2	12 1/2	13 1/2	14 1/2	15 1/2	18 1/2	19 1/2	20 1/2	22 1/2	23 1/2	26 1/2	27 1/2	9 1/2	10 1/2	11 1/2	12 1/2	12 1/2	12 1/2	14 1/2	14 1/2	15 1/2	16 1/2	17 1/2	17 1/2	18 1/2	18 1/2	22 1/2	24 1/2	29 1/2	30 1/2
H	14 1/2	15 1/2	16 1/2	17 1/2	17 1/2	19 1/2	21 1/2	22 1/2	26 1/2	27 1/2	31 1/2	31 1/2	15 1/2	15 1/2	15 1/2	16 1/2	16 1/2	17 1/2	17 1/2	18 1/2	18 1/2	21 1/2	21 1/2	23 1/2	23 1/2	25 1/2	28 1/2	29 1/2	34 1/2	37 1/2
NUMBER OF LEGS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
NUMBER OF STAY BOLTS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STEAM INLET DIAM.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1
STEAM OUTLET DIAM.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1
SAFETY VALVE SIZE	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	1	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
KETTLE OUTLET DIAM.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
VAPOR COLLAR DIAM.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	2	2	2	2	2	2	2	3	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2



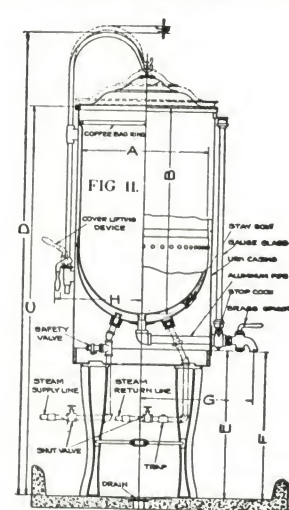
Liberty Urn

The Liberty urn is an outgrowth of the United States Government's need for a plain urn that could be produced quickly in large quantities. Like all other "Wear-Ever" equipment, it requires no tinning, and, because of its shape, is easily and quickly cleaned. Its entire surface, inside and outside, is readily accessible. Because of simplicity of construction, cost of labor and material to make it is comparatively small; the selling price is quite reasonable. Arrow shows glass gauge protected by aluminum tubing indicating contents in gallons.



Encased Urn

The encased urn is more beautiful than the Liberty urn and consequently is preferable if appearance is of greater importance than utility or price. Both this urn and the Liberty urn are fitted with covers, cover lifting device, stand, gauge glass protected by aluminum tube which also forms an indicator showing the contents of the urn in gallons, 1-in. spigot, steam inlet and outlet and ring for coffee bag (coffee bags not supplied). The 20 and 25-gal. sizes can be furnished either with or without cover lifting device.



DIMENSIONS OF LIBERTY URNS													DIMENSIONS OF ENCASED URNS												
CAPACITY IN GALLONS	20	30	40	50	60	70	80	90	100	120	125	150	15	20	30	40	50	60	70	80	90	100	125	150	
A	18	21	21	24	26	26	30	30	33	33	33	33	16	18	21	21	24	26	26	30	30	33	33	33	
B	24	24	31	30	30	34	31	35	38	38	40	47	26	28	27	34	33	33	37	34	37	40	43	49	
C	43	45	51	50	50	54	52	55	58	58	59	66	52	54	53	60	59	59	63	60	58	62	64	70	
D	54	57	64	64	65	69	68	71	74	75	77	84	63	65	66	72	73	74	78	76	75	78	81	88	
E	28	31	31	33	34	34	36	36	36	36	36	36	20	20	20	20	20	20	20	20	20	20	20	20	
F	13	14	14	14	13	13	14	14	13	13	13	13	20	20	20	20	20	20	20	20	20	20	20	20	
G	16	17	17	19	20	20	22	22	22	23	23	23	16	17	18	18	20	20	20	21	21	23	23	24	
H	12	14	14	15	16	16	18	18	18	20	20	20	16	17	18	18	20	20	20	21	21	23	23	24	
I	11	12	12	14	15	15	17	17	17	18	18	18	16	17	18	18	20	20	20	21	21	23	23	24	
NUMBER OF LEGS	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	
NUMBER OF STAY BOLTS	—	—	—	—	—	—	—	—	—	3	3	3	—	4	4	4	4	4	4	4	4	4	4	4	
STEAM INLET DIAM.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	
STEAM OUTLET DIAM.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	
SAFETY VALVE SIZE	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	1	1	1	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	
KETTLE OUTLET DIAM.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	

Kettles and Urns for Hotels, Restaurants and Hospitals

The uses of the kettles and urns illustrated are described under the illustrations of each type. The number of each to use for various conditions is given under the general notes.

Standard Specifications

Furnish and install where shown on plans, "Wear-Ever" kettles and urns as follows.

Type No. 3 Kettle—..... (quantity) "Wear-Ever" aluminum steam jacketed kettle(s), gal. capacity, Type No. 3, two-thirds jacketed, complete with machine steel stand, safety valve, hinged cover, aluminum draw-off pipe, faucet, strainer and collar for vapor pipe. Kettles to be constructed so that steam inlet and outlet fittings can be easily removed. Baffle plate and inlet fitting shall be integral. Both shell and jacket to be made from cold rolled, hard, thick sheet aluminum, and joined together by a line of rivets spaced not more than 2½ in. on centers. Edge of jacket where it comes in contact with shell to be welded to the shell by the oxy-acetylene process. (Kettles 100 gal. and larger shall have shell and jacket stayed with 3 tubular stays.) Legs of the stand to be welded securely to the stand and draw-off support to be attached to legs by the electric arc welding process.

Type No. 1 Kettle—..... (quantity) "Wear-Ever" aluminum steam jacketed kettle(s), gal. capacity, Type No. 1, full jacketed, complete with machine steel stand, safety valve, hinged cover, aluminum draw-off pipe, faucet, strainer and collar for vapor pipe. Kettle(s) to be constructed so that steam inlet and outlet fittings can be easily removed. Baffle plate and inlet fitting shall be integral. Both shell and jacket to be made from cold rolled, hard, thick sheet aluminum and joined together by a line of rivets spaced not more than 2½ in. on centers. Edge of jacket where it comes in contact with shell to be welded to shell by oxy-acetylene weld. (Kettles 60 gal. and larger shall have shell and jacket stayed with 3 tubular stays.) Legs of the stand to be welded securely to the stand and draw-off support is to be attached to legs by electric arc welding process.

Liberty Urn—..... (quantity) "Wear-Ever" aluminum Liberty institution urn(s), steam jacketed, gal. capacity, complete with stand, safety valve, draw-off pipe, faucet, gauge glass, dome-shaped cover, cover lifting device and coffee bag ring. To be made of two hard sheet aluminum plates joined together with one row of round head aluminum rivets spaced not more than 2½ in. on centers. Edge of jacket where it comes in contact with shell to be welded to shell by the oxy-acetylene process. Urn(s) to be constructed so that steam inlet and outlet fittings can be easily removed. Baffle plate and inlet fittings shall be integral. Legs to be welded securely to stand and draw-off support to be attached to legs by electric arc welding process. Urn(s) to have ¾-in. cold water inlet fitting placed in back and as near top as possible. To have indicator bar spaced in multiples of 5 gal., said indicator bar and gauge glass protector to be one and the same.

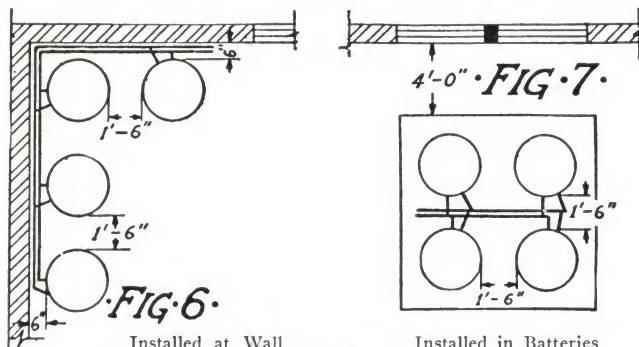
Encased Urn—..... (quantity) "Wear-Ever" aluminum encased institution urn(s), steam jacketed, gal. capacity. Body made of two hard sheet aluminum plates joined together with one line of round head aluminum rivets, spaced not more than 2½ in. on centers and welded by the oxy-acetylene process. Body to be encased in highly polished sheet aluminum casing, fitted on black enameled legs, and fitted with high grade faucet, dome-shaped cover, cover lifting device and coffee ring bag. Urn(s) to be constructed so that steam inlet and outlet fittings can be easily removed. Baffle plate and inlet fittings shall be integral. Urn(s) to have ¾-in. cold water inlet fittings placed in back and as near top as possible. To have indicator bar spaced in multiples of 5 gal., said indicator bar and gauge glass protector to be one and the same. All connections of steam pipe, etc., will be made under another contract.

General Notes—Kitchen Location—Space and design permitting, kitchen should be a one-story wing with windows on opposite sides and monitor roof to provide maximum ventilation. Avoid locating kitchen in basement. In hotels, group the dining rooms with service pantries around kitchen. General hospitals require a different arrangement, as general diet is cooked in main kitchen and distributed to ward dining rooms by dumb-waiters or trucks on elevators.

Kitchen Construction—Experts recommend quarry tile, enameled brick, glazed or matt tile or concrete for floor finish in the order named; for walls, a wainscot 6 ft. high of enameled brick or tile.

Kitchen Arrangement—Jacketed kettles are best arranged in batteries away from walls and directly under monitor skylight or hood to carry off vapors. Minimum space given in Figs.

6 and 7 is for cleaning purposes. Less space will not affect efficiency of apparatus. Vapor exhaust pipes are not recommended, but when used they should be of Monel metal.



Installed at Wall Installed in Batteries
Typical "Wear-Ever" Kettle Arrangement

Steam Mains—2-in. for 20 kettles or less, when kettles are near boiler and steam main properly insulated; 3-in. when pipes have many turns or valves, are not insulated or kettles are a great distance from boiler.

Aisle Space—Should be ample to insure efficient serving. Where trucks are used, minimum aisle width is 4 ft.

Kettle Sizes—Depend on number of persons served and time allowed for it. The following figures will serve as a guide for the number, type and size required.

Hotels	
100 rooms.....	One 40-gal. Type 3, complete with hinged cover
	One 50-gal. Type 3, complete with hinged cover
200 rooms.....	One 25-gal. Type 3, complete with hinged cover
	One 10-gal. Type 3, solid bottom, no cover
	One 75-gal. Type 3, complete with hinged cover
500 rooms.....	Three 60-gal. Type 3, complete with hinged cover
	One 20-gal. Type 3, solid bottom, no cover
	Two 100-gal. Type 3, complete with hinged cover
	Two 75-gal. Type 3, complete with hinged cover
800 rooms.....	One 60-gal. Type 3, complete with hinged cover
	One 25-gal. Type 3, solid bottom, no cover
	One 40-gal. tilting kettle
	Four 100-gal. Type 3, complete with hinged cover
1000 rooms.....	Three 80-gal. Type 3, complete with hinged cover
	One 60-gal. Type 3, complete with hinged cover
	One 25-gal. Type 3, complete with plain cover
	One 25-gal. Type 3, solid bottom, no cover
	One 60-gal. tilting kettle
Hospitals	
50 beds.....	One 25-gal. Type 1, complete with hinged cover
	One 25-gal. Type 1, complete with hinged cover
150 beds.....	One 40-gal. Type 1, complete with hinged cover
	One 30-gal. urn (encased or Liberty)
	Two 60-gal. Type 1, complete with hinged cover
250 beds.....	One 50-gal. urn (encased or Liberty)
	One 10-gal. Type 1, solid bottom, no cover

Installation Notes—Equip steam inlet of each fixture with safety valve and globe type shut valve. Equip steam outlet pipe of each fixture with automatic steam trap and globe type shut valve. Where steam pressure exceeds 40 lb. per sq. in., a reducing valve must be installed in main line. Concealing supply and return pipes is not recommended. Suitable covering of pipes up to fixtures is advised.

References

Following is a partial list of hotels and hospitals in which "Wear-Ever" kettles are installed, giving building, location and architect.

Hotels
St. Francis, San Francisco, Cal., Bliss & Faville, San Francisco
Los Angeles Biltmore, Los Angeles, Cal., Schultz & Weaver, New York, N. Y.
Ambassador, Los Angeles, Cal., Myron Hunt, Los Angeles, Cal.
Raddison, Minneapolis, Minn., Long, Lamoreaux & Long
Miami, Dayton, Ohio, H. L. Stevens Co., Chicago, Ill.
Hollenden, Cleveland, Ohio, Watson Co., Cleveland, Ohio
Washington (D. C.), Carrere & Hastings, New York, N. Y.
Monticello, Norfolk, Va., Peebles & Ferguson, Norfolk, Va.
Sylvania, Philadelphia, Pa., Leroy B. Rothschild, Philadelphia
New Yorker, New York, N. Y.
Robert Treat, Newark, N. J., Guilbert & Betelle, Newark, N. J.
The Kimball, Springfield, Mass., S. M. Green Co., Springfield
Edgewater Beach, Chicago, Ill., Fugard & Knapp, Chicago, Ill.
Grand Canyon Hotel, Yellowstone Park, R. C. Reamer, Seattle

Hospitals
St. Mary's, Rochester, Minn., C. H. Johnston, St. Paul, Minn.
Lakeside, Cleveland, Ohio, Coolidge & Shattuck, Boston, Mass.
Christ, Cincinnati, Ohio, Teitig & Lee, Cincinnati, Ohio
Brooklyn, Brooklyn, N. Y., Lord & Hewlett, New York, N. Y.
Cook Co., Chicago, Ill., Paul Gerhardt, Chicago, Ill.
Barnes, St. Louis, Mo., Trueblood & Graf, St. Louis, Mo.

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Coffee Urns, Urn Stands, Milk and Cream Dispensers.

Kitchen Equipment:

Ranges, Hoods, Cooks' Tables, Work Tables, Pot Racks, Steam Cookers, Meat Roasters, Sinks, Dishwashers, Dish Tables, Bake Ovens, Potato Peelers.

Cafeteria Equipment:

Cafeteria Counters, Steam Tables, Cold Bain Marie Pans, Display Cases.

For our page on Heavy Duty Kitchen Sinks and Cooks' Tables refer to Manufacturers' Index.



Installations

The following are the names of a few representative institutions using *Blickman* equipment:

Schools

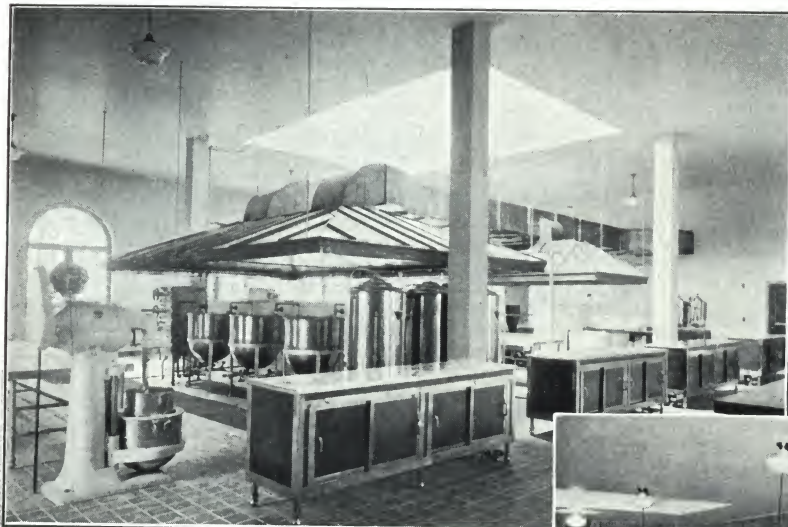
Monastery of Immaculate Conception, Jamaica, L. I., N. Y.
Memorial High School, West New York, N. Y.
Newman High School, Lakewood, N. J.
Sessions Street School, Providence, R. I.
Esek Hopkins Junior High School, Providence, R. I.
George J. West Junior High School, Providence, R. I.
Cranston High School, Cranston, R. I.
The Bridgham School, Providence, R. I.
Francis Junior High School, Washington, D. C.
Randall Cardoza Junior High School, Washington, D. C.
Hine Junior High School, Washington, D. C.
Stuart Junior High School, Washington, D. C.
Coughlin High School, Wilkes-Barre, Pa.
Andrew Curtin High School, Williamsport, Pa.
Miami High School, Miami, Fla.

Hospitals

U. S. Naval Hospital, Puget Sound, Washington
Brooklyn State Hospital (State of New York, Creedmore, L. I.)
Harlem Valley State Hospital (State of New York, Wingdale)
New York State Psychiatric Hospital (State of New York, 168th Street and Haven Avenue, New York, N. Y.)
Rochester State Hospital, Rochester, N. Y.
St. Peter's Hospital, Albany, N. Y.
U. S. Naval Hospital, Chelsea, Mass.
North Hudson Hospital, Weehawken, N. J.
St. Luke's Hospital, Bethlehem, Pa.
Community Hospital, Glasgow, Ky.
Community Hospital, Wauseon, Ohio
Community Hospital, Beloit, Kansas

Institutional, Industrial and Commercial Installations

Hudson County Parental Home, Bayonne, N. J.
New Jersey State Reformatory, Amundale, N. J.
Textile Dyeing Co., of America, Hawthorne, N. J.
Catholic Home for the Aged, Syracuse, N. Y.
National Biscuit Co., New York, N. Y.
Lehigh County Home, Wescosville, Pa.
Howland Department Store, Bridgeport, Conn.
Y. W. C. A., Syracuse, N. Y.
Standard Underground Cable Co., Perth Amboy, N. J.
Rio de Janeiro Tramway Light & Power Co., Rio de Janeiro, Brazil



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ESTABLISHED 1901

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Proved by Many Years of Service

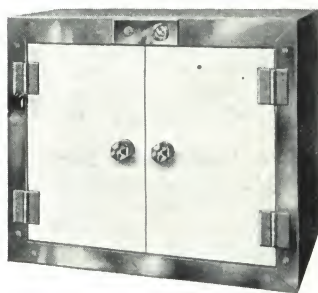
Since 1901 Prometheus Electric products have enjoyed a reputation for quality and long service.

Prometheus appliances are extensively used in residences, hotels and clubs of the highest class, including the Astor, Cosden, Patterson, Deering, Ford, Frick, Harriman, Rockefeller, Schiff, Speyer and Vanderbilt residences, the Brook Club, Hotel Sherry-Netherland and the Waldorf-Astoria. Notwithstanding their high quality, their moderate prices make them available for residences and apartments of moderate cost.

Architects who specify Prometheus specialties include Eberson & Eberson, Delano & Aldrich, Schultze & Weaver, Walker & Gillette, and Charles A. Platt, of New York; Meade & Hamilton of Cleveland; and Hoffman-Henon Co. of Philadelphia.

Prometheus Plate Warmer

Used in the butler's pantry, kitchen, or hospital ward for warming dishes and food. Prevents breakage of china and preserves the original delicious flavor of the food. Operates by a mere turn of the three-heat electric switch—no fire, smoke, steam or odor. Approved by the National Board of Fire Underwriters.



Construction—Substantial welded angle iron frame with double walls, thoroughly lagged. Shelves built on heavy iron rod, and supported on angle iron brackets. All interior fittings are removable. Can be had with vitreous enamel doors in white or color, also with monel metal top which can be used as a hot plate. All fittings are chrome plated.

Thermostatic Cut-off and

Heating Element—By a patented arrangement, the heating units are contained in shallow flues, attached to the walls of the interior, so that water or gravy which may be spilled can not cause a short circuit. Heating elements never become red-hot. Can also be had with a patented thermostatic cut-off.

Although plate warmers are usually built to architect's specifications, we also make the following stock sizes:

Type	Outside dimensions			Current consumed, watts
	Wide	High	Deep	
800	18"	18"	18"	400
801	18"	18"	18"	400
802	25"	24"	18"	600
804	36"	30"	20"	800

Outside finished in Russia iron. Doors finished in porcelain enamel. All types except No. 800 have chrome plated trimmings. When ordering plate warmers to be built to specifications, kindly give the following information:

Trim Extension—This is the distance the chrome plated trim should extend beyond the body of the plate warmer in order to cover up the crevice between the wall and the plate warmer if the plate warmer is of the built-in type. Otherwise the trim will be flush with the body.

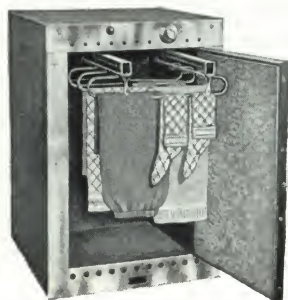
Position of Leads—Leads may be brought out at any specified point.

Voltage—Do not fail to give the voltage of the line on which the plate warmer is to operate.

Blue Prints—Write for blue prints.

Clothes and Towel Dryer

Usually built to order to fit space available. There are two stock sizes: No. 810, 2 towel racks, 20 in. wide, 30 in. high, and 22 in. deep, \$125.00. No. 812, 4 towel rack, 36 in. wide, 30 in. high, and 22 in. deep, \$150.00.



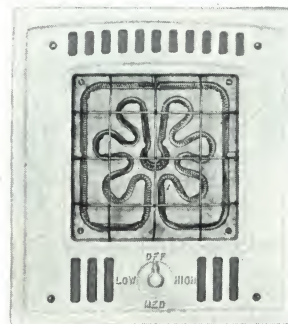
PROMETHEUS
TRADE-MARK

Flush Type Bathroom Heater

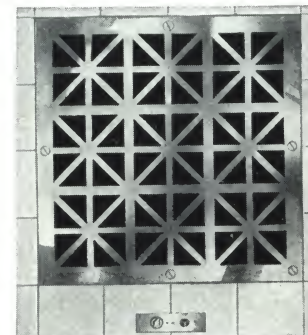
The new type 370 bathroom heater has a heavy cast iron face plate, covered with vitreous porcelain enamel. Supplied in a variety of colors.

The three-heat switch is built into the heater.

The heating element is protected with a monel metal guard.



Type 370 and 371



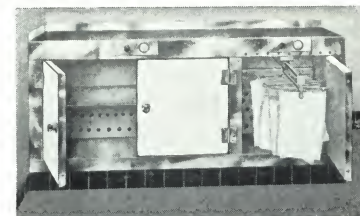
Type 350 and 351

The type 350 heater has a highly polished monel metal grill. The heating element is of the convection type, insuring an even distribution of heat throughout the bathroom.

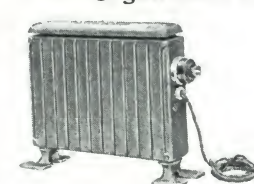
Type No.	Watts	Register		Body		
		Height	Width	Height	Width	Depth
370	1500	16½"	15"	15½"	12"	4"
371	2000	16½"	15"	15½"	12"	4"
350	800	15"	15"	13½"	13½"	3½"
351	1500	15"	15"	13½"	13½"	3½"

Combination Plate Warmers and Towel Dryers

For kitchens and serving pantries in residences and clubs. They are built in two sections. One has shelves and serves as a plate warming cabinet, while the other, fitted with racks, serves for drying towels. Built to specifications.



Prometheus Thermostatically Controlled Electric Organ Loft Heater



A specially designed Prometheus thermostatically controlled heater for pipe-organ room heating. Maintaining an even temperature, it protects organs against cold and deterioration from dampness.

Three sizes: No. 331, 1000 watts and No. 332, 2000 watts. Both 16 in. long, 14½ in. high, 4 in. deep.

Prometheus Electric Radiators

These heaters are for permanent heating service. They are of the convection type—similar to a steam or hot water radiator. They are attractive in appearance; provide an abundance of clean, uniform heat. Made in sizes up to 3000 watts.



Sterilizers

For dentists, physicians and hospitals are shown in our complete catalogue.

Electric Food Trucks

For economical distribution of food from diet kitchen to wards.

Therapeutic Lamps

A fully illustrated catalogue showing a complete line of infra red and arc lamps.

Write for a complete catalogue of above products.

EDISON GENERAL ELECTRIC APPLIANCE CO., INC.

5600 West Taylor Street, CHICAGO, ILL.

FACTORIES: CHICAGO, ILL., AND ONTARIO, CALIF.

BRANCHES AND FACTORY SERVICE STATIONS

DALLAS BOSTON NEW YORK ATLANTA CHARLOTTE, N. C. CLEVELAND CHICAGO KANSAS CITY
DENVER SALT LAKE CITY LOS ANGELES SAN FRANCISCO PORTLAND, ORE. SEATTLE ONTARIO, CALIF.

Products

EDISON COMMERCIAL ELECTRIC COOKING AND BAKING EQUIPMENT. Architect's Hand Book on Request.

A complete line of electrically heated Bake and Roasting Ovens, Ranges, Broilers, Urns, Steam Tables, Stock and Fry Kettles, Griddles, Waffle Irons and Toasters.

For Hotpoint Electric Water Heaters, Electric Air Heaters, Domestic Electric Ranges, see Manufacturers' Index.

Edison Electric Commercial Cooking Equipment

The EDISON GENERAL ELECTRIC APPLIANCE CO., INC., is the world's largest manufacturer of commercial electric cooking and baking equipment. In thousands of hotels, restaurants, hospitals, clubs and institutions this equipment is giving superior service.

This equipment is the result of fifteen years' experience. The patented Calrod Unit in Edison ranges, etc., provides lasting service, speed in heating up, and above all, dependability. Upkeep of apparatus equipped with this type of unit, particularly hotel range cooking tops, is therefore reduced to a minimum.

Edison Electric Baking and Roasting Equipment

Hotel and restaurant bakers prefer Edison electric ovens for the many advantages obtained, including the better bread and pastries which can be produced. The evenly distributed heat penetrates with equal intensity every portion of the baking chambers. Baking is done to precision—there is no haphazard guesswork.

The design of Edison ovens greatly conserves floor space in hotel and restaurant bakeries, and on account of the fact that there is no ventilation problem, the bakery can be located in the most convenient place.

Diversity of baking can be obtained with Edison ovens through the perfect insulation between compartments and the separately controlled heating elements for each. With a three-deck oven, bread may be baked in one chamber, pies in another and meat may be roasted in the third.

Ovens can be obtained in one, two or three chambers. The Ad-A-Deck type additional chambers can be added at any time to the one or two-deck ovens.

A GENERAL



ELECTRIC

ORGANIZATION

EDISON

Location

Edison electric kitchens and bake shops can be located in any part of a building, wherever space is most economical and convenient, with less consideration to ventilation and other conditions than for any other type of equipment.

Efficiency

When Edison electric cooking equipment is used, all old time requirements for location of the different items in the kitchen layout may be forgotten—positions made necessary due to operating temperatures, flues, fuels, etc. A freedom of arrangement, based only on reducing steps taken by cooks, waiters, busboys, etc., with greatly improved general efficiency and economy is possible.

Space Saving

Due to the flexibility in capacity and arrangement, Edison electric equipment conveniently and easily permits larger production than fuel units of equal size. For instance, three Edison ranges have a production capacity equal to five fuel ranges. Each range is really four in one, due to the four independently controlled hot plates. In the bakery, too, space can be saved. For each deck of the Edison electric oven is, in effect, an entirely separate, independently insulated and controlled oven. Surprisingly economical operation is assured by operating a smaller oven over the longest period of time, rather than a larger oven—or several ovens—for shorter periods.

Edison Kitchen Equipment Service

As the world's largest manufacturer of electric cooking and baking equipment, we have had extensive experience in planning the most efficient, modern electric kitchens. Our specialized experience will be helpful and profitable to you and your clients. Our layout and planning service is offered without cost or obligation.

We can be of the greatest assistance if you will call us in the preliminary stage of planning kitchen or bakery equipment—whether or not you have decided on electric cooking and baking. We guarantee the adequacy of the equipment we recommend. In all cases this will include a sufficiently large reserve capacity to handle any maximum demand that may ever be experienced.

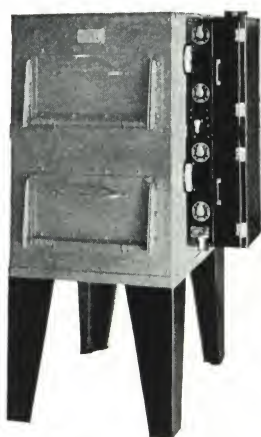


A Corner of Our Layout Service Department



Kitchen and Bake Shop of the New Forum Cafeteria, St. Louis, Mo.

TYPICAL BAKING AND ROASTING OVENS



NA67—Automatic
N67—Non-automatic

Classification—Utility baking oven.

Dimensions—38 in. wide, 39 in. deep, 65½ in. high. Each compartment 18⅝ in. wide, 28¾ in. deep, 8 in. high.

Capacity—Baking area, 7 sq. ft. (20 1-lb. loaves).

Wattage and Voltage—5 kw. Standard voltage—110 or 220 (can be 120, 200 or 240) a-c. (single or 3-phase) or d-c. circuit.

Finish—Standard, battleship gray—black enamel trim. Special, white porcelain, monel, or nickel-chromium steel, with trim to match.



NA57—Automatic
N57—Non-automatic

Classification—“Ad-A-Deck” portable baking oven, sectional type.

Dimensions—62¼ in. wide, 75 in. deep, 77 in. high. Each compartment 37⅝ in. wide, 57 in. deep, 8 in. high.

Capacity—Baking area, 45 sq. ft. (120 1-lb. loaves).

Wattage and Voltage—16.2 kw. Standard voltage—110 and 220 (can be 120, 200 or 240) a-c. (single or 3-phase) or d-c. circuit.

Finish—Standard, battleship gray—black enamel trim. Special, white porcelain, monel or nickel-chromium steel, with trim to match.



NA123—Automatic
N123—Non-automatic

Classification—“Ad-A-Deck” portable roasting oven, sectional type.

Dimensions—56⅞ in. wide, 40⅞ in. deep, 62 in. high. Each compartment 37⅝ in. wide, 28¾ in. deep, 12 in. high.

Capacity—Roasting area, 14 sq. ft. (250 lb. meat, or 40 1-lb. loaves).

Wattage and Voltage—10 kw. Standard voltage—110 or 220 (can be 120, 200 or 240) a-c. (single or 3-phase) or d-c. circuit.

Finish—Standard, battleship gray—black enamel trim. Special, white porcelain, monel, or nickel-chromium steel, with trim to match.

TYPICAL KITCHEN EQUIPMENT



442 R116
Cooking Top Only

Classification—Heavy duty cooking top. (Range also furnished with oven.)

Dimensions—48 in. wide, 43 in. deep, 31¼ in. high. Storage space, width 27 in., depth 29½ in., height, upper compartment 11¼ in., lower compartment 10 in.

Capacity—Area of hot plates, 6 sq. ft. Size of hot plate area, 24x36 in.

Wattage and Voltage—16 kw. Standard voltage—110 or 220 (can be 120, 200 or 240) a-c. (single or 3-phase) or d-c. circuit.

Finish—Black enamel.



435 K11

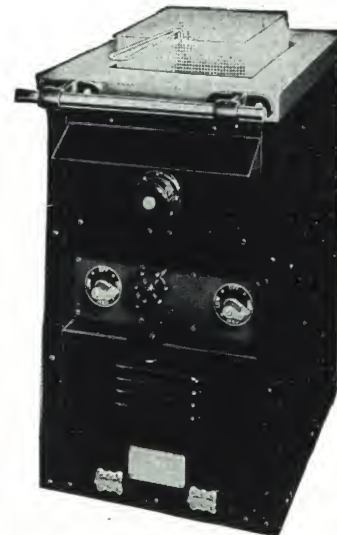
Classification—Stock kettle.

Dimensions—24 in. wide, 27 in. deep, 44¼ in. high. Diameter of container, 18¾ in.

Capacity—20 gal.

Wattage and Voltage—5 kw. Standard voltage—110 or 220 (can be 120, 200 or 240) a-c. (single phase) or d-c. circuit.

Finish—Body—black enamel; top—polished nickel.



434 KA15—Automatic

Classification—Fry kettle.

Dimensions—18¼ in. wide, 28¼ in. deep, 31¼ in. high. Grease container 12 in. long, 16 in. wide.

Capacity—Fat—45 lb.

Wattage and Voltage—4 kw. Standard voltage—110 or 220 (can be 120, 200 or 240) a-c. (single or 3-phase) or d-c. circuit.

Finish—Standard, black japan—polished steel top. Special, polished monel—nickel trim.

THE INTERNATIONAL NICKEL COMPANY, INC.

Monel Metal and Nickel and Allied Products

EXECUTIVE OFFICES

67 Wall Street, NEW YORK, N. Y.

MINES AND SMELTER: Copper Cliff, Ont., Canada

ROLLING MILL AND REFINERY: Huntington, W. Va.

REFINERY: Port Colborne, Ont., Canada

FOUNDRY: Bayonne, N. J.

For Our Other Products, see Manufacturers' Index

Products

MONEL METAL—available from stocks conveniently located throughout the country and made in all commercial forms required by manufacturers of food service equipment. (See Manufacturers' Index, our section on Metals, for commercial forms and location of warehouses.) All necessary accessories such as nuts, bolts, screws, rivets, etc., are also available.



Monel Metal

Monel Metal is a registered trade-mark applied to a technically-controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Advantages of Monel Metal for Food Service Equipment

- (1) Absolutely rustproof.
- (2) Resists corrosion by food juices and fruit acids.
- (3) Strong as steel; tougher than steel.
- (4) Easy to clean; therefore sanitary.
- (5) Beautiful appearance; has color of platinum.
- (6) Durable—proven by over 20 years of service.
- (7) Easily fabricated.

Proven Uses of Monel Metal in Food Service Equipment

Monel Metal is used for all exposed surfaces where appearance, cleanliness, and long life are required in the following types of equipment:

Bake Ovens—Linings, exterior or trim.
Bins (bakers', vegetable, etc.)—All Monel Metal.
Butter Serving Machines—Parts in contact with butter.
Cabinets (kitchen)—All Monel Metal.
Canopies and Hoods—All Monel Metal.
Checkers' Desks—All Monel Metal.
Coolers, Water—Exterior or trim, drains.
Counters (display, cafeteria)—All Monel Metal.
Cutlery Boxes—All Monel Metal.
Dispensers (milk, cream)—Monel Metal exterior or trim, solid nickel lining.
Drainboards—All Monel Metal.
Dish Carriers—All Monel Metal.
Dishwashing Machines—All Monel Metal.
Egg Timers—All Monel Metal.
Fish Chests—All Monel Metal.
Garde Manger—All Monel Metal.
Grills (bacon, etc.)—All Monel or with Monel cooking surfaces.

*Insets (steam tables)—Solid nickel.

*Kettles (steam jacketed)—Solid nickel.

Railings (cafeteria, etc.)—All Monel Metal.

Ranges—Oven linings, fronts, sides, back shelves, flue pipes.

Refrigerators—Linings, facings, trim, shelving.
Shelving—All Monel Metal.

Sinks (vegetable, scullery, dish, etc.)—All Monel Metal.

Slicing Machines—All parts in contact with food.

Steamers (vegetable)—Linings and baskets.

Steam Tables—All Monel or with Monel top and trim.

Tables (bakers', cooks', dish, work, etc.)—Monel Metal top and shelf.

Trucks (food)—All Monel Metal or Monel trimmed.

Urns (coffee, chocolate, hot water)—Linings and exteriors.

Urn Stands—All Monel or with Monel top and trim.

Waffle Irons—Monel exteriors.

Warmers (roll, plate, cup food)—All Monel or with Monel top and trim.

Services

Architects and engineers are invited to make use of the extensive advisory service maintained by this organization. A call to any of our sales offices, listed in our section on Metals, will bring you a Monel Metal specialist. In co-operation with kitchen equipment engineers, Monel Metal specialists can contribute materially in the application of Monel Metal to food service equipment.

Available Publications

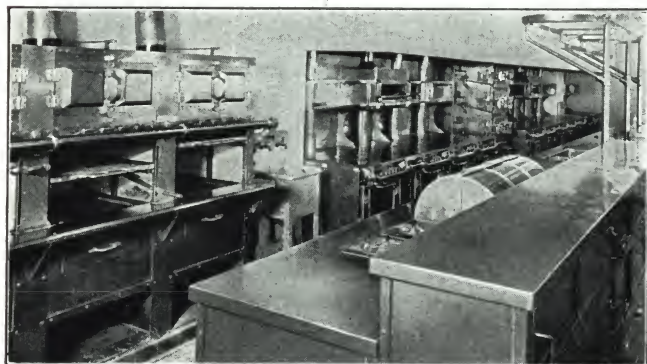
To assist architects and engineers to form a clearer conception of the possibilities for the application of Monel Metal, The INTERNATIONAL NICKEL COMPANY, INC., has prepared a series of reference folders and booklets, available upon request.

"Architects' Food Service Handbook"—A reference book prepared for the profession. Contains complete information on the design and construction of food service equipment, choice of materials of construction and illustrations of correct method of writing specifications for all types of equipment.

"Architects' Reference File"—Series of folders concerning architectural uses of Monel Metal especially prepared for architects and engineers.

- (1) Food Service.
- (2) Hospital.
- (3) Home Kitchen.

*For the actual cooking and storage of foods we recommend solid nickel.



Ranges, Hoods, Ovens and Steamers

Monel Metal Used in Kitchens is Lustrous, Easy to Clean and Well Suited for Exteriors as Well as Linings



Warmers, Storage Cabinets, Coffee Urns and Stands



Monel Metal Counter Linings Are Not Only Pleasing to Patrons' Eyes but Easy to Keep Clean and Sanitary

"Food Service Applications"—A series of illustrated folders describing in pictorial form the applications of Monel Metal to outstanding architectural developments.

- (1) Sherry-Netherlands.
- (2) Girard College.
- (3) Medical Center of New York.
- (4) S.S. Malolo.
- (5) The Stevens Hotel.

"Monel Metal"—"Official Bulletin of Approved Products" by the Investigating Committee of Architects and Engineers.

"Monel Metal in Modern Architecture"—A booklet illustrating various architectural uses to which Monel Metal may be put.

"The Merchandise Mart Restaurants"—An illustrated folder of the kitchen and service equipment in the restaurants in Chicago's Merchandising Mart.

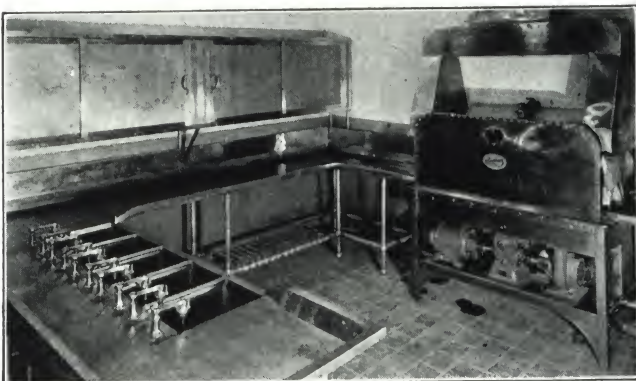
"Traveling in Luxury on a World Famous Train"—A description with photographs of the kitchen equipment of the Twentieth Century Limited.

"Everywhere You Go"—Illustrated booklet showing various food service installations throughout the country.

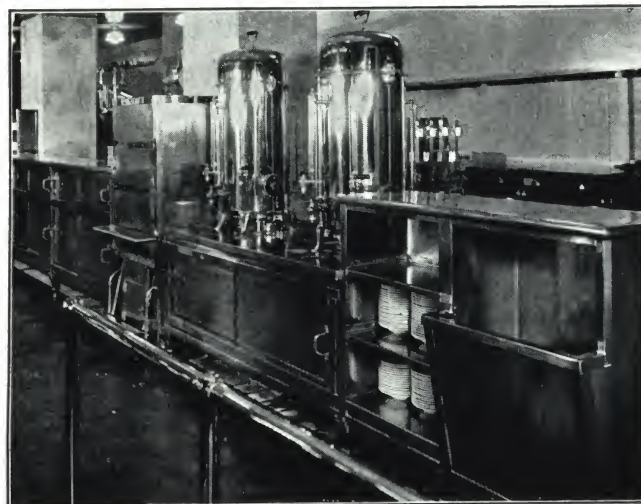
"Relation of Beverage Coffee to Metals"—Dealing with the use of Monel Metal in coffee urns, this booklet is an analysis of the effect of metals on the taste of coffee.

"That the Public May Be Pleased"—The use of Monel Metal in the restaurants of the Savarins, Inc.

"Modern Kitchens"—A handbook of the uses of Monel Metal in all types of food service equipment and dealing with the specification of quality equipment. Included in the book are advertisements of manufacturers of all types of equipment.



Monel Metal Provides a Resistance to Corrosion Which is an Important Feature in Dishwashers, Dish Tables, Sinks and Storage Cabinets



In the Modern Coffee-shop, Monel Metal Serving Counters Are Ornamental as Well as Useful Due to Their Platinum-like Beauty

"Kitchen Police Holds No Terrors at West Point"—A pictorial description of the feeding system of the U. S. Military Academy, showing the newest developments in the design of kitchen equipment.

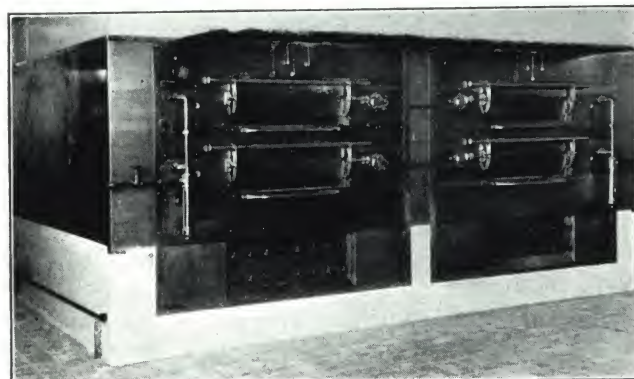
"The Hotel New Yorker"—This new hostelry offers many suggestions in the design of kitchen and "front of the house" service equipment. The many novel features of the installation are completely illustrated and described in this folder.

"Modern Fountains"—A booklet on Monel Metal soda fountains.

Long Service Life of Monel Metal Equipment

Illustrative of the long-service-life of Monel Metal food service equipment are the following prominent installations, a few of the many that are still serving their owners faithfully after years of severe service.

Name	Year Installed
Hotel Statler, Cleveland, Ohio	1912
Hotel Gibson, Cincinnati, Ohio	1913
Claypool Hotel, Indianapolis, Ind.	1914
Angel Guardian Orphanage, Chicago, Ill.	1915
Hotel Statler, Detroit, Mich.	1915
Hotel Blackhawk, Davenport, Iowa	1915
Canadian Pacific Railway Terminal Restaurant, Vancouver, B. C.	1915
Hotel Statler, St. Louis, Mo.	1917
Henry Ford Hospital, Detroit, Mich.	1917
Hotel Biltmore, New York, N. Y.	1917
Hotel Sisson, Chicago, Ill. (name now changed)	1918
Hotel Pennsylvania, New York, N. Y.	1918
Municipal Contagious Disease Hospital, Chicago, Ill.	1918
The Greenbrier, White Sulphur Springs, W. Va.	1920
Chicago Beach Hotel, Chicago, Ill.	1920
Sheridan Plaza, Chicago, Ill.	1921
Wade Park Manor, Cleveland, Ohio	1921
Prudential Life Insurance Company, Newark, N. J.	1922



Monel Metal in Bake Shops Is Used for Work Tables, Storage Bins, etc., as Well as for Bake Oven Facings and Linings

THE JOHN VAN RANGE COMPANY

Equipment for the Preparation and Serving of Food

FACTORY AND GENERAL OFFICES
OAKLEY, CINCINNATI, OHIO

CHICAGO SALES OFFICE
1200 West 35th Street

CLEVELAND SALES OFFICE
450 Terminal Building

DETROIT SALES OFFICE
170 East Larned Street

Products and Services

Everything in EQUIPMENT for the PREPARATION and SERVING of FOOD in Hotels, Restaurants, Clubs, Hospitals, Institutions, Cafeterias, School and Industrial Lunchrooms, Y. M. C. A.'s and similar establishments.

This includes all types of equipment for public service kitchens, cafeterias, coffee shops, lunchrooms and sandwich shops. Van equipment is all designed and built exclusively for public service use and is backed by over 75 years of experience in this field.

Architects, engineers or their clients, we believe, can profit by consulting us on the layout and construction of Kitchen, Cafeteria or Food Service Equipment.

Our many years of service in this field should merit your confidence in discussing your food problems with us.

Capable representatives are at your service.



planning for public and private schools, colleges and universities. \$0.50.

Practical Planning for Club Food Service—

A book of 32 pages covering the increasingly important subject of planning adequate food service for clubs, particularly country clubs. The proper handling of the country club kitchen both as to space and equipment is well covered in this book. \$0.50.

Practical Planning for Church Food Service—

Also a 32-page book which is the only reference material ever published on the subject of proper food service facilities for churches and community houses. \$0.50.

Hotel Planning and Outfitting—

This is an exhaustive textbook of 440 pages covering all phases of hotel planning and equipping. Contains hundreds of valuable plans, tables and illustrations. This book is sold at \$10.00 per copy, which barely covers the production cost of the book.



Main Kitchen of the Hotel New Yorker, New York, N. Y.
SUGARMAN & BERGER, Architects

Literature

In order to assist architects and their clients in the successful handling of food service problems, THE JOHN VAN RANGE COMPANY has published a special series of five books. Each of these covers fully the food service angle of one of the major divisions of the public service field and has been planned to be of particular value to architects. These are furnished at cost.

Planning Restaurants That Make Money—

An 80-page book devoted to the architectural and business problems which must be solved in regard to planning and outfitting all types of commercial restaurants. \$1.00.

Practical Planning for Hospital Food Service—

A 72-page book containing a full discussion of all phases of food service for hospitals and institutions including a careful analysis of different methods by which food service facilities of hospitals may be organized. \$1.00.

Practical Planning for School Food Service—

A 32-page book covering all angles of food service

References

A few of the hundreds of well-known establishments for which our organization has planned and equipped kitchens are listed below:

Hotel New Yorker, New York, N. Y.
Hotel Governor Clinton, New York, N. Y.
Hotel Mark Twain, St. Louis, Mo.
Hotel Manger, Boston, Mass.
New York Athletic Club, New York, N. Y.
Chicago Woman's Club, Chicago, Ill.
Edgewater Beach Apartments, Chicago, Ill.
Savarin Restaurants, New York, N. Y.
Jewish Hospital, Brooklyn, N. Y.
Duke University Hospital, Durham, N. C.
Girard College, Philadelphia, Pa.
Hopkins Restaurant, Boston, Mass.
U. S. Military Academy, West Point, N. Y.
Chicago Daily News, Chicago, Ill.
Glen Oak Golf Club, Great Neck, L. I., N. Y.
Fordson High School, Fordson, Mich.
Theodore Roosevelt High School, New York, N. Y.
Montgomery Ward & Company, Albany, N. Y.
Harper Hospital, Detroit, Mich.

AMERICAN STOVE COMPANY

Gas Ranges

925 Chouteau Avenue, ST. LOUIS, MO.

SALES DIVISIONS

Eastern Sales Division
LONG ISLAND CITY, N. Y., Bridge Plaza
East on Skillman Place

Atlantic Sales Division
PHILADELPHIA, PA., Terminal Commerce
Building, 401 North Broad Street

Southeastern Sales Division
ATLANTA, GA., 253 Peachtree Street, N. E.

Central Sales Division
CLEVELAND, OHIO, 4301 Perkins Avenue

Northern Sales Division
CHICAGO, ILL., 179 North Michigan Ave-
nue

Pacific Sales Division
SAN FRANCISCO, CALIF., 274 Brannan
Street
LOS ANGELES, CALIF., 1328 Santa Fe
Avenue

Southwestern Sales Division
ST. LOUIS, MO., 825 Chouteau Avenue

Export Department
LONG ISLAND CITY, N. Y., Bridge Plaza
East on Skillman Place

*Custom-built Range Sales
Department*
CLEVELAND, OHIO, 4711 Perkins Avenue

Red Wheel Gas Ranges

Red Wheel Gas Ranges can now be used anywhere, because they not only burn gas as furnished in mains by gas companies but they also burn efficiently "Pyrofax gas," a natural gas compressed into tanks and delivered anywhere in the United States. (See Pyrofax Division pages.)

Other Products

AMERICAN STOVE COMPANY, largest makers of gas ranges in the world, also manufactures coal and wood stoves; oil cook stoves equipped with the Lorain high speed burner, and oil and gas water and room heaters.

DIMENSIONS FOR MAGIC CHEF RANGES, BOTH MODELS

For both models	Extreme dimensions	Baking oven	Broiler	Cooking-top	Service-drawer	Height of cooking-top cover (when open) above cooking-top
						15 in.
						Clearance between cooking-top and cover (when closed)
						7 1/2 in.
Height, in.	43 1/2	14	9	from floor 34	6	Height of stove base from floor
Width, in.	49 1/4	17	17	25 1/2	21 1/2	12 in.
Depth, in.	27	20 1/2	20 1/2	22 1/4	22	Size of flue
						4 in.
						Shipping weight
						400 lb.
						Code name (Model below)
						Patrician

The New Vogue in Gas Ranges



Magic Chef has been accepted everywhere as one of the finest, most modern cooking equipments of the day. This exclusive gas range is as efficient and durable as it is beautiful and pleasing in appearance. Both the Patrician and Jonquil models instantly win the heart of any woman, and transform the kitchen from a sombre place of utility alone to a delightful room which is the pride of the home manager. A Magic Chef, with the famous Red Wheel and its many desirable features, is often the means of deciding a home-seeker in favor of the house or apartment where it is installed.

This advanced example of stove building craftsmanship has been designated by authorities on interior decoration as the most outstanding achievement in style creation in the house furnishings field in a decade. Magic Chef, with its pleasing proportions, beauty of line and coloring, its durability and efficiency, is the ideal solution to the problem of making the kitchen attractive.



Patents pending

Magic Chef—Patrician Model

Italian grand antique marble finish with old ivory trim

**Magic Chef—Jonquil Model**

Patents pending

Front panels and ends in old ivory with peacock green trim. Top in Italian grand antique marble finish



(1) "Patrician" model (shown on preceding page) has Italian grand antique marble finish with old ivory trim. Handles of onyx green bakelite. Also "Jonquil" model in old ivory with peacock green trim. All enamel (shown at left).

(2) The Magic Chef oven is equipped with the famous Lorain (Red Wheel) Oven Heat Regulator.

(3) Cooking-top cover spring-balanced, easy to operate. Unsightly utensils quickly covered.

(4) Magic Chef oven is insulated. Keeps kitchen cooler when baking.

(5) Pipes, gas valves and all bolts entirely concealed. All valves convertible by the turn of a screw into "safety" valves.

(6) Unique broiling feature includes an extension carriage that brings broiling pan into full view for the easy turning of meat. Reversible broiling pan requires no rack.

(7) Top burners of new, vertical injection type have removable non-corrosive heads. Each burner can be used as a simmering or a giant burner.

(8) Roomy service-drawer on rollers.

It Is
Gas Range
This Red



a "Good"
That Has
Wheel

To Architects and Builders

The Red Wheel is the identifying mark of the Lorain Oven Heat Regulator, a thermostatic device found on these famous makes of gas ranges, Clark Jewel, Direct Action, New Process, Quick Meal and Reliable, as well as Magic Chef. The Red Wheel, strongly endorsed by leading test kitchens and domestic science experts, automatically controls the heat of the gas range oven.

Gas ranges with the Red Wheel are everywhere recognized as the highest type of cooking appliances and continuous advertising in national magazines for over eleven years has made ranges with this time and labor saving device highly popular.

The following pages show only a few of the great number of sizes, styles and finishes of gas ranges manufactured by the AMERICAN STOVE COMPANY. Architects and builders are cordially invited to write for complete data on this extensive line.

The New Tiffin Model Is Ideally Suited to the Smaller Kitchen

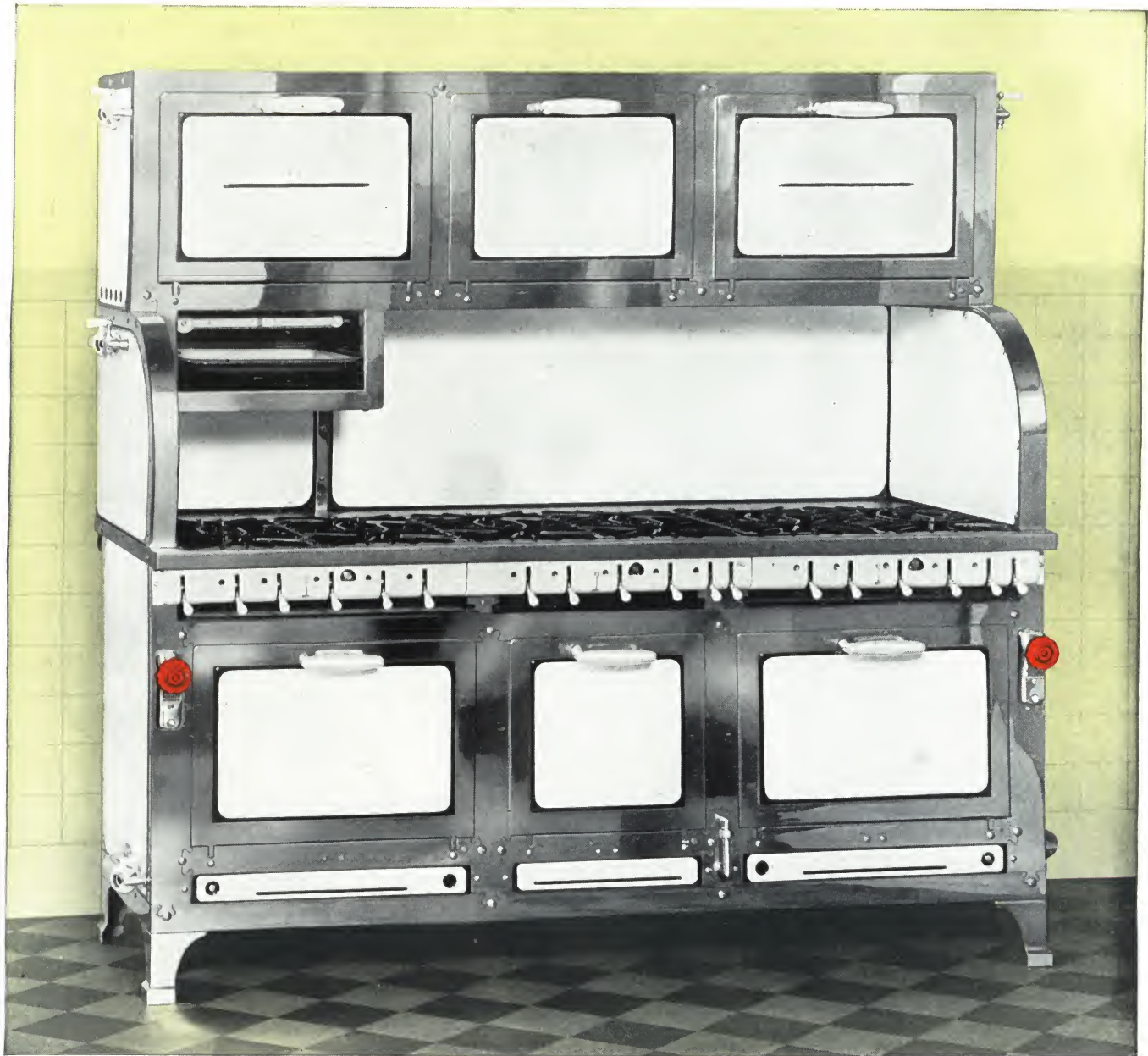
For those who have been prevented from installing a Magic Chef because of size or price, the AMERICAN STOVE COMPANY has produced a more compact model of this famous gas range—the Tiffin. This

handsome, efficient, highly serviceable cooking appliance satisfies every requirement of those having a smaller kitchen, yet meets perfectly the maximum needs of the average family. The oven is large and roomy and the other features of this new gas range are equally attractive as those of its predecessor, Magic Chef. Modestly priced, but artistic and durable, the Tiffin, we believe, dominates the field of lower priced gas ranges.

**New Tiffin Model**

Patents pending

Dimensions	Height	Width	Depth
Extreme	42¾	40¼	25¼
Oven	14	16	18
Broiler	7½	16	18
Cooking Top .....	.....	21¾	20¾
Drawer	5¼	17¾	18½



No. 323, Angliron Custom-Built Range with Chromium Finish

This splendid, new gas range, with its mirror-like chromium finish, more closely resembles a classical work of art than it does the popular conception of a stove.

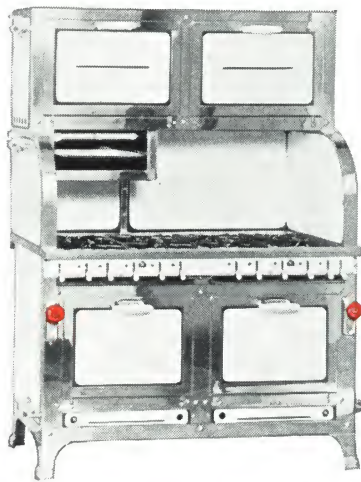
It is termed "custom-built" because it is handmade by trained craftsmen and produced to meet the demands

of the architect and owner who desire the finest obtainable in cooking equipment.

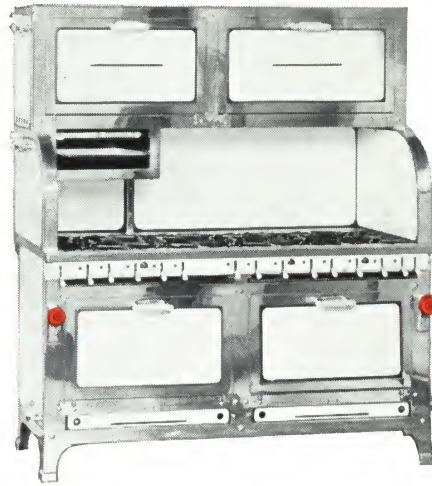
Many famous homes throughout the country have installed the No. 323, and in every case the owners are highly pleased with its perfect cooking qualities and exquisite appearance.

TABLE OF DIMENSIONS (WARMING CLOSET AND SMALL OVEN OMITTED)

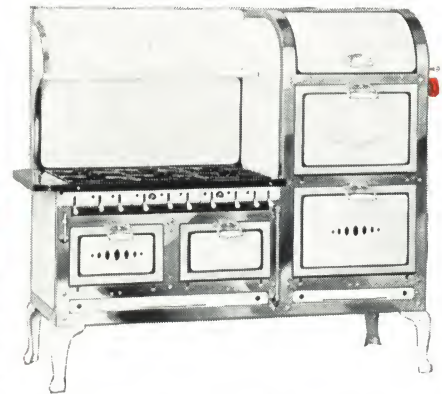
Stove No.	COOKING TOP			BROILERS			OVENS			RANGE		
	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width
323	32"	27 $\frac{3}{4}$ "	62 $\frac{3}{8}$ "	14"	14"	20"	14"	20"	20"	66 $\frac{3}{4}$ "	32"	72 $\frac{1}{2}$ "



No. 123 Angliron Custom-built Gas Range with Chromium Finish



No. 223 Angliron Custom-built Range with Chromium Finish



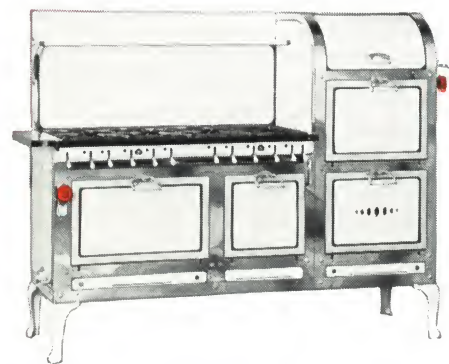
No. 6330 Angliron Gas Range with Chromium Finish



No. 6308 Angliron Gas Range with Chromium Finish



No. 6306 Angliron Gas Range with Chromium Finish



No. 6309 Angliron Gas Range with Chromium Finish

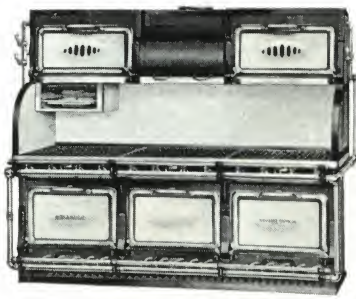
**These Angliron Custom-built Gas Ranges with Chromium Finish
Are Made to Order for Fine Homes**

AMERICAN STOVE COMPANY maintains a special department which is devoted to the creation of extra-fine gas ranges made to order for better class homes. These appliances completely fill the cooking demands of the large residence and keep the fur-

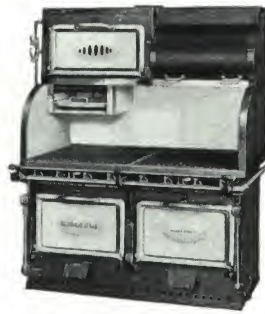
nishings in the kitchen in harmony with those in the rest of the house. The chromium finish is brilliant and sparkling at all times. It will not tarnish and mere wiping with a damp cloth keeps it spotless.

TABLE OF DIMENSIONS (WARMING CLOSETS, SMALLER OVENS AND TOASTERS OMITTED)

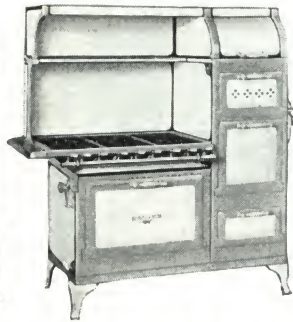
Range No.	COOKING TOP			BROILER			OVEN			RANGE		
	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width
123	32"	27 $\frac{3}{4}$ "	42"	14"	14"	20"	14"	20"	18 $\frac{1}{4}$ "	66 $\frac{3}{4}$ "	32"	51 $\frac{1}{2}$ "
223	32"	27 $\frac{3}{4}$ "	52 $\frac{1}{2}$ "	14"	14"	23 $\frac{1}{2}$ "	14"	20"	23 $\frac{1}{2}$ "	66 $\frac{3}{4}$ "	32"	62"
6330	31 $\frac{5}{8}$ "	21 $\frac{1}{2}$ "	38 $\frac{3}{4}$ "	14"	18"	20"	14"	18"	20"	57 $\frac{3}{4}$ "	25 $\frac{3}{4}$ "	65 $\frac{3}{4}$ "
6308	36 $\frac{3}{4}$ "	21 $\frac{1}{2}$ "	38 $\frac{3}{4}$ "	14"	18"	18 $\frac{1}{2}$ "	14"	18"	18 $\frac{1}{2}$ "	57 $\frac{3}{4}$ "	25 $\frac{3}{4}$ "	64 $\frac{1}{4}$ "
6306	36 $\frac{3}{4}$ "	21 $\frac{1}{2}$ "	38 $\frac{3}{4}$ "	17 $\frac{1}{2}$ "	18"	14"	14"	18"	23"	56 $\frac{1}{2}$ "	25 $\frac{3}{4}$ "	57 $\frac{3}{4}$ "
6309	36 $\frac{3}{4}$ "	21 $\frac{1}{2}$ "	48 $\frac{3}{4}$ "	14"	18"	18 $\frac{1}{2}$ "	14"	18"	18 $\frac{1}{2}$ "	57 $\frac{3}{4}$ "	25 $\frac{3}{4}$ "	74 $\frac{1}{4}$ "



Reliable No. 322



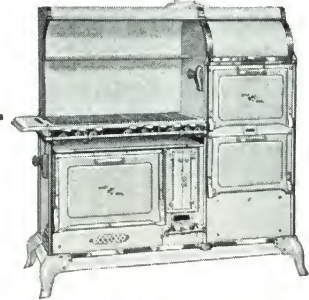
Reliable No. 222

Clark Jewel No. C89-4
Insulated OvenClark Jewel No. C88-4
Insulated OvenClark Jewel No. C82-4
Insulated Oven

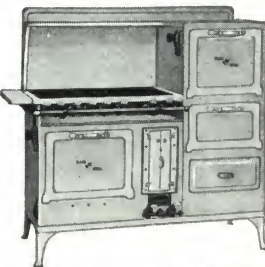
Direct Action No. 494AR



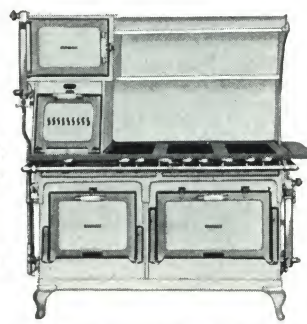
Direct Action No. 483



Quick Meal No. 2-218-W



Quick Meal No. 58-666

New Process No. R24-97 with
Back Shelf

New Process No. R18

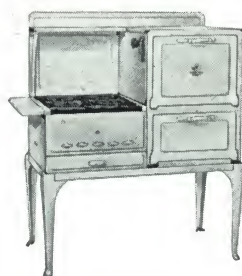
New Process No.
CR260-XX

Special Lorain-equipped Gas Ranges for Large Kitchens

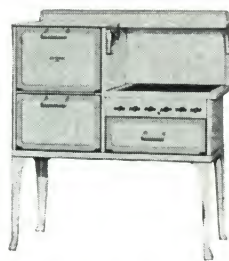
All cabinet ranges can be made with left or right-hand ovens

TABLE OF DIMENSIONS

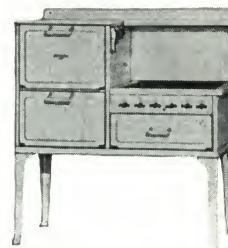
Stove No.	COOKING TOP			BROILER			LARGE OVEN			SMALL OVEN			RANGE		
	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width
322	30 1/4"	26"	73 3/4"	11 1/2"	14 1/4"	23 1/2"	14"	20"	22"				65 1/2"	36 1/2"	81 3/4"
222	30 1/4"	26"	49"	11 1/2"	14 1/4"	23 1/2"	14"	20"	22"				65 1/2"	36 1/2"	59 1/4"
C89-4	36"	22 5/8"	31 1/4"	9 1/4"	20"	17"	14"	20"	22"	14"	20"	17"	63 3/4"	30"	52 1/2"
C88-4	36"	22 5/8"	31 1/4"	9 1/4"	20"	17"	14"	20"	22"	14"	20"	17"	56 3/4"	30"	52 1/2"
C82-4	36"	22 5/8"	31 1/4"	9 1/4"	20"	17"	14"	20"	22"	14"	20"	17"	56 3/4"	30"	52 1/2"
494-AR	33"	21 1/2"	37"	8 1/2"	19 1/2"	14"	14"	19 1/2"	24"	14"	19 1/2"	14"	61 1/2"	28 1/2"	57"
483	33"	22"	75"				14"	19 1/2"	24"	14"	19 1/2"	24"	53 1/2"	28 1/2"	75"
2-218-W	36"	22 1/2"	42 1/2"	12"	21"	18"	14"	21"	22"	12"	21"	18"	66"	28"	67"
58-666	35"	22 1/4"	32 1/2"	9"	21"	16"	14"	21"	18"	14"	21"	16"	54 1/2"	30"	57 1/2"
R24-97	30"	26"	67 1/2"				12 3/4"	18 1/2"	24 1/2"				58 1/2"	33 1/2"	69"
R18	35"	25"	46 1/2"	12"	20 1/2"	14"	12 3/4"	18 1/2"	24 1/2"	11"	18 1/2"	16 1/2"	66"	32 1/2"	68"
CR260-XX	35"	20"	32 1/2"	10"	18 1/2"	16 1/2"	14"	18 1/2"	24 1/2"	12"	18 1/2"	16 1/2"	51 1/2"	27"	54 3/4"



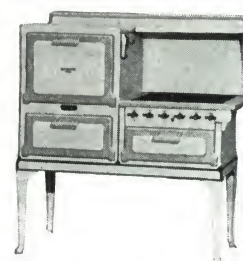
Quick Meal No. 6-062



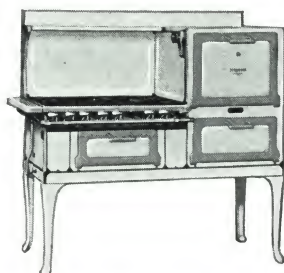
New Process No. R343



New Process No. R341



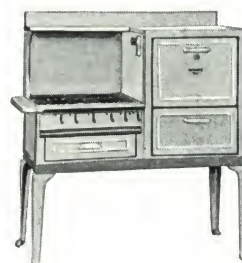
New Process No. 1346-1



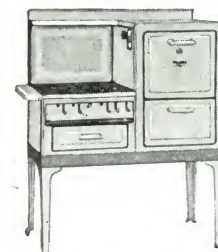
New Process No. CR8-46-6



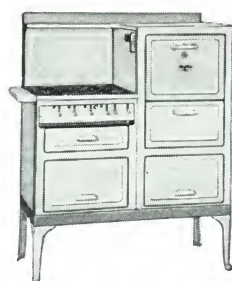
New Process No. CR250-XX



Reliable No. 6600



Reliable No. 6800



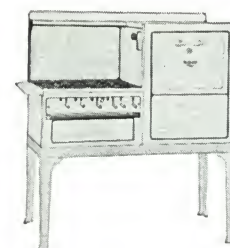
Reliable No. 6870



Reliable No. 6630



Reliable No. 6820



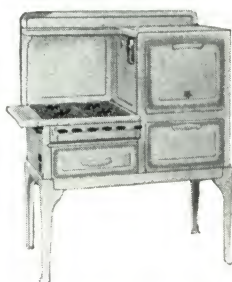
Reliable No. 6850

Special Lorain-equipped Gas Ranges for Medium Kitchens

All cabinet ranges can be made with left or right-hand ovens

TABLE OF DIMENSIONS

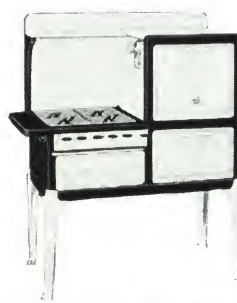
Stove No.	COOKING TOP			BROILER			OVEN			RANGE		
	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width
6-062	35"	22"	26"	9"	21"	16"	14"	21"	16"	54"	26½"	46"
R343	34"	22½"	23¾"	10"	18½"	16½"	12"	18½"	16½"	51"	25½"	44¾"
R341	34"	22½"	23¾"	10"	18½"	16½"	12"	18½"	16½"	51"	25½"	44¾"
R1346-1	34"	22½"	24½"	8½"	18½"	18½"	14½"	18½"	18½"	52"	26½"	46¾"
CR8-46-6	33¾"	21¾"	34½"	8½"	18½"	18½"	14½"	18½"	18½"	52"	27½"	56¾"
CR250-XX	35"	20"	27½"	10"	18½"	16½"	14"	18½"	20½"	51½"	27"	49¾"
6600	32¾"	21"	25⅝"	8½"	18"	18½"	14"	18"	18½"	51½"	25½"	48¼"
6800	32"	20½"	21"	7½"	18"	14"	12"	18"	14"	48¼"	25"	39¼"
6870	35½"	20½"	23¼"	7½"	18"	16"	12"	18"	16"	51½"	25"	43¼"
6630	34¾"	21"	25⅝"	8½"	18"	18½"	14"	18"	18½"	54½"	25½"	48⅞"
6820	35½"	20½"	21"	7½"	18"	14"	12"	18"	14"	51½"	25"	39"
6850	32"	20½"	23¼"	7½"	18"	16"	12"	18"	16"	48¼"	25"	43½"



Clark Jewel No. C78-4



Clark Jewel No. C78-14



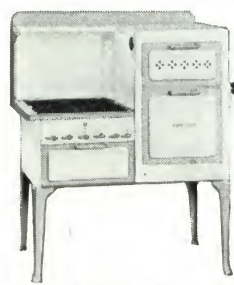
Clark Jewel No. C74-4



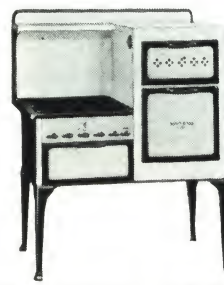
Clark Jewel No. C79-4



Clark Jewel No. C83-4



Direct Action No. G-3A



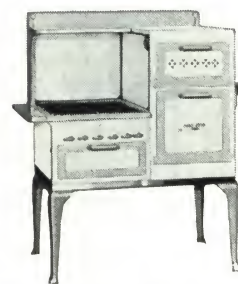
Direct Action No. W-3W



Direct Action No. W-3E



Direct Action No. W-4A



Direct Action No. G-4A



Quick Meal No. F8-614



Clark Jewel No. C79-1

Special Lorain-equipped Gas Ranges for Medium Kitchens

All cabinet ranges can be made with left or right-hand ovens

TABLE OF DIMENSIONS

Stove No.	COOKING TOP			BROILER			OVEN			RANGE		
	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width
C78-4	33"	22 $\frac{5}{8}$ "	21 $\frac{3}{4}$ "	9 $\frac{1}{4}$ "	20"	17"	14"	20"	17"	54"	29"	46 $\frac{1}{2}$ "
C78-14	33"	22 $\frac{5}{8}$ "	21 $\frac{3}{4}$ "	9 $\frac{1}{4}$ "	20"	17"	14"	20"	17"	54"	29"	46 $\frac{1}{2}$ "
C74-4	33"	22 $\frac{5}{8}$ "	21 $\frac{3}{4}$ "	9 $\frac{1}{4}$ "	20"	17"	14"	20"	17"	54"	29"	46 $\frac{1}{2}$ "
C79-4	33"	22 $\frac{5}{8}$ "	21 $\frac{3}{4}$ "	9 $\frac{1}{4}$ "	20"	17"	14"	20"	17"	61"	29"	46 $\frac{1}{2}$ "
C83-4	36"	22 $\frac{5}{8}$ "	31 $\frac{1}{4}$ "	9 $\frac{1}{4}$ "	20"	17"	14"	20"	22"	63 $\frac{1}{4}$ "	30"	52 $\frac{1}{2}$ "
G-3A	32 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	8"	18"	16"	14"	18"	16"	52"	26"	45 $\frac{1}{2}$ "
W-3W	32 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	8"	18"	16"	14"	18"	16"	52"	26"	45 $\frac{1}{2}$ "
W-3E	32 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	8"	18"	16"	14"	18"	16"	52"	26"	45 $\frac{1}{2}$ "
W-4A	33 $\frac{1}{2}$ "	21 $\frac{1}{2}$ "	25 $\frac{1}{2}$ "	8"	19 $\frac{1}{2}$ "	16"	14"	19 $\frac{1}{2}$ "	16"	54"	28"	48"
G-4A	33 $\frac{1}{2}$ "	21 $\frac{1}{2}$ "	25 $\frac{1}{2}$ "	8"	19 $\frac{1}{2}$ "	16"	14"	19 $\frac{1}{2}$ "	16"	54"	28"	48"
F8-614	32 $\frac{1}{2}$ "	19"	23"	9"	18"	14"	14"	18"	14"	52"	23"	41 $\frac{1}{2}$ "
C79-1	33"	22 $\frac{5}{8}$ "	21 $\frac{3}{4}$ "	9 $\frac{1}{4}$ "	20"	17"	14"	20"	17"	61"	29"	46 $\frac{1}{2}$ "



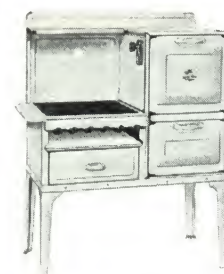
Quick Meal No. 8-314



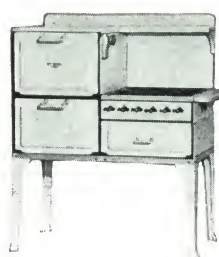
Quick Meal No. 8-414



Quick Meal No. F8-614



Quick Meal No. 8-616



New Process No. R541XX



New Process No. R540XX



New Process No. R540X



New Process No. 34

Direct Action No.
W-3ARDirect Action No.
1BS-3ARNew Process No.
CR10XX

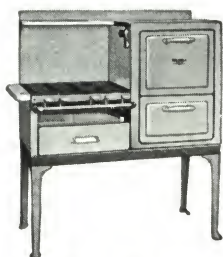
Clark Jewel No. R98-1

Special Lorain-equipped Gas Ranges for Small Kitchens

All cabinet ranges can be made with left or right-hand ovens

TABLE OF DIMENSIONS

Stove No.	COOKING TOP			BROILER			OVEN			RANGE		
	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width
8-314	32½"	19"	23"	9"	18"	14"	14"	18"	14"	52"	23"	41½"
8-414	32½"	19"	23"	9"	18"	14"	14"	18"	14"	52"	23"	41½"
F8-614	32½"	19"	23"	9"	18"	14"	14"	18"	14"	52"	23"	41½"
8-616	32½"	19"	23"	9"	18"	16"	14"	18"	16"	52"	23"	43½"
R541XX	34"	20"	23½"	10"	18½"	16½"	12"	18½"	16½"	51"	26"	43½"
R540XX	34"	20"	23½"	10"	18½"	16"	12"	18½"	16½"	51"	26"	43½"
R540X	34"	20"	23½"	10"	18½"	16½"	12"	18½"	16½"	51"	26"	43½"
34	34½"	20"	20"	Broiler in Oven			12"	12½"	16½"	67½"	23"	22½"
W-3AR	32½"	22½"	22½"	8"	18"	16"	14"	18"	16"	52"	26"	45½"
1BS-3AR	32½"	22½"	22½"	8"	18"	16"	14"	18"	16"	52"	26"	45½"
CR10XX	34"	20"	26"				12"	18½"	16½"	50"	26"	26"
R98-1	33"	20¼"	20¼"	9¼"	18½"	15½"	12"	18½"	15½"	49½"	27"	43"



Reliable No. 6400



Reliable No. 1314



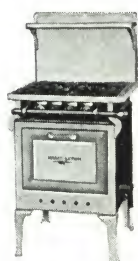
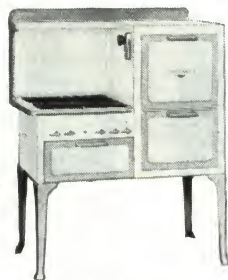
Reliable No. 6930



Reliable No. 1126

Clark Jewel
R92-4 Insulated Oven
R92 Non-insulated OvenClark Jewel
R98-4 Insulated Oven
R98 Non-insulated OvenClark Jewel No. B222
Laundry Stove

Clark Jewel No. AH-230

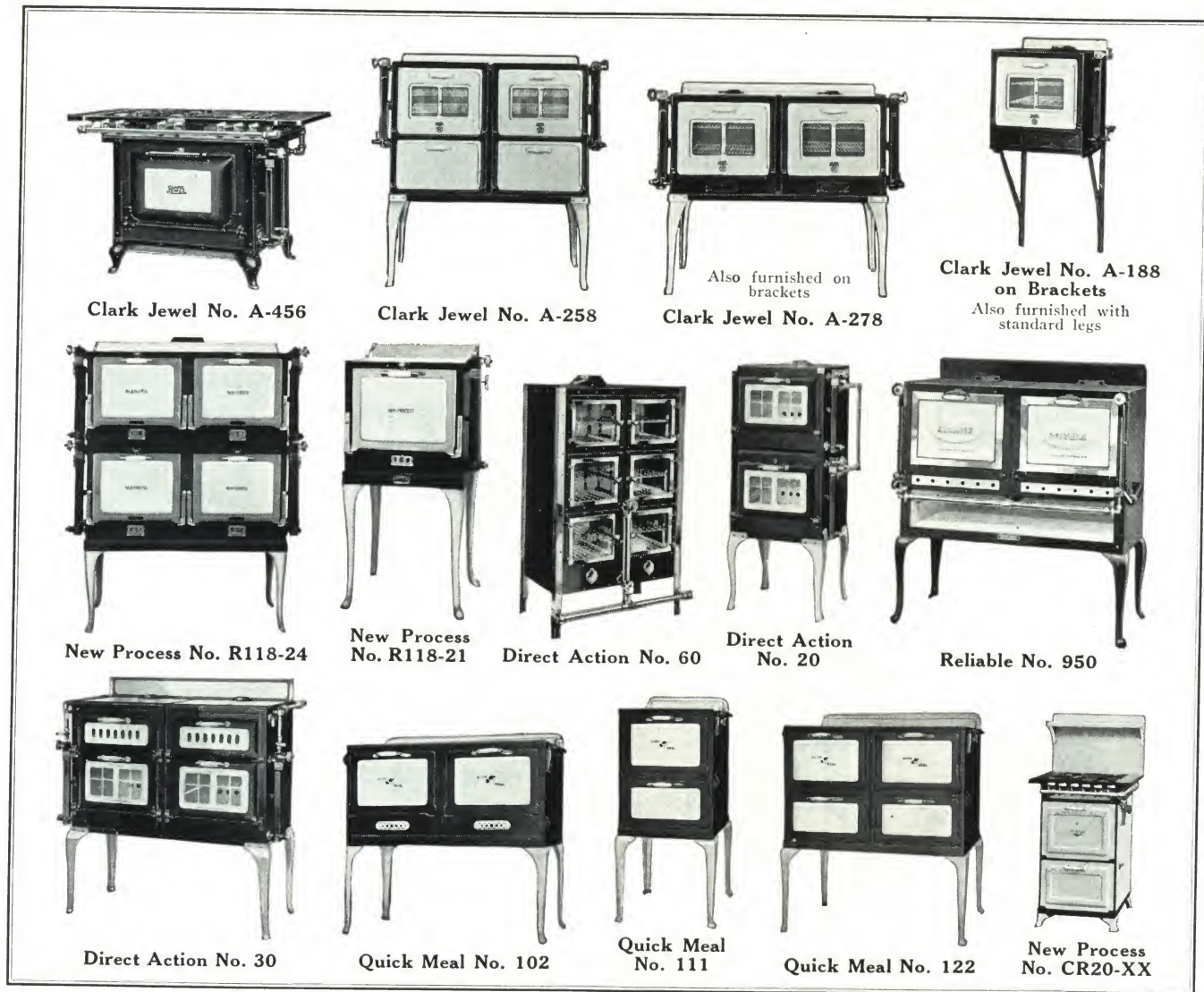
Direct Action No. K-41
with Back ShelfDirect Action
No. G-2ADirect Action
No. W-2WDirect Action
No. W-2E

Special Lorain-equipped Gas Ranges for Small Kitchens

All cabinet ranges can be made with left or right-hand ovens

TABLE OF DIMENSIONS

Stove No.	COOKING TOP			BROILER			OVEN			RANGE		
	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width
6400	32 $\frac{5}{8}$ "	19"	23 $\frac{1}{4}$ "	7 $\frac{1}{2}$ "	18"	16"	12"	18"	16"	48 $\frac{1}{2}$ "	26"	44 $\frac{3}{4}$ "
1314	34 $\frac{1}{4}$ "	21 $\frac{3}{4}$ "	29 $\frac{7}{8}$ "	9"	18"	18 $\frac{1}{2}$ "	11"	18"	18 $\frac{1}{2}$ "	34 $\frac{1}{4}$ "	27"	29 $\frac{7}{8}$ "
6930	35 $\frac{1}{2}$ "	19"	21"	7 $\frac{1}{2}$ "	18"	14"	12"	18"	14"	51"	26"	39"
1126	37"	19"	42 $\frac{1}{4}$ "				14"	18"	24"	56"	27"	42 $\frac{1}{4}$ "
R92-4	33"	20 $\frac{1}{4}$ "	20 $\frac{1}{4}$ "	9 $\frac{1}{4}$ "	18 $\frac{1}{2}$ "	15 $\frac{5}{8}$ "	12"	18 $\frac{1}{2}$ "	15 $\frac{5}{8}$ "	49 $\frac{1}{2}$ "	27"	43"
R92				9 $\frac{1}{4}$ "	18 $\frac{1}{2}$ "	15 $\frac{5}{8}$ "						
R98-4	33"	20 $\frac{1}{4}$ "	20 $\frac{1}{4}$ "	9 $\frac{1}{4}$ "	18 $\frac{1}{2}$ "	15 $\frac{5}{8}$ "	12"	18 $\frac{1}{2}$ "	15 $\frac{5}{8}$ "	49 $\frac{1}{2}$ "	27"	43"
R98				9 $\frac{1}{4}$ "	18 $\frac{1}{2}$ "	15 $\frac{5}{8}$ "						
B222	21"	12"	22"									
AH-230	34"	13 $\frac{1}{2}$ "	28"				14"	13"	18 $\frac{1}{2}$ "	34 $\frac{1}{2}$ "	20"	30 $\frac{1}{2}$ "
K-41	33"	20"	23 $\frac{1}{2}$ "				12"	18"	16"	48 $\frac{1}{2}$ "	26"	24 $\frac{3}{4}$ "
G-2A	32 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "	18"	16"	14"	18"	16"	52"	26"	42 $\frac{1}{2}$ "
W-2W	32 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "	18"	16"	14"	18"	16"	52"	26"	42 $\frac{1}{2}$ "
W-2E	32 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "	18"	16"	14"	18"	16"	52"	26"	42 $\frac{1}{2}$ "



Special Lorain-equipped Gas Ovens for Schools and Laboratories

The above ovens are especially designed for experimental work and instruction in oven cookery. Any Lorain-equipped gas range is suitable for the same purpose if the cooking-top is required

TABLE OF DIMENSIONS

Stove No.	BROILER			OVEN			RANGE		
	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width
A-456				14"	22"	22½"	32½"	33"	49"
A-258	10"	20"	18½"	14"	20"	18½"	52½"	26"	56"
A-278				14"	20"	18½"	44"	26"	56"
A-188 on brackets				14"	20"	18½"	44"	26"	28"
R118-24				13½"	18½"	18½"	65"	28½"	53½"
R118-21				13½"	18½"	18½"	49½"	26½"	27"
60 Six Ovens				9½"	14"	11"	52"	16"	31"
20 Two Ovens				12"	18"	18"	58"	25"	28½"
950				14"	18"	18½"	53¼"	24¾"	49½"
30 Two Ovens	7½"	18"	18"	12"	18"	18"	53½"	25"	55"
102				14"	21"	18"	44"	25"	47½"
111	9"	21"	18"	14"	21"	18"	52"	25"	23¾"
122	9"	21"	18"	14"	21"	18"	52"	25"	47½"
CR20-XX	10"	18½"	16½"	12"	18½"	16½"	52"	26"	26"

DETROIT-MICHIGAN STOVE COMPANY

GARLAND DIVISION

6900 East Jefferson Avenue, DETROIT, MICH.

Products

GARLAND GAS RANGES, OVENS, BROILERS and SALAMANDERS.

Description

Garland heavy duty cooking equipment for hotels, clubs, restaurants, hospitals, etc., possesses advantages and outstanding features that appeal to architects who specify for large buildings. The design, arrangement and the material used in Garland equipment have



contributed directly to their success, and the following description and specifications of each individual type will prove helpful in preparing kitchen layouts.

All Garland hotel equipment can be furnished in full monel finish with toncan oven linings.

We shall be pleased to co-operate with architects, and to give them every assistance in our power on any job on which they may be engaged. Catalogues, information, prices, etc., on request.

No. 45-26 Garland Hotel Range for Heavy Duty Work

Dimensions—Cooking top surface—34 in. wide, 40½ in. deep. Height to cooking top—33½ in. Oven—26 in. wide, 26 in. deep, 16 in. high.

Body—Body to be constructed of No. 16 gauge steel, reinforced with angle and band iron with ¾-in. air space insulation at sides and back. Legs, door frames and burners to be of cast iron.

Cooking Top—To be polished cast iron. Cooking top proper to be of heavy sectional cast iron key plates with two 10-in. covers.

Top Burners—To consist of 9 burners, each burner controlled by a separate brass gas cock fitted with adjustable orifice.

Burner Box—To contain a 2-in. layer of fire brick to deflect the heat to the underside of top. Burner box outlet to the exit flue to be entire width of range.



Heat Distribution of No. 45-26 Series



No. 45-26 Garland Hotel Range. All Hot Top

Oven—To be heated by 3 tubular burners, each controlled by a separate gas cock, burners removable through the front of range. Burners to be provided with pilot lighter which has drilled ports, lights from outside.

Oven to be equipped with one oven rack made of heavy angle and band iron; to have three slides so rack can be placed at different heights. Rack to be equipped so it will not tilt when pulled half way out.

Oven Bottom—Made of three thicknesses of heavy steel spaced from each other, upper sheet to be perforated on four edges to speed heat circulation, and to be removable without the use of tools.

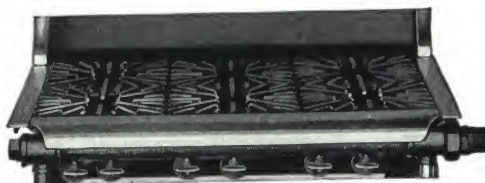
Oven Door—To be of heavy cast iron and steel substantially braced and counterbalanced.

Extreme Bottom—To have openings for ventilation on four sides and to be insulated by two thicknesses of sheet steel with air space between.



Cooking Top 45-26 Series

Cooking Top Variations of the 45-26 Garland Hotel Range



No. 44-26 Garland Hotel Range with Open Top

Cooking Top—To be of three sections of open grids. The front top edge to extend over the top burner valves and burner air mixers, protecting them from grease drippings and breakage.

Top Burners—To consist of 6 Giant Star burners, each burner to be controlled by a separate cock fitted with adjustable orifice.



No. 48-26 Garland Hotel Range with Center Fire Top

Top Burners—To consist of 5 burners, each burner to be controlled by a separate brass cock fitted with an adjustable orifice. The flame to be baffled at the center of the key plates so as to spread the flame to the extreme sides.



No. 47-26 Garland Hotel Range with Solid Grid Top

Cooking Top—To be of one solid grid, extra heavy. Front top edge to extend over top burner valves and burner air mixers, protecting them from grease drippings and breakage. Front top edge to have a grease groove 2 in. wide of graduated depth and tapped at lower end for 1-in. pipe.

Top Burners—To consist of 3 double drilled bar burners, each burner to be controlled by a separate cock fitted with adjustable orifice.



No. 43-26 Garland Hotel Range with Grid Top and 2 Open Burners

Cooking Top—To be fitted with a griddle top 20½ in. wide, 27 in. deep, with grease groove on four sides and 2 Giant open burners. The front edge to extend over the top burner valves and burner air mixers, protecting them from grease drippings and breakage.

Top Burners—To be of 4 long bar burners under grid and 2 Giant open top burners, each burner to be controlled by separate cock, fitted with adjustable orifice.

No. 45-22 Garland Cafe Range with All-hot Top for Heavy Duty Work

Dimensions—Cooking top surface—29 in. wide, 32 in. deep. Height to cooking top—33½ in. Oven—22 in. wide, 24 in. deep, 14 in. high.

Body—To be constructed of 18 gauge steel. Legs, door frames and top of cast iron.

Cooking Top—To be of heavy cast iron frame and two sections of pan tops, fitted with 8-in. covers.

The front edge to extend over the top burner valves and air mixers, protecting them from grease drippings and breakage.

Top Burners—To consist of 5 bunsen burners each controlled by a separate cock fitted with adjustable orifice.

Burner Box—To contain a layer of fire brick to deflect the heat to cooking top.

Oven—To be heated by 2 tubular burners each controlled by a separate cock. Burners to be removable through front of range. Burners to be provided with a pilot lighter which lights from outside of oven.

Oven Bottom—To be of three thicknesses of heavy steel spaced from each other to prevent bottom burning food. Upper sheet to be perforated on four sides to speed heat circulation and bottom to be removable without the use of tools.

Extreme Bottom—To be made of three thicknesses of heavy steel with air spaces between.

No. 44-22 Garland Cafe Range with Open Top
Same dimensions as 45-22.**No. 44-22 Garland Cafe Range with Open Top**

Cooking Top—Frame to be of heavy cast iron with two sections of open grid.

Top Burners—To consist of 4 Giant Star burners, each burner to be controlled by a separate cock.

**No. 16-26 Salamander**

Fits Nos. 43, 44, 45, 47, 48 of No. 26 range series

No. 16-26 is 34¼ in. wide, 19 in. deep, 18 in. from top of range. Grid 30x16 in. Burners: 2 clusters of 4 each.

No. 14-22—Fits No. 45-22, No. 47-22 or No. 44-22 range.

No. 14-22 is 29x17 in. deep. Grid 21¼x14 in. deep. Burners: 2 clusters of 3 each.

Each cluster controlled by one cock at front end

No. 44-252-22 Garland Cafe Range

Dimensions—Cooking top surface—58 in. wide, 32 in. deep. Floor to cooking top—33½ in. Oven—22 in. wide, 24 in. deep, 14 in. high.

Body—To be constructed of 18 gauge steel. Legs, door frames and top of cast iron.

Cooking Top

—Frame to be of heavy cast iron with extra heavy open grids over burners.

Top Burners

To consist of 8 Giant Star open burners, each to be controlled by separate cock.

Burner Box

To be fitted with drip pans.

Oven

To be heated by 2 tubular burners each controlled by a separate cock. Burners to be removable through front of range. Burners to be provided with a pilot lighter which lights from outside the oven.

Oven Bottom—To be of three thicknesses of heavy steel spaced from each other to prevent bottom burning food. Upper sheet to be perforated on four sides to speed heat circulation and bottom to be removable without the use of tools.

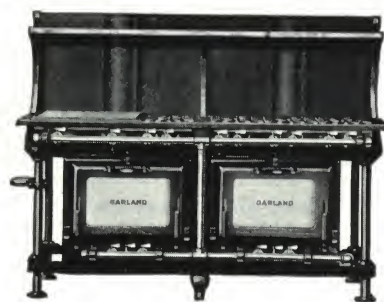
Extreme Bottom—To be made of three thicknesses of heavy steel with air spaces between.

**No. 44-252-22 Garland Cafe Range****No. 1332 Restaurant Range**

Dimensions—Cooking top 74 in. wide, 28½ in. deep. Floor to cooking top—34½ in. Ovens—22 in. wide, 20 in. deep, 14 in. high.

Body—To be of 20 gauge steel with cast iron oven front. Mounted on heavy base frame reinforced with angle iron.

Cooking Top—Frame to be of heavy cast iron with extra heavy open grids over 8 burners and polished cast iron griddle 20 in. wide. When so specified, griddle 9¼ or 31 in. wide can be furnished. Also obtainable with 12 open top burners.

**No. 1332 Restaurant Range**

Two ovens, single deck high shelf, 8 open top burners and 20-in. griddle. Can also be furnished in single section with 6 open top burners

Top Burners—4 Giant and 3 regular Star open top burners and 2 loop burners beneath griddle. Each burner separately controlled by cock.

Burner Box—To be fitted with drip pans.

Ovens—Two ovens, each heated by 2 tubular burners, each controlled by a separate cock. Burners to be removable through front of range and to be lighted by outside pilot lighter.



No. 630 Garland Broiler and Roaster

Dimensions—Extreme width 30 in.; 34 in. deep. Height 67½ in. Broiler Grid 23½ in. wide, 23½ in. deep. Oven 22 in. wide, 24 in. deep, 14 in. high. Heated by broiler burners. Has 2-in. thick brick between bottom and burners.

Body—To be of 16 gauge range steel, reinforced with band and angle iron. All operating parts in front.

Burners—6 double drilled tubular, divided in clusters of 3 each. Each cluster controlled by one large cock. All burners removable for cleaning.

Broiler Grid—Extra heavy, controlled by a lever which locks at position wanted. Has forward extension of 10 in. Fitted with large grease pan



No. 12-54 Double Garland Broiler and Roaster

Dimensions—Extreme width, 54 in.; 34 in. deep, 67½ in. high. Broiler grid 48 in. wide, 23½ in. deep. Ovens, each, 22 in. wide, 24 in. deep, 14 in. high.

Body—To be of 16 gauge range steel. Extra heavy cast iron parts, all operating parts placed in front.

Burners—12 double drilled tubular, divided in clusters of 6, each cluster controlled by one large cock. All removable for cleaning without the use of tools.

Broiler Grid—Extra heavy, controlled by lever which locks at position wanted. Has forward extension of 10 in. Fitted with hopper grease pan.

Ovens—Each heated by 6 burners. Oven has 2-in. thick fire brick bottom which absorbs and reflects the heat to the grid



No. 18-36 Garland Broiler, Toaster and Griddle

Dimensions—Griddle top 36 in. long, 18¾ in. wide. Broiler grid 30 in. long, 16 in. wide. Extreme length 39 in., extreme height 42 in.

Body—Heavy steel, cast iron top.

Burners—8 burners in clusters of 4. Each cluster controlled by one large cock.

Grid Control—Lock lever at end.

Griddle Top—To be of heavy polished cast iron, fitted with grease groove on four sides. Space between griddle and burners filled with fire brick to retain and radiate heat



No. 13-24 Garland Broiler, Toaster and Griddle with Adjustable Grid

Dimensions—Griddle top 18 in. wide, 26 in. deep. Broiler grid 13 in. wide, 24 in. deep. Extreme height 39¼ in., extreme width 19 in., extreme depth 29¼ in.

Body—Heavy gauge blued range steel.

Burners—3 tubular burners, each controlled by separate valve.

Grid Control—Lock lever at side. Permits raising or lowering of grid to suit operator.

Griddle Top—Heavy polished cast iron, fitted with grease groove on four sides. Drilled for grease drain connection



No. 24-24 Garland Griddle

Dimensions—Griddle 24 in. wide, 24 in. deep. Warming shelf below burners 21½ in. wide, 23½ in. deep with a 6-in. clearance from burners. Storage compartment 21½ in. wide, 23½ in. deep, 11½ in. high. Over-all width 24 in., depth 27 in., height 33¼ in.

Body—Heavy gauge blued steel with 1¼-in. angle iron legs.

Burners—4 tubular cast iron burners, each controlled by separate valve.

Griddle Top—Heavy polished cast iron with ½-in. raised edge



No. 2-26 Garland Roasting Oven

Construction—Made in units of 2 and 4 ovens.

Dimensions—No. 2-26—Width 31 in., depth 34½ in., height 53½ in. Ovens each 26 in. wide, 26 in. deep, 16 in. high.

Dimensions—No. 4-26—Width 62 in., depth 34½ in., height 53½ in. Ovens each 26 in. wide, 26 in. deep, 16 in. high.

Ovens—Controlled by 3 burners under each oven. Burners to be removable through front. Each oven fitted with a drilled pilot lighter, lighted from the outside. Oven bottoms to be of three thicknesses of steel with air spaces between instead of insulation. Oven bottoms to be perforated with rows of holes on four sides to speed circulation. Air inlet for upper oven to be taken from rear.

Main Bottom—To be of three thicknesses of heavy steel with air spaces between

Brief List of Users of Garland Kitchen Equipment

Royal Hawaiian Hotel, Honolulu, H. I.
Statler Hotels, 7 installations
Bowman Hotels, 5 installations
Boomer Hotels, 2 installations
United Hotels, 7 installations
Palace Hotel, San Francisco, Cal.
Fairmont Hotel, San Francisco, Cal.
U. S. Grant Hotel, San Diego, Cal.
Roosevelt Hotel, New Orleans, La.
Carling Hotel, Jacksonville, Fla.
Jefferson Hotel, Richmond, Va.
Mayflower Hotel, Washington, D. C.

Willard Hotel, Washington, D. C.
Washington Hotel, Washington, D. C.
Ritz-Carlton Hotel, Boston, Mass.
Toussaint Hotel, Boston, Mass.
Kimball Hotel, Springfield, Mass.
Breakers Hotel, Atlantic City, N. J.
Ambassador Hotel, Atlantic City, N. J.
Book Cadillac Hotel, Detroit, Mich.
Elks Club, Philadelphia, Pa.
Hollywood Athletic Club, Hollywood, Cal.
Milliards Cafe, Chicago, Ill.
Schrantz Restaurants, 28 installations

EDISON GENERAL ELECTRIC APPLIANCE CO., INC.

5600 West Taylor Street, CHICAGO, ILL.

FACTORIES: CHICAGO, ILL., AND ONTARIO, CALIF.

BRANCHES AND FACTORY SERVICE STATIONS

DALLAS
CLEVELAND
LOS ANGELES

BOSTON
CHICAGO
SAN FRANCISCO

NEW YORK
KANSAS CITY
PORTLAND, ORE.

ATLANTA
DENVER
SEATTLE

CHARLOTTE, N. C.
SALT LAKE CITY
ONTARIO, CALIF.

Products

HOTPOINT ELECTRIC RANGES for residences and apartments. Furnished in many sizes and designs to meet varied demands. Architects' hand book on request.

Also manufacturers of "Hotpoint" Electric Household Appliances.

For Edison Electric Commercial Cooking and Baking Equipment, Hotpoint Electric Water Heaters and Electric Air Heaters, see Manufacturers' Index.

Distinctive Features

Cleanliness—Electric cookery has no flame, consequently no soot. Reduces decorating expense.

Patented Calrod Units—Consist of a helical coil of CALROD, cast within a smooth top solid metal plate, thus the coil is protected against oxidation and physical abuse.

Open Coil Surface Units—The glowing, radiant, instant heat type set in heater brick of special high temperature, heat retaining porcelain. Interchangeable with CALROD units.

Hi-Speed Calrod Surface Unit—Heats approximately 20% faster than any other surface unit of any construction of the same wattage. Heavy knife blade terminals. Interchangeable with any Hotpoint open coil or standard CALROD surface units. Watts, 1200-600-300.

Interchangeable Surface Units—Surface units can be placed in any hole of the same size in the cooking tops regardless of the unit wattage. Affords "custom built" ranges to suit individual needs.

Welded Connections—Welded connections on Hotpoint units eliminate six trouble points in each unit.

Safety Plugs—All wire attachment to units are made inside heavy shockproof plugs.

White Porcelain Enameled Cooking Tops—Easy to

A GENERAL  ELECTRIC
ORGANIZATION

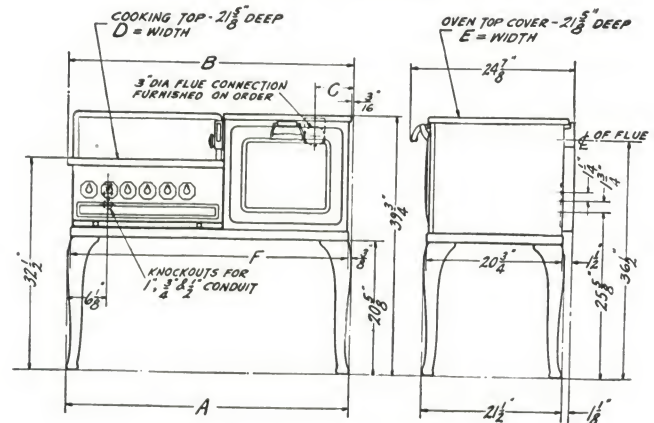
Hotpoint

clean as a china plate. All corners carefully rounded to eliminate dirt accumulation.

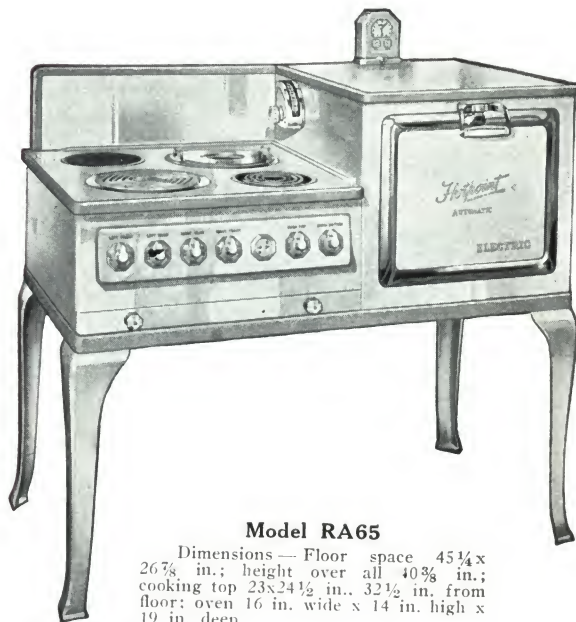
Precision Temperature Control and Thermometer—Maintains and indicates oven temperatures with remarkable accuracy due to extreme sensitiveness and location.

Reversible Switches—A Hotpoint convenience.

Pressed Steel Parts Throughout—All important parts are of heavy pressed steel—strong, accurate and highly finished.



Outline and Dimensions of RA34



Model RA65

Dimensions — Floor space 45 1/4 x 26 7/8 in.; height over all 40 3/8 in.; cooking top 23 x 24 1/2 in.; 32 1/2 in. from floor; oven 16 in. wide x 14 in. high x 19 in. deep



Model RA34

One of the 15 standard models

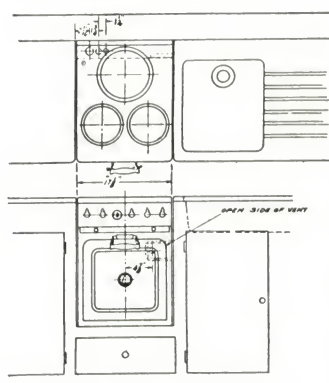
Models R112 and R113

Adaptation—Specially designed for apartment kitchenettes. These ranges furnished without legs as standard equipment for built-in kitchen cabinet installation. Legs (black or white) furnished at additional cost.

Oven—14 in. wide, 14 in. high, 15 in. deep.

Unit Equipment—R112—One interchangeable $6\frac{1}{2}$ -in. surface unit, 1000-500-250 watts, either CALROD or open coil. One interchangeable $8\frac{3}{4}$ -in. surface unit, 2000-1000-500 watts, CALROD or open coil. Two interchangeable oven units (upper and lower) each 1100-550-275 watts, open coil type.

R113—Two interchangeable $6\frac{1}{2}$ -in. surface units, 1000-500-250 watts, CALROD or open coil. One interchangeable $8\frac{3}{4}$ -in. surface unit, 2000-1000-500 watts, CALROD or open coil. Two interchangeable oven units (upper and lower) each 1100-550-275 watts, open coil type.

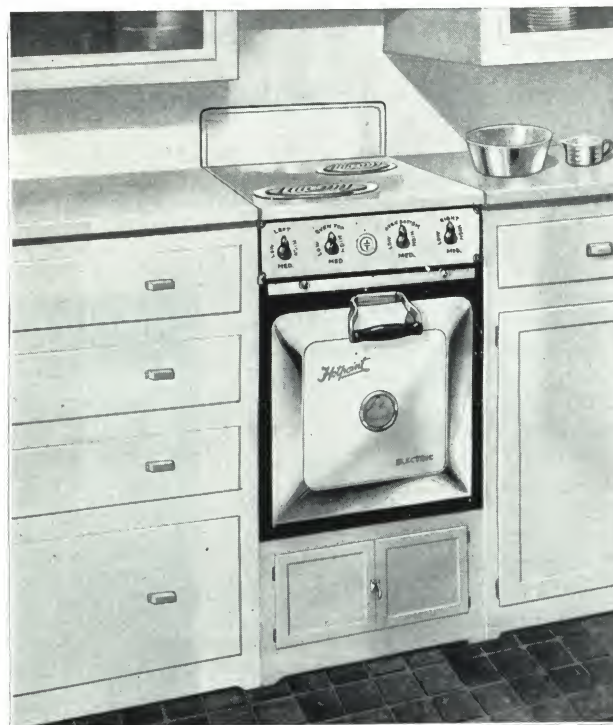
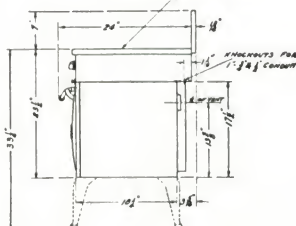


Outline and Dimensions

of Hotpoint Electric Range

MODELS R112—R113

COOKING TOP SURFACE $21\frac{1}{2} \times 17\frac{1}{2}$ "



Model R112 As a Built-in Installation

TECHNICAL INFORMATION

Underwriters' Laboratories' Approval

All Hotpoint ranges are listed as standard by the Underwriters' Laboratories, Inc.

Built-in Units

Frequently Hotpoint ranges are built into the cabinets in kitchenettes. Fire risk inspectors have in several cases authorized complete enclosure as the temperature of the exposed surfaces is so low as to make even metal linings unnecessary. Ranges will be furnished without legs when intended for use with Kab-bases, or special cabinets.

Wiring for Hotpoint Ranges

Each range must be supplied through a separate branch circuit. (Rule 1602-c—1925 N.E.C.) This should preferably be a 110-220-volt, 3-wire circuit. The circuit to each range must be controlled by an accessible indicating switch. The service switch may be used for this purpose. In the Multi-Family dwelling, a switch should be in the apartment, or on the same floor of the apartment in which the range is installed and may control the lights and other appliances. (1928 N.E.C. Rule 1603) (A-3). This switch does not need to be within sight of the range. If the range connection is made with a three-wire plug and receptacle, the requirement of this switch is generally waived.

When only single conductor, single braid, solid wire is used, the following conduit sizes may be used (Rule 503m—1925 N.E.C.):

- 3—No. 12 wires in $\frac{1}{2}$ -in. conduit
- 3—No. 10 wires in $\frac{3}{4}$ -in. conduit (standard)
- 3—No. 8 wires in $\frac{3}{4}$ -in. conduit
- 3—No. 6 wires in 1-in. conduit (recently approved)

Demand factor. Electric ranges seldom are used at their full name plate rating. Many city electrical inspection codes allow the use of a demand factor in determining the size of service wires, switchboards and feeders supplying electric ranges.

RANGE LOADS

Number of Ranges	
1 to 2	100%
3	85%
4	65%
5	52%
6	40%
7	30%

For safety reasons it is essential that all range frames be thoroughly grounded. A ground connection to the conduit supplying the range is considered satisfactory.

The various heating units in electric ranges are not required to be separately fused. (Rule 1605-d—N.E.C. 1928.) The larger Hotpoint ranges have individual fuses for convenience.

Metering

In many cities a low wholesale rate for electric service makes it desirable for the apartment owner to purchase all of the power for lighting, ranges, elevators, etc., though one meter and include the cost of power for cooking in the rent. In other cities a low rate for cooking is available to individual small customers which make it desirable for each apartment to be separately metered, particularly as lighting and cooking power is generally supplied through the same meters, and each tenant thus assumes the operating cost.

Power Demand and Consumption

The National Electric Light Association has recently completed a very complete study of the load characteristics of groups of electric ranges. Demand—for ranges in detached houses with an average nameplate rating of 6.44 kw., the maximum demand per range was found to be as follows:

Number of range customers	Average maximum demand per range
1	3.61 kw.
5	1.75
10	1.36
20	1.13
40	1.00
80	.89
150	.86

Tests made in six apartment buildings in Seattle totaling 284 ranges showed a maximum demand of .87 kw. per range.

Kilowatt-Hour Consumption

The average power used by an electric range installed in homes has been found to be very closely 1500 kilowatt-hours per year. The N.E.L.A. report shows an average of 1424 kilowatt-hours per year for the homes that were studied. Of course, wide variations from this are to be expected.

Separately metered three and four-room apartments show a substantially lower consumption. Six apartment buildings in Seattle were carefully checked and an average consumption of 90 kilowatt-hours per apartment per month was found. Other tests indicate an average consumption per apartment of 80 to 100 kilowatt-hours per month.

ELECTROMASTER INC.

Manufacturers of the Electrochef Range

FACTORY AND GENERAL OFFICES

1803 East Atwater Street, DETROIT, MICH.

Product

ELECTROCHEF ELECTRIC RANGE for residences and apartments; standard finish white porcelain.

Distinctive Features

A new economical modern electric stove combining all the advantages of electric cooking with many distinctive features heretofore unknown in electric ranges.

Interchangeable Surface Units—All four burners are of the same size and capacity. They may be changed by the housewife and washed in the dishpan if necessary.

They draw 1300 watts on high heat; 650 watts on medium; and 325 watts on low.

Porcelain Enamel Through-out—The entire exterior of the range is white porcelain. Easy to clean as a china plate.

Round Corners—All corners are rounded preventing dirt accumulation.

Crevices are eliminated.

Chromium Plate—The reflectors under the surface units and the interior of the oven are heavily plated with chromium to prevent rust and insure efficient reflection of heat.

New Heat Principle—Heat is transferred to the food by radiation and convection.

Pressed Steel—All major parts are drawn from armco iron and are finished in white porcelain or chromium plate.

The manufacturer will gladly furnish information



The Electrochef Range

regarding apartment house model occupying floor space 22x24 in., with the oven beneath the cooking table, or the Master Model having 6 burners and 2 ovens, overall width 71 in.

Electrical Characteristics

Maximum amperage (all elements on), 31.3 amperes.

Table element watts on low, 325 watts; medium, 650 watts; high, 1300 watts.

Oven element watts (one element, one switch position, automatic control), 2000 watts.

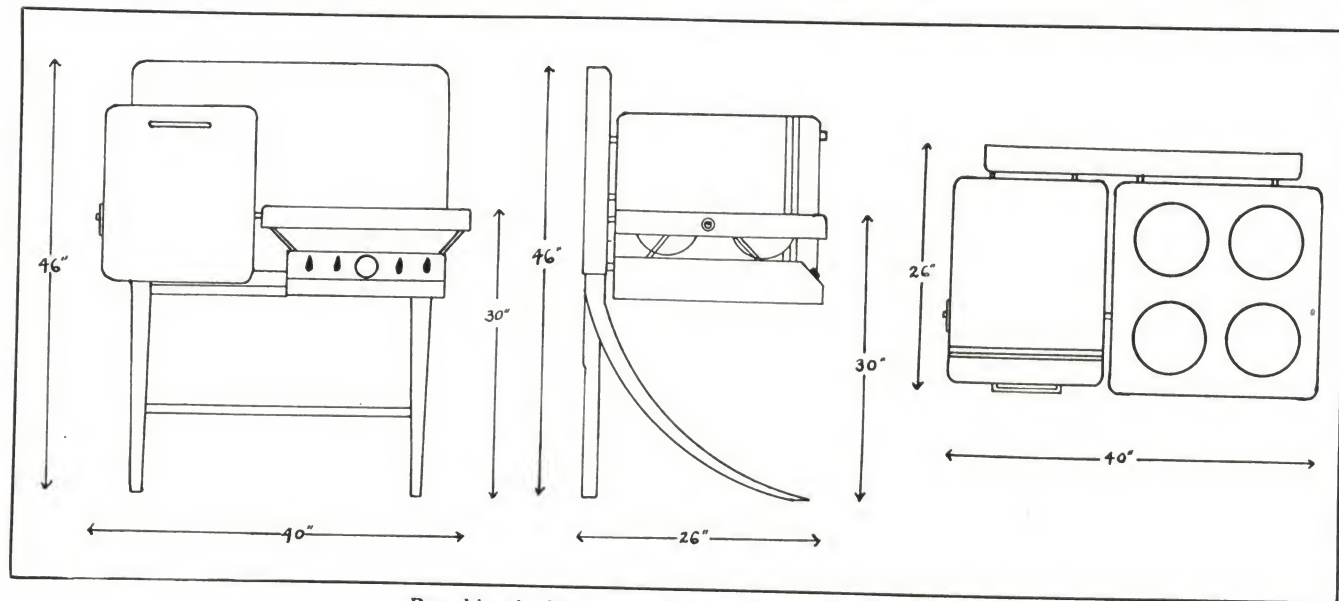
Total wattage (115/230 volts) including convenience outlet, 7900 watts.

Electrochef should be fused at 35 amperes. Specify A. C. or D. C.

Specifications

Dimensions and weights of Model "B."

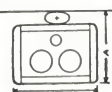
Overall height	47½"
Overall width	40½"
Overall depth	25½"
Cooking table size	22½" x 22½"
Cooking table height from floor	31"
Diameter of cooking table unit	6½"
Oven interior height (above element)	11½"
Oven interior height (grilling space)	3¼"
Oven interior width (rack to rack)	13"
Oven interior depth	19"
Total net weight	180 lb.
Shipping weight crated	240 lb.
Dimensions of crate	49½" high x 44½" wide x 28¾" deep
Weight of table element	10 oz.
Weight of oven element	2 lb. 13 oz.



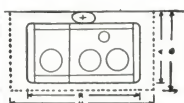
Roughing-in Dimensions of the Electrochef Range

**Smoothtop No. E18ET**

Full enamel finish insulated or non-insulated, supplied also in color, semi-enamel and standard finishes. Closed top heated by two-speed burners in front and one junior burner in rear. Entire top is cooking area, having four cooking zones, duplex oven and broiler of large capacity



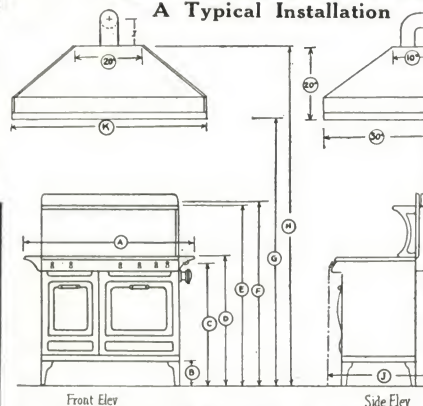
No. E18ET
Oven,
18x19x14 in.
For complete dimensions of range see table below



No. E12-16ET
Oven,
16x19x13 in.
Broiler,
10x19x13 in.

**Smoothtop No. E12-16ET**

Full enamel finish, supplied also in semi-enamel finish. Closed top heated by three-speed burners in front and one junior in rear. Entire top is cooking area having four cooking zones—speed, moderate, simmering and warming. Large oven and separate broiler. Exceedingly compact and moderately priced

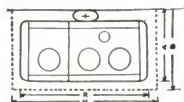
**A Typical Installation****Dimension Diagram of Ranges**

Di- men- sions	Range Numbers					
	E-18	E-12- 16	E-12- 18	E-12- 18W	E-18- 18	E-18- 18W
A-1	32	42 $\frac{3}{4}$	48 $\frac{1}{4}$	48 $\frac{1}{4}$	54 $\frac{1}{2}$	54 $\frac{1}{2}$
A-2	26	36 $\frac{3}{4}$	42 $\frac{1}{4}$	42 $\frac{1}{4}$	49	49
B	8 $\frac{1}{2}$	9 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$
C	35 $\frac{1}{2}$	35 $\frac{1}{2}$	35 $\frac{1}{2}$	35 $\frac{1}{2}$	35 $\frac{1}{2}$	35 $\frac{1}{2}$
D	36	36	36	36	36	36
E	50 $\frac{1}{4}$	50 $\frac{1}{4}$	50 $\frac{1}{4}$	50 $\frac{1}{4}$	50 $\frac{1}{4}$	50 $\frac{1}{4}$
F	49 $\frac{1}{2}$	49 $\frac{1}{2}$	49 $\frac{1}{2}$	49 $\frac{1}{2}$	49 $\frac{1}{2}$	49 $\frac{1}{2}$
G	74	74	74	74	74	74
H	94	94	94	94	94	94
I	6"	6"	6"	6"	6"	6"
J	26 $\frac{1}{2}$	26 $\frac{1}{2}$	26 $\frac{1}{2}$	26 $\frac{1}{2}$	26 $\frac{1}{2}$	26 $\frac{1}{2}$
K	38"	49"	54"	54"	60"	60"

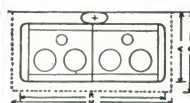
Note: A-1 shows dimension with End Shelves. A-2 shows dimension without End Shelves. For Heat Control without end shelves add 1 $\frac{1}{2}$ in. to A-2.

**Smoothtop No. E12-18ET**

Full enamel (insulated or non-insulated). Also supplied in color, semi-enamel and standard finishes. Top is heated by three-speed burners in front and one junior in rear. Has ample capacity for large families. Top will accommodate 8 large vessels. Warming closet supplied if desired



No. E12-18ET
Oven,
18x19x14 in.
Broiler,
11 $\frac{3}{4}$ x19x14 in.
For complete dimensions see table opposite



No. E18-18ET
Ovens (2),
18x19x14 in.

**Smoothtop No. E18-18ET**

The largest of the smooth top line. Supplied in full enamel (insulated or non-insulated), and in color. Also semi-enamel and standard finishes. Top equipped with six burners, four-speed burners in front and two junior burners in rear. Two large ovens, one of which is both baking and broiling oven

All Smoothtop Ranges can be supplied with or without Oven Heat Control

SOME NOTABLE INSTALLATIONS**Smoothtop Ranges**

APARTMENT HOUSE OWNER OR BUILDER	ARCHITECT	NUMBER OF SMOOTHTOPS
Brett and Wyckoff, New York, N. Y.	Cross & Cross	37
Rhineland Real Estate Corp., New York, N. Y.	Sugarman & Berger	98
T. E. Rhoades Co., New York, N. Y.	Kenneth Murchison	29
A. & M. Campagna, New York, N. Y.	Rosario Candella	53
Simon & Hartstein, New York, N. Y.	J. M. Felson	48
Astor Estate, New York, N. Y.	Chas. A. Platt	46
G. Richard Davis, New York, N. Y.	Lafayette A. Goldstone	43
Jos. A. Paterno, New York, N. Y.	Rosario Candella	37
Bing and Bing, New York, N. Y.	Emery Roth	12
Willets Const. Co., New York, N. Y.	Geo. F. Pelham	50
G. Richard Davis, New York, N. Y.	Lafayette A. Goldstone	22
Dwight P. Robinson, New York, N. Y.	T. Burrill Hoffman	44
Fred F. French Co., Tudor City, New York, N. Y.	J. E. R. Carpenter	188
277 Park Ave. Corp., New York, N. Y.	Fred F. French Co.	218
Garden Court Apts., Jackson Heights, N. Y.	McKim, Mead & White	99
Manoa Realty Co., Pittsburgh, Pa.	H. L. Stevens	87
Harry B. Mulliken, New York, N. Y.		89
Kennedy Bros., Washington, D. C.		90
Pennsylvania Apts., Philadelphia, Pa.		163
Wohl Bros., Kew Gardens, L. I., N. Y.		118
Julius Tishman & Son, New York, N. Y.	Schwartz & Gross	67
90 Riverside Drive Corp., New York, N. Y.	Schwartz & Gross	105
The Churchill Apts., Chicago, Ill.	H. L. Stevens	63
Open Stair Corp., Jackson Heights, N. Y.		161
173-5 Riverside Drive Corp., New York, N. Y.	J. E. R. Carpenter	130
Samuel A. Herzog, New York, N. Y.		58
Jackson Heights Apt. Corp., New York, N. Y.		36
Filmore Bldg. Corp., Jackson Heights, N. Y.		61
J. K. Turton, Inc., New York, N. Y.	F. H. Dewey & Co., Inc.	86
Jas. Conforti Const. Co., Elmhurst, L. I., N. Y.		210
J. H. Taylor Const. Co., New York, N. Y.	Geo. & Edward Blum	45
585 West End Ave. Corp., New York, N. Y.	Emilio Levy	129
J. H. Taylor Const. Co., New York, N. Y.		101

Vulcan Heavy Duty Ranges

BUILDING	LOCATION
Leamington Hotel	Oakland, Calif.
Olmstead Grill	Washington, D. C.
Atlanta-Biltmore	Atlanta, Ga.
Seminole Hotel	Jacksonville, Fla.
The Stevens	Chicago, Ill.
Merchandise Mart	Chicago, Ill.
Baltimore Club	Baltimore, Md.
Copley-Plaza	Boston, Mass.
University Club	Boston, Mass.
Berkeley-Cartaret	Asbury Park, N. J.
Traymore Hotel	Atlantic City, N. J.
Walt Whitman Hotel	Camden, N. J.
Prudential Insurance Company	Newark, N. J.
Princeton University	Princeton, N. J.
St. George Hotel	Brooklyn, N. Y.
Half Moon Hotel, Coney Island	Brooklyn, N. Y.
Ritz-Carlton Hotel	New York, N. Y.
Savoy-Plaza Hotel	New York, N. Y.
Bellevue and Allied Hospitals	New York, N. Y.
New Yorker Hotel	New York, N. Y.
Cloud Club	New York, N. Y.
R. H. Macy & Company	New York, N. Y.
Westchester Baltimore Country Club	Rye, N. Y.
State Hospital for Insane	Norristown, Pa.
Benjamin Franklin Hotel	Philadelphia, Pa.
Mount Royal Hotel	Montreal, Que.
Hotel Cosmopolitan	Denver, Colo.
St. Joseph's Hospital	Elgin, Ill.
Gary Hotel	Gary, Ind.
Notre Dame University	South Bend, Ind.
Butterworth Hospital	Grand Rapids, Mich.
Childrens Hospital	St. Paul, Minn.
New Ambassador	Kansas City, Mo.
Hotel Schroeder	Milwaukee, Wis.

Vulcan Heavy Duty All Hot Top Ranges, Bake Ovens and Other Gas Appliances

There is a Vulcan Gas Appliance for every cooking need—in hotels, restaurants, clubs, schools, hospitals, factories, any place where large quantity cooking is done—only a few numbers of which are shown here.

Ask for our descriptive catalogue.

Vulcan All Hot Top Ranges—Are equipped with a patented four-ring burner. All four rings are lighted to heat food quickly, then one or two rings keep food cooking. Every square inch of closed top heated (by one burner) giving maximum capacity in minimum space.



No. 3751 Hotel Range with High Shelf



A Combination of Vulcan Ranges and Spreader Plate

7½ ft. of working surface consisting of two No. 3751 ranges, one 30½-in. spreader plate, two No. 784 high shelves and one No. 3787 salamander broiler



Combination of Various Types of Vulcan Restaurant Gas Ranges

Smaller in size, but constructed upon the same principle as the heavy duty ranges. Restaurants, smaller hotels, hospitals, large private homes and hundreds of other requirements are being satisfactorily served by these ranges

Vulcan ranges have a proven record of a saving of gas consumption of 25%.

Two types can be supplied—heavy type for the big hotel, restaurant and hospital, and a similar design smaller in size.

Furnished with closed or open top, can be connected together like sectional bookcases, in any combination to meet every cooking need.

On this page are shown several of the innumerable combinations of Vulcan ranges.

Attachments—Broilers and high shelves, which are interchangeable, are furnished as required.

Vulcan Bake Ovens—The new Vulcan Insulated Bake Oven with heat control meets the needs of hotels, restaurants, bakeries, clubs and institutions for an oven that will turn out a wide variety of baked products of superior quality. Walls of ovens are insulated to prevent loss of heat, making for economy and improving working conditions. Better cooking results are assured because of even distribution of heat throughout oven. A new feature is the automatic heat control which maintains any temperature desired without attention. It is easy to operate, simple in construction, and extremely accurate. Sturdy construction of oven assures many years of satisfactory service.



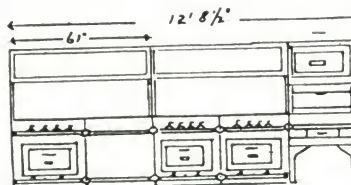
Vulcan Bake Oven

Two sizes: No. 3761 has a capacity of 48 1-lb. loaves bread or 24 10-in. pies. No. 3762 has a capacity of 96 1-lb. loaves bread or 48 10-in. pies

Cooking Planning Service

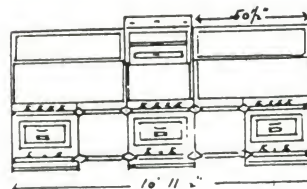
Experts with many years' experience in planning the cooking equipment for thousands of kitchens will be glad to assist you in selecting the types and sizes of equipment best suited to the job in hand.

Use this service when a client is considering equipping a new kitchen or renovating one now in use.



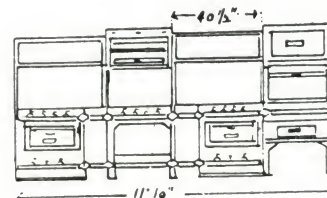
Three Vulcan No. 3751 Ranges

30½-in. spreader plate and Vulcan No. 3756 broiler. Space required 12 ft. 8½ in.



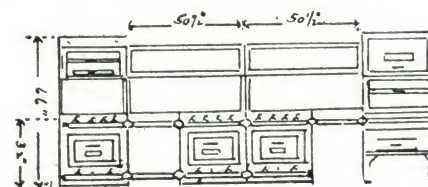
Three Vulcan No. 3751 Ranges

Two 20-in. spreader plates with salamander and high shelves. 10 ft. 11½ in. of cooking surface



Two Vulcan No. 3751 Ranges

No. 3752 skeleton cooking top, two 10-in. spreader plates and No. 3756 Vulcan broiler connected in combination. Space required 11 ft. 10 in.



Three Vulcan No. 3751 Ranges

Salamander broiler, two 20-in. spreader plates, one connected between range and broiler

Typical Combinations of Vulcan Hotel Ranges

WESTINGHOUSE ELECTRIC & MFG. CO.

EAST PITTSBURGH, PA.

For Branch Offices, see our Lighting Catalogue
For References to Other Products, see Index to Manufacturers

Hotel Type Broilers

Built to withstand constant hard service, and in design incorporates features that insure convenience of operation and low operating cost. Broiler is made in two sizes, each of which is supplied complete with an insulated au gratin oven permanently placed above the broiling area. Heat from the broiler, which would otherwise be wasted, is used in heating this oven.



Large Broiler with Roasting Oven

The broiling grid, which is counterbalanced, is manipulated by a convenient handle and can be adjusted by the operator's arm, thus leaving the hands free to place the food to be broiled directly on the broiling grid.

The large broiler is supplied with a roasting oven identical to that in the hotel range which gives the user increased roasting facilities with no increase in floor space.

BROILER SPECIFICATIONS

	Style No. 220-v.	Kw.	Floor space, in.		Over-all ht., in.	Approx. wt., lb.	
			Wide	Deep		Net	Ship.
Large broiler with roasting oven	449552	18	44½	39	70	1630	1755
Small broiler	449553	8	30½	39	70	1000	1080

	Large broiler dimensions, in.			Small broiler dimensions, in.		
	Wide	Deep	High	Wide	Deep	High
Broiler grid area	33	24		23	24	
Capacity, steaks per hr.	72 pounds			48 pounds		
Chickens (broilers), per hr.	54 pounds			36 pounds		
Warming oven, dimensions	31	22	12	21	22	12
Roasting oven, dimensions	22	28	15	Not	supplied.	
Roasting oven meat capacity	50 pounds					

Voltage—220 a-c. or d-c. and 110 special.
Control—Three-heat reciprocating switches.
Finish—Standard, black japan with polished steel trim. Special, as required.

Electric Griddles

Unusually attractive appearance, economical, convenient, extremely sturdy, and especially adapted for the quick service of steak, chops, eggs, bacon or hot cakes.



Electric Griddle

These electric griddles are suitable both for heavy duty continuous service and also for the intermittent operation in hotel, restaurant or lunchroom where they may be used to keep food hot until required.

They are made in two sizes. The body is made of heavy sheet steel, well braced on the inside. The feet are of cast iron. The legs and switch box are black japanned and the body is polished nickelplate.

The griddles have cast iron tops with a deep grease groove around the outside edge. A hole is provided in this groove for a pipe drain.

COMMERCIAL COOKING

The 20-in. griddle has one heater. The 38-in. has two heaters each covering one-half of the top area. Heaters are controlled by a three-heat, reciprocating snap switch giving full, one-half and one-quarter heat.

GRIDDLE SPECIFICATIONS

Kw.	Style Nos.		Dimensions, in.			Approx. wt., lb.	
	110-v.	220-v.	Length	Depth	Height	Net	Ship.
3	497829	497830	20	20	9½	80	110
6	497831	497832	38	20	9½	139	175

Commercial Type Ranges

The Westinghouse 3-ft. and 4-ft. section commercial type ranges are built to withstand the heavy service found in hotel, restaurant, cafeteria and institution kitchen operation.

Framework of ranges is heavy structural steel. Cooking surface consists of cooking plates surrounded by a belt of brushed steel trim. Heating elements are embedded in the heavy cast iron plates. Corrox construction, in such a way that they are completely protected, insuring high efficiency and long life. The 4-ft. section has 4 plates, 3-ft. section 2 plates, each being controlled by separate 3-heat snap switch.



Hotel Type Range

Ovens, supported by the framework, consist of an inner and outer shell of rust-resisting steel. Oven of the 4-ft. section is lined with stainless steel and the 3-ft. section is vitreous enamel lined; both are heavily insulated with mineral wool.

Oven can be supplied with either non-automatic or automatic temperature control. All switches and fuses, kept cool by air circulation, are mounted directly on the ranges. Range fronts are protected by guard rails.

The Westinghouse Range will do more work than a fuel range of the same size, thus saving labor and floor space.

SPECIFICATIONS

Description	Style No. 220-V.	Dimensions, in.			Kw.	Approximate weight, lb.	
		Width	Depth	Height		Net	Ship.
3-ft. section range							
Automatic	595111	36	30	31	11.6	600	630
Non-automatic	595110	36	30	31	11.6	600	630
4-ft. section range							
Automatic	595109	48	40	31	24.0	1025	1275
Non-automatic	595108	48	40	31	24.0	1025	1275
3-ft. section plate shelf	595132	36	12	32		45	80
4-ft. section plate shelf	521668	48	15	32		75	115
4-ft. section cooking top	595181	48	40	31	18.0	725	910

Cooking Surface—3-ft. section: 24 in. wide, 18 in. deep; 2 cast iron plates each 12x18 in.; total 8 kw. 4-ft. section: 36 in. wide, 24 in. deep; 4 cast iron plates each 12x18 in.; total 18 kw.

Roasting Oven—3-ft. section: 18 in. wide, 17½ in. deep, 15 in. high total 3.6 kw. 4-ft. section: 22 in. wide, 28 in. deep, 16 in. high; total 6 kw.

Voltage—220 volts a-c. or d-c. (specify in case of automatic); 110-volt special.

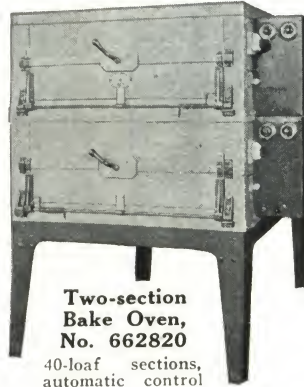
Control—Three-heat reciprocating switches for cooking surface. Automatic or non-automatic temperature controlled oven.

Finish—Black japanned body, brushed steel top trim, special as required.

Sectional Bake Ovens

Have many features which bakeries, hotels, ships and institutions readily realize. The ovens are of the hearth type built in sections, each section having independent heat control; thus products requiring different baking temperatures may be baked in adjacent sections at the same time. All ovens are supplied with either automatic or non-automatic temperature control. In non-automatic controlled oven temperature is regulated by three-heat reciprocating switches. In automatic oven temperature is maintained automatically at any desired point by a thermostat and mercury switch.

Sectional Ovens can be easily installed in basements or second story locations where it would be inconvenient or unsafe to install a large heavy oven because separate sections can be carried through a small door.



**Two-section
Bake Oven,
No. 662820**

40-loaf sections,
automatic control

OVEN SPECIFICATIONS, 10-LOAF

Oven complete	Style No. 220-v., 60-cycle a-c., automatic	Floor space, in.		Ht. over all, in.	Ht. to hearth, in.			Approx. wt., lb.	
		Wide	Deep		1st sec.	2nd sec.	3rd sec.	Net	Ship.
1-sec.	662801	34½	35	49¾	35¾			575	725
2-sec.	662802	34½	35	63¾	31¾	49¾		1000	1220
3-sec.	662803	34½	35	69¾	19¾	37¾	55¾	1500	1750

Capacity—each section
Hearth area: 19 in. wide, 28½ in. deep.

Inside height: 8 in.
Loaves bread: Ten 1-lb.
Roll pans: One 18 x 26-in.
Pie tins: Six 9-in.

Door opening: 19 x 7½ in.
Hearth: 1½-in. tile.

Electrical—each section
Wattage: 3000.
Voltage: 220 volts 1-phase, 60-cycle.
110 volts or d-c. special.

OVEN SPECIFICATIONS, 20-LOAF

Oven complete	Style No. 220-v., 60-cycle a-c., automatic	Floor space, in.		Ht. over all, in.	Ht. to hearth, in.			Approx. wt., lb.	
		Wide	Deep		1st sec.	2nd sec.	3rd sec.	Net	Ship.
1-sec.	662810	53½	35½	49¾	35¾			875	1085
2-sec.	662811	53½	35½	63¾	31¾	49¾		1475	1855
3-sec.	662812	53½	35½	69¾	19¾	37¾	55¾	1975	2625

Capacity—each section
Hearth area: 38 in. wide, 28½ in. deep.

Inside height: 8 in.
Loaves bread: Twenty 1-lb.
Roll pans: Two 18 x 26-in.
Pie tins: Twelve 9-in.

Door opening: 38 x 7½ in.
Hearth: 1½-in. tile.

Electrical—each section
Wattage: 4500.
Voltage: 220 volts 1-phase, 60-cycle.
110 volts or d-c. special.

OVEN SPECIFICATIONS, 40-LOAF

Oven complete	Style No. 220-v., 60-cycle a-c., automatic	Floor space, in.		Ht. over all, in.	Ht. to hearth, in.			Approx. wt., lb.	
		Wide	Deep		1st sec.	2nd sec.	3rd sec.	Net	Ship.
1-sec.	662819	55½	66½	50¾	35¾			1100	1705
2-sec.	662820	55½	66½	65¾	31¾	50¾		2100	2945
3-sec.	662821	55½	66½	72¾	19¾	38¾	57¾	3000	4185

Capacity—each section
Hearth area: 38 in. wide, 58 in. deep.

Inside height: 8 in.
Loaves bread: Forty 1-lb.
Roll pans: Four 18 x 26-in.
Pie tins: Twenty-four 9-in.

Door opening: 38 x 7½ in.
Hearth: 1½-in. tile.

Electrical—each section
Wattage: 6000.
Voltage: 220 volts 1-phase, 60-cycle.
110 volts or d-c. special.

OVEN SPECIFICATIONS—60-LOAF

Oven complete	Style No. 220-v., 60-cycle a-c., automatic	Floor space, in.		Ht. over all, in.	Ht. to hearth, in.			Approx. wt., lb.	
		Wide	Deep		1st sec.	2nd sec.	3rd sec.	Net	Ship.
1-sec.	662828	73¾	66½	50¾	35¾			2150	2250
2-sec.	662829	73¾	66½	65¾	31¾	50¾		3800	3980
3-sec.	662830	73¾	66½	72¾	19¾	38¾	57¾	5500	5710

Capacity—each section
Hearth area: 56 in. wide, 58 in. deep.

Inside height: 8 in.
Loaves bread: Sixty 1-lb.
Roll pans: Six 18 x 26-in.
Pie tins: Thirty-six 9-in.
Door opening: 55¾ x 8 in.
Hearth: 1½-in. tile.

Electrical—each section
Wattage: 9100.
Voltage: 220 volts 1-phase, 60-cycle.
110 volts or d-c. special.
Finish for all ovens: Standard—battleship gray, dark gray trim. Special—monel, aluminized or vitreous enamel with special finish trim.

Sectional Roasting Ovens

Made in capacities to meet all requirements from the small restaurant to the largest hotels or cafeterias.

These ovens will pay for themselves in a short length of time due to reduced shrinkage of meats. Improved flavor and reduced spoilage are other important features.

Three sizes of roasting ovens are listed, each of one or two-section capacity. These are complete ovens. In addition the meat roasting section only (with tile hearth) is described. With this information the dimensions and other information on combination ovens can be secured by referring to this data and like description of the corresponding bake oven.

Complete roasting ovens	Style No. 220 volts, 1-ph., 60-cy., automatic	Capacity, lbs.	Floor space, in.		Ht. over all, in.	Ht. to hearth, in.		Kw.	Approx. wt., lb.	
			Wide	Deep		1st sec.	2nd sec.		Net	Ship.
1-sec.	662804	60	34½	35	53½	35¾		3.0	725	790
2-sec.	662805	120	34½	35	72	31¾	53¾	6.0	1500	1350
1-sec.	662813	125	53½	35½	53¾	35¾		5.5	975	1095
2-sec.	662814	250	53½	35½	72¾	31¾	54¾	11.0	1675	1875
1-sec.	662822	250	55½	66½	54¾	35¾		7.5	1250	1670
2-sec.	662823	500	55½	66½	74¾	31¾	55¼	15.0	2350	2935

ROASTING SECTIONS ONLY

Sec. only*	662796	60	34½	35	22½	.....	3.0	485	565
Sec. only*	662792	125	53½	35	22½	.....	5.5	650	780
Sec. only*	662800	250	55½	66½	23½	.....	7.5	975	1265

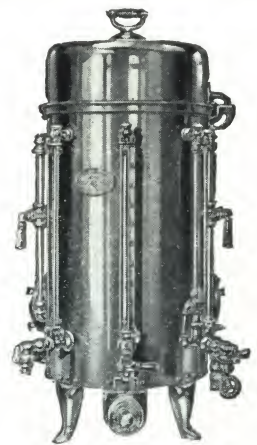
*With section only is included tile frame S. No. 662840, 595222 or 662841, respectively.

For a combination oven use one or more style numbers as given above and the style numbers for a complete bake oven.
Hearth area: 60 lb.—19x28½ in. 125 lb.—38x28½ in. 250 lb.—38x58 in.
Inside height, all sizes: 12¾ in.
Finish and control: Same as other ovens.

Electric Coffee Urns

The Westinghouse Electric Coffee Urn is a combination hot water and coffee urn consisting of two compartments, one for hot water and one for coffee. The urn is simple in operation and foolproof in construction. Coffee cannot be made in the urn until the water boils and this boiling water is quickly sprayed over the grounds and automatically repoured with cover closed, thus retaining all the delicate aroma and flavor.

The urn body is made of very heavy copper, nickel-plated and polished, and the coffee container is of heat-resisting glass in the smaller sizes; rustproof metal in the 8 and 10-gal. sizes. An air space between the coffee container and the inner shell keeps the coffee at proper temperature, preventing cooling or boiling. The urns of the 4-gal. and smaller sizes have one coffee faucet and one hot water faucet. The larger urns have two coffee faucets and one hot water faucet. The urn is provided with efficient and durable immersion heaters controlled by a three-heat rotary switch. The Westinghouse Urn has a special combination safety and water relief valve to prevent any possible collapse or bursting from pressure through careless handling.



Coffee Urn

COFFEE URN SPECIFICATIONS

Kw.	Capacity, gal.		Style No.		Over-all height, in.	Diam., in.	Approx. ship. wt. lb.
	Coffee	Water	110-volt	220-volt			
3	2	4	471178	471172	38	13	175
3	3	6	471179	471173	39	13	185
4	4	8	471180	471174	44½	16¾	275
5	6	12	471181	471175	46	17	300
7	8	16	471176	471176	48½	18	340
9	10	20	471177	471177	48¾	19¾	360

Continued on next page

ELECTRIC RANGES

Westinghouse uses the Old Dutch Oven principle for the operation of its Flavor Zone Ranges. They are the only ranges that make it possible to duplicate the best results of any other cooking method without any one being in the kitchen during the browning and roasting process. A lining of enameled sheet steel is placed inside the outer oven walls and a high grade heat insulator (mineral wool) packed between lining and walls. The same procedure is followed in the oven door, so that, when closed, heat is retained in the oven long after the current has been turned off. The use of this principle has many advantages: economy of current consumption from the use of stored heat; food left in the oven longer than necessary is never overdone or burned, but kept hot and palatable; complicated method of control not necessary to maintain a cooking temperature in the oven.



New Quick-Cook Unit

Improved Clock—An important improvement in the appearance of the Westinghouse ranges has been brought about by redesigning the clock which automatically turns on the oven heat at the desired time. New modernistic lines make this clock an object of beauty, quite apart from its very utilitarian purpose in the range.

Ovens—Furnished right or left-hand.

**Junior Console 43**

Description—Kitchenette for 5 or 6 people.

Dimensions in Inches—Overall, 35½ wide, 43½ high, 24½ deep. Oven, 14 wide, 14 high, 17½ deep. Cooking platform, 18 wide, 21¼ deep, 32 from floor. Wiring outlet, from floor 25; from oven end 9½.

Finish—Gray enamel and black japan.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in., 1500 watts and 2250 watts. Oven: top, 1500 watts; bottom, 1500 watts. Appliance receptacle, 660 watts—not used on non-automatic.

Operation—Automatic or non-automatic. Automatic oven controlled by thermometer.

**Low Oven Range**

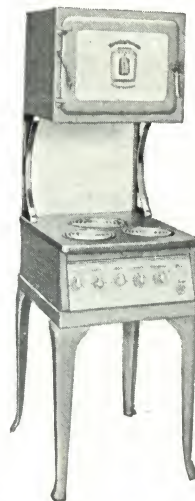
Description—Small kitchenette.

Dimensions in Inches—Overall, 20½ wide, 38¼ high, 21 deep. Oven, 16½ wide, 13½ high, 12 deep. Cooking platform, 19¾ wide, 17½ deep, 35 from floor. Wiring outlet, from floor 28½; from oven end 5¾.

Finish—Gray enamel and black japan.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in., 2250 watts. Oven: top, 1500 watts; bottom, 1500 watts. Appliance receptacle, 660 watts.

Operation—Automatic or non-automatic. Automatic oven controlled by thermometer.

High Oven Range

Description—Small apartment kitchen.

Dimensions in Inches—Overall, 20½ wide, 62¼ high, 24 deep. Oven, 16½ wide, 13½ high, 12 deep. Cooking platform, 19¾ wide, 23 deep, 32 from floor. Wiring outlet, from floor 25; from oven end 9½.

Finish—Gray enamel or black japan.

Units—Surface, open or enclosed; two 6 in., 1000 watts; one 8 in. (hot spot), 1500 watts. Oven: top, 1500 watts. Appliance receptacle, 660 watts.

Operation—Automatic or non-automatic. Automatic oven controlled by thermometer.

The Console 43

Description—Small kitchen.

Dimensions in Inches—Overall, 40½ wide, 49¾ (43½ non-automatic) high, 27 deep. Oven, 14 wide, 14 high, 17½ deep. Cooking platform, 23 wide, 24½ deep. Wiring outlet, from floor 25; from oven end 12½.

Finish—(Non-automatic is in gray only and has no appliance receptacle.) Gray, semi-white or green enamel.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in. (hot spot), 1500 watts; 8 in., 2250 watts. Oven: top, 1500 watts; bottom, 1500 watts. Appliance receptacle, 660 watts.

Operation—Full automatic oven controlled by clock and thermometer. Automatic by thermometer.

**Console 63**

Description—Bigger family.

Dimensions in Inches—Overall, 43 wide, 51¼ (full automatic) 45 automatic high, 27 deep. Oven, 16 wide, 14 high, 17½ deep. Cooking platform, 23 wide, 24½ deep, 32 from floor. Wiring outlet, from floor 25; from oven end 12½.

Finish—Gray, green or semi-white.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in. (hot spot), 1500 watts; 8 in., 2250 watts. Oven: top, 1500 watts; bottom, 1500 watts. Appliance receptacle, 660 watts.

Operation—Full automatic or automatic. Full automatic oven controlled by clock and thermometer, automatic oven controlled by thermometer.

Console 83

Description—Small or medium size kitchen.

Dimensions in Inches—Overall, 45½ wide, 51¼ (full automatic) 45 (automatic) high, 27 deep. Oven, 18 wide, 15 high, 17½ deep. Cooking platform, 23 wide, 24¼ deep, 32 from floor. Wiring outlet, from floor 25; from oven end 12½.

Finish—Gray, green or semi-white.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in. (hot spot), 1500 watts; 8 in., 2250 watts. Oven: top, 1800 watts; bottom, 1800 watts. Appliance receptacle, 660 watts.

Operation—Full automatic or automatic.



Console 84

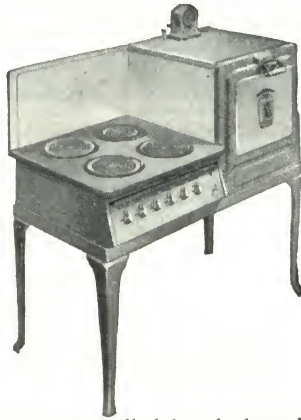
Description—For family of 8 or 10.

Dimensions in Inches—Overall, 48½ wide, 51¼ high, 27 deep. Oven, 18 wide, 15 high, 17½ deep. Cooking platform, 26 wide, 24¼ deep, 32 from floor. Wiring outlet, from floor 25; from oven end 13½.

Finish—Gray, green or semi-white.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in., 1000 watts; 8 in. (hot spot), 1500 watts; 8 in., 2250 watts. Oven: top, 1800 watts; bottom, 1800 watts. Appliance receptacle, 660 watts.

Operation—Full automatic (oven controlled by clock and thermometer).

**Console Fuel 83**

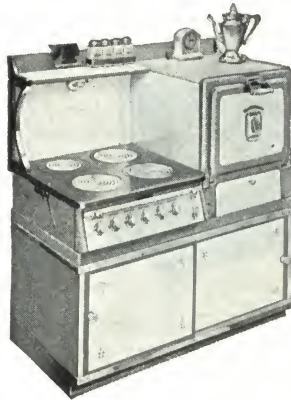
Description—For small, medium sized kitchens.

Dimensions in Inches—Overall, 59 wide, 54 high, 32½ deep. Oven, 18 wide, 15 high, 17½ deep. Cooking platform, 36½ wide, 24 deep, 34¼ from floor. Fire box, 13½ wide, 18 long, 8¼ deep. Wiring outlet, from floor 27¼; from oven end 25¼; fire box 13½ wide, 18 long, 8½ deep.

Finish—Gray enamel or semi-white.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in. (hot spot), 1500 watts; 8 in., 2250 watts. Oven: top, 1800 watts; bottom, 1800 watts. Appliance receptacle, 660 watts.

Operation—Full automatic.

**Royale 841 with Lowboy**

Description—More than 6 people (small clubs).

Dimensions in Inches—Overall, 48½ wide, 54¼ high, 27 deep. Oven, 18 wide, 15 high, 17½ deep. Cooking platform, 26 wide, 24 deep. Warming compartment, 17½ wide, 18 deep, 5¼ high. Wiring outlet, from floor 25; from oven end 13½.

Finish—Gray enamel and chromium plate.

Units—Surface, open or Corox enclosed; 6 in., 1200 watts; 8 in., 1500 watts; 8 in. (hot spot), 2250 watts. Oven: top, 1800 watts; bottom, 1800 watts. Appliance receptacle, 660 watts.

Operation—Full automatic, (oven controlled by clock and thermometer).

**Royale 431**

Description—5 or 6 people.

Dimensions in Inches—Overall, 40½ wide, 53¼ high, 27 deep. Oven, 14 wide, 14 high, 17½ deep. Cooking platform, 23 wide, 24¼ deep, 32 from floor. Wiring outlet, from floor 25; from oven end 12½.

Finish—Gray enamel and chromium plate.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in. (hot spot), 1500 watts; 8 in., 2250 watts. Oven: top, 1500 watts; bottom, 1500 watts. Appliance receptacles, 660 watts.

Operation—Full automatic (oven controlled by clock and thermometer).

Console Fuel 43

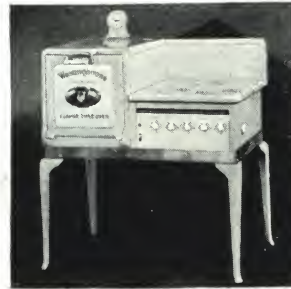
Description—For family of 5 or 6 people.

Dimensions in Inches—Overall, 53¼ wide, 52½ high, 32½ deep. Oven, 14 wide, 14 high, 17½ deep. Cooking platform, 36½ wide, 24¼ deep, 34¼ from floor. Fire box, 13½ wide, 18 long, 8¼ deep. Wiring outlet, from floor, 27¼; from oven end 25¼.

Finish—Semi-white or gray enamel.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in. (hot spot), 1500 watts; 8 in., 2250 watts. Oven: top, 1500 watts; bottom, 1500 watts. Appliance receptacle, 660 watts.

Operation—Full automatic.

**Junior Console D 43**

Description—Apartment or home kitchen for 5 or 6 people.

Dimensions in Inches—Overall, 38½ wide, 47 high, 27½ deep. Oven, 14 wide, 14 high, 17½ deep. Wiring outlet, from floor 24; from oven end 9½.

Finish—Gray enamel.

Units—Surface, open Quick-Cook; 6 in., 1000 watts; 8 in. (hot spot), 1500 watts; bottom, 1500 watts; appliance receptacle, 600 watts.

Operation—Full automatic, automatic, non-automatic.

Console D 63

Description—For the bigger family.

Dimensions in Inches—Overall, 40½ wide, 47 high, 27½ deep. Oven, 16 wide, 14 high, 17½ deep. Wiring outlet, from floor 25, from oven end 12½.

Finish—Gray enamel.

Units—Surface, open Quick-Cook or enclosed; 6 in., 1000 watts; 8 in. (hot spot), 1500 watts; 8 in., 2000 watts. Oven: top, 1500 watts; bottom, 1500 watts. Appliance receptacle, 660 watts.

Operation—Full automatic or automatic.

**Console D 83**

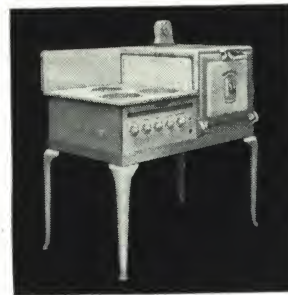
Description—For small or medium sized kitchens.

Dimensions in Inches—Overall, 43½ wide, 48 high, 27½ deep. Oven, 18 wide, 15 high, 17½ deep. Wiring outlet, from floor 24; from oven end 9½.

Finish—Gray enamel.

Units—Surface, open Quick-Cook; 6 in., 1000 watts; 8 in. (hot spot) 1500 watts; 8 in., 2000 watts. Oven: top, 1800 watts; bottom, 1800 watts; appliance receptacle, 660 watts.

Operation—Full automatic or automatic.

**Senior Console D 84**

Description—8 or 10 people (small clubs and the like).

Dimensions in Inches—Overall, 47 wide, 48 high, 27½ deep. Oven, 18 wide, 15 high, 17½ deep. Wiring outlet, from floor 24; from oven end 11½.

Finish—Gray enamel.

Units—Surface, open Quick-Cook; 6 in., 1000 watts; 8 in., 1000 watts; 8 in. (hot spot), 1500 watts; 8 in., 2000 watts.



COLT'S PATENT FIRE ARMS MANUFACTURING CO.

Manufacturers of Dish, Silver and Glass Cleaning Machines

HARTFORD, CONN.

NEW YORK, N. Y., 20 Vesey Street
CHICAGO, ILL., 626 W. Jackson Boulevard
CINCINNATI, OHIO, 3405 Brotherton Road

CLEVELAND, OHIO, 7350 Euclid Avenue
ST. LOUIS, MO., 6609 Washington Avenue
ST. PAUL, MINN., 416 Roy Street
DALLAS, TEX., Milam Hotel

Colt Autosan Dishwashers

A dishwashing machine, whether for a large hotel or small lunchroom, must stand up under hard service, be foolproof, wash delicate china and glassware quickly, thoroughly and safely, and be economical—a real money and time saver. Colt Autosans completely fill all these requirements.

Construction—Of copper (or monel metal), brass and bronze, with the micrometer accuracy that fine firearms require, means long life and low "upkeep" cost.

Economical—Many leading hotels, restaurants, clubs, hos-

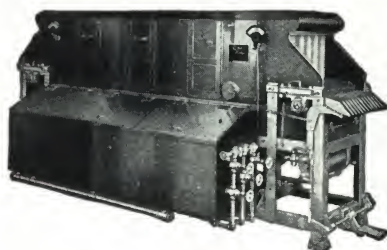
COLT AUTOSAN

DISH AND SILVER CLEANING MACHINES

pitals and institutions have reduced their dishwashing costs 25% to 50% by installing Colt Autosans. They are built in eight models—a model for every dishwashing need.

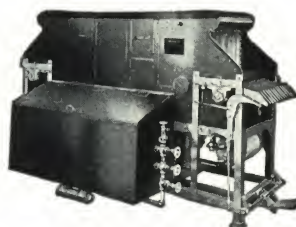
Guarantee—Autosans are a typical Colt product in all that the name implies. They are backed by the character, reputation and guarantee of one of America's oldest, largest and most responsible manufacturers.

Catalogues—Write for new Architects' Portfolio containing illustrated catalogues, prices, drawings, specifications and detailed information on the various models.



Model "C-3" Conveyor Type

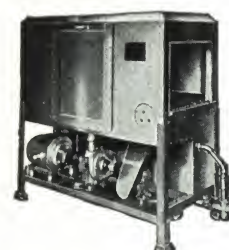
For heavy duty. The largest Autosan made. It has maximum capacity, speed and efficiency. For big hotels, clubs, restaurants and hospitals it (1) washes, (2) rewashes, (3) rinses and (4) sterilizes all tableware quickly, safely and economically for upward of 2000 persons per meal.



Model "C-22" Conveyor Type

For large volume work. Mechanically like Model "C-3," embodying the same labor saving features, but with two tanks instead of three, hence occupying less floor space and with somewhat less capacity. 1200 to 2000 persons per meal, cafeteria service.

Model "C-2"—Identical to Model "C-22," except with conveyor 17 in. wide instead of 22 in. 1000 to 1500 persons.



Model "RA-1" Automatic Rack Conveyor Type

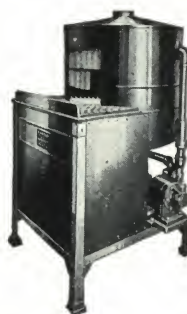
The machine for kitchens with much work and little space. Racks of tableware are carried on roller chain conveyor through a battery of washing cataracts—on through another battery of rinsing sprays to the receiving table, insuring fast, dependable turnover from soiled to clean dishes with minimum care and attention.

Model "RM-1," Manual Rack Type—Same as Model "RA-1" without roller chain conveyor. Racks of tableware are manually put through machine on special rollers.



Model "B" Rotary

A compact, simple, sturdy dishwasher that is ideal for hotels, clubs, restaurants and hospitals of average size. Operates on the rotary conveyor principle which gives large capacity with extreme economy of floor space and remarkable ease of operation and saving of labor. Will wash tableware for 1000 persons, cafeteria service, per meal. Standard machines equipped for heating by steam. Gas attachment furnished at same price or combination steam and gas at slight additional cost.



Model "A-2" Rotary

For small restaurants. Similar to Model "B" but smaller. Occupies about the space of an armchair. Will handle tableware for up to 600 persons per meal or will wash 4000 glasses per hour. Used by small hotels, clubs, lunchrooms and hospitals. Standard machine equipped for heating by steam. Gas attachment furnished at same price or combination steam and gas at slight additional price.



Model "S-1" Rack Type

A rack-type Autosan of unique design and with many practical features for ultimate efficiency. Ideal for small restaurants and hospitals. Interlocking fixed sprays secure maximum cleanliness in washing and rinsing tableware. Standard machine equipped for heating by steam. Gas attachment furnished at same price, or combination steam and gas at slight additional price.

COLT AUTOSAN DISHWASHERS

Model	"C-3"	"C-22"	"C-2"	"B"	"A-2"	"S-1"	"RA-1"	"RM-1"
Capacity—Persons per meal (cafeteria service).	3500	2000	1500	1000	600	500	1100	1100
Floor dimensions:								
Length	120	87	87			28½	56½	56½
Depth				58	46			
Width	50	50	40	48	34	28½	28½	28½
Height	59	59	59	64	66	64	59	59
Motor	3	2	2	2	1	1	2	2
Connections:								
Steam and water.....	¾	¾	½	½	½	½	½	½
Sewer	2	2	2	2	2	2	2	2
Shipping weight, net.....	2950	2096	1950	1490	815	650	1020	850

CRESCENT WASHING MACHINE DIVISION OF THE HOBART MANUFACTURING CO.

Manufacturers of Electric Dishwashers and Glasswashers
TROY, OHIO

NEW YORK OFFICE, 40 East 22nd Street

CHICAGO OFFICE, 308 West Randolph Street

SALES AND SERVICE REPRESENTATIVES IN ALL PRINCIPAL CITIES

Crescent Electric Dishwashers and Glasswashers

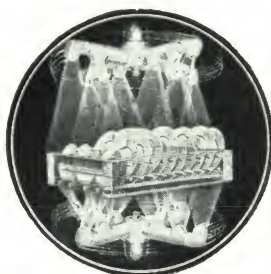
For hotels, restaurants, hospitals, schools, institutions, cafeterias, lunch-rooms, clubs, soda fountains, etc. Made in eight sizes, ranging from the small Model SM to Model FF with a capacity of 18,000 dishes per hour.

All models are extremely compact, durable and neat in appearance. They may be obtained in 16-gauge Monel metal, 48-oz. copper or 12-gauge galvanized iron. The three larger models are completely automatic.

Simplicity of Operation

No experience is necessary to get perfect results from a Crescent.

The tableware is simply placed in racks—open at top and bottom—which hold the dishes steady and safe and which allow the water to reach every surface. The racks are then placed in the machine which practically does the rest.



Crescent Patented Revolving Wash

Only on a Crescent will you find the patented revolving wash. The rack of dishes slides between two sets of wash arms—one above and the other below the dishes. Powerful jets of hot wash water are discharged from wide nozzles in these arms as they revolve. The whirling streams quickly strip and scrub away every trace of grease and food particles, without injuring the most delicate china.

Sterilizing Rinse

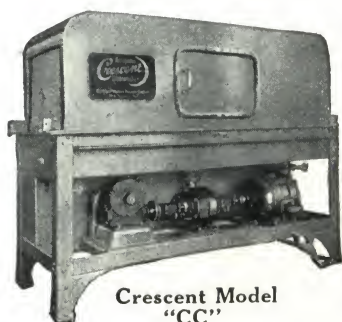
Each rackful of dishes gets a shower of clean, scalding hot water straight from the boiler. Patented rinse sprayers, located above and below the dishes, distribute the water with the greatest effectiveness and economy.

Retained heat dries the dishes within a few seconds after they leave the machine. Toweling is the task of a second or two, and the tableware is immediately ready for service again—clean—sparkling—sterilized.

Installation

All Crescents are shipped completely assembled. Power and plumbing connections are all that are necessary to make the machine ready for use. Installing a Crescent is just as simple as installing a sink.

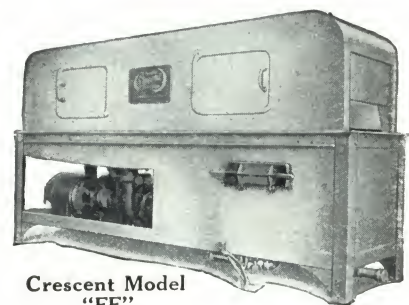
Details in Architects' Data Book, which we will be pleased to send on request.



Crescent Model
"CC"



Crescent Model "SM"
(with table)

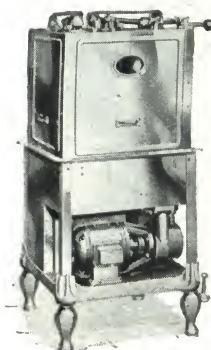


Crescent Model
"FF"

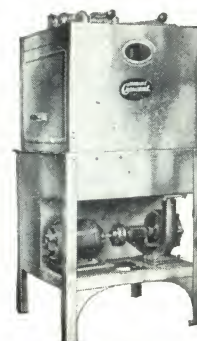
A CRESCENT FOR EVERY SIZE KITCHEN

Model	"SM"	"KM"	"AM-2"	"AA"	"BB"	"CC"	"DD"	"FF"
Capacity: Dishes per hr.		1,500	4,000	5,000	7,000	8,000	10,000	18,000
Glasses per hr.		3,000	5,000	6,000	8,500	10,000		
Persons accommodated per meal	Up to 50	20-125	100-300	200-450	300-600	300-700	550-1000	800-2000
Racks furnished	3	4	5	6	8	10	12	15
Motor, hp.	1/4	1/4	1/2	3/4	1 1/2	2	3	5
Length, in.	22	27	28	31	58	58	75	113
Width, in.	21	25	27	28	30	32	32	34
Height open, in.	16 3/4	65 3/4	68	69				
Height closed, in.		52 1/2	58	60	60	60	60	60
Table height, in.		34	34	34	34	34	34	34
Shipping weight, lb.	250	500	650	800	1200	1400	1900	3100

Furnished complete with motor, heating equipment and racks for dishes, glasses and silver. The Architects' Data Book of Crescent Dishwashers, containing detailed information, installation diagrams, table layouts, etc., will be sent on request.



Crescent Model
"AM-2"



Crescent Model
"AA"

FASPRAY CORPORATION

Manufacturers of Dishwashing Machines

RED BANK, NEW JERSEY

Product

FASPRAY DISHWASHING MACHINES for washing, rinsing and sterilizing dishes, glasses and silverware.

A model to meet the service requirements of each hotel, restaurant, cafeteria, club, hospital and institution.

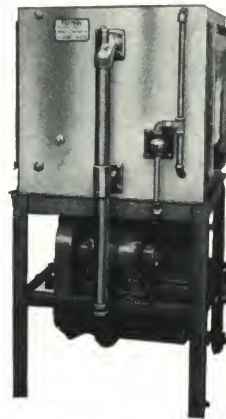
All models constructed of either copper, Monel Metal or Allegheny Metal.

Engineering Data Portfolio

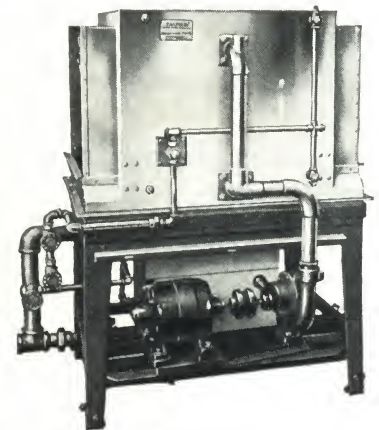
A portfolio, giving complete engineering specifications and data on all Faspray dishwashing machines will be mailed you on request. Standard file size.

Kitchen Layout Service

Men in our organization who have specialized for years in kitchen problems and layout are ready to place their experience at your disposal. It is part of our service. No obligation.



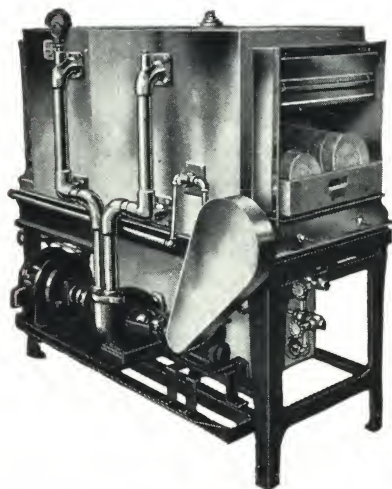
Model 18
Manually operated basket



Model 26
Manually operated basket

ENGINEERING DATA

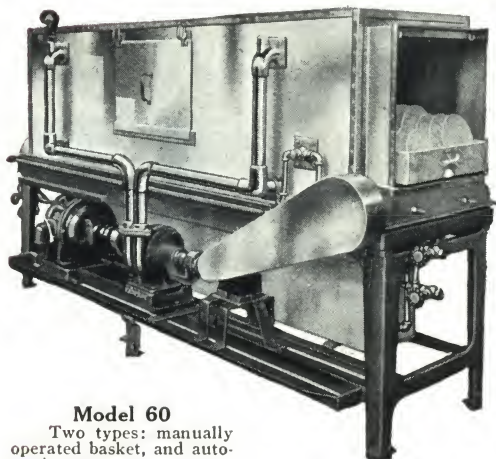
Model	18	26	48	60	96	48	60	96
Type	Basket (Manually Operated Basket)					Automatic Conveyor		
Capacity, pieces per hour	4000	5000	10,000	15,000	20,000	10,000	15,000	20,000
Washing Chamber length bet. tables, in.	28	38	58	78	98	58	78	98
Opening for tables, width, in.	20	20	20	20	20	20	20	20
Table height, in.	34 1/4	34 1/4	34 1/4	34 1/4	34 1/4	34 1/4	34 1/4	34 1/4
Extreme overall length, in.	30 1/2	40	71	91	111	71	91	111
Extreme over all width, in.	29	29	32 1/2	33	33	32 1/2	33	33
Extreme over all height, in.	56	56	58 1/2	58 1/2	58 1/2	58 1/2	58 1/2	58 1/2
Pump capacity, gals. per min. at 10 lbs.	100	125	200	300	400	200	300	400
Wash tank, capacity, gal. at 130°	15	15	14	19	25	14	19	25
Rinse tank, capacity, gal. at 180°			14	19	25	14	19	25
Final rinse, gals. used per hour	40	50	100	150	200	100	150	200
Storage tank required, gal.	100	125	200	300	400	200	300	400
Heating, steam hp. at 25 lb., open system	2	2	4	6	8	4	6	8
Gas, cu. ft. per hour, supply water at 90°	50	50	75	90	125	75	90	125
Gas, cost at \$1.00 per 1,000 cu. ft.	.03	.03	.04	.05	.065	.04	.05	.065
Electric, watts, per hour	4000	4000	8000	8000	8000	8000	8000	8000
Electric, cost at 6c per kw.	.24	.24	.48	.48	.48	.48	.48	.48
Motor for pump, horse power	1/2	3/4	1	2	3	1 1/2	2	3
Motor operating cost at 6c per kw.	.04	.05	.06	.09	.14	.07	.12	.17
Motor for basket conveyor, h.p.						1/2	1/2	1/2
Size of baskets, in.	18 1/2 x 18 1/2	18 1/2 x 20	18 1/2 x 20	18 1/2 x 20	18 1/2 x 20	18 1/2 x 20	18 1/2 x 20	18 1/2 x 20
Number of baskets furnished	5	5	7	9	12	9	12	12
Size of pipe connections, steam, in.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Size of pipe connections, hot water, in.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Size of pipe connections, cold water, in.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Size of pipe connections, drain, in.	2	2	2	2	2	2	2	2
Size of pipe connections, gas, in.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Shipping weight, crated, lb.	500	650	1100	1300	1800	1400	1650	2200
Shipping weight, export, lb.	600	775	1300	1575	2200	1600	1925	2600
Displacement, cu. ft.	45	58	107	138	160	107	138	160



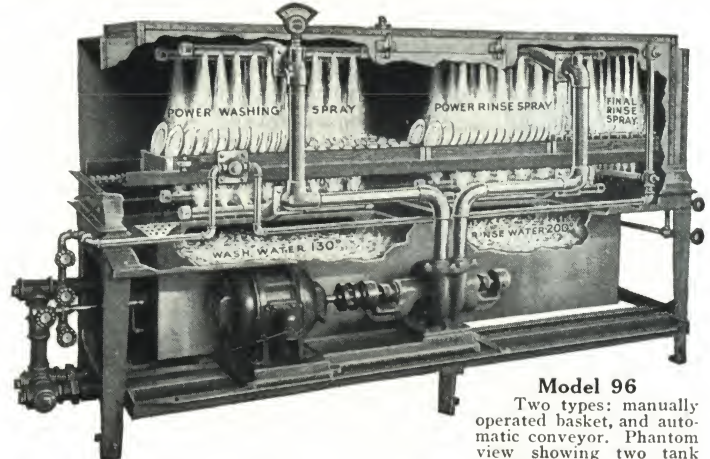
Model 48
Two types: manually operated basket, and automatic conveyor

Variable Speed Conveyor Data

	Model 48		Model 60		Model 96	
	Slow	Fast	Slow	Fast	Slow	Fast
Conveyor speed, variable, ft. per min.	4	to 12	6	to 18	8	to 24
Time of rack in machine, seconds	45	to 18	45	to 18	45	to 18
Delivery, one rack every second	22 1/2	to 9	15	to 6	11 1/4	to 4 1/2
Capacity, number of pieces per hour	4000	to 10,000	6000	to 15,000	8000	to 20,000



Model 60
Two types: manually operated basket, and automatic conveyor



Model 96
Two types: manually operated basket, and automatic conveyor. Phantom view showing two tank construction for temperature control

THE AUDIFFREN REFRIGERATING MACHINE CO.

TELEPHONE
CALEDONIA 6762

511 Murray Hill Building
NEW YORK, N. Y.

CABLE ADDRESS
"AUDREFMACO"

Products

AUDIFFREN-SINGRUN ICE MACHINE.
AUDIFFREN DRINKING WATER SYSTEMS.
AUDIFFREN REFRIGERATING SYSTEMS.
AUDIFFREN ROOM COOLING SYSTEMS.

The Audiffren Machine

Description—The Audiffren machine is so designed that the mechanism, the refrigerant—sulphur dioxide—and the lubricating oil are permanently and hermetically sealed inside the dumb-bell shaped rotor.

There are no external glands, valves or gauges. There is nothing to adjust or to set, no gas can leak out and no recharging of refrigerant is ever needed. To produce refrigeration, the dumb-bell must only be rotated, with the condenser end dipping in a tank of cooling water, the evaporator end in the liquid to be cooled.

Advantages—The Audiffren machine is safe. Its design inherently provides for that, and it can be installed anywhere without risk to life or property. There is no fire hazard. The refrigerant is not inflammable. The working pressure is low and excessive pressures can not be generated under any condition of operation or abuse. (Explained in our Bulletin M-105.) Machine refrigerates by simply *rotating the rotor*. It is economical to operate, simple, durable. Satisfaction is permanent.

Sizes—Built in actual capacities of $\frac{1}{5}$ to 6 tons, these machines provide ideal service at low cost with absolute safety, and no skilled supervision.

Application—The Audiffren machine is particularly adapted to direct cooling of drinking water in factories, public buildings and hotels—a single unit serves from 50 to 3000 persons. For the highest grade of refrigerating service and ice making in large private homes, hospitals and institutions, the Audiffren machine is a standard by which refrigerating performance has been judged for many years. This standard is now available for room cooling.

Performance—The Audiffren machine may be operated by belt drive from any available source of power. With electric power it lends itself readily to automatic control and requires only routine attention. When used for refrigeration of *storage boxes* and *cold rooms*, brine is maintained at low temperature in the



Rand Tower, Minneapolis, Minn.

HOLABIRD & ROOT,
Architects
Equipped with Audiffren
Drinking Water System

insulated brine tank (in which ice may be made if desired) and circulated through the cooling coils of the refrigerator.

When refrigerating *drinking water*, no brine is used and the rotor turns directly in the water. The motion of the dumb-bell both cools the water and aerates it in an insulated, covered tank. This feature provides complete accessibility for easily cleaning the tank at regular intervals.

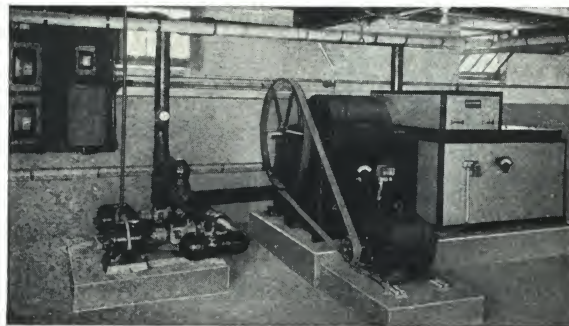
A circulating system is always used. The *auto-circulator* eliminates the pump in certain applications. The Audiffren machine, serving aerated water with a circulating system, provides an unequalled quality of service.

For *room cooling*, similar equipment is used. The cold water is circulated to each room, where an Audiffren unit cooler with its thermostatically controlled fan, cools the air in the room to the proper degree, removes excess humidity, and keeps the air in motion.

Facilities—Audiffren rotors are standard and have been built and perfected in the United States since 1911. Capacities vary with operating conditions, and full information concerning the application is requested from the architect, with whom we are prepared to co-operate at every stage of his project.

Catalogue

Send for descriptive literature and references.



No. 4 Audiffren Refrigerating Unit, Hudson River State Hospital, Poughkeepsie, N. Y.

A Few Prominent Installations of Audiffren Products

Industrial

Pillsbury Flour Mills Co., Minneapolis, Minn.; Buffalo, N. Y.;
Enid, Okla.; Springfield, Ill.
Liggett & Myers Tobacco Co., Durham, N. C.; Richmond, Va.
Otis Elevator Co., Yonkers, N. Y.
Standard Oil Companies of California, Arkansas, Louisiana,
Venezuela
Youngstown Sheet & Tube Co., Youngstown, Ohio

Office Buildings

Aeolian Building, New York, N. Y.
John Hancock Life Insurance Building, Boston, Mass.
New York Telephone Co., New York, N. Y.; Albany, N. Y.
Magnolia Petroleum Company, Dallas, Tex.
New York Central Passenger Station, Buffalo, N. Y.

Hospitals

Battle Creek Sanitarium, Battle Creek, Mich.
Sea View Hospital, Staten Island, N. Y.

Hospitals (continued)

Massachusetts General Hospital, Boston, Mass.
St. Peter's Hospital, Albany, N. Y.
U. S. Naval Hospital, Norfolk, Va.

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Georgian Court, Lakewood, N. J.
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University of Illinois, Urbana, Ill.

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P. A. B. Widener, Elkins Park, Pa.

THE AUTOMATIC REFRIGERATING COMPANY

Automatically Controlled Refrigerating and Ice Making Plants

Patented Individual Room Control

MAIN OFFICE AND WORKS
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Products

AUTOMATICALLY CONTROLLED REFRIGERATING, ICE MAKING PLANTS and DRINKING WATER SYSTEMS; AUTOMATIC INDIVIDUAL ROOM CONTROL.

"Automatic" Refrigerating Systems

Installations are designed to suit the purchaser's requirements as to type and arrangement of the "Automatic" equipment furnished.

Make use of our engineering service and obtain the best possible system for your individual needs.

Operation—By means of the "Automatic" Refrigerating System any number of cold storage rooms can each be held at different temperatures automatically and connected to the same refrigerating machine.

The system is particularly adapted for installations where there is a wide difference of temperature in the various rooms, or where there is an extreme fluctuation of refrigeration demand. It is also possible, where a large number of small boxes are to be cooled, to group them so as to feed several boxes on one circuit. With this arrangement of individual control for each box or groups of boxes, a refrigerating plant can be made completely "Automatic" for any kind of service.



TRADE-MARK
Reg. U. S. Pat. Off.

"Automatic" Liquid Ammonia Valves

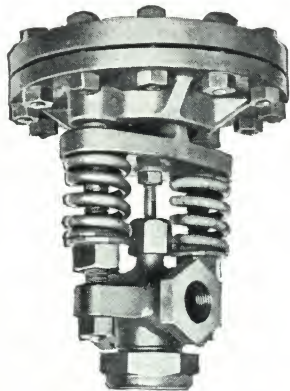
One of these valves placed in the liquid line will shut off the liquid supply when the machine is shut down, either through the thermostat or failure of power. The valve can be operated directly from a thermostat for individual room control.

Thermostatic Expansion Valve

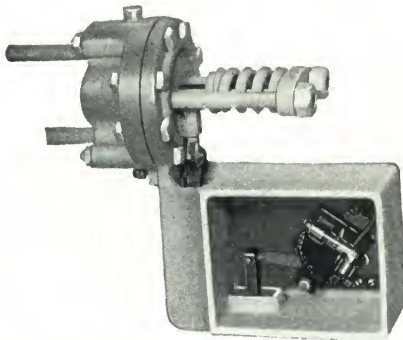
This valve can be used to good advantage either on a refrigerating plant with a single circuit, or in parallel circuits using any number of these valves. The amount of ammonia fed to the expansion coils is controlled by a thermostatic chamber placed in the outlet from the last coil fed by the valve. This type of expansion valve maintains the frost on all of the piping to which it is connected within a few feet of the thermostatic chamber. This means maximum efficiency and minimum operating cost.

Back Pressure Regulator

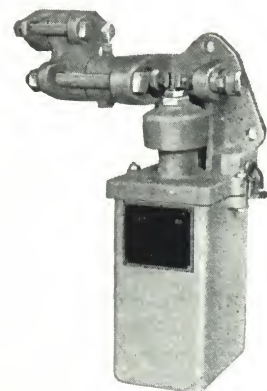
The back pressure regulator is connected to the suction line of the refrigerating machine. This regulator is set to shut down the machine at the highest suction pressure possible and obtain the desired temperatures in the boxes. This eliminates the additional expense involved in producing refrigeration at low suction pressures.



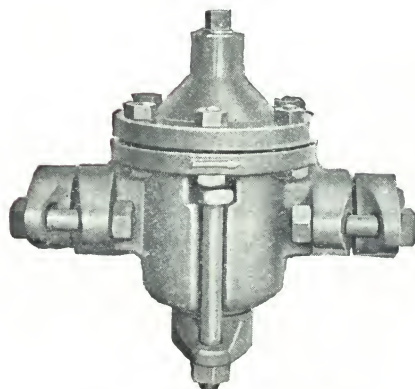
Water Regulator



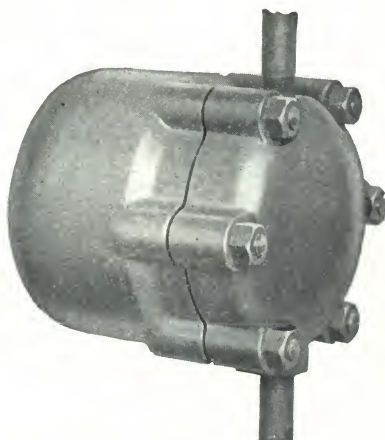
Back Pressure Regulator



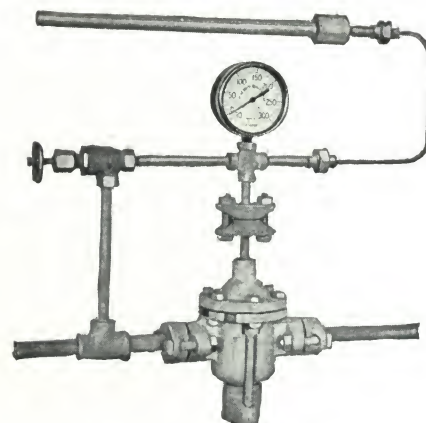
Liquid Valve



Series Expansion Valve



Ammonia Float Valve



Thermostatic Expansion Valve

Pioneers in Automatic Refrigeration

CARBONDALE MACHINE CO.

Manufacturers of Refrigerating and Ice Making Machinery

CARBONDALE, PA.

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TULSA, OKLA.
WAPPINGERS FALLS, N. Y.

CANADIAN CARBONDALE COMPANY, LTD., 110 Church Street, TORONTO, ONT.

Products and Services

REFRIGERATING MACHINES (Carbon Dioxide Compression, Ammonia Compression and Exhaust Steam Absorption Systems); PARAFFIN WAX MACHINERY consisting of Distillate Chilling Machines, Hydraulic Filter Presses, Pumping Equipment, Sweating Pans, etc.

Manufacturers of Ice Making Plants; Low and Intermediate Pressure Raw Water Systems; Evaporator Systems; Steam and Power Aqua Ammonia Pumps; Ammonia Economizers; Brine Coolers; Ammonia Fittings; Liquid Carbonic Acid Gas Plants.

We are prepared not only to furnish these machines but to DESIGN and INSTALL COMPLETE PLANTS.

Compression Refrigerating Systems

Carbondale compression machines are built in the vertical enclosed types up to 50 tons capacity. The horizontal double acting type is built from 16 to 700 tons capacity in single units. The larger units utilize the two-stage principle with water and ammonia intercooling, which greatly increases the efficiency of the unit.

Carbondale carbon dioxide compression machines are used in connection with air conditioning of theatres and public buildings.

The Carbondale ammonia compression system uses the Worthington Feather Valve (Reg. U. S. Pat. Off.) compressor, assuring quiet and efficient operation. We are prepared to furnish Feather Valve ammonia compressors in the following combinations: vertical, enclosed single acting; single and double cylinder, belt driven; horizontal duplex and two-stage, direct connected to electric motor. Single and duplex, steam driven, using direct connected slide valve, or Stumpf unafrow engines.

Absorption Refrigerating Machine

Where large quantities of low pressure steam are available, the absorption refrigerating machine, operating as a by-product apparatus, will deliver refrigeration at a very low cost.

There are no heavy moving parts, and operation is noiseless. Heavy foundations are eliminated. It requires very little attention, and is adaptable to any floor space or headroom.

Application

Carbondale Ice Making and Refrigerating Machinery is performance-proved in practically every industry requiring refrigeration. Moreover the line is so broad and modern that the correct type of machine, to meet local conditions, is always assured.

Bulletins, giving more complete data and descriptions of various Carbondale machines are available.

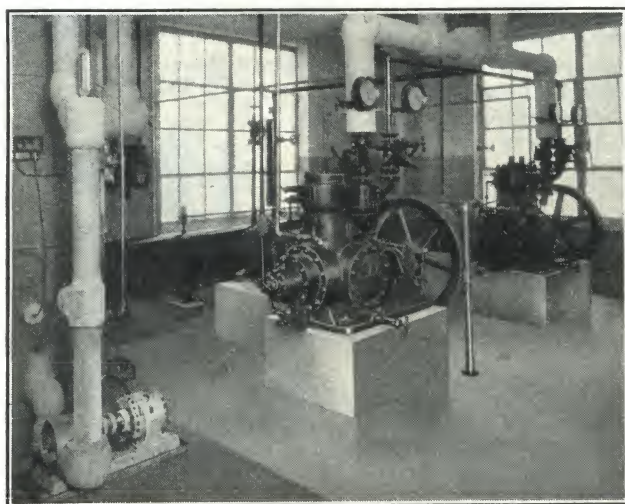
Petroleum Refinery Equipment

The Carbondale chilling machine offers the best method of cooling both medium and zero cold test oils.

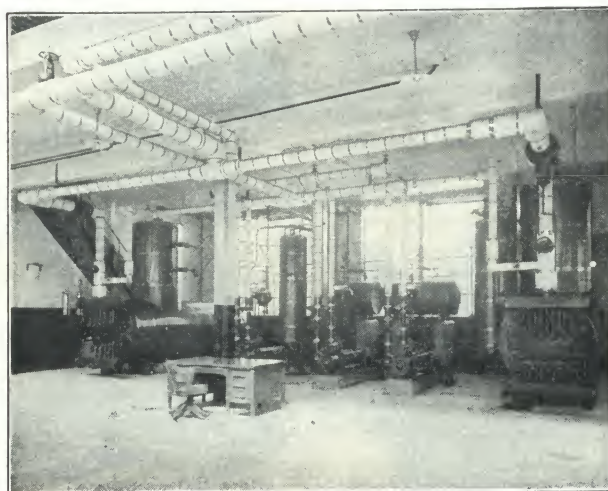
The Carbondale filter press, having flexible plates, is especially adapted for filtering under high pressure, such as the separation of paraffin wax from petroleum distillate and carbon from coal tar.

Carbondale Service

We maintain a staff of engineers experienced in the design of Carbondale machinery and conversant with refrigeration work. They are competent to plan installations to meet individual requirements. Their services are freely offered to engineers, architects and purchasers.



Duplex Single Acting Compressors



Absorption Unit

FRICK COMPANY, INC.

Manufacturers of Refrigerating and Ice-making Machinery
WAYNESBORO, PA.

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	GRAND FORKS, N. D.		PORTLAND, ORE.	

OVERSEAS OFFICES THROUGHOUT THE WORLD

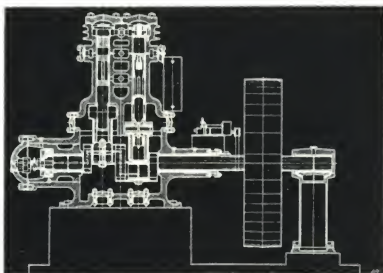
Products and Application

REFRIGERATING and ICE-MAKING MACHINERY, using either ammonia or carbon-dioxide, for all commercial purposes, plants of all sizes and types, with automatic or hand control—Drinking Water Systems, Air Cooling, Cold Storages, Ice-making Equipment, Condensers, Brine Coolers, Coils, Valves, Fittings, and all plant parts.

Description

Frick machines are built in sizes from $\frac{1}{2}$ to 650 tons refrigerating capacity, including four sizes of combined units. The drive can be through belt, or with direct-connected motor, or with steam, gas or oil engine.

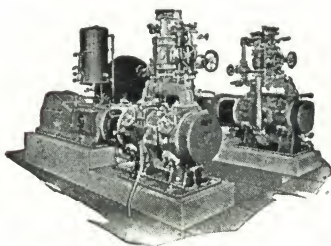
Frick Carbon-dioxide Enclosed Compressors are designed to utilize the advantages of this gas but avoid the usual operating difficulties. Extra long pistons extend into the crankcase, where they provide a crosshead effect, on suitable guides. Heating of suction gas eliminated. Forked connecting rods engage pin on both sides of piston. Shaft stuffing box has metallic packing, oil-sealed. Automatic,



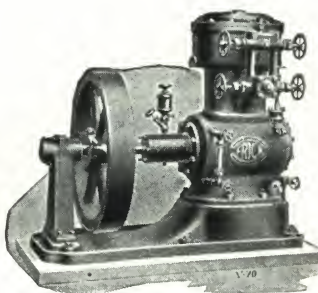
Sectional View Frick Carbon-dioxide Compressor



Frick Carbon-dioxide Compressor



Frick Type J Horizontal Compressor

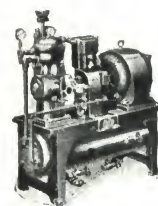


Frick Enclosed Ammonia Compressor

force-feed lubrication throughout. Roller thrust bearing. Single or dual effect compression, to suit requirements. Great capacity with less horsepower. Installed in prominent hospitals, theaters, and other public buildings.

Special Features

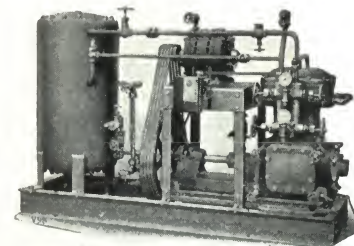
Special features of Frick Enclosed Ammonia Compressors include water jackets over the cylinder heads; plate valves; simple, full size by-pass; automatic lubrication (force-feed for larger sizes); double length stuffing box with spring lantern; die-cast, renewable bearings; outboard bearing beyond fly-wheel; and many others. Frick Horizontal Compressors afford large capacity where space and headroom are limited.



Small Combined Refrigerating Machine with Direct-connected Motor

Service

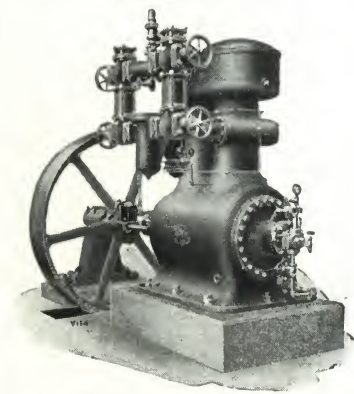
Stocks of Frick machines and refrigerating equipment are carried by distributors everywhere. Both branch offices and distributors offer complete engineering service, including layout, specifications, drawings, sales, manufacture, installation, test, and maintenance. Nearly 50 years' refrigerating experience is built into Frick equipment.



Combined Refrigerating Machine with Belt Drive

Catalogues

Illustrated "Ice and Frost" Bulletins will be sent on request. Please mention the work you wish to do. Separate bulletins describe the various types of compressors, ice-making systems, operating instructions, ammonia fittings, etc.



Large Frick Enclosed Ammonia Compressor

ESTABLISHED 1867

THE VILTER MFG. CO.

Ice Making and Refrigerating Machinery

2100 South First Street, MILWAUKEE, WIS.

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MASSACHUSETTS Boston, 285 Columbus Avenue, Room 740	OHIO Canton, 2430 Lake Road Boulevard Cincinnati,* 951 Blair Avenue	
	CANADA, Toronto, Ontario, 2742 Dundas Street, West	

Products

ICE MAKING and REFRIGERATING MACHINERY: Ammonia Compressors of Compression Type (Vertical, Horizontal, Two-stage, Double Suction, Multiple Effect).

Complete equipment for ice plants, cold storages and cooling equipment for any refrigerating job. Ammonia condensers and brine coolers of vertical or horizontal single and multi-pass atmospheric, double pipe. Ammonia valves and fittings, receivers, ammonia pumps, aqua ammonia pumps, regenerators, separators, automatic expansion valves, coils and pipe fabrications, oil coolers, oil separators, scale traps and all refrigerating machinery accessories.

Description

All above equipment, complete in every detail, made at our own factories. Compression systems only, but use ammonia, carbon dioxide or methyl chloride gas.

Sizes

Ammonia compressors, vertical type, 1 to 60 tons. Horizontal (medium or high speed), 12 tons to any size.

Application

All refrigerating equipment designed especially to meet conditions of any particular job. The self-contained units used for small dairies, butcher shops; also for water cooling in office buildings, apartments, etc. Vertical and horizontal compressors can be used on any type of refrigerating job, the style and size depending upon location, capacity and requirements.

Service

A large engineering corps, long experienced in design and equipment of every type installation, helps you plan your own or your client's plant. International organization assures prompt service on parts, repairs, etc.

Engineering Co-operation

Vilter Engineers are always ready to work with users or prospective users of refrigeration; with architects, engineers and others engaged in building or remodeling plants using the various types of refrigeration.

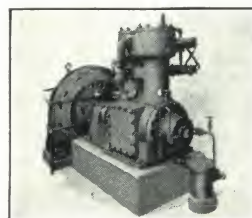
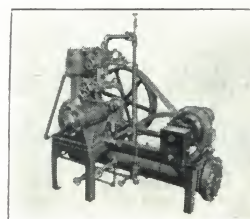
*Designates stock points.

Literature

Address the Home Office regarding any refrigeration problem. Bulletins, catalogs and other reports covering all subjects, gratis.

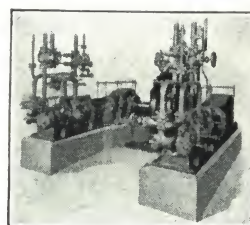
Self-contained Unit

One to six tons. No special foundation necessary. Unit consists of compressor, high side connections, condenser, motor, and full automatic control equipment.



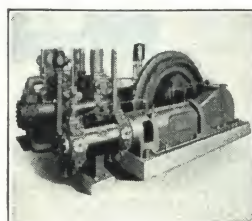
Vertical Compressors

From 4½x4½ in. through the 10½x10½ in. ranging from 6 to 60 tons.



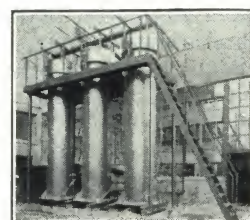
Medium Sized Compressors

Twelve tons to any size.



Two-stage Compressors

For any low temperature work or booster machines if present ammonia compressors are to be operated at very low temperatures.



Condensers

Horizontal or vertical single pass shell and tube, horizontal multi-pass double pipe and atmospheric.

GENERAL REFRIGERATION COMPANY

Manufacturers of Lipman Full Automatic Electric Refrigerating Machines

2005 Shirland Avenue
BELOIT, WISCONSIN, U. S. A.

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PEORIA, ILL., NAILON CORP.
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MEXICO CITY, D. F., MACHINERY CORPORATION, S. A., 3A Palma, 33 Apartado, P.O. Box 76 B
MONTREAL, QUEBEC, F. W. PENNOCK & Co., Imperial Theatre Building
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SANTIAGO, CHILE, CARR HAYNES & CIA., LTD., Augustinas No. 1041, Casilla 2769
SHANGHAI, CHINA, STANDARD PRODUCTS, INC., P.O. Box 844
TOKYO, JAPAN, IWAYA REFRIGERATION Co., LTD., Ichome, Ginza
TORINO, ITALY, SOCIETA ITALIANA DIFFUSIONE, APPLICAZIONE ELETTRO DOMESTICHE, Corso V. Emanuele 74
VANCOUVER, B. C., GENERAL REFRIGERATION Co., 1019 Richard Street
WALKERVILLE, ONTARIO, WALKERVILLE HYDRO-ELECTRIC Co.
WINNIPEG, MANITOBA, ARCTIC ICE & FUEL Co., 156 Bell Avenue

Product

FULL AUTOMATIC (AMMONIA) COMPRESSION REFRIGERATING MACHINES, including Compressors, Condensers, Valves, Fittings, Coils, Cabinets, Water Coolers, etc.

Application

Lipman machines deliver dependable, economical refrigeration for every type of commercial or industrial installation. They function with equal efficiency on direct expansion or brine circulating systems. Typical installations include creameries, apartments, hospitals, schools, hotels, ice cream factories, and drinking water cooling systems for public buildings, institutions, and industrial plants.

Sizes

Self-contained, full automatic machines are built

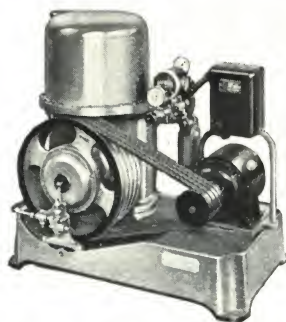


in capacities ranging from 1/4 to 5 tons daily refrigeration. Vertical compressors, with individual capacities of 7 1/2, 10, 15, and 20 tons, are equipped with either automatic or manual controls.

Service

Each Lipman branch and distributing organization has a competent refrigeration engineer as its directing head. These men are specialists in the design and layout of refrigerating systems to fit any commercial or industrial requirement. Design and layout for replacement installations is another service which is given by Lipman engineers free of charge.

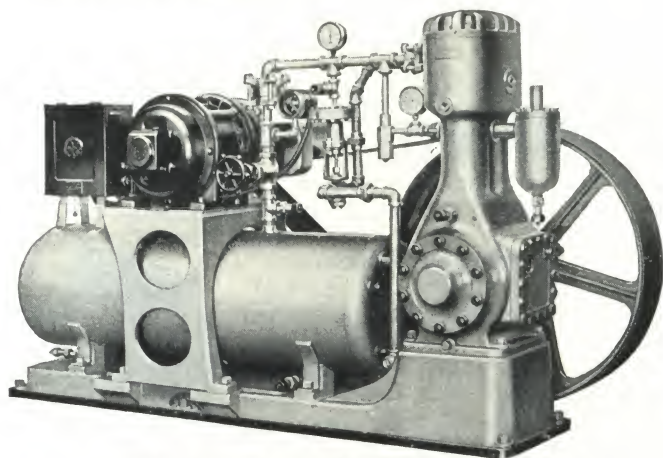
Complete personal information and additional information in the form of booklets and catalogues is always readily available for the mere asking. Submit your refrigeration problems to Lipman for quick and satisfactory solutions.



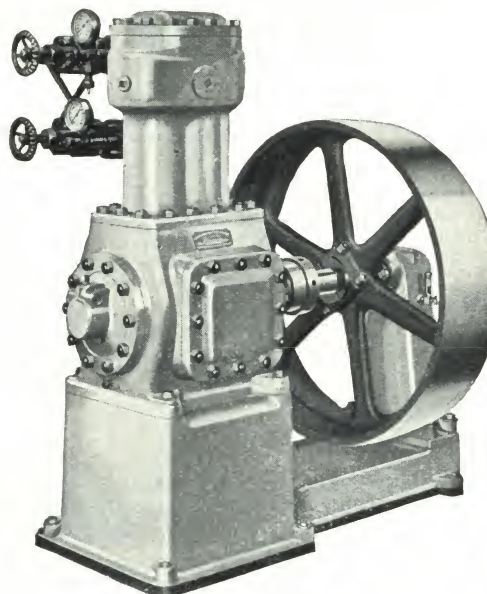
Lipman Refrigerating Machine, 1/2 to 1 1/2 Hp.

Self-Contained Models

The Lipman Model at the left is built in five sizes, ranging from 1/2 to 1 1/2 hp., while the model below is built in six sizes, from 2 to 10 hp. All eleven models are fully automatic and fully self-contained.



Lipman Refrigerating Machine, 2 to 10 Hp.



Lipman Compressor

Other Lipman Models

The Lipman Compressor above is built in the 15, 20, 30, and 40 hp. sizes.

Compressor, motor, and condenser are mounted separately, but may be assembled very compactly and operated fully automatic.

Manual control is optional.

SPECIFICATIONS—LIPMAN FULL AUTOMATIC SELF-CONTAINED REFRIGERATING MACHINES

Model.....	51	61	81	101	151	210	310	410	610	710	1010
Shipping weight with motor (approx.) . . . lb.	435	580	620	880	940	1215	1345	2070	2410	3585	3635
Over-all length . . . in.	25	29 1/2	29 1/2	37	37	43 1/2	54 3/4	56	57 3/4	88	88
Over-all width . . . in.	19	19 1/4	19 1/4	22 1/2	22 1/2	20 1/2	20 1/2	26 1/4	26 1/4	31 1/2	31 1/2
Over-all height . . . in.	22 3/4	24 3/4	26 3/4	33 3/4	36 3/4	46 1/4	46 1/4	53	55 1/4	53 1/2	53 1/2
Compressor speed . . . r.p.m.	490	490	490	395	495	395	495	270	405	180	235
Number of cylinders . . .	1	1	1	1	1	2	2	2	2	2	2
Bore and stroke . . . in.	1 3/4 x 1 1/2	2 x 1 1/2	2 1/4 x 1 1/2	2 1/4 x 2 1/4	2 1/4 x 2 1/4	2 1/4 x 2 1/4	2 1/4 x 2 1/4	3 1/4 x 3 1/2	3 1/4 x 3 1/2	4 1/2 x 5	4 1/2 x 5
Flywheel diameter . . . in.	13 1/4	13 1/4	13 1/4	17	17	19 1/2	19 1/2	28	28	36	36
Flywheel face . . . in.	2	2	2 1/2	3	3	3 1/2	3 1/2	5 1/2	5 1/2	8	8
Motor size . . . hp.	1/2	1/2	3/4	1	1 1/2	2	3	5	7 1/2	7 1/2	10
Motor syn. speed . . . r.p.m.	1800	1800	1800	1800	1800	1800	1800	1800	1800	1200	1200
Motor pulley dia. . . in.	3 15/16	3 15/16	3 15/16	4 1/2	4 3/4	4 3/4	5 3/4	4 1/16	6 3/4	5 15/16	7 11/16
Number of "V" belts . . .	2	2	3	3	4	4	4	5	6	6	8
Oil capacity of crankcase . . . pt.	3 pt.	3 1/2 pt.	3 1/2 pt.	6 1/2 pt.	6 1/2 pt.	9 pt.	9 pt.	11 1/2 qt.	11 1/2 qt.	27 qt.	27 qt.
Ammonia charge capacity . . . lb.	6 1/2	10	12	15	20	25	35	50	75	135	135
Suction line (pipe thread size) . . . in.	1/2	1/2	1/2	1/2	1/2	3/4	3/4	1 1/4	1 1/4	1 1/4	1 1/4
Liquid line (pipe thread size) . . . in.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Water supply (pipe thread size) . . . in.	1/4	1/4	1/4	1/4	1/4	1/2	1/2	3/4	3/4	1	1
Water drain (pipe thread size) . . . in.	1/4	1/4	1/4	1/4	1/4	1/2	1/2	3/4	3/4	1	1
Approx. current consumption per hour . k.w.	0.4	0.6	0.7	0.8	1.0	1.7	2.0	3.0	4.0	4.5	6.0
Approx. amt. 65° cond. water per hr. . cu. ft.	3	4	5	6	8	12	18	26	40	55	65

Models 210, 310, 410, 610 are tapped for split suction.

SPECIFICATIONS—MODELS 1500, 2000, 3000, AND 4000

Model.....	1500	2000	3000	4000
Shipping weight—compressor only . . . lb.	2850	2850	3090	3090
Dimensions, compressor only:				
Length . . . in.	54 1/8	54 1/8	63	63
Width . . . in.	40	40	40	40
Height . . . in.	61	61	70	70
Number cylinders . . .	2	2	2	2
Bore and stroke . . . in.	5 1/2 x 5 1/2	5 1/2 x 5 1/2	7 1/2 x 7 1/2	7 1/2 x 7 1/2
Speed . . . r.p.m.	200	265	160	210
Bearings . . .	Babbitt	Babbitt	Babbitt	Babbitt
Flywheel:				
Size . . . in.	40x10	40x10	40x10	40x10
Weight . . . lb.	645	645	645	645
Crankshaft—drop forged steel . . . diam. in.	3	3	3 3/4	3 3/4
Motor . . . hp.	15	20	30	40
Drive . . .	belt	belt	belt	belt
Refrigerant . . .	ammonia	ammonia	ammonia	ammonia

Other Lipman Equipment

Detailed specifications gladly given on Lipman Unit Water Coolers, Milk Cooling Plants, Re-circulating Water Cooling Systems, Ice Cream Cabinets, Special Cabinets, Brine Tanks, Coils, and Drop Forged Fittings.

YORK ICE MACHINERY CORPORATION

GENERAL OFFICE
YORK, PA.

BRANCH OFFICES

BOSTON, MASS., 200 Causeway Street
BROOKLYN, N. Y., 42nd Street and Second Avenue
PHILADELPHIA, PA., 1238-46 North 44th Street
PITTSBURGH, PA., 24th and Carson Streets, S. S.
CLEVELAND, OHIO, 2700 Washington Avenue, N. W.

ATLANTA, GA., Houston and Jackson Streets
CHICAGO, ILL., 1113-23 Cornelia Avenue
ST. LOUIS, MO., 115-21 South 11th Street
HOUSTON, TEX., 2201-11 Texas Avenue
LOS ANGELES, CAL., 5051 Santa Fe Avenue

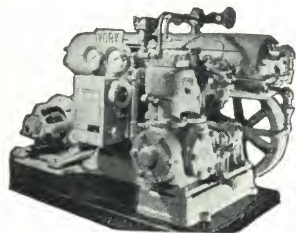
SEATTLE, WASH., 4660 East Marginal Way
TORONTO, CAN., CANADIAN ICE MACHINE CO., LTD., Villiers and Munition Streets
MANUFACTURING PLANTS: YORK, PA., and CANTON, OHIO

Products

ICE MAKING and REFRIGERATING MACHINERY, which includes REFRIGERATING COMPRESSORS of the ammonia and carbon dioxide types, ABSORPTION REFRIGERATING MACHINES, ICE MAKING PLANTS, REFRIGERATING PLANTS, AMMONIA and CARBON DIOXIDE VALVES, FITTINGS and CONDENSERS, BRINE COOLERS, AQUA AMMONIA PUMPS, ICE CANS and all parts needed to equip a complete Ice Making or Refrigerating Plant.

AIR COOLING and CONDITIONING UNITS.
COLD STORAGE DOORS.

Ice Making and Refrigerating Machinery



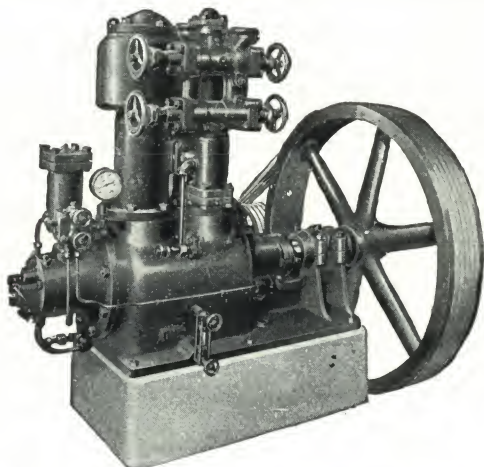
The York Full Automatic Self-contained Refrigerating Unit
Obtainable in capacities up to 8 tons

sizes and types from 1½ to 600 tons refrigerating capacities. Ammonia absorption and carbon dioxide compression machinery of any capacity required by trade.

Application—York Refrigerating Machines are adapted for use in all industries where low temperatures are required, the type of machine being determined, to a great extent, by local conditions. York engineers are thoroughly familiar with all types of local conditions,

Description — We make, in our own factory, all the machinery and apparatus used in ice making and for general refrigeration by means of compression systems of the ammonia and carbon dioxide types and ammonia absorption systems. Compressors may be actuated by any available power.

Sizes—Ammonia compressors are built in various



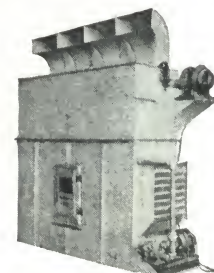
6x6 In. to 12½x14½ In. York Enclosed Ammonia Compressor

having had long experience with ice plant and refrigerating installations in every part of the country.

This valuable experience, together with York Service, York Equipment and York Supplies are at your command by communicating with the nearest of our conveniently located direct factory branches.

Coil Type Air Conditioner

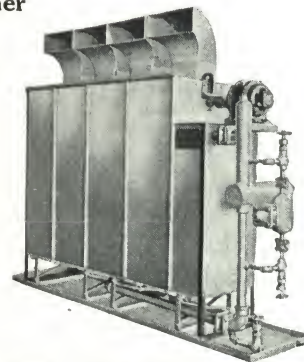
A self-contained unit for cooling air by means of water, brine, carbon dioxide, methyl chloride or ammonia. Coil design insures maximum efficiency. Low speed fans designed for quiet operation. All parts galvanized. Exterior casing lacquered finish. Adapted to thermostatic control, with defrosting feature.



Coil Type Air Conditioner

Spray Type Air Conditioner

Complete self-contained air conditioning unit requiring minimum space and including air washer with refrigerating coil, air heating coils, fan and motor, pump and motor and temperature and humidity control, all assembled as a single unit.



Yorkco Cold Storage Doors

The design, insulation, and construction of these doors incorporate several exclusive Yorkco features which make for the greatest possible efficiency and permanence.

On the standard cooler door, a panel of corkboard placed across the top of the door extends down 6 in. into the granulated cork. This eliminates any loss of insulation through settling of the cork. An extra heavy steel angle reinforcement is screwed into each of the four corners. Superior diagonal bracing adds to the rigidity of the door. Only carefully selected, well-seasoned woods are used; and all hardware is Yorkco designed and built.

Yorkco packing assures delivery in perfect condition. There is a Yorkco cold storage door for every cold storage need.



Yorkco Super Freezer Door

FEDERAL METAL PRODUCTS CORPORATION

Manufacturers of Electric Refrigerators, Cabinets and Compressors

FACTORY AND GENERAL OFFICES

HOBOKEN, N. J.

NEW YORK OFFICE: 40 East 49th Street

Products

FEDERAL FRIGERATORS are made in all the popular styles and sizes employed in domestic household electric refrigeration. Three sizes of compressor units are available, which together with five varieties of cooling units, comprise a range of cabinets from 4 to 16 cu. ft. net capacity.



logue.) This company has offices in principal cities and maintains a large staff of engineers and draftsmen who co-operate with architects in designing special jobs involving kitchen cabinets and refrigeration. The combined facilities of both companies are at your service for the asking.

Advantages

The models shown here are typical of the choice available for apartment house installations. They may be had in all-porcelain outside and inside, or in Duco lacquer outside and enamel interior. Practically any budget allowance can be fitted to one of the many Federal models according to the quality of cabinet desired.

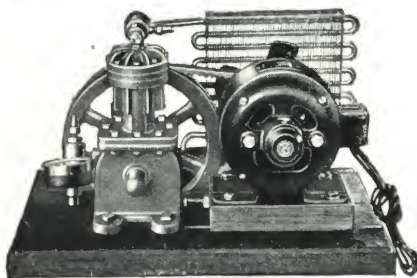
Federal Frigerator's line of cabinets includes single and double door models, cork or dry zero insulation, cabinets with electric lighting, cabinets with ice-water coolers and many other refinements.

The Company and Service

FEDERAL METAL PRODUCTS CORPORATION is affiliated with the "White" Door Bed Company, 40 East 49th Street, New York, N. Y., specialists in space-saving conveniences. (See their pages in this Cata-

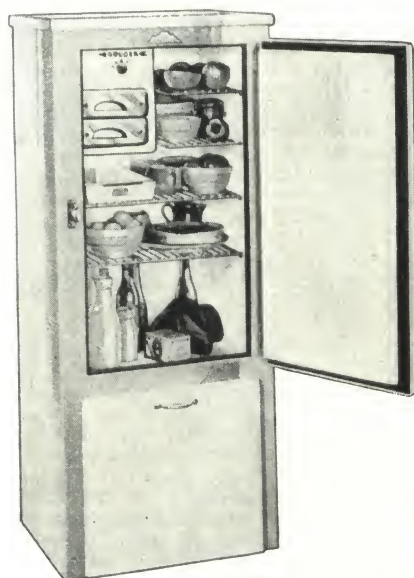
Compressor

Regardless of the cabinet selected, Federal Frigerators are all equipped with an over-powered compressor, designed to make ice quickly on the hottest days at a minimum of current consumption. Specifications will be furnished on request to show that the Federal compressor in every Federal Frigerator is larger in stroke and bore, and therefore greater in efficiency than compressors used in the average cabinet of similar cubic capacity.



The Federal compressor has a comfortable margin of efficiency—

it is large enough, powerful enough to do all the freezing that will be called for and 20% more. It is quiet-running and compact, equipped with one of the finest motors made and delivers high compression at low speed. Federal Frigerator makes ice with "Artic" (methyl chloride) the modern refrigerant. Unlike sulphur dioxide, which is still used in many of the older refrigerators, Artic is non-toxic, odorless and quick freezing.



Model I L 462

Model I L 462

Food Storage Capacity: 4.05 cu. ft.
Shelf Area: 8.25 sq. ft.
Exterior Dimensions: 24 in. wide, 20½ in. deep, 53 in. high.
Insulation: 2 in. Dry Zero—highest efficiency known.
No. of Trays: 2, for making ice or frozen desserts.
Ice Making: No. 228 Evaporator; 56 good size cubes; 4 lbs. ice at one freezing.
Cabinet: exterior, baked enamel on steel; interior, Porcelain-on-steel lining.

Model I L 563

Food Storage Capacity: 5.04 cu. ft.
Shelf Area: 9.25 sq. ft.
Exterior Dimensions: 26½ in. wide, 20½ in. deep, 52 in. high.
Insulation: 2 in. Dry Zero—highest efficiency known.
No. of Trays: 3, for making ice or frozen desserts. Removable shelf, permitting use of one double-depth tray.
Ice Making: No. 328 Evaporator; 84 good size cubes; 6 lbs. ice at one freezing.
Cabinet: exterior, baked enamel on steel; interior, Porcelain-on-steel lining.



Model I L 563

FRIGIDAIRE CORPORATION

SUBSIDIARY OF GENERAL MOTORS CORPORATION

Manufacturers of Refrigerators and Refrigerating Equipment

DAYTON, OHIO

Backed by a Definite Guarantee

With more than a million and a half Frigidaires installed in homes, stores, apartments and every kind of business in every part of the world, FRIGIDAIRE CORPORATION offers to the architect a complete line of time-tested equipment backed by wide experience and outstanding success in the refrigeration field. Architects have the assurance moreover that every Frigidaire product they specify is backed by a definite guarantee on the part of Frigidaire and General Motors. And what is more important, they also have the assurance that in future years, Frigidaire will continue to give reliable, economical refrigeration—long after the guarantee has expired.

Architects Can Choose from This Comprehensive List

Standard household refrigerators.

Special low price refrigerators: (1) for unit installations; (2) for multiple installation.

Water coolers individual type: (1) for bottled water; (2) pressure type water cooling systems for office buildings, factories, etc.

Ice cream cabinets: small portable models; large standard models.

Combination ice cream and bottled beverage cabinets.

Room coolers.

Individual cooling coils and compressors for practically any need.

Advantages of Frigidaire for the Home or Apartment

(1) Frigidaire offers the architect the choice between unit installations and multiple installations. This gives him utmost freedom in specifying exactly the right type and amount of refrigeration to serve his client's interests best.

(2) Frigidaire offers the widest selection of models to suit the size and cost of the building—the tastes and pocketbook of clients.

(3) Frigidaire makes it possible for the architect to include water coolers and other refrigeration equipment as a part of a comprehensive refrigeration plan. In many cases, such equipment as a water cooler may be refrigerated by the same mechanical unit as the refrigerator.

(4) Frigidaire offers the architect the economies and convenience of the "Unit System" of refrigeration whereby several groups of two or more refrigerators may be operated independently of one another.

FRIGIDAIRE

The Ten-Point Household Frigidaire

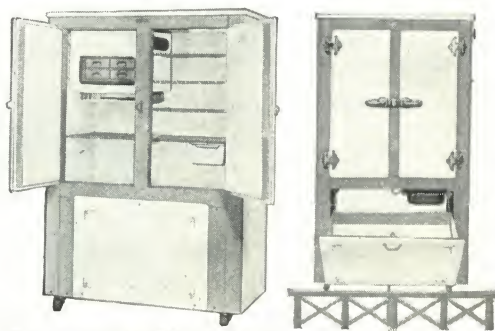
In the standard household line of Frigidaires, architects will find a combination of features which assures him of providing the best for his clients by specifying Frigidaire.

- (1) A cabinet of Porcelain-on-steel, combining durability, beauty and sanitation of porcelain with the strength of steel.
- (2) Beauty—of finish, line and color.
- (3) Quickube Ice Tray—a new patented type of tray that will appeal to clients because it releases ice cubes instantly—all at once, or one at a time.
- (4) The famous Frigidaire "Cold Control" which enables the user to make scores of delicious new salads and desserts.
- (5) The Hydrator which makes even wilted vegetables crisp and fresh.
- (6) Elevated food shelves, up where they are easy to reach.
- (7) Quiet starting, running and stopping.
- (8) Surplus power that will keep foods safely cold, even in the hottest weather.
- (9) Freezing unit—which permits extremely low temperatures for fast freezing.
- (10) Low operating cost—just a few cents a day.

Special Models in Glacier-Gray Porcelain-on-Steel

The following features apply specifically to the new line of Frigidaire models in gray Porcelain-on-steel (see page 4).

- (1) Cabinet of symmetrical design; smooth, unbroken lines; harmonious to any kitchen scheme. Porcelain-on-steel inside and out.
- (2) Accessible "Cold Control" for special fast freezing of ice and desserts on all unit installations.
- (3) Flat top providing additional kitchen shelf space.
- (4) Softly rounded corners and edges; nothing to catch dirt or dust.
- (5) Heavily nickelplated hardware of exclusive design.
- (6) In self-contained models, all mechanism concealed beneath cabinet, elevating shelves to convenient height.
- (7) Cam roller-bearing latch insures positive door seal.
- (8) Doors sealed against leakage by cushion gaskets.
- (9) Doors perfectly balanced for easy opening and closing.
- (10) One-piece, seamless Porcelain-on-steel interior for durability and sanitation. Rounded corners for easy cleaning.
- (11) Shelves scientifically spaced.
- (12) Shelves made of heavy drawn steel, rustproof and non-corrosive.
- (13) Hardwood door sills of natural finish prevent condensation of moisture.
- (14) Cabinet inner and outer casings are of highest quality pressed steel, reinforced with hard, dry wood frame as in the finest automobile body construction. Prevents vibration or sagging.
- (15) Totally enclosed freezing compartment prevents absorption of food odors by ice cubes or desserts.
- (16) Each freezing tray is sealed in its individual sleeve for fast freezing.
- (17) The combination finned-tube construction of the cooling unit provides maximum cooling surface in a minimum of space required.
- (18) Cold air circulation insured by large surface area and design of cooling unit. This means rapid cooling, non-fluctuating temperature and low operating costs.



Two Typical Methods of Installing Frigidaire

Above: A self-contained unit-type installation with the compressor concealed at the bottom of the cabinet.

Right: Remote type of installation which becomes the multiple type, when more than one cabinet is refrigerated by one compressor (see page 5). When this latter system is used, the space below the shelves may be used for storage purposes.

FRIGIDAIRE HOUSEHOLD CABINETS

"Cold Control"

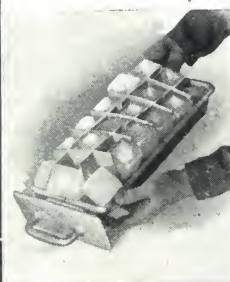
Just as different degrees of heat are required in cooking, so also are different degrees of cold required in the most satisfactory freezing of desserts and salads. The Frigidaire Cold Control enables the user to tap and control Frigidaire's reserve power for this purpose and for unusually fast freezings of ice cubes. It is a feature architects will find pleases clients and users and is standard equipment on all Frigidaire models for unit installations. It is located at convenient hand height, on the exterior of the refrigerator.



air compartment scientifically placed and ventilated to keep lettuce, parsley, tomatoes, peppers and other salad materials in a fresh crisp condition.

Patented Quickube Ice Tray

Another feature specially developed by General Motors for Frigidaire is the patented "Quickube Ice Tray" which releases ice cubes instantly—one at a time or all at once. Architects specifying Frigidaire household models will find clients and users appreciate the convenience provided by this mark of progressive refrigeration in the kitchen.

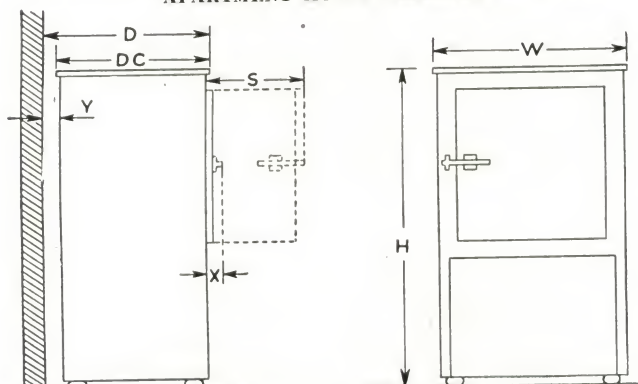
**Hydrator**

The Hydrator is another piece of standard equipment on household models which architects have found very popular with clients and users. This simple device, developed by Frigidaire, provides a moist cold

Legs Optional Equipment

Where built-in installations are not made, it sometimes happens that clients prefer refrigerators up on legs. Frigidaire household models may be obtained with legs if so desired at no extra expense.

DETAILED DIMENSIONS FRIGIDAIRE HOUSEHOLD AND APARTMENT HOUSE CABINETS



W Width.
D Depth.
H Height with standard equipment.
DC Depth of cabinet alone.
HL Height, less casters.
X Door and hardware.
Y Space at rear for tubing and ventilation.
S Door swing.

HOUSEHOLD CABINET DIMENSIONS (INCHES)

Model	W	D	H	DC	HL	X	Y	S
MC-12	46½	28	67¾	26¼	65	3	2	21¼
MC-9	37¼	28	67¾	26¼	65	3	2	16½
AP-18	46½	27½	67¾	26¼	65	3	1½	21¼
AP-12	46½	28	67¾	26¼	65	3	2	21¼
AP-9	37¼	28	67¾	26¼	65	3	2	16½
AP-7-5	35¾	28	62	26¼	60¾	3	2	15¾
AP-6	31¾	24½	60¾	22½	58¾	3	2	26½
AP-5	28½	24½	62½	22½	55¾	2½	2	22½
AP-4	26¼	23	54	21	47¼	2½	2	23¼

Frigidaire Is Ideally Suited to Fit into Architects Designs

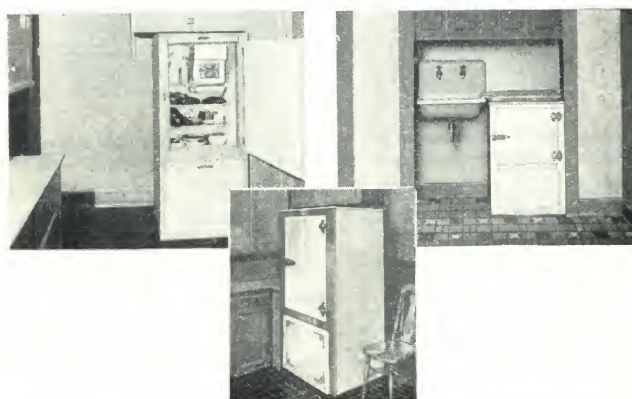
The illustrations at right show how easy and convenient it is for architects to fit Frigidaire cabinets into various kitchen plans. Because of their symmetri-

cal design, with top and other exterior surfaces flat and smooth, Frigidaire cabinets can be adapted to practically any kitchen size or arrangement. They may be placed underneath shelves, and in many other niches where they will be both a convenience and a space saver. Moreover, because Frigidaire cabinets are adaptable for both unit and multiple installations, they afford the architect an even greater degree of freedom in his refrigeration plans.

APARTMENT HOUSE CABINET DIMENSIONS (INCHES)

Model	W	D	H	DC	HL	X	Y	S
G-3	24	19½	48¼	17½	*	2½	2	20¾
G-4	24	19½	53½	17½	*	2½	2	20¾
GR-4	26¼	23	48	21	*	2½	2	23¾
G-5	28½	24½	58¾	55¾	*	2½	2	22¼
G-6	31¾	24½	60¾	58¾	*	3	2	26½
GM-3	24	19½	48	17½	*	2½	2	20¾
GM-4	24	19½	54	17½	*	2½	2	20¾

*Furnished with glides only. The above dimensions may vary slightly in course of production.



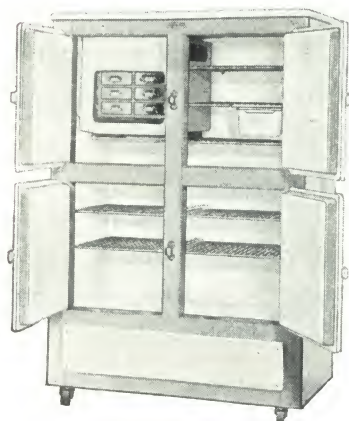
FRIGIDAIRE STANDARD HOUSEHOLD CABINETS

Frigidaire standard household cabinets are available in seven different models varying in size from 18 to 4 cu. ft. storage capacity. All are finished inside and out in enduring Porcelain-on-steel. All have the Hydrator, the accessible Cold Control, and the new Quickube patented freezing tray which releases ice cubes instantly—one at a time or all at once. Legs are standard equipment on the two smaller models and may be obtained as optional equipment on the others which have roller bearing casters as standard equipment. Exteriors are of a pleasing Tu-Tone, gray and white, which

blends with any color or plan of room decoration.

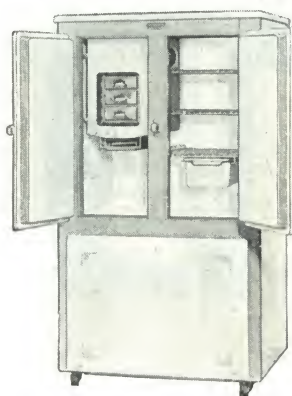
In checking capacities on these and other Frigidaire models the architects will find it worthwhile to note that the figures are in *net cubic feet* of storage capacity. Food storage area, in *square feet* is also given, but this figure will vary for any given volume depending on the number of shelves and the distance between.

All models are available for unit installation only except the Model AP-18 which is designed for installation of the compressor away from the cabinet in some convenient location.



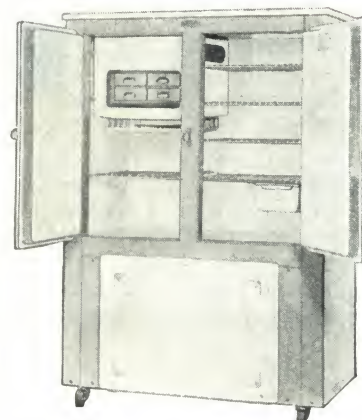
**Model AP-18 Specifications
(Remote Installations)**

Food storage capacity: 18 cu. ft.
Food storage area: 27 sq. ft.
Dimensions: for complete dimensions see Page 2.
Ice making: No. 60-TF coil, 6 trays, 144 cubes, 20 1/4 lbs. of ice.
Compressor for remote installation: Model AW or K.
Cabinet: interior; one-piece, seamless Porcelain-on-steel lining.
Exterior: light gray and white Tu-Tone semi-flexible Porcelain-on-steel.
This cabinet requires installation of compressor in place other than base of cabinet.



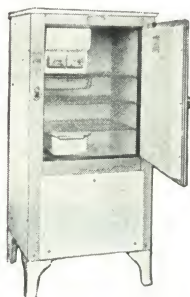
**Model AP-7-5 Specifications
(For Unit Installations)**

Food storage capacity: 7 1/2 cu. ft.
Food storage area: 12 sq. ft.
Dimensions: for complete dimensions see Page 2.
Ice making: No. 6-TF coil, 3 trays, 54 cubes, 7 1/2 lb. of ice.
Compressor for unit installation: Model A.
Cabinet: interior; one-piece, seamless Porcelain-on-steel lining.
Exterior: light gray and white Tu-Tone semi-flexible Porcelain-on-steel.



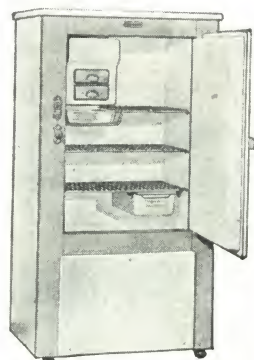
**Model AP-12 Specifications
(For Unit Installations)**

Food storage capacity: 12 cu. ft.
Food storage area: 20 sq. ft.
Dimensions: for complete dimensions see Page 2.
Ice making: No. 59-TF coil, 4 trays, 96 cubes, 13 1/2 lb. of ice.
Compressor for unit installation: Model A or AW.
Cabinet: interior; one-piece, seamless Porcelain-on-steel lining.
Exterior: light gray and white Tu-Tone semi-flexible Porcelain-on-steel.



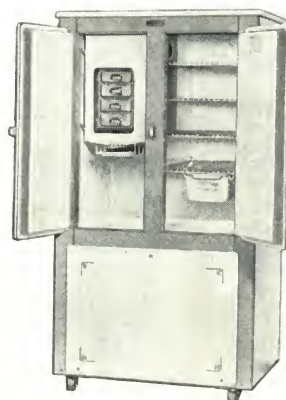
**Model AP-4 Specifications
(For Unit Installations)**

Food storage capacity: 4 cu. ft.
Food storage area: 8 sq. ft.
Dimensions: for complete dimensions see Page 2.
Ice making: No. 110-TF coil, 2 trays, 24 cubes, 2 1/2 lb. of ice.
Compressor for unit installation: Model FAH.
Cabinet: interior; one-piece, Porcelain-on-steel. Bright metal, self-sealing tray fronts.
Exterior: light gray and white Tu-Tone semi-flexible Porcelain-on-steel.



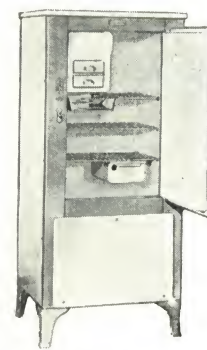
**Model AP-6 Specifications
(For Unit Installations)**

Food storage capacity: 6 cu. ft.
Food storage area: 9 sq. ft.
Dimensions: for complete dimensions see Page 2.
Ice making: 115-TF coil, 2 trays, 42 cubes, 6 lb. of ice.
Compressor for unit installation: Model F.
Cabinet: interior; one-piece, seamless Porcelain-on-steel lining.
Exterior: light gray and white Tu-Tone semi-flexible Porcelain-on-steel.



**Model AP-9 Specifications
(For Unit Installations)**

Food storage capacity: 9 cu. ft.
Food storage area: 15 sq. ft.
Dimensions: for complete dimensions see Page 2.
Ice making: No. 10-TF coil, 4 trays, 72 cubes, 10 lb. of ice.
Compressor for unit installation: Model A.
Cabinet: interior; one-piece, seamless Porcelain-on-steel lining.
Exterior: light gray and white Tu-Tone semi-flexible Porcelain-on-steel.

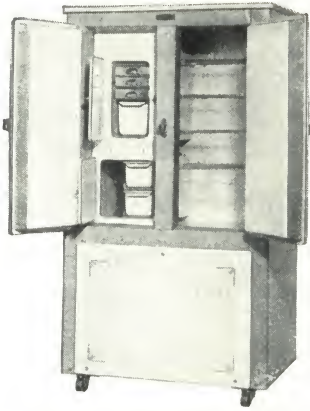


**Model AP-5 Specifications
(For Unit Installations)**

Food storage capacity: 5 cu. ft.
Food storage area: 8 sq. ft.
Dimensions: for complete dimensions see Page 2.
Ice making: No. 115-TF coil, 2 trays, 42 cubes, 6 lb. of ice.
Compressor for unit installation: Model F.
Cabinet: interior; one-piece Porcelain-on-steel lining.
Exterior: light gray and white Tu-Tone semi-flexible Porcelain-on-steel.

FRIGIDAIRE MULTI-COLD CABINETS

Architects wishing to specify the finest type of "De Luxe" refrigeration for clients will find their requirements met fully by the new Frigidaire Multi-Cold Refrigerators. These two new models offer five different kinds of refrigeration—extreme cold, cold storage, moderate cold, moist cold, and dry cold—all within the same cabinet. Both have the sturdy cabinet construction, the porcelain-on-steel finish and other desirable features of the standard line.



The Multi-Cold Frigidaire— Model MC-9

Food storage capacity: food compartment, 6 $\frac{3}{4}$ cu. ft. Hydrator compartment, 1 $\frac{1}{4}$ pks. Frozen products, 7-lb. fowl. Bottle storage, 4 quart milk bottles.

Food storage area: food compartment, 14 $\frac{3}{4}$ sq. ft.

Exterior dimensions: 37 $\frac{1}{4}$ in. wide, 28 in. deep, 67 $\frac{3}{4}$ in. high. (Depth includes 2 in. at rear for ventilation, but does not include doors or hardware.)

Number of trays: 3, for making ice or frozen desserts.

Ice making: with No. 13-TF coil, 96 cubes, 10 lb. of ice at one freezing.

Cabinet: exterior, Tu-Tone, Porcelain-on-steel.

Interior, one-piece seamless Porcelain-on-steel lining. Complete with "Frigidaire Cold Control," Frigidaire hydrators, and Quickcube tray.

Specifications

The Multi-Cold Frigidaire— Model MC-12

Food storage capacity: food compartment, over 8 cu. ft. Hydrator compartment, 1 $\frac{1}{4}$ pks. Frozen products, 7-lb. fowl. Bottle storage, 8 quart milk bottles.

Food storage area: food compartment, 18 sq. ft.

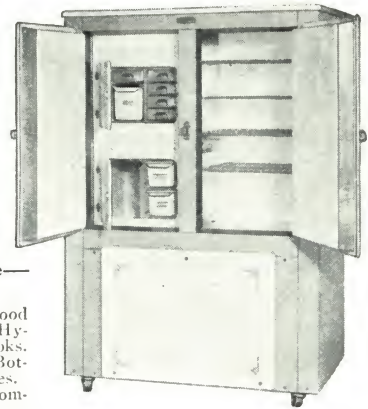
Exterior dimensions: 46 $\frac{1}{2}$ in. wide, 28 in. deep, 67 $\frac{3}{4}$ in. high. (Depth includes 2 in. at rear for ventilation, but does not include doors or hardware.)

Number of trays: 5, for making ice or frozen desserts.

Ice making: with No. 51-TF coil, 120 cubes, 17 lb. of ice at one freezing.

Cabinet: exterior, Tu-Tone, Porcelain-on-steel.

Interior, one-piece seamless Porcelain-on-steel lining. Complete with "Frigidaire Cold Control," Frigidaire hydrators, and Quickcube tray.



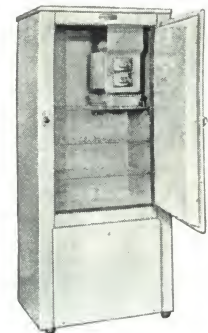
SPECIAL FRIGIDAIRE CABINETS IN LOW PRICED FIELD

Glacier Gray Porcelain-on-steel—for Apartments and Homes

Whenever the architect is called upon to pare costs to the very minimum, he will welcome the new low-price line of Frigidaire models finished inside and out in attractive sanitary porcelain-on-steel. These models have been designed particularly to meet the demand for an inexpensive refrigerator but have been provided without sacrificing any of the essential qualities that have made Frigidaire famous for reliability, economy and long life.

Typical features to illustrate this point are the durable cabinets finished inside and out in gray porcelain-on-steel; the thick insulation sealed against moisture; the powerful compressor; the accessible Cold Control; and the generous food shelf area. These and other features are made possible at surprising low

cost only because of economies resulting from big scale production, General Motors resources and buying power—not to mention years of experience in refrigerator design and manufacture. With this new inexpensive Frigidaire available in a variety of sizes, no family or any income class can afford to do without the benefits of Frigidaire.



Model G-4 Specifications (For Unit Installation Only)

Food storage capacity: 4 cu. ft.

Food storage area: 6 sq. ft.

Dimensions: for complete dimensions see Page 2.

Ice making: with 111-TF coil, 2 trays, 24 cubes, 2 $\frac{1}{2}$ lb. of ice.

Compressor: Model FAH.

Cabinet: interior, one-piece gray vitreous Porcelain-on-steel lining.

Exterior, attractive gray Porcelain-on-steel. Equipped with glides.



Model G-6 Specifications (For Unit Installations)

Food storage capacity: 6 cu. ft.

Food storage space: 9 sq. ft.

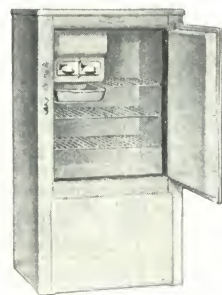
Dimensions: for complete dimensions see Page 2.

Ice making: 115-TF coil, 2 trays, 42 cubes, approximately 6 lb. of ice.

Compressor for unit installation: Model F.

Cabinet: interior, one-piece, seamless, gray Porcelain-on-steel.

Exterior, attractive gray semi-flexible Porcelain-on-steel. Equipped with casters.



Model GR-4 Specifications (For Unit Installation Only)

Food storage capacity: 4 cu. ft.

Food storage area: 8 sq. ft.

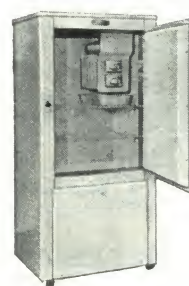
Dimensions: for complete dimensions see Page 2.

Ice making: No. 110-TF coil, 2 trays, 24 cubes, 2 $\frac{1}{2}$ lb. of ice.

Compressor: Model FAH.

Cabinet: interior, one-piece gray Porcelain-on-steel lining.

Exterior, attractive gray Porcelain-on-steel. Equipped with glides.



Model G-3 Specifications (For Unit Installation Only)

Food storage capacity: 3 cu. ft.

Food storage area: 4.5 sq. ft.

Dimensions: for complete dimensions see Page 2.

Ice making: with No. 111-TF coil, 2 trays, 24 cubes, 2 $\frac{1}{2}$ lb. of ice.

Compressor: Model FAH.

Cabinet: interior, one-piece gray Porcelain-on-steel lining.

Exterior, attractive gray Porcelain-on-steel. Equipped with glides.



Model G-5 Specifications (For Unit Installation Only)

Food storage capacity: 5 cu. ft.

Food storage area: 8 sq. ft.

Dimensions: for complete dimensions see Page 2.

Ice making: with No. 115-TF coil, 2 trays, 42 cubes, 6 lb. of ice.

Compressor: Model F.

Cabinet: interior, one-piece, gray Porcelain-on-steel lining.

Exterior, attractive gray Porcelain-on-steel. Equipped with casters.

FRIGIDAIRE MULTIPLE INSTALLATIONS

For Apartment Houses

In apartment houses where low initial investment and greatest return are of paramount importance, the multiple system of refrigeration is chosen by many clients and architects. As shown by the diagram on this page, the multiple system provides for all the machinery in one location with the refrigerant piped to individual apartments through conduits and junction boxes.

Multiple installations are being used in thousands of apartment houses every year and wherever installed according to Frigidaire specifications have proved themselves completely satisfactory from the standpoint of both owner and tenants.

Frigidaire installation methods meet the approval of the National Board of Fire Underwriters as outlined in the code prepared by that body. Details concerning such installation methods will be gladly supplied by the local Frigidaire dealer.

With the Frigidaire Multiple System shown on this page, a central operating point for all compressors, located in the basement, is easily supervised by the janitor. Any adjustments can be made without annoyance to tenants.

Features of the Frigidaire Multiple System

The following are a few of the features of the multiple system:

- (1) Low initial investment and greater investment returns to apartment owner.

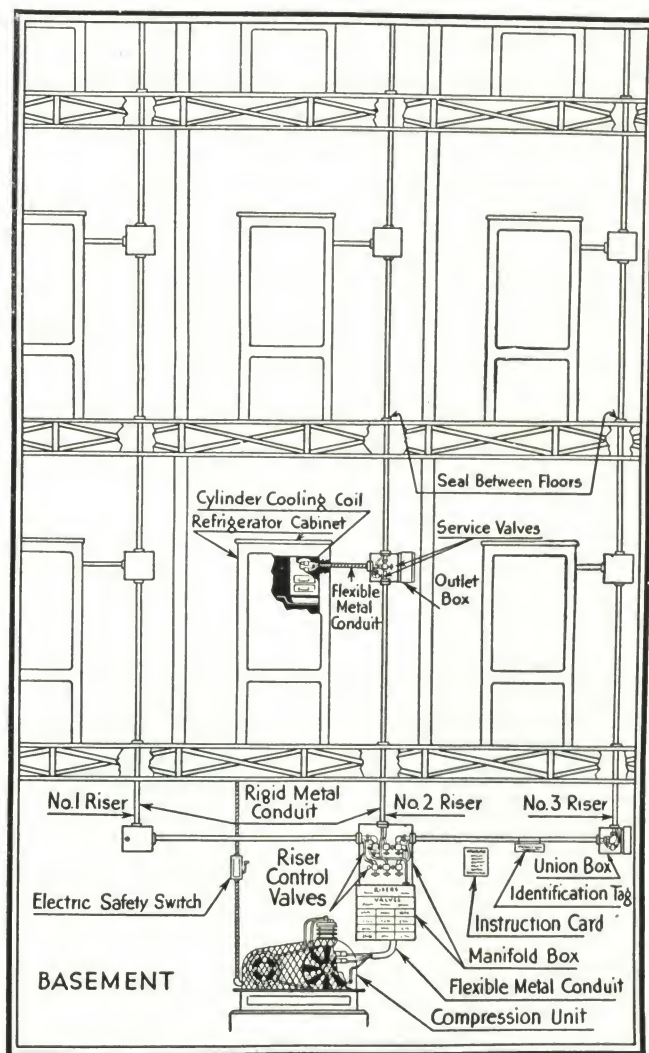
- (2) Economical cost of operating refrigeration.
- (3) A central operating point for all compressors, located in the basement, is easily supervised by the janitor and any adjustments can be made without disturbing tenants.
- (4) All defrosting is done periodically by the janitor.
- (5) Frigidaire uses a safe refrigerant, approved by the National Board of Fire Underwriters.
- (6) Vacant suites can be shut off at will. Valves in standard junction boxes located near each apartment enable

the janitor to shut off refrigeration in any apartment.

- (7) Each apartment suite is independent of the other.
- (8) Frigidaire multiple installations meet approval of National Board of Fire Underwriters.
- (9) There is no radio interference with Frigidaire.
- (10) All Frigidaire equipment is backed with a definite guarantee.

Special Models for Multiple Systems

Frigidaire models made specially for the multiple installation include the Models GM-5, GM-4 and GM-3. These are identical with the Models G-5, G-4 and G-3 respectively (see page 4) except that they have neither a Cold Control nor a compressor in the base.



FRIGIDAIRE COMMERCIAL EQUIPMENT

Adaptable and Flexible

Whenever his work includes plans or specifications for any kind of commercial refrigeration, the architect will find that Frigidaire equipment is so adaptable and flexible that it will meet practically any refrigeration need in a way that will create goodwill and satisfaction on the part of the clients.

Frigidaire Line Is Complete

The completeness of the Frigidaire line is well illustrated by the following list of equipment which is only partial:

- Cooling coils to fit any shape compartment and any fixture.
- Compressors up to $1\frac{1}{2}$ horsepower both air and water cooled.
- Water coolers of both bottle and pressure type.
- Water cooling systems.
- Ice cream cabinets.
- Combination ice cream and bottle beverage cabinets.
- Room coolers.

Advantages of the Frigidaire Unit System for Commercial Refrigeration

Before the development of Frigidaire, the common practice was to use one large refrigerating plant to meet all the requirements of a commercial installation. This system was, however, inflexible and sometimes not completely satisfactory.

The development of a complete line of Frigidaire Cooling Coils, Compressors and other equipment has made it possible for large refrigeration installations to be broken down into small units, each operating at its best efficiency and each taking care of one certain type of refrigeration requirement economically and dependably.

With this system entirely automatic operation can be secured. The expensive and cumbersome piping necessary with the central plant type of installation, together with the need for maintenance and renewal of piping is banished. The services of a refrigeration engineer can be dispensed with and more satisfactory temperatures will be obtained together with low operating expense.

Features of Frigidaire Commercial Refrigeration Installations

(1) **Equipment of Ample Capacity at Low Prices**—Frigidaire equipment is supplied at unusually low prices as a result of efficient quantity production, financial resources and engineering skill. But performance is never sacrificed in an effort to secure low prices. Every Frigidaire installation is engineered to do the job required in a reliable economical way.

(2) **Low Cost of Operation**—The operating cost of Frigidaire equipment has been proved very low in proportion to the temperatures required and the amount of space refrigerated. This is due to Frigidaire's sound design, careful manufacture and its principle of operating a relatively few hours out of every 24.

(3) **Trouble-free Automatic Operation—Negligible Upkeep**—Frigidaire equipment has a reputation for trouble-free automatic operation over long periods. This applies not only to the first two or three years it is installed, but for many years—long after the guarantee period has expired.

(4) **Equipment That Is Flexible**—Because it is often desired to change or alter commercial refrigeration fixtures after years of operation, the flexibility of Frigidaire is important. Frigidaire may be adapted to present fixtures or to any approved type the architect has in mind. Later, if so desired, the Frigidaire installation may be easily expanded or changed at minimum cost, often without interruption to refrigeration.

(5) **Equipment That Is Accessible**—Although Frigidaire provides the maximum in trouble-free refrigeration, Frigidaire engineers have so designed the equipment that it can be quickly adjusted or repaired on the premises at any time. In future years, if service should ever be necessary, this feature means much to clients and users, in low upkeep and uninterrupted refrigeration.

(6) **Equipment That Will Last a Lifetime**—Frigidaire equipment will perform reliably for a lifetime. The life of Frigidaire has never been determined because an early type of Frigidaire unit is still running and has been running continuously the equivalent of more than 25 years' operation in the hands of users. Such amazing results are secured because only the highest quality of materials are used on the manufacture of Frigidaire products; because all working parts are accurately ground to mirrorlike surfaces to eliminate wear and increase life; because the design is right.

Ice Cream Cabinets

Wherever his plans call for the storage of ice cream, the architect will find a wide variety of Frigidaire models enabling him to specify exactly the correct size and type for the need involved.

There are eleven models in all—two of them portable and the other nine of the standard type. The smallest is a 2-hole 10-gallon unit and the largest a big 12-hole, double row, 60-gallon model. Each one is rugged in construction, with sturdy reinforced angle iron frames, thick insulation sealed against moisture, and the famous Frigidaire Cold Control which gives finger-tip temperature control without affecting the automatic feature in any way.

Specifications are given below.

PORTABLE ICE CREAM CABINETS
Supplied as complete units

Model	Width, in.	Length, in.	Height, in.	Number of sq. sleeves
2-hole	20 $\frac{3}{4}$	30	52 $\frac{1}{4}$	.....
4-hole	31	30	52 $\frac{1}{4}$	2

STANDARD SINGLE ROW ICE CREAM CABINETS

Model	Width, in.	Height, in.	Length without comp., in.	Length with comp., in.	Number of square sleeves
2-hole	19 $\frac{3}{4}$	30	37 $\frac{1}{4}$	63 $\frac{1}{4}$	.....
3-hole	19 $\frac{3}{4}$	30	48 $\frac{1}{2}$	74 $\frac{1}{2}$	.....
4-hole	19 $\frac{3}{4}$	30	60	86	2
6-hole	19 $\frac{3}{4}$	30	82 $\frac{3}{4}$	*	3

*With this cabinet the compressor is installed in the basement, in another room, or wherever convenient.

STANDARD DOUBLE ROW ICE CREAM CABINETS

Model	Width, in.	Height, in.	Length without comp., in.	Length with comp., in.	Number of square sleeves
4-hole	30	30	37 $\frac{1}{4}$	52	2
6-hole	30	30	48 $\frac{1}{2}$	63 $\frac{1}{4}$	3
8-hole	30	30	60	74 $\frac{3}{4}$	3
10-hole	30	30	71 $\frac{1}{4}$	86	4
12-hole	30	30	82 $\frac{3}{4}$	97 $\frac{1}{2}$	4



12-hole
Model

Combination Ice Cream and Bottled Beverage Cabinets

Wherever plans call for the storage of both ice cream and bottled beverages architects have found Frigidaire Combination Cabinets ideal since they meet requirements of those businesses that do not justify two pieces of equipment.

These are provided in two usable sizes—one with two round sleeves for ice cream and the other with two round and two square sleeves for ice cream. Both models include all the features of design and performance that have contributed to the success of Frigidaire Ice Cream Cabinets.

Model	Width, in.	Height, in.	Length without comp., in.	Length with comp., in.	Compartment size, in.		
					Width	Height	Length
2-hole	19 $\frac{3}{4}$	30	60	86	12 $\frac{1}{4}$	21 $\frac{1}{8}$	20 $\frac{3}{4}$
4-hole	30	30	60	74 $\frac{3}{4}$	22 $\frac{1}{2}$	21 $\frac{1}{8}$	20 $\frac{3}{4}$



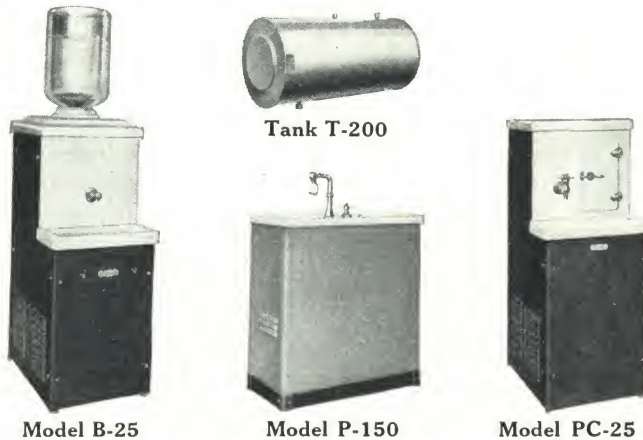
2-hole Combination Cabinet

Frigidaire Water Coolers

The Frigidaire line of water coolers consists of models for bottled water and for city water connection. They may be obtained as complete self-contained units or for operation in a multiple hook-up in which several units are refrigerated by one compressor located in the basement or other location.

In addition, there are four water cooling tanks used in connection with separate bubblers, fountains, or faucets. These vary in maximum capacity from 2.5 to 20 gallons per hour, cooled from 80° to 50°; and are widely used by architects in office buildings, apartments, factories and other places where it is not desired to have separate water cooling units at each outlet.

Specifications are given below.



WATER COOLERS

Model	Capacity cooling from 80° to 50°, g.p.h.	Storage capacity, gal.	Exterior dimensions, in.		
			Width	Depth	Height
Bottle Type					
B-25	2.5	$\frac{1}{8}$	17 $\frac{3}{4}$	22 $\frac{3}{4}$	47 $\frac{1}{2}$ *
BC-25	2.5	$\frac{1}{8}$	17 $\frac{3}{4}$	22 $\frac{3}{4}$	47 $\frac{1}{2}$ *

The storage compartment in Model BC-25 is 9 1/2 in. wide, 12 in. high, 4 1/2 in. deep. *Less bottle.

Pressure Type

P-25	2.5	1/8	17 3/4	24 1/2	44 3/4
PC-25	2.5	1/8	17 3/4	24 1/2	44 3/4
P-45	4.5	2 1/8	17	23 1/2	38
P-60	6.0	4 1/8	35 1/2	18 1/2	38 1/2
P-150	15.0	5 3/4	35 1/2	18 1/2	38 1/2

The storage compartment in Model PC-25 is 9 1/2 in. wide, 12 in. high, 4 1/2 in. deep.

TANK TYPE

Tank No.	Max. capacity cooling 80° to 50°, g.p.h.	Storage capacity, gal.	Tank size, in.		Inlet and outlet pipes, in.
			Length	Diameter	
T-25	2.5	1/8	16 1/4	8 1/2	1/2
T-60	6.0	2 1/8	19 1/2	13 1/2	3/8
T-70	7.0	4 1/8	22 3/4	15	3/8
T-200	20.0	5 3/4	31 1/2	15	3/8

Frigidaire Room Cooler

The Frigidaire Room Cooler is a comparatively recent development which offers relief in three ways—by lowering the temperature, reducing the humidity and circulating the air. Architects will find it a method of achieving distinctiveness specifying equipment for large homes, private offices, and many lines of business, such as candymaking, where heat and humidity cannot be tolerated.

The cabinet has a standard exterior of steel finished in ungrained mahogany duco.

Width—22 3/4 in.; depth 21 3/4 in.; height 45 3/8 in.

Weight—215 lb.



Frigidaire Cooling Coils

Frigidaire Cooling Coils are available in many different sizes and capacities to fit practically any shape of cooling compartment and to meet practically any refrigeration need. Some have fins; some have flanges for brine tanks; some have ice trays; and some consist only of a cylinder and tubing.

Features of the coils include: use of copper or brass for greatest heat conduction and plated with pure tin for long life; drop forged brass fittings that eliminate the possibility of leaks; simple float valve construction that regulates the level of liquid refrigerating medium in the coil; silver soldered joints to assure strength and permanence; seam soldered fins to conduct heat rapidly from fins to refrigerating medium.



COOLING COIL SPECIFICATIONS Standard Finned Coils

Model No.	Width, in.	Depth, in.	Height, in.	Length, in.
12-F	15 1/8	15 1/4	17 1/4	48
14-F	15	15 1/4	20	60
16-F	16 7/8	15 1/4	22 3/4	72
17-F	16 7/8	18 1/4	30	96
18-F	25	18 1/4	25 1/2	
20-F	18 1/4	18	23	
24-F	6 1/4	17 3/8	29 3/4	
58-F	27 1/4	15 1/4	12	
62-F	48	18 1/4	14 3/4	
63-F	48	15 1/4	8	
74-F	5	See length	5	
75-F	5	See length	5	
76-F	5	See length	5	
78-F	5	See length	5	
88-F	15 3/4	41 3/4	19 3/4	
95-F	10 3/4	41 3/4	19 3/4	
96-F	22 3/4	45 1/4	19 3/4	
301-F	5 1/4	36	52 3/4	
302-F	5 1/4	45	52 3/4	
303-F	5 1/4	58	52 3/4	
550-F	18	12 1/4	5	
560-F	42	12 1/4	5	
570-F	66	12 1/4	5	
1242-F	42	12 1/4	6 3/4	
1266-F	66	12 1/4	6 3/4	
1278-F	78	12 1/4	6 3/4	
1842-F	42	18 1/4	6 3/4	
1854-F	54	18 1/4	6 3/4	
1866-F	66	18 1/4	6 3/4	



No. 19-X



No. 46-F Cooling Coil

COOLING COIL SPECIFICATIONS (Continued)

Flanged Coils for Brine and Liquid Cooling				
Model No.	Width	Depth	Height	Length
9	5 in. diam.	12 1/4 in.		
11	5 in. diam.	18 1/4 in.		
19-X & 20-X	5 in. diam.	See length	18 3/8 in.	12 1/4 in.
21-X & 23-X	5 in. diam.	See length	13 3/8 in.	18 1/4 in.
44-F	5 in. diam.	See length		48 in.
45-F	5 in. diam.	See length		60 in.
46-F	5 in. diam.	See length		72 in.

Finned Coils with Ice Trays

Model No.	Width, in.	Depth, in.	Height, in.	Trays	Cubes	Lb. of ice
110-TF	10	12 1/4	8 3/4	2	24	2 1/2
112-TF	8 3/4	11 1/4	11 1/4	2	30	4
111-TF	7 3/8	11 1/8	11 1/8	2	24	2 1/2
115-TF	7 3/4	14	11 3/4	2	42	6
2-TF	10 1/2	14	13	2	42	6
6-TF	10 1/2	12 1/4	15 3/4	3	54	7 1/2
8-TF	8 3/4	14	14 3/4	3	63	9
10-TF	10 1/2	12 1/4	18 1/4	4	72	10
18-TF	25	18 1/4	25 1/2	7	168	23 1/2
59-TF	17	15 1/2	13	4	96	13 1/2
60-TF	17	15 1/2	14 5/8	6	144	20 1/4

Coils without Fins with Trays

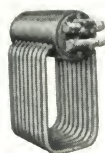
Model No.	Width, in.	Depth, in.	Height, in.	Trays	Cubes	Lb. of ice
12	10	15 1/2	17 1/4	4	96	13 1/2
16	10 1/4	15 1/2	22 3/4	6	144	20 1/4

Coils without Fins and without Trays

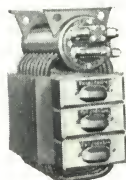
Model No.	Width, in.	Depth, in.	Height, in.
6-X	6 3/4	12 1/4	14 3/4
10-X	6 3/4	12 1/4	17 1/4



Model No. 12



Model No. 10X



Model No. 6TF

Frighdaire Compressors

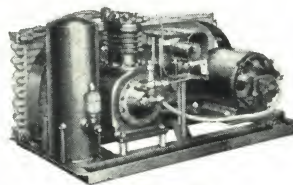
Frighdaire Compressors are furnished in a variety of models in both air and water cooled types. Air cooled models are adaptable to practically any location that is adequately ventilated, while water cooled units are most efficient on heavy duty wherever a supply of cool running water is convenient.

Two of the most important features of Frighdaire Compressors are their surplus power and their low speed. Frighdaire and General Motors engineers believe that best results may be obtained when a compressor of relatively high capacity is designed to run only a comparatively few hours a day. Short running time is easy on the equipment and gives it long life. A large margin is also left to be used in case of unusual demands or unusually hot weather.

Frighdaire compressors are designed to operate at low speeds to lengthen the useful life of the unit. When larger capacity is required, a larger compressor of larger bore and stroke is provided, thus assuring that each compressor is of ample size to supply all the refrigeration required.

Air Cooled Units—Specifications of heavy duty Frighdaire Air Cooled Compressors for commercial uses are given here.

All those shown are of the sturdy, two-cylinder, slow speed, reciprocating type. All have large capacity condensers, cooled by scientifically constructed,



Model R
Air Cooled Compressor

found best for these particular models.

Belts are of the strong, silent V-type, developed in General Motors Laboratories.

AIR COOLED COMPRESSORS

Model No.	Motor h.p.	Width, in.	Length, in.	Height, in.	Belt	Weight, lb.
D	1 1/2	26 1/2	40	27	Double V	425
R	1	20 1/2	37	20	Double V	322
O	1/2	16	35	22 1/2	Single V	248
K*	1/2	14 3/4	30 3/4	30	Single V	206
AW	1/2	16 1/4	29 3/4	18	Single V	165
B*	1/4	20 1/2	26	30	Single V	160
A**	1/4	18 3/8	22	19 1/2	Single V	158
F	1/2	14 1/2	19 1/2	13 3/8	Single V	89

*Mounted in attractive cabinet—specially designed for ice cream cabinets.
**19 1/2 in. with legs, 15 3/4 in. without.

Water Cooled Units—Frighdaire Heavy Duty Water Cooled Compressors, are all of the two-cylinder, slow speed, reciprocating type that has proved so satisfactory in refrigeration work. All have entirely automatic water-flow regulators that are unusually economical in their use of water. All are equipped with a special safety switch which stops the compressor in case excess pressure develops in the system. The motors have been specially developed by General Motors to meet the exacting needs of refrigeration and are supplied to meet any type of electrical supply.

Belts are of the strong, silent V-type, perfected in General Motors Research Laboratories. Detailed specifications are given below:

WATER COOLED COMPRESSORS

Model No.	Motor h.p.	Width, in.	Length, in.	Height, in.	Belt	Weight, lb.
C	1	20	40	27	Double V	363
U	3/4	18 1/4	37	20	Double V	275
N	1/2	16	33	20	Single V	218
V	1/2	16	33	20	Single V	212

In Specifying Equipment—Since the specifying of compressors or other equipment, especially on multiple hookups, requires highly specialized knowledge, FRIGHDAIRE CORPORATION invites architects to take full advantage of the assistance available from the local Frighdaire Man.

Architects Are Cordially Invited

Architects are cordially invited to make free use of Frighdaire Engineering and Technical Facilities in all matters pertaining to refrigeration. With its large organization and its years of successful experience as a background, FRIGHDAIRE CORPORATION feels that a close friendly contact between the architect and local Frighdaire headquarters can be of no small mutual benefit. Every architect, it is believed, will also find it pays to have in his file the Frighdaire Architects Book (AF562 replacing AF417) which gives more complete details on equipment than can be included here.

KELVINATOR SALES CORPORATION

Kelvinator Electric Refrigerators DETROIT, MICH.

CANADA: KELVINATOR CANADA, LTD., LONDON, ONTARIO
ENGLAND: KELVINATOR, LTD., 258 Gray's Inn Road, LONDON, W. C. 1

Consult Telephone Directory for Local Addresses of Branch Offices

Product

AUTOMATIC REFRIGERATION for homes, apartments, stores, florists, restaurants, clubs, institutions, hospitals, dairy and ice cream equipment.

A complete line of WATER COOLERS for offices and industrial installations.

Also equipment for numerous special or unusual applications.

Organization

The pioneer manufacturer of automatic refrigeration for domestic use, with an engineering and manufacturing personnel brought up within the industry, and devoting their entire time to the creation and production of automatic refrigeration units and cabinets.

Facilities

Probably the largest plants in the world devoted entirely to the manufacture of refrigeration units and cabinets. The Kelvinator plant located at Detroit, Michigan, has a daily capacity of 2000 units. The Leonard division at Grand Rapids is among the world's largest manufacturers of refrigerator cabinets.

Co-operation

An international organization of distributors and dealers, supplemented by a staff of factory representatives fully qualified by training and experience to co-operate with architects and engineers in the preparation of specifications to meet every requirement, and accustomed to working with engineers and architects in the field. A direct advisory service with the factory at Detroit through distributors in all principal centers or through their associate dealers.

Architects' Manual

The Automatic Refrigeration Manual for Architects and Engineers, form No. 2013, contains photographs, line drawings and complete specifications of every Kelvinator cabinet in addition to specifications and data on water cooling and commercial equipment.

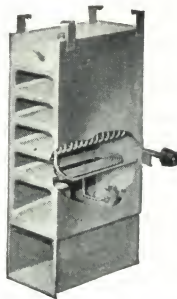
The Kelvinator Handbook of Electric Water Cooling for Architects and Engineers, form No. 2023, describes and illustrates the complete line of Kelvinator self-contained water coolers, also the evaporators and condensing units for use with approved water cooling equipment for multiple and circulating systems. It contains a complete description of all types of cooling equipment and service to which they are best adapted, together with application data that will enable the architect and engineer to compute requirements and specify equipment for any system.

These books have the proper A.I.A. file numbers for filing, and will be sent gratis if a request is addressed to the Kelvinator distributor in your city or to KELVINATOR SALES CORPORATION, Detroit, Michigan.

Domestic Equipment

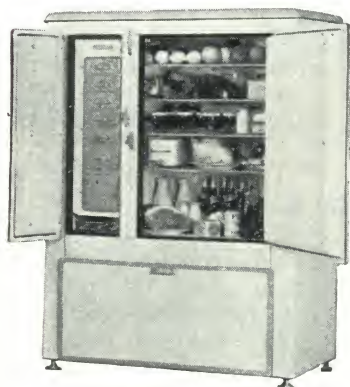
There is a Domestic Kelvinator for every type of home. They range in food compartment size from 4 to 22 cu. ft. The exterior dimensions are such that almost every home has at least one convenient space large enough for a Kelvinator cabinet.

For luxurious homes, where only the best of equipment is installed, Kelvinator recommends its DeLuxe line. White porcelain with a gray trimmed exterior, electrically lighted one-piece porcelain interior. Frost chest for frozen food and ice cube storage, and of course, the



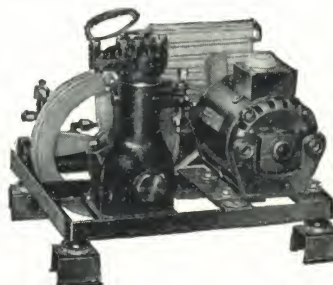
Iso-Thermic Tubes

These tubes concentrate low temperatures on the freezing tray when water or dessert is placed in the Kold Keeper sleeve. Their effectiveness is proved by the 80-minute, world's fastest freezing record established by Kelvinator in nation-wide tests



De Luxe Line

The finest conveniences in automatic refrigeration. Five cabinets comprise this line which embodies all the pioneering features that have made Kelvinator one of the outstanding names in the industry. These cabinets range in size from 6 to 22 cu. ft.



AA Condensing Unit

One of the Kelvinator domestic condensing units. Each of these units is the result of 17 years' engineering development. Any refrigerating cabinet can be equipped with one of the Kelvinator mechanisms



Standard Line

One of the cabinets in Kelvinator's Standard Line. These cabinets are in 4, 5 and 7 cu. ft. sizes, have tops and doors of white porcelain, and side and front panels of French gray porcelain

celebrated Kold Keeper with its superautomatic, fast freezing Iso-thermic tray. All these conveniences come with the DeLuxe line in cabinets from 6 to 22 cu. ft.

In addition to the DeLuxe line, there is the Yukon line for small families who do not require Kelvinator plus features. These cabinets have maximum shelf area in relation to the floor space required.

The Standard Line of cabinets fills the gap between the Yukon model and the DeLuxe Line. It has most of the Kelvinator plus features, and its cabinets have doors and tops of white porcelain with French gray side and front panels.

Kelvinator for Apartments and Flats

There are Kelvinator cabinets for every size and type apartment installation, both for individual self-contained models and multiple installations.

Both types of installation have their own advantages and either a self-contained or a multiple installation may be more advantageously used in different cities due to the variance in installation and rental conditions. The Kelvinator distributor in your city will gladly explain all the conditions concerning the advisability of installing either type—will explain the differences of each on the net rental return of the property.

The new Yukon models were designed especially for individual self-contained installation in apartments, flats and small homes. Where space is a controlling factor these cabinets are ideal, as they combine maximum ice making capacity with extremely large food storage

space and shelf area in cabinets of comparatively small exterior dimensions.

The Kelvinator line of cabinets for multiple installation is very complete and has many superior advantages. All Kelvinator cabinets can be placed anywhere and are also adaptable to permanently built-in installa-

tions. Their compact design minimizes the amount of space required—their attractive appearance fits in with any decorative scheme.

Kelvinator Water Cooling Equipment

Comprises a complete line of office type coolers designed for bottle service or for direct connection to city water supply.

Coolers are furnished in a choice of three colors and can be had either plain or with a compartment for cooling and storing beverages, milk, sandwiches, etc.

Office type coolers are equipped with a side faucet but a bubbler or combination bubbler and glass filler can be furnished to replace the faucet on the pressure type coolers.

A top bubbler, industrial type, is also supplied. Bottle type coolers have a capacity of $3\frac{1}{2}$ gal. of water cooled from 80° to 50° F. per hour. Industrial coolers and office pressure type have capacities of $3\frac{1}{2}$ and 6 gal. per hour, cooled from 80° to 50° F.

Kelvinator has approved several types of coolers that, in connection with Kelvinator heavy duty condensing units, comprise equipment that will handle large multiple or circulating systems.

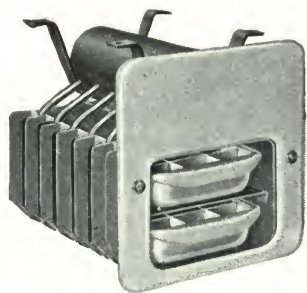


Kelvinator Commercial Equipment

Kelvinator's Commercial equipment includes a unit for practically every commercial requirement. Numbered among the cooling units are coils of every size and capacity, from the Giant triple cross fin cooling unit for large walk-in refrigerators to the small submersion cooling unit for soda fountain use.

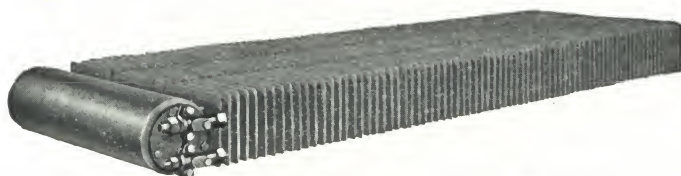
Twenty different compressors make up the line of Kelvinator condensing units. These range from $\frac{1}{8}$ to $1\frac{1}{2}$ h.p. For heavy duty work, Kelvinator manufactures both refrigerant-cooled and water-cooled cylinder heads on their compressors, thus assuring maximum refrigerating capacities and satisfactory performance.

As a means of simplifying the commercial application, Kelvinator has developed a very complete list of engineering tables for calculating commercial work. Our distributors throughout the country are thoroughly trained on commercial equipment, and may be called upon by the architect and engineer at any time for assistance along these lines.



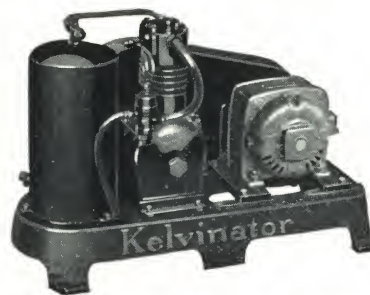
Cooling Unit CT-20

A typical Kelvinator Cooling Unit equipped with two freezing trays of 21 cubes each for apartment use



Cooling Unit Model X5-140—Giant Cross Fin Type

A typical Kelvinator Cross Fin Cooling Unit for refrigerating large coolers and cabinets. Over-all dimensions: $66\frac{1}{4}$ in. wide, $22\frac{3}{4}$ in. deep, 5 in. high



Condensing Unit Model WR-40

A typical Kelvinator Heavy Duty Condensing Unit. Over-all dimensions: $37\frac{3}{4}$ in. wide, 18 in. deep, $24\frac{3}{4}$ in. high. Compressor—2 cylinder, vertical, reciprocating, single acting type. Motor—1 hp., designed and built for refrigerating duty. Condenser—dual spiral water tube inside liquid receiver. Liquid receiver—vertical type, steel, 8 in. diameter, $18\frac{1}{4}$ in. high. Base—cast iron

GENERAL ELECTRIC COMPANY

ELECTRIC REFRIGERATION DEPARTMENT

Hanna Building
1400 Euclid Avenue
CLEVELAND, OHIO

GENERAL ELECTRIC REFRIGERATOR

Product

GENERAL ELECTRIC REFRIGERATORS—for homes, apartments, clubs, restaurants, stores, institutions, hospitals and steamships.

Design

Designed to (1) occupy little space, (2) eliminate exposed moving parts, (3) require no attention, not even oiling, (4) eliminate servicing to a minimum, (5) provide constant refrigerating temperatures automatically, and at low cost, (6) reduce the possibility of gas leaks and other causes of failure to a minimum.

Development

The GENERAL ELECTRIC COMPANY needs no introduction to the architect, for G-E products everywhere bear a reputation for excellence.

In this age of electric refrigeration, a demand for a refrigerator bearing the G-E trade-mark was naturally created.

The demand made upon G-E engineers was as follows:

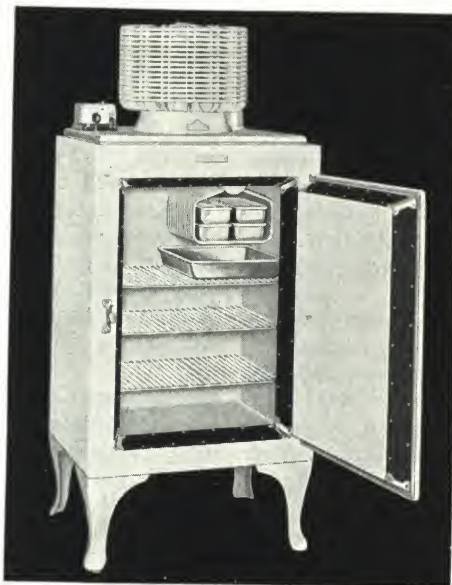
"Build us an electric refrigerator which will operate for years without attention. Make it spacious, sanitary, economical—eliminate all need for adjustment and oiling. Design it for the home and manufacture it with care."

It is done. The GENERAL ELECTRIC REFRIGERATOR meets the specifications. It is the result of fifteen years of research and experimentation by the GENERAL ELECTRIC COMPANY.

Several thousand electric refrigerators of nineteen different types were built, field-tested and improved before production of the present GENERAL ELECTRIC REFRIGERATOR was authorized. The GENERAL ELECTRIC REFRIGERATOR today embodies the best thought of the leading electrical research organization in the world.

General Advantages

In specifying GENERAL ELECTRIC REFRIGERATORS, the architect has the assurance that he is



Model S-62

specifying an electrical product that will give outstanding, continuous satisfaction. He eliminates the need of any unnecessary work, for no plumbing or extra wiring is required.

Nor does the GENERAL ELECTRIC REFRIGERATOR require a special location. The installation merely means uncrating the two boxes, placing the cabinet where it is to go, lowering the icing unit into the top of the cabinet, and plugging the attached cord into a convenience outlet. The switch is then closed and the installation is complete.

The GENERAL ELECTRIC REFRIGERATING icing unit is one of the simplest yet devised. It is built to automatically maintain the constant temperature necessary for proper food preservation—without

attention, not even oiling. The compactness of the evaporator gives more room for actual food storage.

If trouble should ever develop, the dealer simply raises the unit out of the cabinet and replaces it with a new one which he keeps on hand for emergencies.

And the GENERAL ELECTRIC REFRIGERATOR is clean. There is no exposed machinery—it is all contained in an hermetically sealed steel casing mounted on the top, up and away from floor dirt. The circulation of air through the coils prevents dust from settling on the top. The corners of the interior of the cabinets are rounded to make cleaning an easy task. All of the models are mounted on legs to permit cleaning of the floor underneath.

The GENERAL ELECTRIC REFRIGERATOR operates so quietly that it can hardly be heard, and the cold loss has been reduced to a minimum. It is guaranteed against defective workmanship and materials for two years.

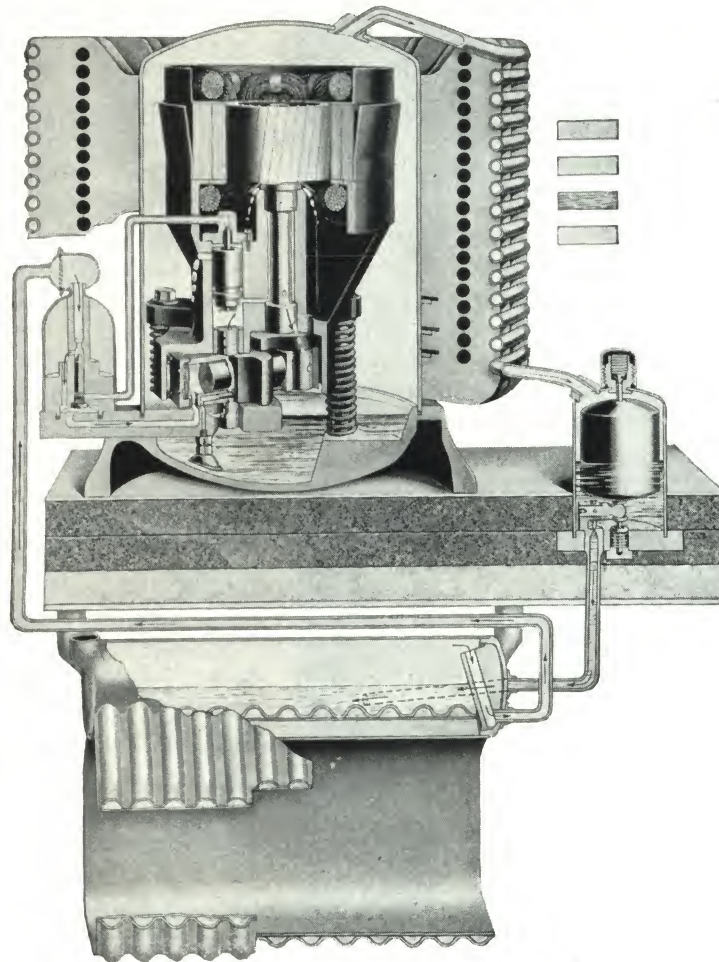
The GENERAL ELECTRIC REFRIGERATOR has been approved by the Underwriters' Laboratories, Inc., and we believe that it surpasses in attractiveness and efficiency anything yet produced. We also believe that it will give the owner less trouble and use less current than any other.

SPECIAL NOTICE

Because of occasional changes in the design (manufacturing specifications) of some models, we suggest that you communicate with the local GENERAL ELECTRIC REFRIGERATOR Distributor or Dealer, or direct with this office for confirmation of the details (manufacturing specifications) of the various models quoted on these pages.

Models on Display at Architects' Exhibits

NEW YORK BOSTON CHICAGO INDIANAPOLIS CLEVELAND LOS ANGELES DETROIT



OPERATION OF THE GENERAL ELECTRIC ICING UNIT

For the purpose of explanation, the General Electric icing unit can be divided into four major parts:

(1) **The Super Freezer**—Sometimes called the evaporator or chilling unit. This is inside the cabinet.

(2) **The Compressor**—Which is inside of the hermetically sealed casing, and which compresses the gas after it has evaporated.

(3) **The Condensing Coils**—After the gas is compressed it is released into the hermetically sealed casing, and from there into the coils that surround the outside of the icing unit. The purpose of this is to condense the gaseous (SO_2) into a liquid.

(4) **The Control**—This regulates the operation of the machine and is so perfected that it provides an even temperature inside the cabinet.

Operation—The following paragraphs explain how heat is removed (or cold produced) in the complete GENERAL ELECTRIC REFRIGERATOR.

The liquid sulphur dioxide (SO_2) expands or evaporates in the freezing chamber, which is inside the cabinet. This action takes place at approximately 14° above zero. As it expands it becomes a vapor, and absorbs heat from the interior of the cabinet. This vapor passes through tube to the compressor, which is inside the hermetically sealed casing. The vapor is then

condensed to a dense vapor, and is discharged into the interior of the hermetically sealed casing. The vapor still contains the heat that it absorbed in the refrigerator. It then passes into the condenser. The air circulating around these coils cools the vapor, and the heat absorbed from the interior of the cabinet is given off into the air. When the heat is removed, the vapor condenses to a liquid again in much the same manner as cooling steam condenses into water.

This liquid goes through the float chamber, and from there back into the evaporator, where it expands again, absorbs more heat, and the cycle is repeated.

The frequency of the action is governed by the control, and the difference in temperature in the evaporator causes a deflection of the syphon bellows in the control apparatus. The control switch is thus actuated. This starts the motor at the high temperature limit and stops it at the low.

The above system of generating cold is probably the simplest and most trouble-free that has ever been devised for the home.

No Oiling

The no-oiling feature of a GENERAL ELECTRIC REFRIGERATOR takes on a new significance with tenant operation.

APARTMENT INSTALLATIONS

The newest household electrical servant, the electric refrigerator, has become so desired by tenants that apartment owners all over the country are wondering what is the best type of electric refrigerator to buy. They are interested in purchasing the type of equipment which will give the tenants the most satisfactory service and make the best investment for themselves.

It has always been accepted that the ideal apartment house refrigerator is one which is self-contained. For the simplicity of the individual system for apartment installations—its freedom from operating troubles and maintenance overhead, and the superiority of service—makes it the ideal refrigerator for apartment house use. And individual electric refrigerators have reached the point of development that the owner may now install this type of equipment and secure all its advantages.

Advantages of using GENERAL ELECTRIC REFRIGERATOR individual units.

(1) Ease of installation—no piping required in the walls.

(2) Accessibility—no danger of leaks, corrosion, etc., in inaccessible places.

(3) Portability—because the individual unit requires only an electrical connection it can be moved from place to place in the kitchen.

(4) Individual control of refrigerators in each apartment:

(a) Refrigerators in apartments not rented may be shut off when not in use.

(b) Easily accessible freezing regulator—each tenant can have the exact temperature regulation in their refrigerator that they desire.

(5) Continuity of service—if an individual unit fails, only one tenant is affected and replacement can be made very quickly.

(6) Ice cubes and frozen desserts can be made quickly in the individual installation. It is possible to do this even in the warmest weather.

(7) GENERAL ELECTRIC REFRIGERATOR individual units are air cooled, so there is no water expense.

(8) More equitable arrangement of charges with the tenant.

The individual system allows the tenant to pay for the electricity consumed by his individual unit. This is the most satisfactory method.

(9) The cabinet of the GENERAL ELECTRIC REFRIGERATOR is built like a safe—it cannot warp. It is strong, built to last.

For the small additional first cost of installing General Electric refrigeration, the owner has a building that is greatly enhanced in resale value, more attractive to discriminating tenants, and more readily rentable. He has free service for two years, with only nominal service charges thereafter, no electricity bills (each tenant pays his own) negligible repair costs and depreciation, and no supervision is required.

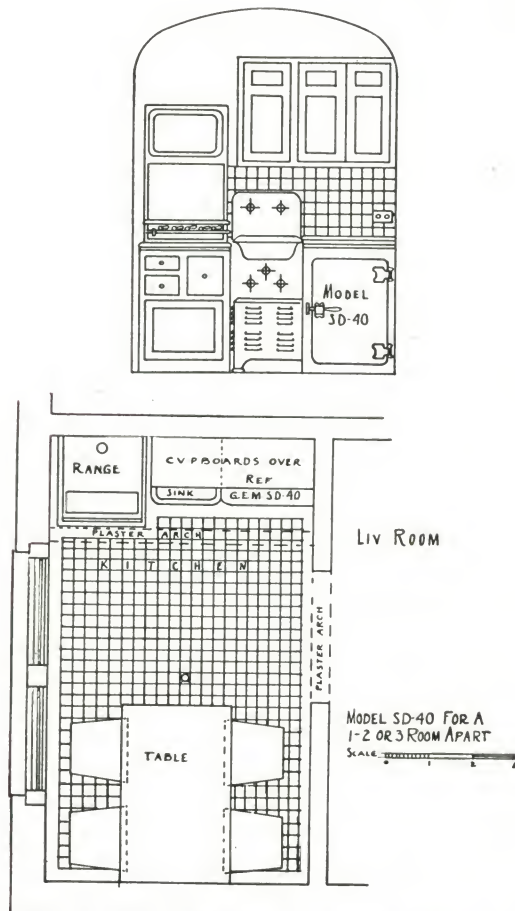


Diagram of Built-in Apartment Kitchen

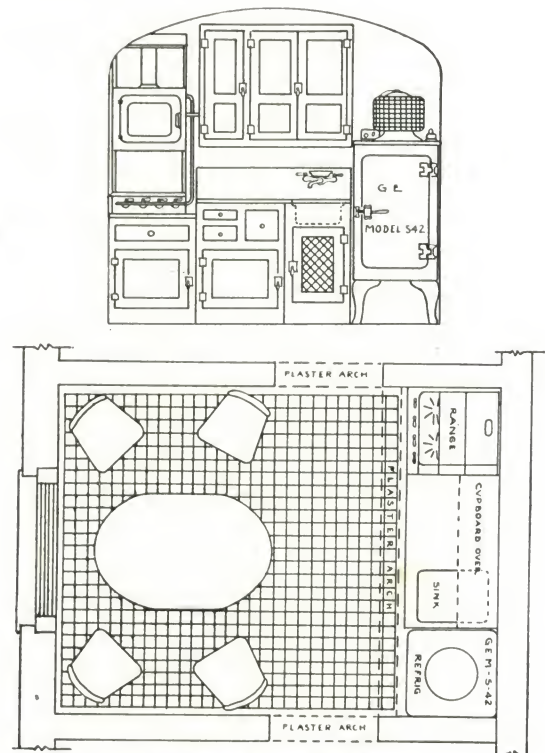


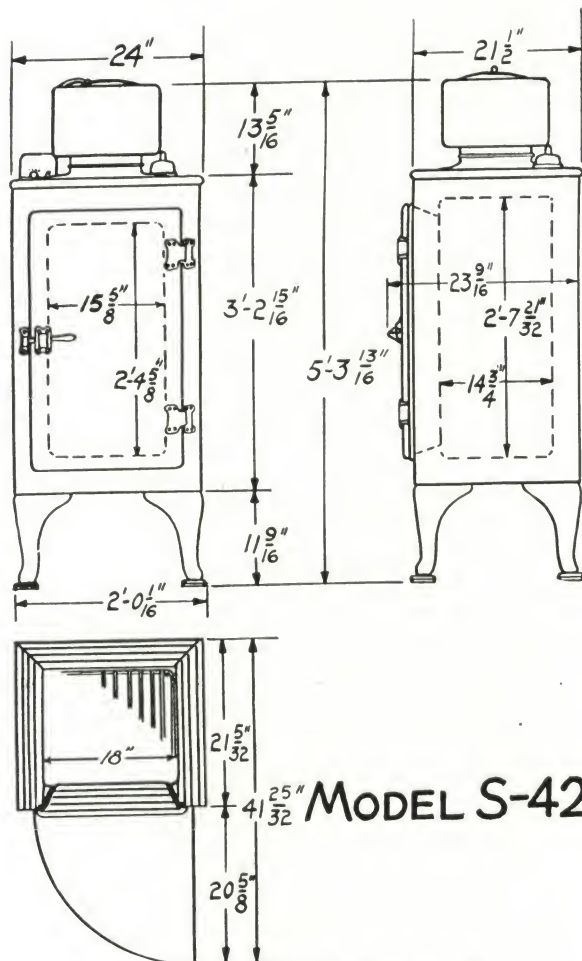
Diagram of Kitchen Layout

General Electric Refrigerators Offer These Vital Advantages

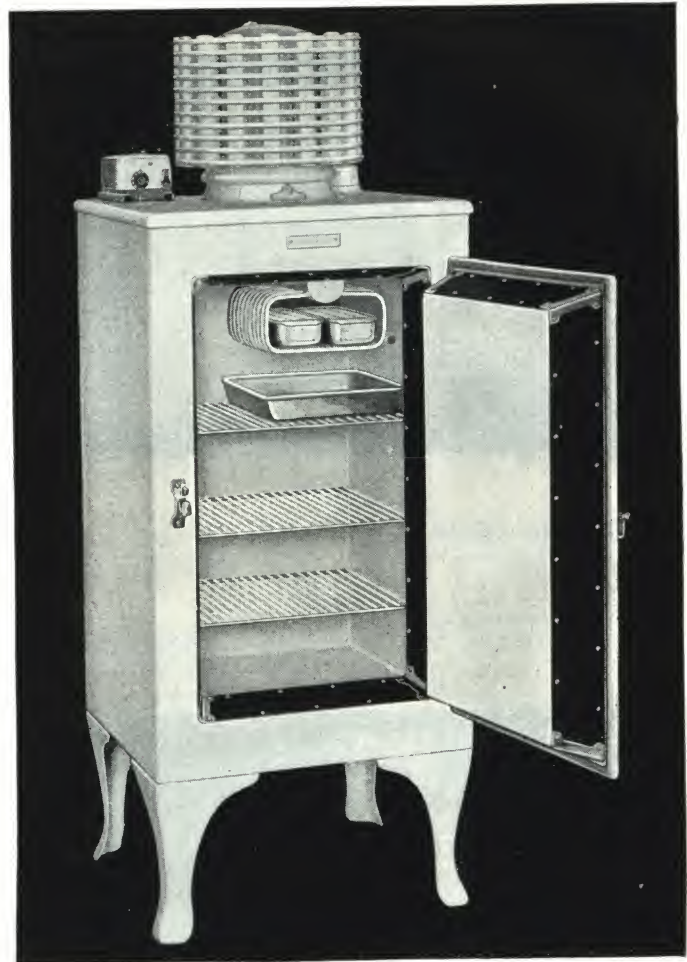
- an hermetically sealed, dustproof mechanism.
- an easily accessible freezing regulator.
- a mechanism that requires no oiling.
- all troublesome machinery eliminated.
- a new standard of quiet operation.
- mounted on legs with broom-room underneath.
- no installation problem whatever.
- a sanitary, porcelain chilling chamber.
- the entire mechanism mounted on top.
- maximum food storage space in the cabinet.
- an appreciably lower cost of operation.
- a radically improved type of cabinet.
- an unqualified two-year guarantee.

Specification Suggestions

Electric Refrigerator—Furnish and install in (give location) a Model [SD-40] [S-42] [S-62] [S-100] [S-140] [S-180] [PS-5] [PS-7] [PS-95] [PS-13] [PS-17] GENERAL ELECTRIC REFRIGERATOR made by the Electric Refrigeration Department of the GENERAL ELECTRIC COMPANY, Cleveland, Ohio.



Dimension Diagram Model S-42



Model S-42

Architects' Handbook

To assist architects in the selection of proper refrigeration facilities, an "Architects' Handbook on Electric Refrigeration" has been published by the Electric Refrigeration Department of the GENERAL ELECTRIC COMPANY.

This interesting booklet contains complete information on electric refrigeration and copies are available, free of charge, on request.

Specifications Model S-42

Food Storage Capacity—4 cu. ft.

Food Shelf Area—7½ sq. ft. Straight wire shelves.

Ice Making—48 cubes in two trays. Arranged for fast freezing.

Refrigerating Unit—(DR-1) ½ hp. single-phase induction type. All moving parts enclosed in hermetically sealed casing.

Cabinet—"All Steel" type construction in which no wood frame is used either in the cabinet or doors. Black "Textolite" strips are used on the door and door jamb. A removable rubber gasket seals the door. Shelves are straight bar type welded together and heavily tinned. Hardware is chromium finish.

Interior Finish—White vitreous porcelain.

Exterior Finish—White "Sanak."

Weight—

Unit—136 lb.

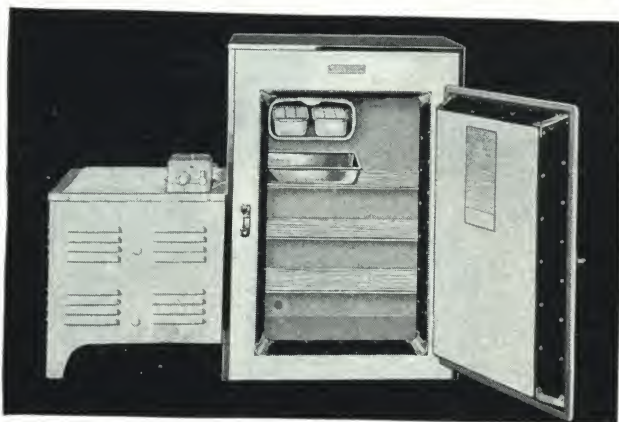
Cabinet—187 lb.

Shipping Weight—

Unit with accessories—192 lb.

Cabinet—244 lb.

ILLUSTRATIONS AND DESCRIPTIONS OF G-E REFRIGERATOR MODELS



Model SD-40

Specifications SD-40Net Food Storage— $3\frac{1}{4}$ cu. ft.Shelf Area— $6\frac{1}{2}$ sq. ft.

Ice Making—48 cubes in two trays.

Interior Dimensions—

Height— $28\frac{1}{2}$ in. Width— $19\frac{1}{4}$ in.Depth— $12\frac{1}{2}$ in.

Refrigerating Unit (DA-1)—Permanently attached to and forming an integral part of the cabinet.

A $\frac{1}{10}$ -hp., single phase induction type motor is used.

All moving parts enclosed in a hermetically sealed casing.

Cabinet—

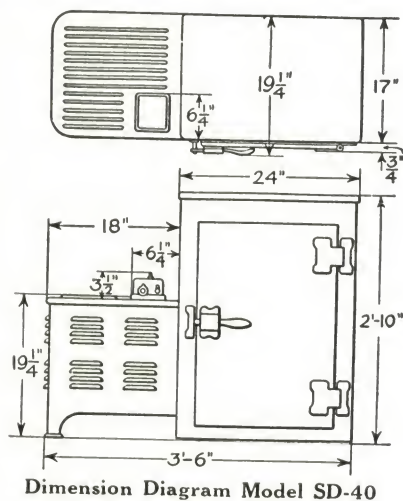
Exterior—White lacquer on steel with polished aluminum top.

Interior—White porcelain.

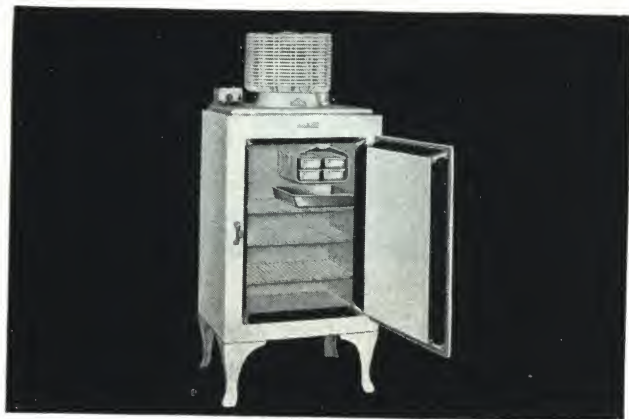
Note: Model SD-40 can be furnished with unit on either right or left side of cabinet.

Weight—275 lb.

Shipping Weight—307 lb.



Dimension Diagram Model SD-40



Model S-62

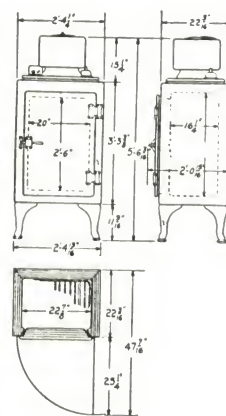
Specifications S-62

Food Storage Capacity—6 cu. ft.

Food Shelf Area— $10\frac{1}{2}$ sq. ft. Straight wire shelves.Ice Making—96 cubes in four trays, $2\frac{1}{2}$ lb. per tray or 10 lb. of ice per freezing.

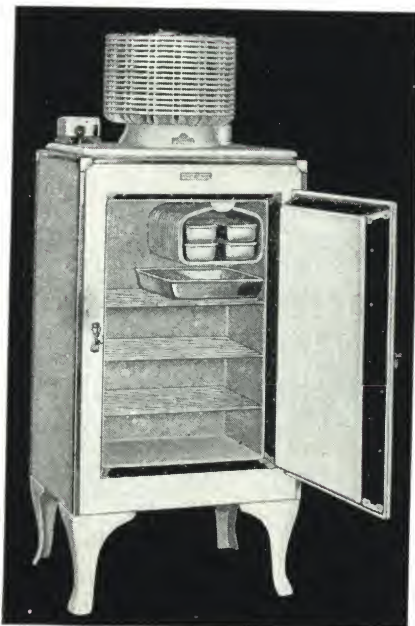
Refrigerating Unit (DR-2)— $\frac{1}{8}$ hp. squirrel cage motor, split phase induction type. All moving parts enclosed in hermetically sealed casing—1800 r.p.m.

Cabinet—"All Steel" type construction in which no wood frame is used either in the cabinet or doors. Black "Textolite" strips are used on the door and door jamb. A removable rubber gasket seals the door. Shelves are straight bar type welded together and heavily tinned. Hardware is chromium finish.



MODEL S-62

Dimension Diagram



Model PS-5

Interior Finish—White vitreous porcelain.

Exterior Finish—White "Sanak."

Insulation—Approved General Electric specifications.

Weight—

Unit—180 lb.

Cabinet—269 lb.

Shipping Weight—

Unit with accessories—246 lb.

Cabinet—356 lb.

Specifications PS-5Food Storage Capacity— $5\frac{1}{2}$ cu. ft.

Food Shelf Area—9 sq. ft. Straight wire shelves.

Ice Making—96 cubes in four trays. $2\frac{1}{2}$ lb. per tray or 10 lb. of ice per freezing.

Refrigerating Unit (DR-2)— $\frac{1}{8}$ hp. squirrel cage motor, split phase induction type. All moving parts enclosed in hermetically sealed casing—1800 r.p.m.

Cabinet—Heavy durable construction with one piece porcelainized steel inner liner and porcelain exterior. Black "Textolite" strips are used on the door and door jamb facings. Shelves are straight wire bar type, welded together and heavily tinned. Metal trim is corrosion resistant and highly polished. Cabinet is mounted on $11\frac{1}{8}$ -in. detachable legs.

Interior Finish—White vitreous porcelain.

Exterior Finish—White vitreous porcelain.

Insulation—Approved General Electric specifications.

Weight—

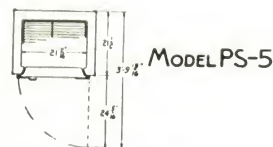
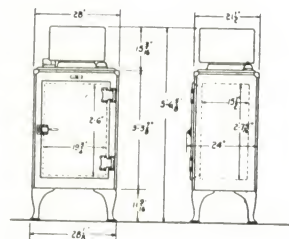
Unit—180 lb.

Cabinet—227 lb.

Shipping Weight—

Unit with accessories—246 lb.

Cabinet—328 lb.



MODEL PS-5

Dimension Diagram

Description of Model PS-7

Food Storage Capacity—7½ cu. ft.

Food Shelf Area—12¾ sq. ft. Straight wire shelves.

Ice Making—96 cubes in four trays; 2½ lb. per tray or 10 lb. of ice per freezing.

Refrigerating Unit (DR-2)—¼ hp. squirrel cage motor, split phase induction type. All moving parts enclosed in hermetically sealed casing—1800 r.p.m.

Cabinet—Heavy durable construction with one piece porcelainized steel inner liner and porcelain exterior. Black "Textolite" strips are used on the door and door jamb facings. Shelves are straight wire bar

type, welded together and heavily tinned. Metal trim is corrosion resistant and highly polished. Cabinet is mounted on 11⅞-in. detachable legs.

Interior Finish—White vitreous porcelain.

Exterior Finish—White vitreous porcelain.

Insulation—Approved General Electric specifications.

Weight—

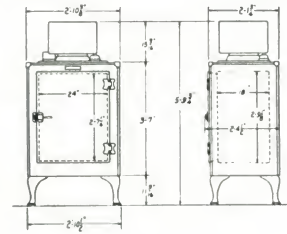
Unit—180 lb.

Cabinet—346 lb.

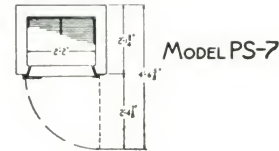
Shipping Weight—

Unit with accessories—246 lb.

Cabinet—474 lb.



Dimension
Diagram



MODEL PS-7

Description of Model S-100

Food Storage Capacity—10 cu. ft.

Food Shelf Area—18 sq. ft. Straight wire shelves.

Ice Making—A total of 10 lb. of ice may be frozen at one time. Four trays are used, each holding 2½ lb. Each tray contains 21 large cubes of ice, making 84 in all.

Refrigerating Unit (DR-3)—¼ hp. squirrel cage motor, split phase induction type. All moving parts enclosed in hermetically sealed casing—1800 r.p.m.

Cabinet—"All Steel" type construction in which no wood frame is used either in the cabinet or doors. Black "Textolite" strips are used

on the door and door jamb. A removable rubber gasket seals the door. Shelves are straight bar type welded together and heavily tinned. Hardware is chromium finish.

Interior Finish—White vitreous porcelain.

Exterior Finish—White "Sanak."

Insulation—Approved General Electric specifications.

Weight—

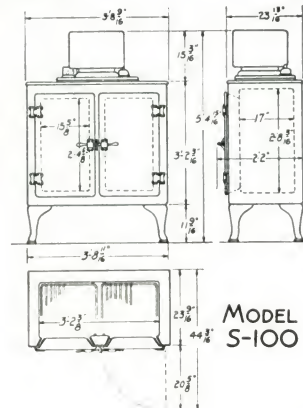
Unit—268 lb.

Cabinet—382 lb.

Shipping Weight—

Unit with accessories—352 lb.

Cabinet—528 lb.



Dimension
Diagram

MODEL
S-100

Description of Model PS-95

Food Storage Capacity—10 cu. ft.

Food Shelf Area—18¾ sq. ft. Straight wire shelves.

Ice Making—A total of 10 lb. of ice may be frozen at one time. Four trays are used, each holding 2½ lb. Each tray contains 21 large cubes of ice, making 84 in all.

Refrigerating Unit (DR-3)—¼ hp. squirrel cage motor, split phase induction type. All moving parts enclosed in a hermetically sealed casing—1800 r.p.m.

Cabinet—Heavy durable construction with one piece porcelainized steel inner liner and porcelain exterior. Black "Textolite" strips are used

on the door and door jamb facings. Shelves are straight wire bar type, welded together and heavily tinned. Metal trim is corrosion resistant and highly polished. Cabinet is mounted on 11⅞-in. detachable legs.

Interior Finish—White vitreous porcelain.

Exterior Finish—White vitreous porcelain.

Insulation—Approved General Electric specifications.

Weight—

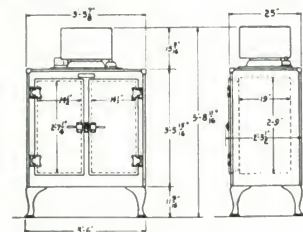
Unit—268 lb.

Cabinet—361 lb.

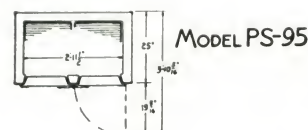
Shipping Weight—

Unit with accessories—352 lb.

Cabinet—508 lb.



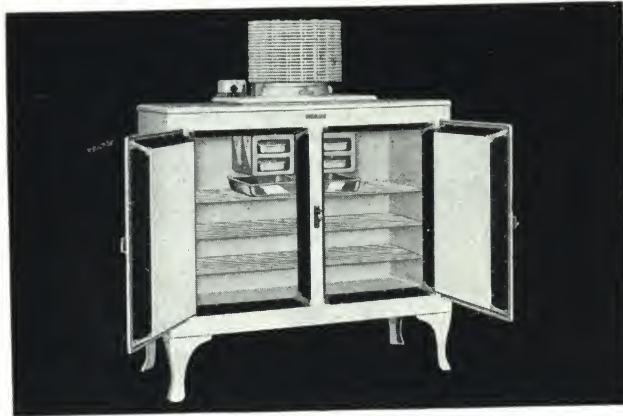
Dimension
Diagram



MODEL PS-95

Specifications S-140

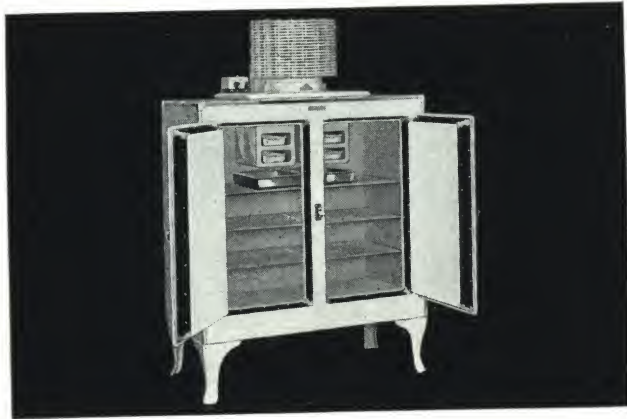
Food Storage Capacity—13 cu. ft.
Food Shelf Area—22 sq. ft. Straight wire shelves.



Model S-140

Specifications PS-13

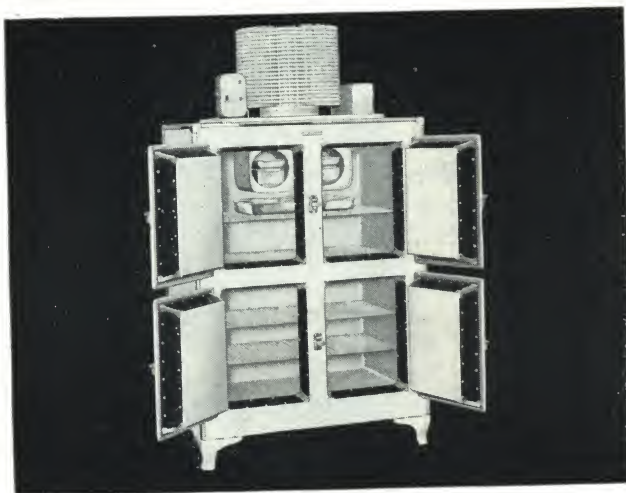
Food Storage Capacity—13 cu. ft.
Food Shelf Area—20 sq. ft. Straight wire shelves.



Model PS-13

Specifications PS4-17

Food Storage Capacity—17 cu. ft.
Food Shelf Area—24 sq. ft. Straight wire shelves.
Ice Making—A total of 10 lb. of ice may be frozen at one time. Four trays are used, each holding 2½ lb. Each tray contains 21 large cubes of ice, making 84 in all.
Refrigerating Unit (DRE-4)—½ hp. single phase condenser motor. All moving parts enclosed in a hermetically sealed case—1800 r.p.m.
Cabinet—Heavy durable construction with one piece porcelainized steel inner liner and porcelain exterior. Black "Textolite" strips are used on the door and door jamb facings. Shelves are straight wire bar type, welded together and heavily tinned. Metal trim is corrosion resistant and highly polished. Cabinet is mounted on 5¼-in. detachable legs.



Model PS4-17

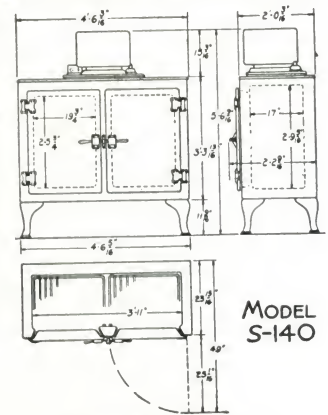
Ice Making—A total of 10 lb. of ice may be frozen at one time. Four trays are used, each holding 2½ lb. Each tray contains 21 large cubes of ice, making 84 in all.

Refrigerating Unit (DR-3)—⅓ hp. squirrel cage motor, split phase induction type. All moving parts enclosed in hermetically sealed casing—1800 r.p.m.

Cabinet—"All Steel" type construction in which no wood frame is used either in the cabinet or doors. Black "Textolite" strips are used on the door and door jamb. A removable rubber gasket seals the door. Shelves are straight bar type welded together and heavily tinned. Hardware is chromium finish.

Insulation—Approved General Electric specifications.

Weight—Unit—268 lb.
 Cabinet—526 lb.
Shipping Weight—Unit with accessories—352 lb.
 Cabinet—762 lb.



Dimension Diagram

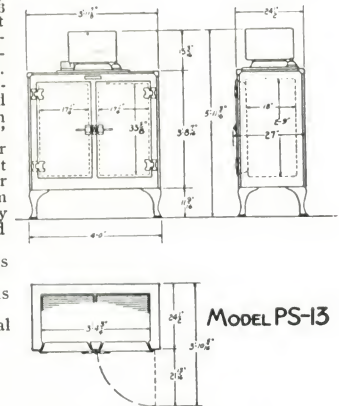
Ice Making—A total of 10 lb. of ice may be frozen at one time. Four trays are used, each holding 2½ lb. Each tray contains 21 large cubes of ice, making 84 in all.

Refrigerating Unit (DR-3)—⅓ hp. squirrel cage motor, split phase induction type. All moving parts enclosed in hermetically sealed casing—1800 r.p.m.

Cabinet—Heavy durable construction with one piece porcelainized steel inner liner and porcelain exterior. Black "Textolite" strips used on door and door jamb facings. Shelves straight wire bar type, welded together and heavily tinned. Metal trim corrosion resistant and highly polished. Cabinet is mounted on 11 1/8-in. detachable legs.

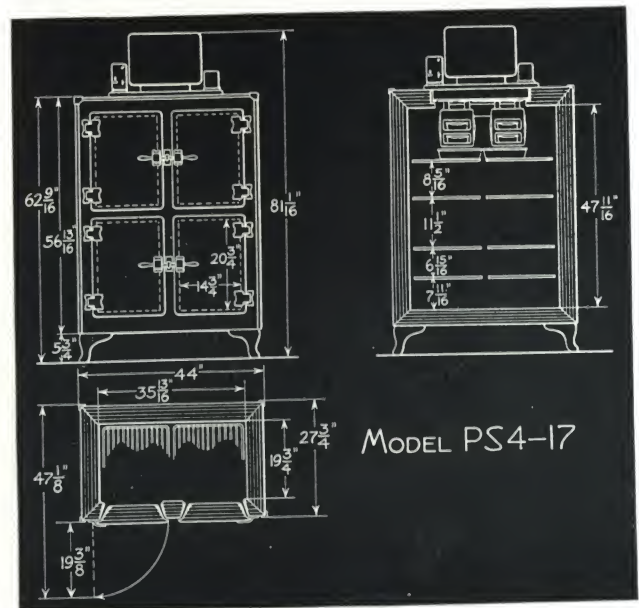
Insulation—Approved General Electric specifications.

Weight—Unit—268 lb.
 Cabinet—436 lb.
Shipping Weight—Unit with accessories—352 lb.
 Cabinet—599 lb.



Dimension Diagram

Interior Finish—White vitreous porcelain.
Exterior Finish—White vitreous porcelain.
Insulation—Approved General Electric specifications.
Weight—Unit—325 lb.
 Cabinet—640 lb.
Shipping Weight—Unit with accessories—397 lb.
 Cabinet—805 lb.



Dimension Diagram

DESCRIPTION OF MODEL PS-17

Food Storage Capacity—17 cu. ft.

Food Shelf Area—25 sq. ft. Straight wire shelves.

Ice Making—A total of 10 lb. of ice may be frozen at one time. Four trays are used, each holding $2\frac{1}{2}$ lb. Each tray contains 21 large cubes of ice, making 84 in all.

Refrigerating Unit (DR-3)— $\frac{1}{8}$ hp. squirrel cage motor, split phase induction type. All moving parts enclosed in a hermetically sealed casing—1800 r.p.m.

Cabinet—Heavy durable construction with one piece porcelain steel inner liner and porcelain exterior. Black "Textolite" strips are used on the door and door jamb facings. Shelves are straight wire bar type, welded to-

gether and heavily tinned. Metal trim is corrosion resistant and highly polished. Cabinet is mounted on $11\frac{1}{8}$ in. detachable legs.

Interior Finish—White vitreous porcelain.

Exterior Finish—White vitreous porcelain.

Insulation—Approved General Electric specifications.

Weight—

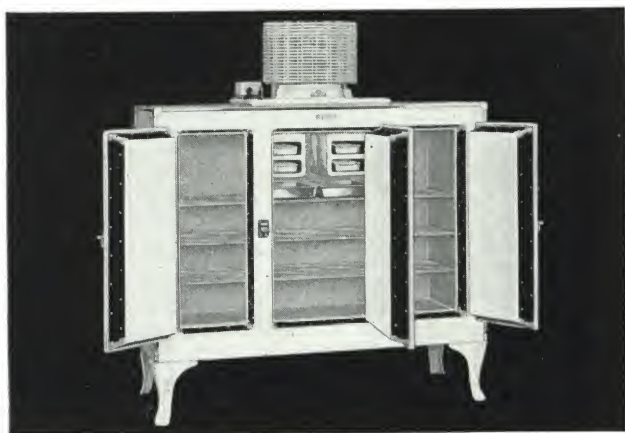
Unit—268 lb.

Cabinet—595 lb.

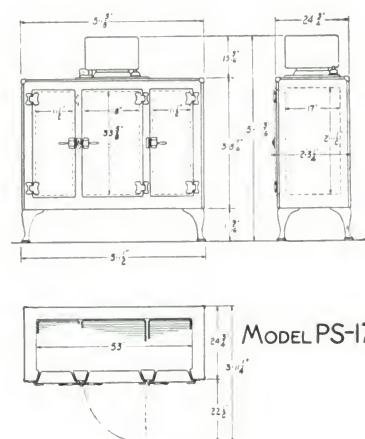
Shipping Weight—

Unit with accessories—352 lb.

Cabinet—773 lb.



Model PS-17



Dimension Diagram

DESCRIPTION OF MODEL S-180

Food Storage Capacity—17 cu. ft.

Food Shelf Area—28 sq. ft. Straight wire shelves.

Ice Making—A total of 10 lb. of ice may be frozen at one time. Four trays are used, each holding $2\frac{1}{2}$ lb. Each tray contains 21 large cubes of ice, making 84 in all.

Refrigerating Unit (DR-3)— $\frac{1}{8}$ hp. squirrel cage motor, split phase induction type. All moving parts enclosed in a hermetically sealed casing—1800 r.p.m.

Cabinet—"All-Steel" type construction in which no wood frame is used either in the cabinet or doors. Black "Textolite" strips are used on the door and door jamb. A removable

rubber gasket seals the door. Shelves are straight bar type welded together and heavily tinned. Hardware is chromium finish.

Interior Finish—White vitreous porcelain.

Exterior Finish—White "Sanak."

Insulation—Approved General Electric specifications.

Weight—

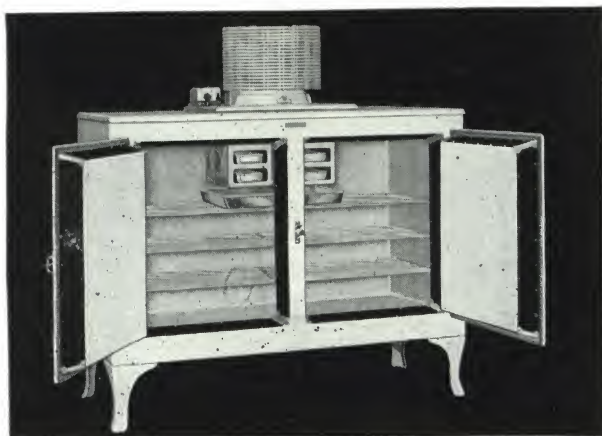
Unit—268 lb.

Cabinet—707 lb.

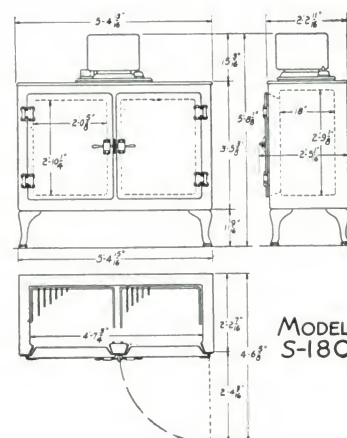
Shipping Weight—

Unit with accessories—352 lb.

Cabinet—1025 lb.



Model S-180



Dimension Diagram

GENERAL ELECTRIC

COMMERCIAL REFRIGERATORS

The "GENERAL ELECTRIC" REFRIGERATOR either for commercial or domestic use is a package article. Both the refrigerating unit and cabinet are completely assembled ready for installation and operation.

Thus the purchaser gains the following advantages:

(1) Refrigerating unit is completely assembled in a modern plant under strict supervision.

(2) The responsibility for successful operation is centered in one company.

(3) A minimum of floor space per cubic foot of food storage capacity is occupied by both refrigerating unit and cabinet.

(4) The refrigerating unit is hermetically sealed.

(5) Economy in operation is the result of high efficiency.

(6) No costly labor is necessary in the field to insure continued operation.

(7) Expensive maintenance is eliminated since there are no exposed moving parts to wear out.

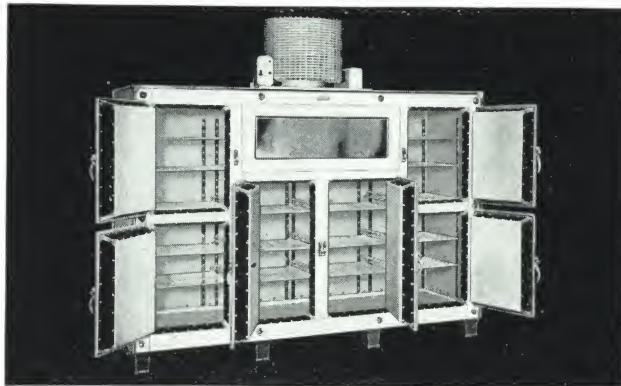
(8) No oiling or service are required.

(9) Quiet operation.

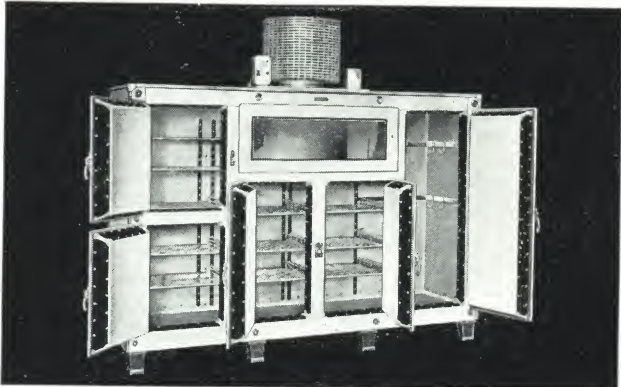
(10) The correct refrigerating unit and cabinet is sure to be installed for the performance of a given task.

(11) Guaranteed by GENERAL ELECTRIC COMPANY.

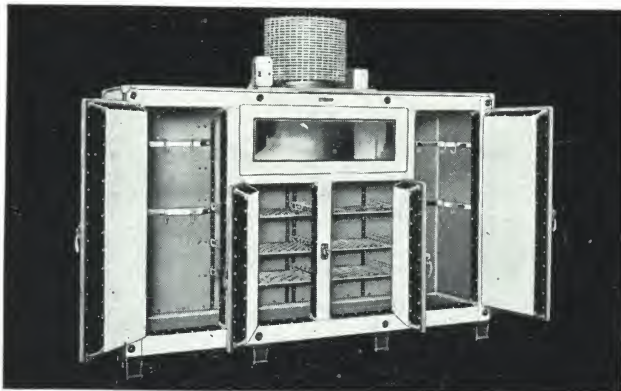
All modern merchandising tends toward the package line of goods. The reason for this tendency is quite obvious when we consider that simplicity is the keynote of everything that is really great. What could be more obvious and, what could be more appropriate in this day of time, labor and money savers than to have the GENERAL ELECTRIC COMPANY produce an electric refrigerator employing the package article principle for commercial use?



Model CS-600



Model CS-601



Model CS-602

Description of Model CS-600

Food Storage Capacity—60 cu. ft.

Shelf Area—75 sq. ft. Heavily tinned straight wire shelves adjustable to 2-in. spacing.

Finish—Interior and front of cabinet including door panels—white porcelain on steel. Top and sides of cabinet—white lacquer on steel. Back and bottom of cabinet—galvanized iron. Porcelain enameled cast iron legs. Exterior trim—non-corrosive metal chrome plated and polished. "Textolite" door and door jamb strips. Special moulded rubber door gaskets.

Hardware—Is hard brass, chrome plated. All doors have spring lock latches.

Insulation—Is 4 in. thick wrapped and sealed according to General Electric specifications.

Drain—Removable vitreous enamel drip pan is located beneath chilling unit, and connected by nickel plated brass pipe to trays and drain.

Installation—Cabinet can be taken apart for installation if necessary. Minimum room height required to install unit in assembled cabinet—9 ft. 5 in. Minimum room height required to install unit in cabinet, front removed, and allowing 10 in. clearance above installed unit—8 ft. 6 in.

Refrigerating Unit—Model DR-5. Self-defrosting. No ice making. (See second page following.)

Description of Model CS-601

Food Storage Capacity—

Shelf Compartment—43½ cu. ft. Shelf area—56 sq. ft.

Meat Compartment—16½ cu. ft. Meat racks—7 ft. total length.

Total—60 cu. ft. net.

Heavily tinned straight wire shelves adjustable to 2-in. spacing.

Meat hooks in right end compartment.

Finish, Hardware, Insulation, Drain, Installation and Refrigerating Unit are the same as for Model CS-600.

Description of Model CS-602

Food Storage Capacity—

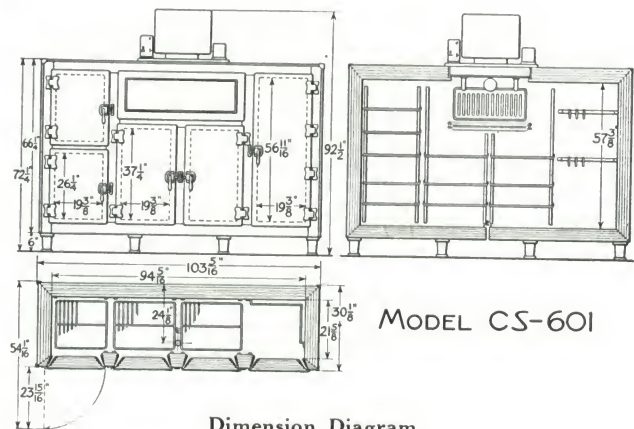
Shelf Compartments—27 cu. ft. Shelf area—36 sq. ft.

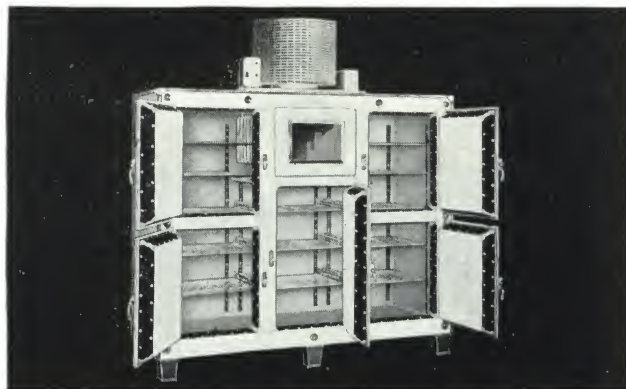
Meat Compartments—33 cu. ft. Meat racks—14 ft. total length.

Total—60 cu. ft. net.

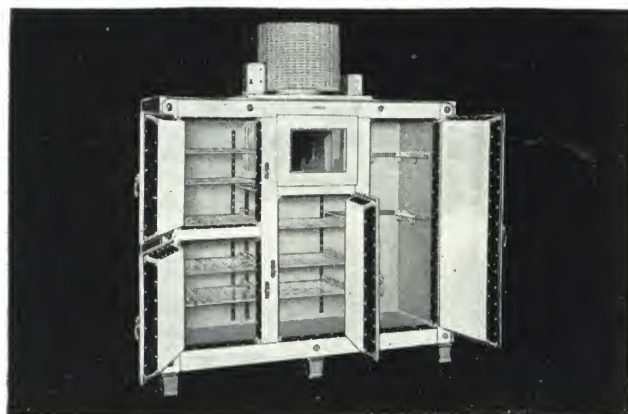
Heavily tinned straight wire shelves adjustable to 2-in. spacing in two center compartments. Meat hooks in right and left end compartments.

Finish, Hardware, Insulation, Drain, Installation and Refrigerating Unit are the same as for Model CS-600.

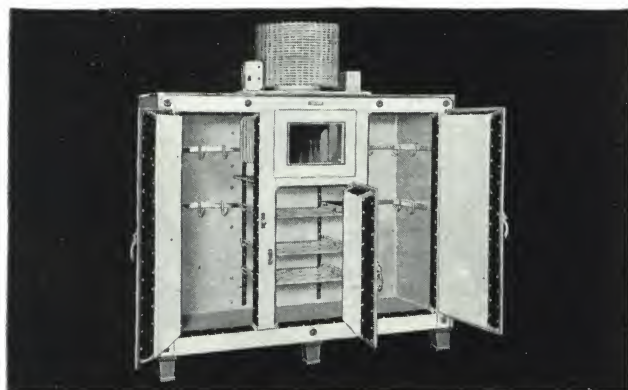




Model CS-450



Model CS-451



Model CS-452



Model CS-270

Specifications CS-450

Storage Capacity—45 cu. ft. Shelf area, 55 sq. ft. Heavily tinned straight wire shelves adjustable to two-inch spacing.

Finish—Interior and front of cabinet including door panels—white porcelain on steel. Top and sides of cabinet—White lacquer on steel. Back and bottom of cabinet—galvanized iron. Porcelain enameled cast iron legs. Exterior trim—non-corrosive metal, chrome plated and polished. "Textolite" door and door jamb strips. Special moulded rubber door gasket.

Hardware—Hardware is hard brass, chrome plated. All doors have spring lock latches.

Insulation—Insulation is 3½ in. thick, wrapped and sealed according to General Electric specifications.

Drain—Removable vitreous enamel drip pan is located beneath chilling unit and connected by nickel plated brass pipe to trays and drain.

Installation—Cabinet can be taken apart for installation when necessary. Minimum room height required to install unit in assembled cabinet—9 ft. 5 in. Minimum room height required to install unit in cabinet, front removed and allowing 10-in. clearance above installed unit—8 ft. 6 in.

Refrigerating Unit (DR-5)—Self defrosting, no ice making. See following page.

Specifications CS-451

Storage Capacity—Shelf compartment, 28½ cu. ft. Shelf area, 35 sq. ft. Meat compartment, 16½ cu. ft. Meat racks, 7 ft. Total, 45 cu. ft. net.

Heavily tinned straight wire shelves adjustable to two-inch spacing. Meat hooks in right end compartment.

Finish, Hardware, Insulation, Drain, Installation and Refrigerating Unit—The same as for Model CS-450.

Specifications CS-452

Storage Capacity—Shelf compartment, 12 cu. ft. Shelf area, 20 sq. ft. Meat compartments, 33 cu. ft. Hook racks, 14 ft. Total, 45 cu. ft.

Heavily tinned straight wire shelves adjustable to two-inch spacing. Meat hooks in right end and left end compartment.

Finish, Hardware, Insulation, Drain, Installation and Refrigerating Unit—The same as for Model CS-450.

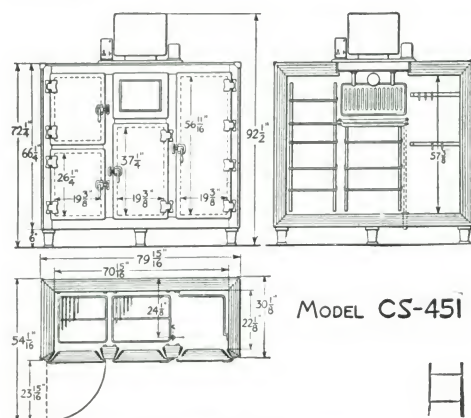
Specifications CS-270

Storage Capacity—27 cu. ft. Shelf area, 35 sq. ft. Heavily tinned straight wire shelves, adjustable to two-inch spacing.

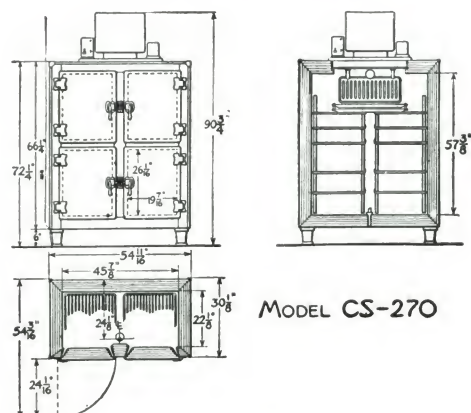
Finish, Hardware, Insulation and Drain—Same as for Model CS-450.

Installation—Cabinet can be taken apart for installation when necessary. Minimum room height required to install unit in assembled cabinet with DR-4 8 ft. 11 in., with DR-5 9 ft. 5 in. Minimum room height required to install unit in cabinet, front removed, and allowing 10-in. clearance above installed unit—8 ft. 6 in.

Refrigerating Unit (DR-4 or DR-5)—Self defrosting, no ice making. See following page.

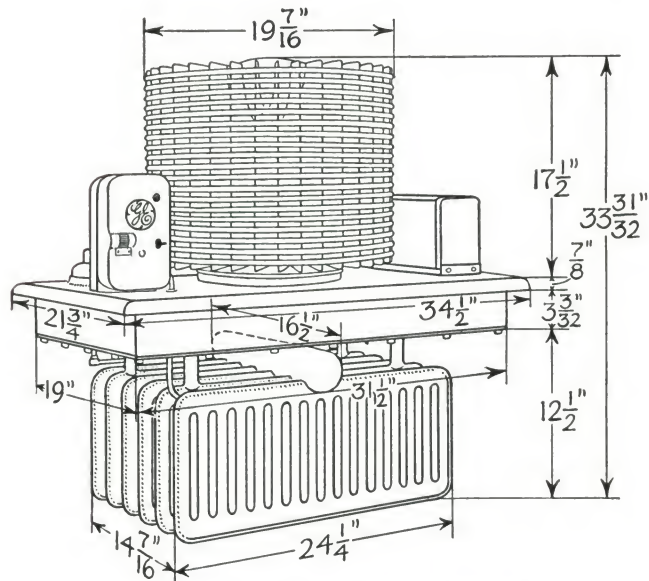


Dimension Diagram



Dimension Diagram

General Electric Refrigerating Unit Model DR-4



Dimension Drawing Unit Model DR-4

Compressor

The compressor is of the twin oscillating cylinder type, direct connected to the motor. The stuffing box is eliminated by having the motor mounted inside of the hermetically sealed housing.

Compressor

The compressor is of the twin oscillating cylinder type, directly connected to the motor. The stuffing box is eliminated by having the motor mounted inside of the hermetically sealed housing.

Evaporator

White porcelain on steel. Operates on a defrosting cycle.

Lubrication

All moving parts are liberally supplied with oil by means of a simple forced feed system. Each unit has a permanent supply of 4 1/2 qts. of special mineral oil. No re-oiling is necessary, since the hermetically sealed design eliminates the factors which ordinarily cause the deterioration of oil.

Mounting

The compressor unit is mounted on three vertical springs inside of the housing to insure quietness of operation and freedom from vibration.

Motor

A single phase, 1/2 hp., 220 volt condenser motor is used. The condenser motor represents the latest development in high efficiency, high power factor, fractional horse-power motor design.

The motor does not cause radio interference, since it has no brushes or sliding contacts.

The power input to the motor, under normal conditions of operation, is approximately 475 watts. The power factor is above 85%.

Capacity

2100 B.t.u. per hour; 80° F. room; 20° F. chilling unit.

Evaporator

White porcelain on steel, operates on defrosting cycle.

Lubrication

All moving parts are liberally supplied with oil by means of simple forced feed system. Each unit has a permanent supply of 3 1/2 qts. of special mineral oil. No re-oiling is ever necessary.

Mounting

The compressor unit is mounted on three vertical springs inside the housing to insure quietness of operation and freedom from vibration.

Motor

A single phase, 1/3 hp., 110 volt condenser motor is used. The condenser type motor represents the latest development in high efficiency, high power factor, fractional horse-power motor design. The power input to the motor under normal operating conditions is approximately 370 watts. The power factor is 82%.

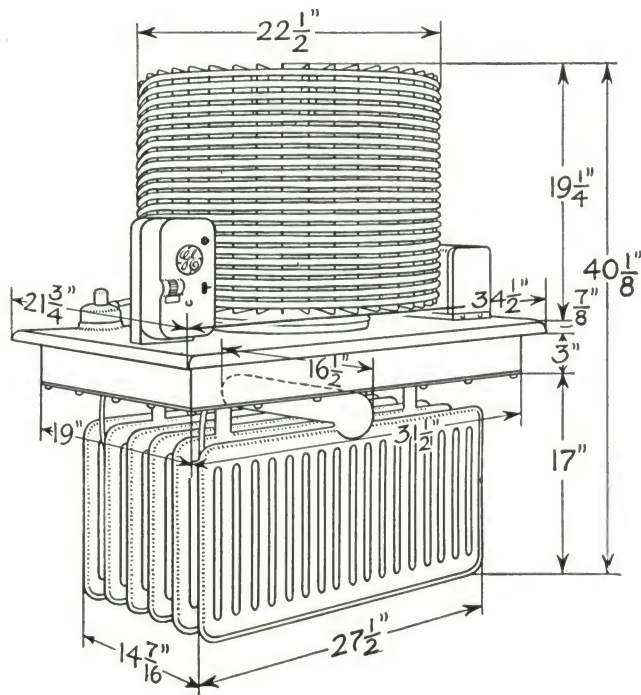
Capacity

1400 B.t.u. per hour; 80° F. room; 20° F. chilling unit.

Control

The automatic control maintains a uniform temperature in the cabinet. It has an overload relay which protects the motor against abnormal conditions. It also has a manual switch for starting and stopping the unit.

General Electric Refrigerating Unit Model DR-5



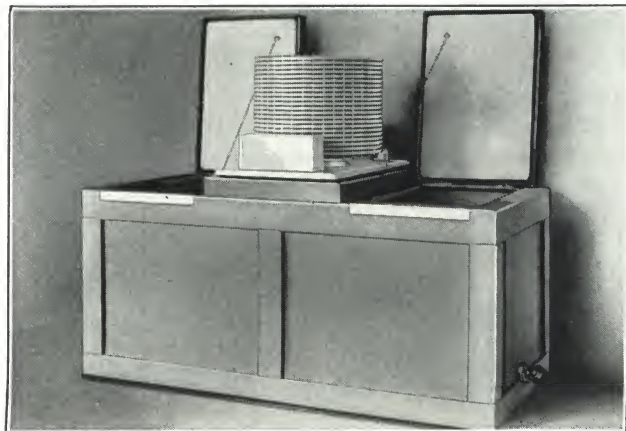
Dimension Drawing Unit Model DR-5

Control

The automatic control maintains a uniform temperature in the cabinet. It has an overload relay which protects the motor against abnormal conditions. It also has a manual switch for starting and stopping the unit.

Immersion Type Milk Cooler

Cabinet—All wooden framework and trim is built of well-seasoned cypress protected with a waterproofing varnish.



Four 10-gal. Can Size

The exterior metal panels are made of galvanized, rust-resisting ingot iron finished with waterproof battleship gray paint.

Exterior Dimensions—

Body—73½ in. wide; 35¾ in. deep; 33½ in. high.

Unit Over Cabinet—20¼ in.

Total Height Unit and Cabinet—56¾ in.

Interior Dimensions—65½ in. x 28½ in. x 28¾ in.

Inner Tank—Heavy galvanized rust-resisting ingot iron.

Floor Racks—Floor racks are provided to protect the bottom against damage.

Door Opening—18¾ in. x 28½ in.

Insulation—Approved General Electric specifications.

Unit Used—(DRD-4)—A single-phase ½-hp. 220-volt condenser motor is used. The condenser motor represents the latest development in high efficiency, high power factor, fractional horse-power motor design. It has a special copper coil type evaporator designed especially for operation when immersed in water bath.

The unit is available for operation on the following sources of power:

220-volt alternating current, 50 or 60 cycle.

110-volt alternating current, 50 or 60 cycle with transformer.

Drain—¾-in. galvanized pipe located at right end of cabinet.

Ice Freezer

Ice Freezing Capacity

Twelve trays of ice may be frozen at one time, each holding 2½ lb. or a total of 30 lb. of ice. As each freezing is completed, the ice cubes may be removed from the trays and stored in the space below the evaporator, thus permitting the trays to be refilled and frozen again. Between 50 and 60 lb. of ice in cube form may be stored which, in addition to the 30 lb. in the ice trays, insures a reserve supply for immediate use or to carry over periods of heavy demand. Ordinarily a complete freezing is accomplished in from 6 to 7 hours.

Normal operation of the refrigerating unit will maintain the cabinet temperature at about freezing or slightly below, minimizing or preventing meltage of the stored ice cubes.

The ice storage basket is placed in a porcelain steel pan and is so arranged as to keep the ice cubes about 1 in. off from the floor of the pan. Thus, if any meltage does take place, the ice cubes will be above the level of the water.

Refrigerating Unit

The refrigerating unit is of the General Electric hermetically sealed design Model DRF-4.

The compressor is direct connected to a ⅓-hp., 110-volt condenser motor. The condenser type motor represents the latest development in high efficiency, high power factor, fractional horse-power motor design. The power input to the

motor under normal operating conditions is approximately 370 watts. The power factor is 82 per cent.

The operation of the unit is automatic and requires no attention—not even oiling.



All Steel Model S-62 Cabinet with DRF-4 Refrigerating Unit

Biological Refrigerator

Construction

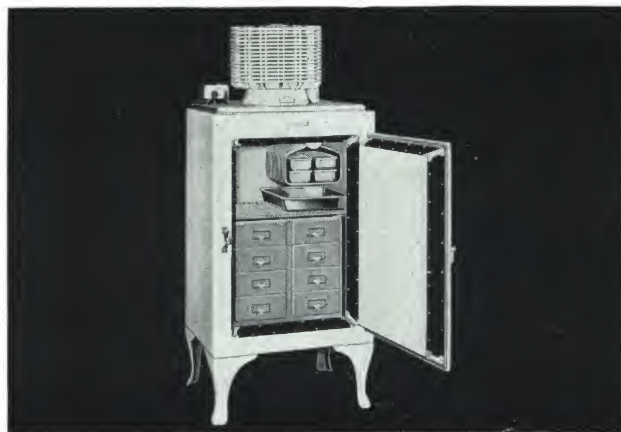
This refrigerator is designed to meet the needs of pharmacies, hospitals, laboratories, where biologicals, serums, and various chemicals and test samples must be kept at temperatures below 50° F.

This biological refrigerator consists of a standard General Electric all-steel S-62 cabinet with a standard DR-2 unit. The rack and drawers are designed so that they can be installed through the door of the cabinet.

Adjustable side angles are provided to hold the drawers rigidly in place.

Two sets of racks and drawers can be used in a S-140 cabinet to take care of requirements greater than can be handled with the S-62 model. This equipment when ordered for use in model S-140 should be so specified, as a center tie iron is necessary to hold the two drawer frames together.

The control on the unit is set to maintain temperatures in the cabinet below 50° F., just as in the standard domestic cabinets. If certain installations require that the temperature in the cabinet shall not vary more than 2° F., under any condition, a special thermostat is necessary. Individual cases of this type should be taken up with the Commercial Engineering Department.



All Steel Model S-62 Refrigerator, Equipped with Biological Drawers

GENERAL ELECTRIC

WATER COOLERS

Specifications for General Electric Pressure Water Cooler

Model DP-1

Note: The DP-1 cooler is not designed for use with remote bubblers or for glass filling requirements.

General

The Model DP-1 cooler is completely self-contained, the compressor, cooling compartment, and drinking fountain being mounted in one all-steel cabinet. The refrigeration system is hermetically sealed just as the other standard General Electric domestic and commercial refrigerating units. Each unit is completely assembled, charged and tested in a 100° F. room before shipment from the factory. The DP-1 cooler is exceptionally quiet in operation.

The compressor is of the single oscillating cylinder type direct connected to a $\frac{1}{10}$ hp. single phase motor. All moving parts are liberally supplied with oil from a permanent supply by means of a simple forced feed system.

The condenser and compressor are air cooled, although the waste water from the bubbler assists in cooling the condenser in the last turn of the pre-cooler.

The vitreous china top of which the bubbler bowl is an integral part, the acid resisting porcelain cooling compartment, and the cabinet on legs are unusual features of sanitation.

In the DP-1 cooler waste water is used to pre-cool the inlet water and thereby greatly reduces the energy consumption per gallon of water delivered.

The pre-cooler consists of two tinned copper coils, one within the other. The waste water flows through the inner coil and the inlet water in the outer.

Cooling Compartment

The cooling compartment consists of an acid resisting porcelain enameled evaporator, with a quick cooling device of corrosion-resistant metal. Efficient cooling is secured by having the drinking water in direct contact with the refrigerant compartment.

Bubbler

The bubbler is of the angle stream type.

Temperature Control

A temperature control is provided with a dial adjustment so that the drinking water temperature may be regulated by the user between 40° and 60°.

Pressure Regulator

Each cooler is supplied with an automatic pressure regulator which must be connected in the water supply line.

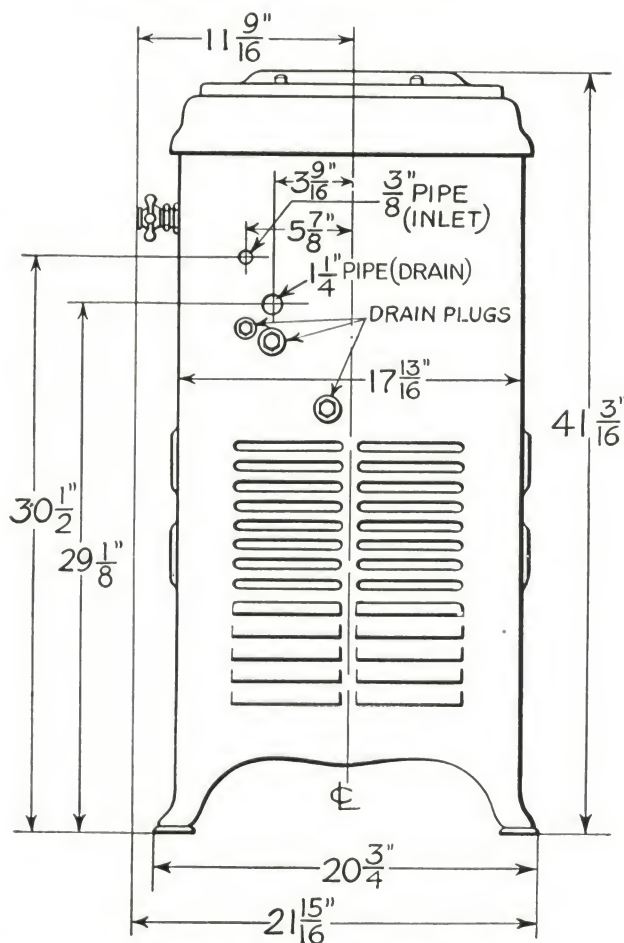
No external trap is necessary since the waste line is trapped inside of the unit. A plug is provided in the rear to drain this trap.

Weight

Crated, 426 lb.; uncrated, 335 lb.



Model DP-1



Dimension Diagram Model DP-1

Specifications for General Electric Pressure Water Cooler Model DP-3

General

The model DP-3 cooler is completely self-contained, the compressor, cooling compartment, and drinking fountain being mounted in one all-steel cabinet. The refrigeration system is hermetically sealed just as the other standard General Electric domestic and commercial refrigerating units. Each unit is completely assembled, charged and tested before shipment from the factory. The DP-3 cooler is exceptionally quiet in operation.

The compressor is of the single oscillating cylinder type, direct connected to a $\frac{1}{2}$ hp. condenser motor.

The moving parts of the unit are liberally oiled from a permanent supply by means of a simple forced feed system.

The vitreous china top, of which the bubbler bowl is an integral part, the porcelain cooling compartment, and the cabinet on legs are unusual features of sanitation.

In the DP-3 cooler waste water is used to pre-cool the inlet water and thereby greatly reduces the actual refrigeration required of the unit per gallon of water delivered. This feature is exclusive with the General Electric pressure coolers and contributes greatly to their high operating efficiency.

Cooling Compartment

The cooling compartment consists of a steel chamber finished on the interior with porcelain enamel. Efficient cooling is accomplished by having the drinking water in direct contact with the refrigerant compartment. In addition, quick cooling is produced by directing the inlet water so that it comes in contact with both the outside and inside surfaces of the refrigerant compartment, thus providing a large surface for cooling.

Bubbler

The bubbler is of the angle stream type.

Temperature Control

A temperature control is provided with a dial adjustment so that the drinking water temperature may be regulated, by the user, between 40° and 60°.

Water Cooler Condenser

The condenser of the refrigerating unit is water cooled. It is the double tube, counter flow type and is supported in a jacket filled with a non-freezing, non-corrosive fluid.

The flow of condenser cooling water is regulated by a valve which is operated thermostatically and in accordance with the temperature of the condenser.

Pressure Regulator

The DP-3 cooler is supplied with an automatic pressure regulator which is connected in the cold water supply line to the bubbler and which is mounted inside the cooler casing.

Capacity

There are several different methods or ways of using the DP-3 cooler and its capacity will depend to a certain extent upon the type of installation.

Carafe Filler

Each DP-3 cooler is provided with a connection on the right-hand side to which a self-closing spigot can be attached. A standard waste water receptor as used on the Model DB-1 bottle water cooler is used.

Glass Filling Attachment

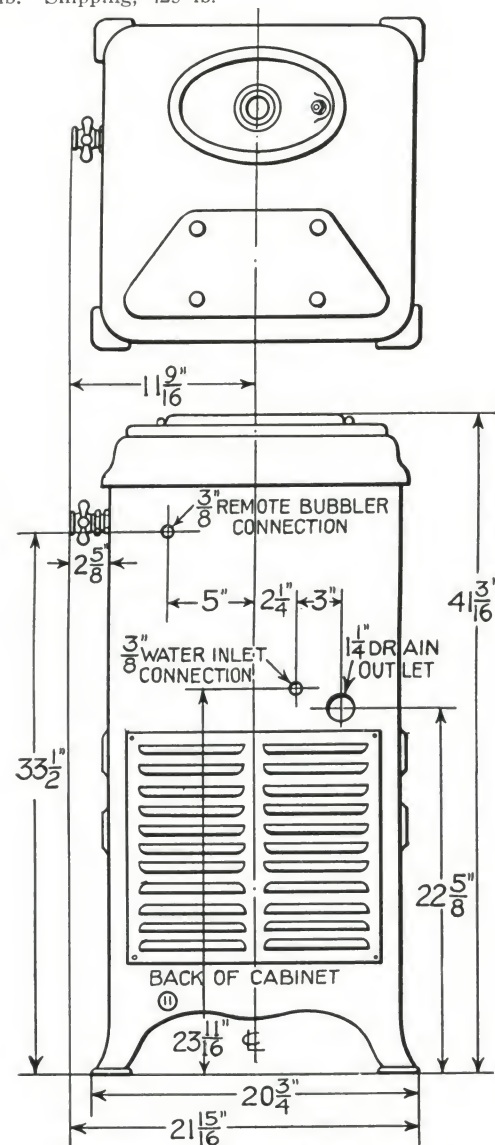
The standard DP-3 cooler can be equipped with a glass-filling attachment for restaurant use. To use the glass-filling fixture it is merely necessary to unscrew the standard nozzle and replace it with the special fixture.

Weight

Net, 325 lb. Shipping, 425 lb.



Model DP-3



Dimension Diagram Model DP-3

5-GALLON BOTTLE WATER COOLER

Model DB-1

Specifications

Evaporator

A white porcelain evaporator with a capacity of 2 qt. forms the water cooling compartment. It has no seams or crevices, is absolutely sanitary.

Compressor

The compressor unit is of the single oscillating cylinder type, direct connected to the motor and is enclosed in a hermetically sealed casing.

Lubrication

All moving parts are liberally lubricated by a simple, forced feed oiling system from a permanent oil supply, eliminating the necessity of ever re-oiling.

Condenser

The condenser is air cooled.

Motor

A small $\frac{1}{10}$ hp., 60 cycle, 110 volt, induction type motor is used. Since no commutator or brushes are used on this motor, it does not cause radio interference.

Control

The cooler is equipped with a temperature regulating control which automatically maintains the drinking water at the desired temperature.

Waste Basin

The waste basin has a capacity of 3 qts. It is readily removable for emptying.

Capacity

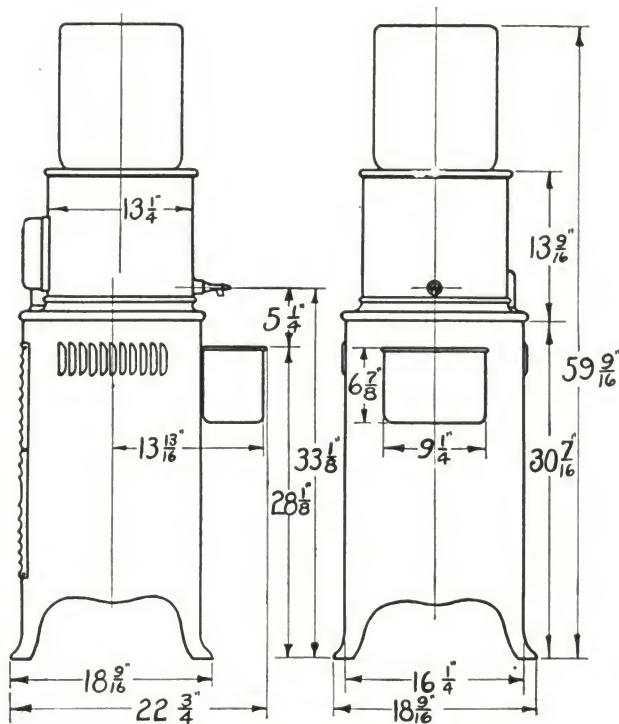
Two gal. per hour, cooled from 80° F. to 50° F. in an 80° F. room.

Weight

185 lb.

Shipping Weight

225 lb.



Model DB-1



Side View of Model DB-1

WILLIAMS OIL-O-MATIC HEATING CORPORATION

Williams Ice-O-Matic Electric Refrigeration

FACTORY
BLOOMINGTON, ILL.

FACTORY BRANCH OFFICES
NEW YORK, Graybar Building CHICAGO, 185 North Michigan Avenue

Products

Williams Ice-O-Matic and Ice-O-Matic Capitol refrigeration for domestic uses with 4 to 19 cu. ft. of storage space; commercial installations up to 1500 lb. melting ice equivalent. Available as self-contained or multiple-unit installations in apartment houses. Water coolers, milk coolers, etc., have been adapted for Ice-O-Matic operation. (The Good Housekeeping Institute and Underwriters' Laboratories have approved Ice-O-Matic.)

For Williams Automatic Oil Burners, see Manufacturers' Index.

Company

Ice-O-Matic is built and backed by the WILLIAMS OIL-O-MATIC HEATING CORPORATION whose home utilities are now serving more than 100,000 owners. Ice-O-Matic is sold and serviced by Williams dealers throughout the United States and in 44 other countries.

WILLIAMS
ICE-O-MATIC
REFRIGERATION

models have electrically lighted interiors.

Refrigerating Units

Williams Engineers perfected a patented device which permits successful use of the coldest known domestic refrigerant—methyl chloride. At atmospheric pressure methyl chloride boils at -10.65° F. This colder refrigerant permits compressor to operate fewer minutes each day—thus lengthens useful life—and lowers operating cost.

Methyl chloride is so pure it has long been used to "freeze" small areas for minor surgical and dental operations. Its high cost prohibited wide use but since the war it has been produced in this country on a practical, commercial scale. All gases, except pure air, are toxic to different degrees. Government tests prove that methyl chloride is among the least toxic of common refrigerants.

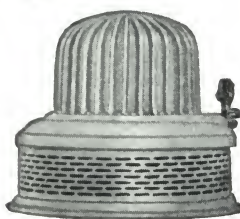
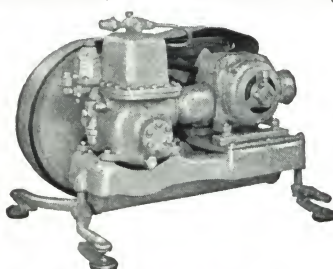
Methyl chloride is stable and chemically inert in the presence of metals, moisture, air and lubricating oils.

Williams Ice-O-Matic and Ice-O-Matic Capitol compressors operate only when temperature around the cooling unit rises above a predetermined point. This point may be manually changed by a new temperature control.

During a test—which is still being conducted—an Ice-O-Matic unit was operated continuously, without stopping, for more than 27 months. No oil or refrigerant was added during this severe run which is equal to more than 15 years of normal service.

Williams Ice-O-Matic compressors are built in four sizes, to efficiently handle the smallest domestic cabinets, or commercial installations. Evaporators (cooling units) are available in a multiplicity of sizes and shapes to fit practically any installation.

Note: Location of the Ice-O-Matic Capitol sealed unit is optional. It may be placed either on top of the cabinet, self-contained in a cabinet having a lower compartment, or located remotely in the basement.



Cabinets

Williams Ice-O-Matic is offered in a complete line of cabinets for all domestic needs. Various sizes and styles are in stock for immediate shipment. Several makes of commercial cabinets have earned the recommendation of Ice-O-Matic engineers for business uses. Write for details on your job.

Williams Ice-O-Matic domestic cabinets are lined and covered with rust-resisting steel mounted on a wood frame. There is no metal-to-metal contact to reduce insulating capacity. The insulating material is extra thick corkboard or other approved material, proofed against moisture or sagging. Door openings are sealed with double gaskets and the doors are closed tight automatically with self-locking latches. Several

Information

Detailed information on refrigerating problems is offered you by factory engineers.

Please address your inquiries to Bloomington, Chicago, or New York office for prompt attention.

Catalogues

"Instruction and Service Manual" (revised edition).

"Williams Ice-O-Matic Refrigeration."

BOHN REFRIGERATOR COMPANY

Manufacturers of Super-Quality All-Porcelain Refrigerators

ST. PAUL, MINN.

RETAIL STORES IN CHICAGO, NEW YORK AND BOSTON

Localities Not Represented by a Merchant Are Served Promptly from the Factory

The Bohn Refrigerator

Bohn is the world's largest manufacturer of all-porcelain refrigerators. Representative Bohn installations include exclusive use of Bohn refrigerators in all Pullman-built railway dining cars, thousands of America's finest homes, and many hospitals, hotels, and restaurants. Practically all of the United States army barracks and battleships are Bohn equipped, while ninety per cent of the railway refrigerator cars in this country have the Bohn insulation and Bohn Syphon system.

All Bohn refrigerators are equipped with a dual-use cooling chamber, rendering them instantly adaptable to electric refrigeration as well as ice. Special doors for outside‡ icing are available, if desired.



Model No. 23 1/4

Bohn Syphon Series

Outstanding among the several porcelain refrigerator lines is the famous Bohn Syphon series. This series, which incorporates the Bohn Syphon air circulating system, is known throughout the world for its ability to properly preserve foodstuffs and do so at minimum operating cost. These beautiful models are made of white porcelain, exterior and interior.

Fine points of construction include a one-piece steel porcelain lining with fully rounded corners, very heavy insulation and sturdy inside framing construction, hinges and automatic fasteners of solid brass, nickelplated; front drain for accessibility, safety vault door construction with cushion gaskets, stream line nickel trim on exterior case, patent syphon, and cold air reservoirs for circulation.



Base Cabinet Model No. 120

SPECIFICATIONS OF POPULAR MODELS—ALL ARE ADAPTABLE TO ICE OR MECHANICAL REFRIGERATION

Model No.	Exterior	Interior	Outside dimensions, in.			Number of doors	Total capacity, cu. ft.	Food capacity, cu. ft.	Ice capacity, lb.	Shipping weight, lb.
			Width	Depth	Height*					
Bohn Syphon Models*										
72	Porcelain	Porcelain	37	21½	47½	3	8.0	5.72	90	467
72½	Porcelain	Porcelain	34	20½	49½	3	7.3	5.22	80	442
73	Porcelain	Porcelain	40	22	50½	3	9.9	6.97	115	499
73¼	Porcelain	Porcelain	37	21½	56	4	10.8	7.7	125	527
73½	Porcelain	Porcelain	40	24½	67	4	16.6	11.75	190	686
73¾	Porcelain	Porcelain	43	23½	57	4	14.0	9.05	200	600
74	Porcelain	Porcelain	48½	24¾	57	4	16.8	11.4	215	690
94	Porcelain	Porcelain	28	21¼	61	2	9.7	6.38	130	435
Large Bohn Syphon Models										
58	Porcelain	Porcelain	66¾	29½	76¾	6	45.8	36.7	365	1680
This size also manufactured with oak exterior: Model No. 48.										
New Bohn Sanitor Series										
22	Porcelain	Porcelain	35	20	46¾	3	7.6	5.17	95	395
23	Porcelain	Porcelain	36½	21⅜	49¾	3	9.7	6.45	130	420
23¼	Porcelain	Porcelain	35	20	53¾	4	9.2	5.85	130	440
23¾	Porcelain	Porcelain	39	22¾	55½	4	14.0	9.05	200	500
Bohn Base Cabinet Models†										
60	Porcelain	Porcelain	36¾	21½	64¼	3 (plus base)	7.41	5.28	100	510
70	Porcelain	Porcelain	40	23½	67½	3 (plus base)	10.6	7.0	115	628
90	Porcelain	Porcelain	43	23½	74¼	4 (plus base)	13.0	9.0	150	707
120	Porcelain	Porcelain	48½	25½	74¾	4 (plus base)	17.25	12.0	200	798
225	Porcelain	Porcelain	32⅝	19¾	67½	3 (plus base)	7.11	5.0	90	465
227	Porcelain	Porcelain	37⅝	21¼	70⅝	3 (plus base)	10.2	7.0	125	553

*Height dimensions include 2 1/4 in. casters.

†These models have the handy cabinet underneath for refrigerating machinery, or for storage of cooking utensils, canned goods, etc.

‡Blue prints showing measured location of rear or end outside icing doors will be sent upon request.

ILLINOIS REFRIGERATOR CO.

Manufacturer of Cabinets for Ice and Electrical Refrigeration

OFFICE AND FACTORY
MORRISON, ILL.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

Products

ILLINOIS-AUTOMATIC ELECTRIC REFRIGERATION CABINETS.

Also Illinois-Automatic Ice Refrigeration Cabinets.

Illinois-Automatic Household Electric Refrigerator Cabinets

These modern cabinets are made by pioneers and leaders in the manufacture of refrigerator cabinets. Illinois-Automatic models are the up-to-date result of 40 years of experience—adequately meeting the five essential requirements of a satisfactory, economical refrigerator:

Size—Illinois-Automatic Cabinets are made in a large variety of sizes. There is therefore at least one model ideally suited to practically every requirement and size limitation. In addition, these cabinets have unusually generous shelf room.

Construction—Illinois-Automatic Cabinets are built "to last a lifetime." The workmanship and materials put into them are of exceptional quality and carefully checked at each step of manufacture. Before shipment, every Illinois Cabinet passes a rigid inspection.

Economical Operation—Dry Zero, the new insulation material, makes Illinois-Automatic Refrigerator Cabinets 15 to 25 per cent more efficient. Thus, they function at the least expense. And, because of their superior construction, these cabinets require no upkeep.

Air Circulation—To preserve the freshness and tastiness of foods, a continuous air circulation is necessary. Illinois-Automatic Cabinets are so designed as to insure the circulation of fresh air at all times.

Attractive Appearance—This requirement is becoming more important every day. The appearance and interior arrangement of the refrigerator very often help swing the sale or rental of a house or apartment.

With this clearly in mind, we have built our line of cabinets along pleasing lines, finished them in smooth,

blemish-free porcelain and enamel, and trimmed them with well-placed silvered hardware of exceptional strength and dependable operation.

Summary

Consequently, in specifying Illinois-Automatic Cabinets, the architect or contractor assures himself of well-built, lasting refrigerators, modern in construction and appearance, economical in operation, adaptable in size to practically any space and designed for adequate air circulation.

Models

Illinois-Automatic Cabinets are built in both base and leg models. However, all base models can, on special order, be furnished with legs 5, 6½, 8 or 10½ in. high.

Information

We will be glad to forward on request full details and specifications on our complete line of cabinets for both electric and ice refrigeration.

GENERAL DIMENSIONS OF ILLINOIS-AUTOMATIC CABINETS

Model	Width, in.	Depth, in.	Height, in.			Gross capacity, cu.ft.	Shelf area, sq. ft.	Exterior finish	Interior finish	*Insulation, in.
			Low	Med.	High					
1104	22	20½	36	..	..	4.8	7.75	Enamel	Enamel	1½
1100	24	20½	36	48	..	5.1	8.25	Enamel	Enamel	1½
1200	24	20½	36	48	52	5.1	8.25	Enamel	Porcelain	1½
1101	26½	20½	36	52	..	6.2	9.25	Enamel	Enamel	1½
1201	26½	20½	36	52	56	6.2	9.25	Enamel	Porcelain	1½
1401	26½	20½	..	..	56	6.2	9.25	Porcelain	Porcelain	1½
1105	30	19½	36	..	..	7.3	10	Enamel	Enamel	1½
1205	30	19½	36	..	54	7.3	10	Enamel	Porcelain	1½
1405	30	19½	..	..	54	7.3	10	Porcelain	Porcelain	1½
1207	35½	20½	..	..	58	9.8	13.5	Enamel	Porcelain	2
1407	35½	20½	..	..	58	9.8	13.5	Porcelain	Porcelain	2
1209	35½	20½	..	..	64	11	15	Enamel	Porcelain	2
1409	35½	20½	..	..	64	11	15	Porcelain	Porcelain	2
1102	22	19½	46	..	..	5.5	9.2	Enamel	Enamel	1½
1202	22	19½	46	..	..	5.5	9.2	Enamel	Porcelain	1½
1106	25½	19½	46	..	..	7	11.3	Enamel	Enamel	1½

*Insulation of Dry Zero.



Models 1105-1205



Models 1104-1100-1200-1201



Models 1205-1405-1207-1407-1209-1409



Models 1100-1200-1101-1201-1401

Illinois-Automatic Refrigerator Cabinets—Typical Models

THE INTERNATIONAL NICKEL COMPANY, INC.

Monel Metal and Nickel and Allied Products

EXECUTIVE OFFICES

67 Wall Street
NEW YORK, N. Y.

MINES AND SMELTER: Copper Cliff, Ont., Canada
ROLLING MILL AND REFINERY: Huntington, W. Va.

REFINERY: Port Colborne, Ont., Canada
FOUNDRY: Bayonne, N. J.

For Our Other Products, see Manufacturers' Index

Products

MONEL METAL—available from stocks conveniently located throughout the country and made in all commercial forms required by manufacturers of refrigerators. (See Manufacturers' Index, our section on Metals, for commercial forms and location of warehouses.) All necessary accessories such as nuts, bolts, screws, rivets, etc., are also available.



Cabinets—Linings, exteriors (front, sides, etc.) trim and shelving.

Cold Food Storage Fixtures—All Monel Metal.

Cold Storage Doors—Linings, facings.

Monel Metal

Monel Metal is a registered trade-mark applied to a technically-controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Advantages of Monel Metal for Refrigerators

- (1) Absolutely rustproof.
- (2) Resists corrosion by food juices and fruit acids.
- (3) Strong as steel; tougher than steel.
- (4) Easy to clean; therefore sanitary.
- (5) Beautiful appearance; has color of platinum.
- (6) Low conductivity—retains heat or cold.
- (7) Durable—proven by over 20 years of service.
- (8) Easily fabricated.

Proven Uses of Monel Metal in Refrigerator Equipment

Monel Metal is used for all exposed surfaces where appearance, cleanliness and long life are required on the following types of refrigerator equipment:

Built-in Refrigerators—Doors, linings, shelving.

Services

Architects and engineers are invited to make use of the extensive advisory service maintained by this organization. A call to any of our sales offices, listed in our section on Metals, will bring you a specialist trained in the particular application of Monel Metal you are dealing with.

In co-operation with refrigeration engineers, Monel Metal specialists can contribute materially in the application of Monel Metal to refrigerator equipment.

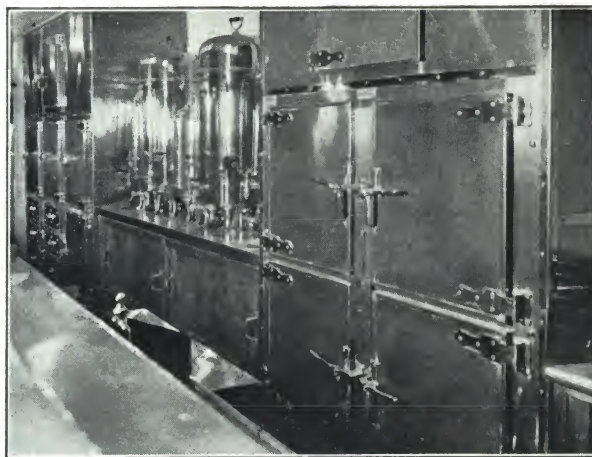
Available Publications

To assist architects and engineers to form a clearer conception of the possibilities for the application of Monel Metal, THE INTERNATIONAL NICKEL COMPANY, INC., has prepared a special reference book on all types of food service equipment.

"Architects Food Service Handbook"—A reference book prepared for the profession. Contains complete information on the design and construction of food service equipment, choice of materials of construction and illustrations of correct methods of writing specifications for all types of equipment. *A special section of this handbook deals exclusively with refrigerator equipment.*



Door and Entrance of Refrigerator in New York Life Savarin Restaurant Are Lined with Monel Metal



Monel Metal Equipment Installed in the Manhattan Room of the Hotel New Yorker, New York, N. Y.
Monel Metal is used on the inside and outside of refrigerators



N. Y. Life Savarin Restaurant Refrigerators Are Lined with Monel Metal, with Seams Lock-jointed and Finished

ESTABLISHED 1849

THE JEWETT REFRIGERATOR CO.

GENERAL OFFICE AND FACTORY
BUFFALO, N. Y.

BRANCH OFFICES

NEW YORK, N. Y., 16 East 40th Street
CHICAGO, ILL., 228 North La Salle Street
ATLANTA, GA., 292 Spring Street, N. W.
CLEVELAND, OHIO, 2036 East 22nd Street
WASHINGTON, D. C., 410 Bond Building
PITTSBURGH, PA., 233 Oliver Avenue

PHILADELPHIA, PA., 1612 Vine Street
ST. LOUIS, MO., 803 Security Building
LOS ANGELES, CAL., 722 Story Building
BOSTON, MASS., 11 Beacon Street
MONTREAL, QUE., 620 Cathcart Street
TORONTO, ONT., 45 Colborne Street

PORCELAIN WORKS: LACKAWANNA, N. Y., and CANADIAN WORKS, BRIDGEBURG, ONT.

Jewett Solid Porcelain Refrigerator for Residences and Hospitals

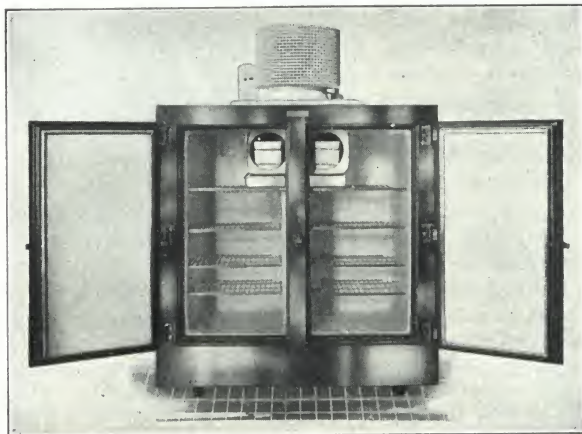
This has the unusual construction of an interior lining of *solid porcelain* (snow-white earthenware $1\frac{1}{4}$ in. thick), glazed and fired at 2500° F. The compartments for food as well as for the mechanical apparatus (or ice) are likewise of solid porcelain, without a seam, joint, crack or square corner. The shelves are the only metal part in the refrigerator. With this solid porcelain lining and pure cork insulation, these refrigerators are particularly adapted for use with any type of electric refrigeration you may select.

Complete catalogue will be furnished on application.



Jewett Solid Porcelain Refrigerator Installed

In addition to the regular Jewett Solid Porcelain Refrigerators, we have available twelve models of Jewett Solid Porcelain Refrigerators designed for use with General Electric icing units, illustrated in brochure which we invite you to write for.



G-E Model for Use with General Electric Icing Units

Jewett Refrigerators for Hotels, Hospitals, Clubs and Institutions, Mortuary Refrigerators for Hospitals

Special built-to-order refrigerators, constructed from detailed drawings and specifications, have been installed as indicated in the following reference lists. We offer our services, without obligation, in designing suitable refrigerators for the uses intended.

Prominent Recent Installations of Jewett Refrigerators and Their Architects

Residences

James P. Donahue, Palm Beach, Fla., *Marion Sims Wyeth*
Edsel Ford, Detroit, Mich., *Albert Kahn, Inc.*
James W. Gerard, New York, N. Y., *Trowbridge & Livingston*
S. M. Halle, Cleveland, Ohio, *Corbusier, Lenski & Foster*
R. T. Crane, Ipswich, Mass., *David Adler and Robt. Work*
Angelica Gerry, Lake Delaware, N. Y., *Cram & Ferguson*
Harold Lloyd, Beverly Hills, Cal., *Webber, Staunton & Spaulding*
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John D. Rockefeller, Jr., New York, N. Y., *W. W. Bosworth*
George W. Reed, Beverly Hills, Ill., *James Roy Allen*

Hospitals

New York Hospital & Cornell Medical College, New York, N. Y., *Coolidge, Shipley, Bulfinch & Abbott*
University of Chicago Hospitals, *Coolidge & Hodgson*
Pontiac City Hospital, *L. J. Heenan*
Lenox Hill Hospital, New York, N. Y., *York & Sawyer*
Clinic Building, Yale University, New Haven, Conn., *Henry C. Pelton*
Maternity and Children's Hospital, Cleveland, Ohio, *Abram Garfield*
Columbia Presbyterian Medical Center, New York, N. Y., *James Gamble Rogers*
Toronto General Hospital, *Darling & Pearson*
De Paul Hospital, St. Louis, Mo., *O'Meara & Hills*

Clubs, Office Buildings and Institutions

New York Life Building, New York, N. Y., *Cass Gilbert, Inc.*
Aetna Life Insurance Co., Hartford, Conn., *James Gamble Rogers*
Western Electric Co., Cable Plant, Baltimore, Md.
Sun Life Assurance Co., Montreal, Que., *Darling & Pearson*
Union League Club, New York, N. Y., *Benj. W. Morris*
Canada Life Assurance Co., Toronto, *Sproatt & Rolph*
Cleveland Club, Cleveland, *Meade & Hamilton*
Toronto Union Station, Toronto, *Ross & MacDonald*

Hotels

Chateau Laurier, Ottawa, Ont., *John S. Archibald and John Schofield*
All 6 Statler Hotels, *Geo. B. Post & Sons*
Constant Spring Hotel, Kingston, Jamaica, *Warren & Wetmore*
Royal York Hotel, Toronto, Ont., *Ross & MacDonald*
New Palmer House, Chicago, Ill., *Holabird & Roche*
Hotel Pennsylvania, New York, N. Y., *Warren & Wetmore*
The Stevens, Chicago, Ill., *Holabird & Roche*
The Biltmore, Los Angeles, Cal., *Schultze & Weaver*
Chateau Frontenac, Quebec, *W. S. Maxwell*
The Olympic, Seattle, Wash., *Geo. B. Post & Sons*
Manor Richelieu, Murray Bay, *John S. Archibald and John Schofield*

LEONARD REFRIGERATORS

LEONARD REFRIGERATOR COMPANY

DETROIT, MICH.

FACTORY: GRAND RAPIDS, MICH.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

Service

With its half a century experience in manufacturing ice refrigerators and electric cabinets for the refrigeration industry, Leonard is in the position to give valuable information to architects and contractors regarding their specifications for all-porcelain, all-steel, all-modern and all-performance refrigerators for homes, hotels, restaurants, cafes, clubs, grocers, meat markets and delicatessens.

Leonard is one of the largest (exclusive) refrigerator cabinet plants in the world and has been a leader in

the industry for over seventeen years. Leonard is truly "Refrigerator Cabinet Headquarters," and its engineers and vast research facilities in the refrigeration field, are ever ready to help in your building and contracting problems. All requirements and specifications sent into the LEONARD REFRIGERATOR COMPANY will promptly be taken care of, and suggestions made.

Leonard offers to the building trade two special all-steel self-contained unit electric refrigerators for 1931—five and seven cu. ft. cabinets ready for immediate installation.



Standard Specifications for Five Cubic Foot Cabinets

Height (includes 4½-in. removable legs)	50 in.
Width (over all)	26½ in.
Depth (over all)	23¾ in.
Depth (without hardware or door)	21⅜ in.

Cubical capacity (total)	5.15 cu. ft.
Cubical capacity (food storage)	4.68 cu. ft.
Shelf area including bottom and defrosting pan	9.16 cu. ft.
Insulation (Leonard Approved) Door—light weight sealed slab	2½ in.
Interior finish (all rounded corners inside)	Porcelain on armco iron
Exterior finish	White lacquer enamel
Hardware	Butler chrome
Hinges	Right or left-hand optional
Defrosting pan—glass . 15 in. deep, 9¾ in. wide, 2 in. high	

Ice Maker Data for Five Cubic Foot Cabinet

Freezing trays (one metal and one rubber grid)	2
Ice cubes	42
Pounds of ice (per freezing)	4

Special Features for Five Cubic Foot Cabinet

- (1) Quick and easy removal of the cooling unit and condensing unit *together*.
- (2) Strong, all-steel construction.
- (3) Insulation has all joints lapped and sealed in place, thus adding to the rigidity of the cabinet as a whole.
- (4) Exterior finish is elastic white enamel on parkerized steel.
- (5) Cabinet finished all around back as well as front. Back ventilating opening is provided.
- (6) Inside of door is one-piece white porcelain with blue-black porcelain border, wiped to prevent chipping.
- (7) Beautiful die-cast hardware, designed to harmonize with the cabinet, in butler chrome finish.
- (8) Flooded type cooling unit, of proved efficiency.
- (9) Condensing unit of standard Kelvinator construction, separate motor and compressor with belt drive.
- (10) Condensing unit mounted on a combination of coil springs and cushion rubber.
- (11) Accessible temperature selector with five freezing speeds, and separate defrosting switch, all part of the cooling unit assembly.

Note: Specifications will be forwarded upon request on the new Leonard Electric Seven Cubic Foot Cabinet. Do not forget to also consider this cabinet when planning on larger refrigeration requirements for modern large homes. Correspondence promptly taken care of.

New Line

Leonard offers the building trade an entire new line of refrigerator cabinets built for ice or the installation of electric or gas units (a combination set-up).

Description of All-porcelain Models with Two Doors**No. 0474**

Model No.	Pounds of ice	Width, in.	Depth, in.	Height, in.
0473	75	34 $\frac{5}{16}$	21 $\frac{3}{4}$	50 $\frac{3}{8}$
0474	100	34 $\frac{5}{16}$	21 $\frac{3}{4}$	53 $\frac{3}{16}$

Description of All-steel Models with Two Doors**No. 1474**

Model No.	Pounds of ice	Width, in.	Depth, in.	Height, in.
1472	50	33	19 $\frac{1}{4}$	45 $\frac{3}{4}$
1473	75	34 $\frac{5}{16}$	21 $\frac{3}{4}$	50 $\frac{3}{8}$
1474	100	34 $\frac{5}{16}$	21 $\frac{3}{4}$	53 $\frac{3}{16}$
2472	50	33	19 $\frac{1}{4}$	45 $\frac{3}{4}$
2473	75	34 $\frac{5}{16}$	21 $\frac{3}{4}$	50 $\frac{3}{8}$
2474	100	34 $\frac{5}{16}$	21 $\frac{3}{4}$	53 $\frac{3}{16}$
2476	150	34 $\frac{5}{16}$	26 $\frac{3}{8}$	53 $\frac{3}{16}$

Interior and exterior are of genuine porcelain. Insulated with 2 in. Leonard Approved Insulation. Hardware is of brass, triple nickel plated. Drain pipe and trap, made of copper, nickel plated. Deflector shield in the ice chamber. Daylight base. Bolts and holes with hanger bars in ceiling of ice chamber for convenient installation of electric or gas units.

Exterior, steel with enamel finish. Interiors, porcelain and white enamel. Hardware, brass, nickel plated.

Insulated with 1 $\frac{1}{2}$ in. Leonard approved insulation. Daylight base. Bolts and holes with hanger bars in ice chamber for installation of electric or gas units.

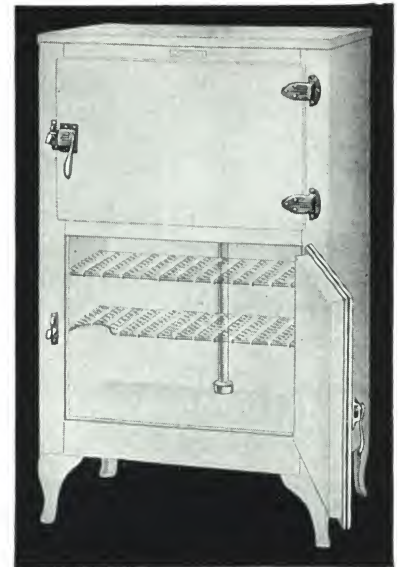
Nos. 1452, 1453 and 1454 have porcelain food chambers. Nos. 2472, 2473, 2474, and 2476 (four doors) have white enamel provision chambers.

Description of No. 2953

This model is in demand for large and small apartment multiple electric hook-up.

This cabinet is built especially for this kind of electric refrigeration and is of a size approved for such installations.

It is an all steel cabinet with white enamel lining and has Leonard Approved Insulation.

**No. 2953**

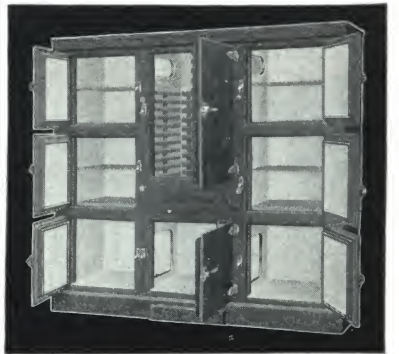
Model No.	Pounds of ice	Width, in.	Depth, in.	Height, in.
2953	75	25 $\frac{3}{8}$	18 $\frac{3}{8}$	42 $\frac{7}{8}$

Description of Commercial Cabinets

Leonard Approved Insulation in all cabinets. Double gaskets on all doors.

Flush type doors. Heavy durable hardware. Equipped for ice or electric refrigeration. Wire shelves, meat hooks, sliding wood shelves, revolving trays, can be had in models.

Nos. 9111 and 9314 have porcelain linings. Rest of cabinets have galvanized steel linings.

**No. 9314**

Model No.	Pounds of ice	Width, in.	Depth, in.	Height, in.
9111	225	52 $\frac{7}{8}$	27	74 $\frac{3}{8}$
9411	225	52 $\frac{7}{8}$	27	74 $\frac{3}{8}$
9314	375	78	27	74 $\frac{1}{2}$
9512	450	56 $\frac{3}{8}$	31 $\frac{1}{2}$	74 $\frac{1}{2}$
9816	450	78	21 $\frac{1}{2}$	74 $\frac{1}{2}$
9727	500	83 $\frac{3}{4}$	31 $\frac{1}{2}$	74 $\frac{1}{2}$

Ice Chests

For bottled goods, wrapped meats and fish products.

Model No.	Pounds of ice	Width, in.
8042	100	27 $\frac{1}{2}$
8043	150	32
8044	200	40 $\frac{1}{2}$

Model No.	Depth, in.	Height, in.
8042	17 $\frac{7}{16}$	24 $\frac{3}{8}$
8043	19 $\frac{3}{4}$	26 $\frac{3}{4}$
8044	23 $\frac{3}{4}$	33



McCray Refrigerator Sales Corporation

Manufacturer of Refrigerators for All Purposes

55 Lake Street, KENDALLVILLE, IND.

SALESROOMS IN ALL PRINCIPAL CITIES—SEE TELEPHONE DIRECTORY

Products

REFRIGERATORS and COOLERS.

Also Display Cases for all purposes for either ice or machine refrigeration.

Material and Workmanship in McCray Refrigerators and Cooling Rooms

Suitable, seasoned and kiln-dried lumber is the

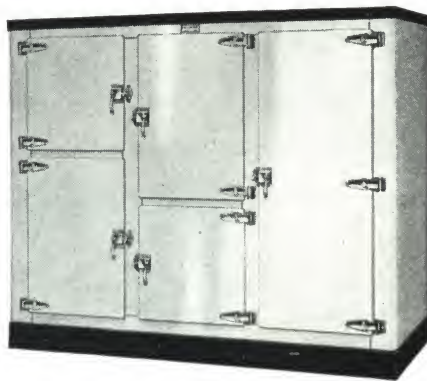
most important material entering into construction of any refrigerator or cooling room. All lumber is carefully selected and air-dried for six months or more before entering the dry kilns, wherein the curing process is completed to a precise degree. By proper steam and heat treatment the moisture content and shrinkage are reduced to a suitable minimum, and the lumber is under constant observation during the process. Successive, carefully conducted laboratory tests tell when the lumber has been sufficiently treated. The heat is then slowly reduced, the lumber is allowed to cool gradually to prevent checking and finally withdrawn ready for manufacturing.

The properly selected and prepared lumber is manufactured into McCray refrigerator and cooling room parts by special woodworking machinery, insuring accuracy of fit and interchangeability of all parts. The gluing, assembling and finishing of the units are accomplished by skilled workmen, under direct supervision of men who have spent a lifetime in the building of high-grade McCray refrigerators.



Stock Model P-424

For machine refrigeration only



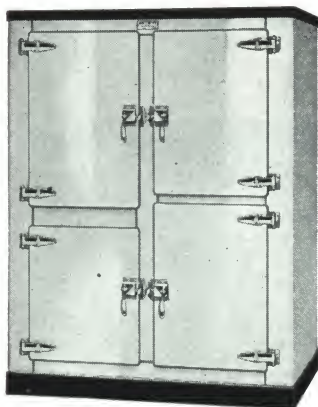
Stock Model P-332

For ice or machine refrigeration

DIMENSIONS AND GENERAL DATA

Model No.	Outside dimensions, in.			Cooling chamber, in.			Ice capacity, lbs.	Cu. ft. capacity	Shelf space, sq. ft.
	W	D	H	W	D	H			
P-424	83	30½	84	74	18½	9	...	70.33	69.36
P-332	84¾	32¼	74¾	26	23¾	38¾	450	56.5	33.5
P-375	52¾	32¼	72¾	21	23¾	32¾	275	32.6	27.39
P-425	57	30½	84	48	18½	9	...	45.62	45.
375	52½	30	72	21	22	32	250	30.58	24.73

Model No.	Wall thickness, in.	Number of doors	Insulation	Exterior	Interior	Shipping weight, lb.
P-424	4	10	Corkboard	Porcelain	Porcelain	2350
P-332	4	5	Corkboard	Porcelain	Porcelain	1900
P-375	4	4	Corkboard	Porcelain	Porcelain	1275
P-425	4	7	Corkboard	Porcelain	Porcelain	1825
375	4	4	Corkboard	Oak	Porcelain	1150



Stock Model P-375

For ice or machine refrigeration



Stock Model P-425

For machine refrigeration only



Stock Model 375

For ice or machine refrigeration

Efficiency from an operating standpoint is gained by the special method of building into the refrigerator structure the best known insulating materials. The permanency of the units depends on this method, which prevents the air infiltration through the insulated parts, thereby eliminating the danger of moisture accumulation between outer and inner linings. Airproofing of insulation in refrigerator and cooling room structures has always been an outstanding feature of McCray factory built units and is a recognized necessity to insure lasting and sanitary construction.

McCray quality is insured by advanced design and rugged construction in minutest detail, coupled with

efficient manufacturing methods in the hands of skilled and trained men in every department.

Service

This organization with its large facilities can serve you effectively through its many Branch Offices, located in all principal cities throughout the United States. Special engineering service is offered, and no obligation is incurred by consulting with us regarding your refrigerator problems. Our experience is at your command, and however small or large your installation may be, we are in excellent position to plan and execute your work in an economical and efficient manner.

DIMENSIONS AND GENERAL DATA

Model No.	Outside dimensions, in.			Cooling chamber, in.			Ice capacity, lbs.	Cu. ft. capacity	Shelf space, sq. ft.
	W	D	H	W	D	H			
320	69	30	72	19	22	32	240	41.5	36.35
1135	93½	34¾	84	30	26	39	630	88.56	51.83
171	120	60	96	28½	46½	63½	2100	273.72	.....
3175	144	60	132	26½	48	35	3600	473.03	.....
432	87½	31¼	75	28½	22½	34	425	63.5	40.72
120	72½	29¼	72	23½	20½	37	340	44.2	37.5

Model No.	Wall thickness, in.	Number of doors	Insulation	Exterior	Interior	Shipping weight, lb.
320	4	6	Corkboard	Oak	Porcelain	1500
1135	4	5	Corkboard	Oak	Odorless wood	2025
171	5	3	Corkboard	Oak	Odorless wood	5000
3175	5	6	Corkboard	Oak	Odorless wood	7500
432	4	5	Corkboard	Oak	Odorless wood	1650
120	4	6	Corkboard	Oak	Odorless wood	1160



Stock Model 120
For ice or machine refrigeration



Stock Model 1135
For ice or machine refrigeration



Built-to-order Model 3175
For ice or machine refrigeration



Stock Model 320
For ice or machine refrigeration



Stock Model 432
For ice or machine refrigeration



Stock Model 171
For ice or machine refrigeration

JAMISON COLD STORAGE DOOR CO.

CONSOLIDATING JAMISON COLD STORAGE DOOR CO., INC., and STEVENSON COLD STORAGE DOOR CO.

TELEPHONE

HAGERSTOWN 1644, 1645

HAGERSTOWN, MD.

BRANCH OFFICES

NEW YORK, N. Y., 300 Madison Avenue
LOS ANGELES, and SAN FRANCISCO, CALIF., GAY
ENGINEERING CO.

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TRAVELING REPRESENTATIVE FOR SOUTHERN STATES, ADDRESS HAGERSTOWN, MD.

FOREIGN AGENTS

HONOLULU, VON HAMM-YOUNG

LONDON, ENG., ARMSTRONG CORK CO., LTD.

JAPAN, OKURA & CO.

Products

INSULATED DOORS for all purposes where temperature control is necessary. Two distinct types—"Jamison," with square jambs, double seals of contact and *extra* heavy hardware.

"Stevenson," with single contact seal (double seal optional) and heavy hardware.

STEVENSON VESTIBULE DOOR ("Door That Cannot Stand Open").

TRACK DOORS.

SUPER FREEZER DOORS (Overlapping type).

STANDARD COOLER DOORS.

ICE CHUTES, self-closing: "Noequal" All-steel Automatic; "Noequal" Platform Chutes; Stevenson Ice Passing Chutes. DOORS, MISCELLANEOUS: Double, Vertical Sliding, Auto-Close (Double-Swing Batten Doors), Dutch Track, Wicket.

REFRIGERATOR FRONTS: for built-in refrigerators.

CAN PASSING VESTIBULES.

WINDOWS: for refrigerated and insulated rooms.

Any of the above may be furnished fireproofed.



Swings the door clear of the opening. Furnished with ball bearings when specified.

In a test by engineers, a Jamison Door was thrown open and slammed shut for the equivalent of 85 years of service, at which point the test was discontinued as the door was still efficient in every respect and showed no signs of weakening.

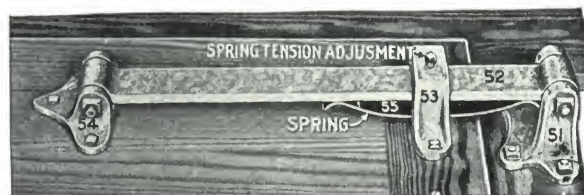


Fig. 2. Jamison Spring Hinge

The Company and Experience

JAMISON COLD STORAGE DOOR CO. combines the largest and oldest manufacturers of cold storage doors—the Jamison Cold Storage Door Co., Inc., of Hagerstown, Md., and the Stevenson Cold Storage Door Co., formerly of Chester, Pa.

Their products, by an exclusive humidity control system, embody the scientific solution of the problems of shrinking and swelling of wood under refrigeration, the amount and character of insulation, the type of construction, and the hardware for long hard service—backed by experience since 1888 in all phases of refrigeration and temperature control.

Jamison Advantages

The best material obtainable is used. Employs double seals, forming a dead air insulating space between. Material is extra heavy, insuring the extra strength and stamina for which all Jamison products are noted.

Jamison Hardware

Weights 60 lbs. for the standard cooler door, and is bolted to the door and frame. Its extra weight and strength, with simplicity of design, make it practically indestructible.

Jamison Fastener

Patented Wedgetight Fastener is described and illustrated on following page.

The Jamison Automatic Self-tightening Fastener is of the roller type, especially designed to draw heavy doors tighter each time they are slammed.

It cannot rebound. Positive in action—holding door fast till the lever handle is released, from inside or outside.

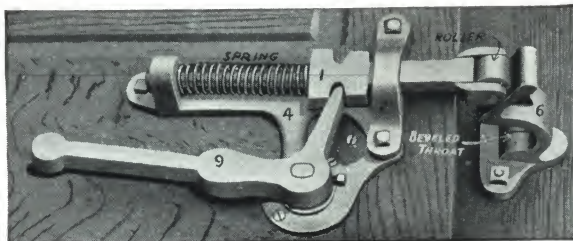


Fig. 1

Jamison Adjustable Spring Hinge

Adjustable to force the door tight against its seals at all times regardless of shrinking or swelling of the door. A heavy steel bow spring exerts constant pressure against the heel of the door, providing spring tension adjustment (Fig. 2).

Stevenson Advantages

The best material obtainable, seasoned and held under humidity content control, is used. Employs a single soft gasket seal (double seal optional) which flattens out at point of contact. Equipped with hardware strong, serviceable and elastic.

Stevenson Improved Automatic Roller Fastener (Patented)

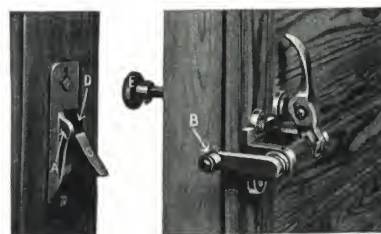


Fig. 3 (Patented)

An efficient roller type that operates positively, quickly and noiselessly and *does not* slacken or rebound as it latches. No wrist spraining kick when closing.

(Fig. 3) Roller latch "B," passing over nose of keeper "C," wedging into pocket "D" when the door

seals against frame, reaching locked position the instant the gasket seals are most tightly compressed. Operates with a straight pull outside and a straight push from inside.

Stevenson Self-adjusting Elastic Clamping Hinge

Consists of a strong spring tempered steel hinge-leaf riding on a hardened washer. Follows the yielding gasket at all times maintaining a tight seal. Bolted to the frame. Swings the heel of the door clear of the opening. Moves as easily as ball bearing hinges. Furnished with ball bearings when specified.



Fig. 4

Stevenson Hinge Guard (Patented)

A great rigid lower hinge-leaf plate applied on the face of the elastic hinge, protecting the door from all excessive strains, but not interfering with the clamping operation of the Spring Hinge-leaf.

Its oblong pinholes engage only when the strain makes extra strength necessary.

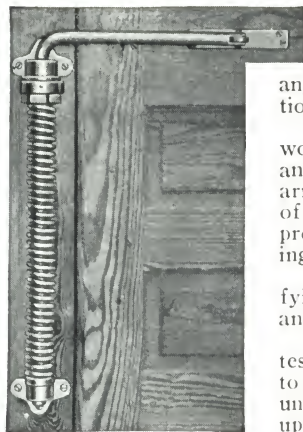


Fig. 5

Stevenson Improved Man Size Door Closer

Suitable for installing on any make of door. Saves refrigeration by keeping door closed.

A heavy coiled-steel spring, open wound to prevent clogging with ice and rust, encircling an actuating steel arm, is placed on the side casing of the hinge edge of the door, providing instant and positive closing.

Made in several sizes. In specifying, state size of door in clear, and whether right or left.

Actual comparative engineering tests have proved this closer superior to any closing device known, and we unqualifiedly recommend it. (Tests upon application.)

Representative Jamison and Stevenson Installations

Lord Baltimore Hotel, Baltimore, Md.
 Presbyterian Hospital, Philadelphia, Pa.
 Great Atlantic & Pacific Tea Co., New York, N. Y. (Headquarters)
 Haddon Hall Hotel, Atlantic City, N. J.
 Federal Cold Storage Co., Pittsburgh, Pa.
 First National Stores, Boston, Mass.
 Vogt Packing Co., Philadelphia, Pa.
 Union Transfer & Storage Co., Fargo, N. D.
 Eastman Kodak Co., Rochester, N. Y.
 Wisconsin Memorial Hospital, Mendota, Wis.
 National Dairy Products Co., New York, N. Y.
 Lakeside Hospital, Cleveland, Ohio
 Rath Packing Co., Waterloo, Iowa
 St. Elizabeth Hospital, Washington, D. C.
 Gordon Baking Co., Chicago, Detroit and New York
 Central Power & Light Co., San Antonio, Tex. (Headquarters)
 Merchandise Mart, Chicago, Ill.
 New York Shipbuilding Corp., Camden, N. J.
 Bethlehem Petroleum Co., Cartagena, Colombia, S. A.
 Northern Electric Co., Montreal, Que., Canada
 University Club, Philadelphia, Pa.

Jamison-Stevenson Wedgetight Fastener (Patented)

A new straight push-and-pull type proving by actual usage an outstanding improvement in fastener operation. Has these outstanding advantages: (1) closes the door tighter, (2) keeps it tighter, (3) does not slacken as it latches—cannot rebound, (4) no moving part in operator's hand in closing—eliminates wrist-spraining kick-back, (5) *always* fastens tightly, (6) automatically compensates for wear, sag and twist of door, adding years to door's life, (7) few moving parts, (8) opens easier from outside or inside, (9) essential moving part bolted to frame.

A heavy spring driven wedge drives home *at the instant of impact* against the inner bar bolted to the door, *forcing* the door to compress the gasket seals always. Made extra heavy, conforming to Jamison standards of strength and durability.

Optional on Jamison Doors at no extra cost; on Stevenson doors at slight extra cost. Obtainable for replacements on any make of door at reasonable price. Also available in polished bronze, chromium plated, or with any other desired finish—prices quoted.

Made in four sizes—No. 1, for doors over 3x6 ft.; No. 2, for doors 2x5 ft. to 3x6 ft.; No. 3, for all smaller doors and windows—all opening from inside or outside; No. 30, for doors and windows up to 2x5 ft. opening from outside only.

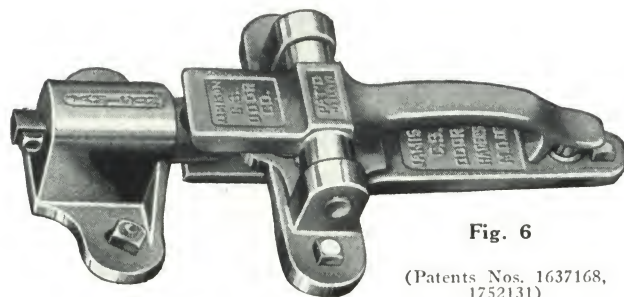


Fig. 6

(Patents Nos. 1637168,
1752131)

Stevenson Vestibule Door, "Door That Cannot Stand Open," (Patented)

A combination of a Stevenson insulated door with two double acting doors forming an air lock (Figs. 7 to 10), obviating in most instances a vestibule with its accompanying loss of space. Flapper doors prevent outflow of cold air and inflow of warm moist air. Extremely desirable in busy doorways where heavy traffic means frequent opening of the doors. Is replacing many standard doors, beefhouse track doors, and freezer doors, with a marked saving in refrigerating costs and the elimination of mold-spotted goods and ice-coated pipes.

The double-acting armored batten doors, insulated, strike the unlatching bar (as shown in accompanying figures) on the inside of the cold storage door, releasing fastener and throwing that door open. Trucks go through without a halt.

Double-acting doors are pivoted on a two-way cam, operating in an oil reservoir at the bottom of the frame. Doors lift a little as they swing open, and close instantly by gravity. The flapper doors can come to rest only in closed position. Entire weight of double-acting door is carried by the heavy cam.

Any Jamison or Stevenson type (Standard Cooler, Super Freezer, etc.) either with or without overhead track rail, fire-proof or non-fireproof, can be supplied with these double-acting doors. The outside cold storage door supplied with Jamison or Stevenson Hinges and Stevenson or Wedgetight Fasteners.

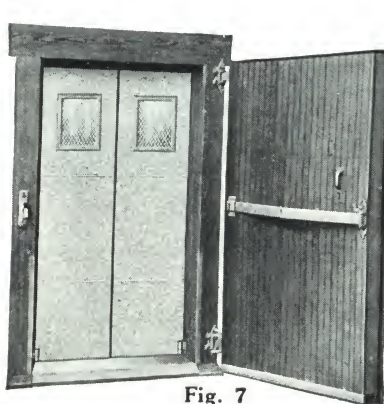


Fig. 7

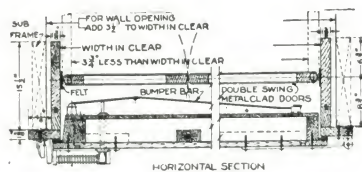


Fig. 9

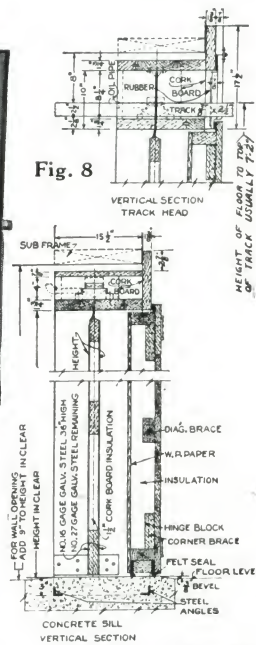


Fig. 10

Fully protected by Patents Nos. 1099626 and 1208042.
 No infringements will be tolerated.

STANDARD SIZES AND DIMENSIONS

Stock No.	Dimensions inside of frames			Wall opening for Stevenson type door		Wgt. crated, lbs.
	Width ft. in.	Height ft. in.		Width ft. in.	Height ft. in.	
64	2 6	6 0	Single batten	2 9 1/2	6 4 1/2	540
66	3 0	6 0	Double batten	3 3 1/2	6 4 1/2	675
69	3 6	6 6	Double batten	3 9 1/2	6 10 1/2	850
* 71	4 0	6 6	Double batten	4 3 1/2	6 10 1/2	900
* 72	4 6	6 6	Double batten	4 9 1/2	6 10 1/2	950
* 73	5 0	6 6	Double batten	5 3 1/2	6 10 1/2	1000

*Includes extra hinges.
 Special sizes furnished where required.
 Blue prints furnished on request.

Details

Batten doors on all sizes will "bump" open outer insulated door.

All batten doors on Nos. 64 to 73 provided with peep holes (see Fig. 7).

Each batten door, opened at right angle, reduces clear opening 1 7/8 in.

Jamison Standard Cooler Doors

Standard Specifications—We furnish the insulated door hung in the frame, complete with all necessary hardware, galvanized, ready to set in place. For sills see Figs. 17-19.

Front: Raised panel front, best grade yellow pine.

Back: Tongue and groove, fir or spruce. No paint or varnish.

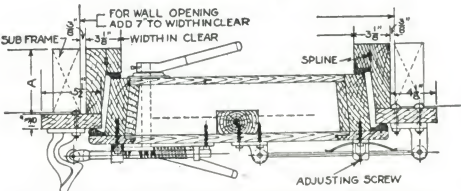
Insulation: Cooler, 4 in. granulated cork encased in paper. Freezer, 4, 6 and 8 in. cork board laid in hot asphalt. Other insulation as specified.

Fittings: Jamison automatic self-tightening fastener regular equipment, or Wedgetight Fastener optional if specified, and Jamison adjustable spring hinges. (See Fig. 1 and description.) Diagonally braced with wood or steel. Unbroken insulation.



Fig. 11. Jamison Standard Cooler Door
Right hand, raised panel front

Wall opening: must be 7 in. wider and 5 in. higher than door in the clear. When overhead rail is used wall opening must be 8 in. higher than top edge of rail.



SCALE 3/4" = ONE FT. HORIZONTAL SECTION **Fig. 13**

Stevenson Standard Cooler Door

Standard Specifications—We furnish the insulated door hung in the frame, complete with all necessary hardware, galvanized, ready to set in place. Sills, Figs. 17-19.

Front: Raised panel front, best grade yellow pine.

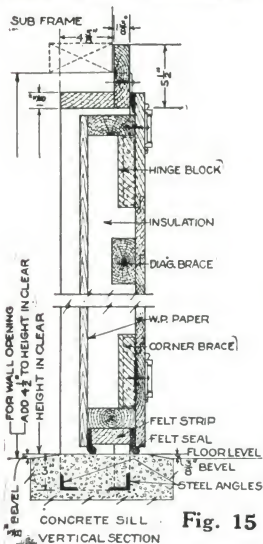


Fig. 15



Fig. 14

Wall opening: must be 3 1/2 in. wider and higher than door in the clear. When overhead rail is used wall opening must be 8 in. above upper edge of rail.

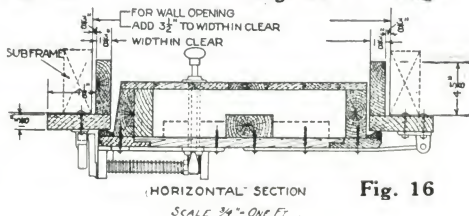


Fig. 16

SCALE 3/4" = ONE FT.

Back: Tongue and groove, fir or spruce. No paint or varnish.

Insulation: Cooler, 4 in. granulated cork encased in paper. Freezer, 4, 6 and 8 in. cork board laid in hot asphalt. Other insulation as specified.

Fittings: New Stevenson automatic roller fastener regular equipment, Wedgetight Fastener optional at slight increased cost, self-adjusting flexible spring hinges and guard (Fig. 4 and description). Diagonally braced with wood or steel. Unbroken insulation.

Sills

Three types of sills, applicable to all Jamison and Stevenson Doors. These sills will meet practically every need.

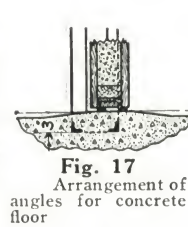


Fig. 17
Arrangement of angles for concrete floor



Fig. 18
Beveled Wood Sill

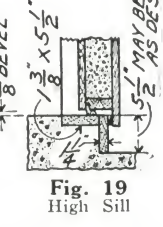


Fig. 19
High Sill

Standard Sizes—Jamison and Stevenson Cooler Doors

Large stocks of doors in these most popular standard sizes are on hand, ready to ship. Unpainted and unvarnished—can finish to match other woodwork, but should be given three coats when installing before refrigeration is turned on.

Below are the most popular sizes. Write for complete list of Standard Sizes. Special sizes when required.

STANDARD SIZES JAMISON AND STEVENSON COOLER DOORS

Stock No.	Dimensions inside of frames (door in clear)		Size of wall opening					
			Jamison doors			Stevenson doors		
	Width ft. in.	Height ft. in.	Width ft. in.	Height ft. in.	Ship. wgt. crated, lbs.	Width ft. in.	Height ft. in.	Ship. wgt. crated, lbs.
00	2 6	2 0	3 1	2 5	155	2 9 1/2	2 3 1/2	140
0	2 0	3 0	2 7	3 5	205	2 3 1/2	3 3 1/2	175
01	2 0	5 0	2 7	5 5	270	2 3 1/2	5 3 1/2	255
1	2 0	6 0	2 7	6 5	310	2 3 1/2	6 3 1/2	290
2	2 6	6 0	3 1	6 5	335	2 9 1/2	6 3 1/2	320
4	3 0	6 0	3 7	6 5	365	3 3 1/2	6 3 1/2	350
5	3 0	6 6	3 7	6 11	375	3 3 1/2	6 3 1/2	360
7	3 6	6 6	4 1	6 11	455	3 9 1/2	6 9 1/2	425
11	4 0	6 6	4 7	6 11	470	4 3 1/2	6 9 1/2	455
13	4 6	6 6	5 1	6 11	565	4 9 1/2	6 9 1/2	480
16	5 0	6 6	5 7	6 11	615	5 3 1/2	6 9 1/2	575

*Includes extra hinges. In specifying or ordering state "Jamison" or "Stevenson," giving stock number. These same sizes are also standard for Regular Freezer Doors, and other types of doors, fireproof or non-fireproof.

Track Doors

All Jamison and Stevenson Doors can be furnished with track ports for overhead rails, and the necessary opening and closing devices.

Fig. 20 shows the Jamison and Fig. 21 Stevenson Automatic Trap Lift Devices. Track port opens and closes simultaneously with insulated door through a simple system of levers. No springs or delicate mechanism. Positive motion, both in opening and closing. Wall opening must be 8 in. higher than top of rail. Otherwise dimensions same as for Jamison or Stevenson Standard Cooler Doors, or Vestibule Door, as shown in respective tables.



Fig. 20



Fig. 21

Always give height from floor level to top of rail (usually 7 ft. 2 in. or 10 ft. 2 in.)

Stevenson Super Freezer Door for Icy Doorways (Overlap Type)

Of entirely different construction and design from other types of doors described; especially designed and recommended for use where extreme temperature differences exist, such as in ice cream hardening rooms, fish freezers, and quick freeze spaces.

The frame is usually built without jambs. (Can be furnished with jambs if desired.) The heavily insulated freezer door is made with 4, 6 or 8 in. of sheet cork in hot asphalt cement. Is usually protected on the exposed face (warm side) with sheet metal. A chemically treated, grease saturated, wool-felt seal, 6 in. wide, is attached to the flat face of the door, forming a non-freezing, ample contact preventing freezing or sticking fast to frame.

Equipped with heavy Stevenson Roller Fastener, or Wedge-tight Fastener, flexible steel spring hinges and hinge guard. Can also be furnished with Jamison Adjustable Hinges and Jamison Self-Tightening Fastener if desired.

POPULAR STANDARD SIZES

Stock No.	Size of door in clear		Wall opening			Ship. Wgt. 4 in. insulation, lbs.	General
	Width ft. in.	Height ft. in.	Without jambs	with jambs			
				Width ft. in.	Height ft. in.		
80	2 0	3 0	Same as	2 4¼	3 3	350	Unless otherwise instructed, galvanized sheets furnished on front of frame and back of door. For doors swinging into anteroom we will furnish galvanized sheets on front of door instead of back, when so instructed.
* 82	2 6	6 0	door	2 10¼	6 3	590	
* 84	3 6	6 0	in	3 10¼	6 3	670	
* 86	4 0	6 6	clear	4 4¼	6 9	750	
* 87	4 6	6 6		4 10¼	6 9	825	
* 88	5 0	6 6		5 4¼	6 9	875	

*Furnished with additional hinges.
Other sizes furnished when desired.

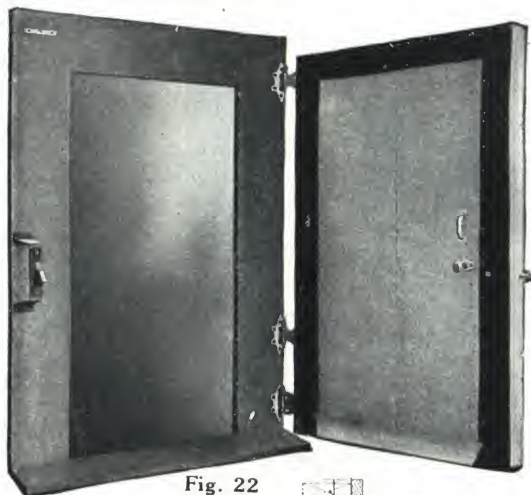


Fig. 22

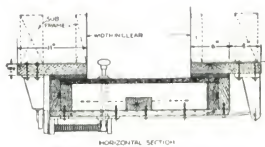


Fig. 23

Insulated with 4, 6 or 8 in. insulation laid in hot asphalt

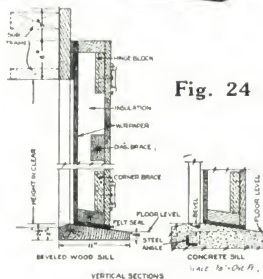


Fig. 24

Stevenson Ice Passing Chutes (Patented)

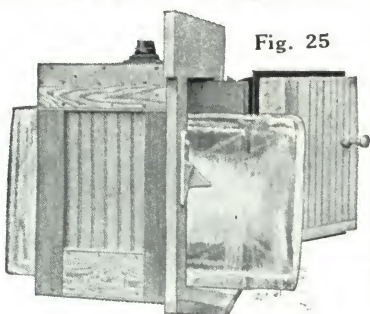


Fig. 25

Consist of small standard insulated door (optional) and self-closing, double-swing door operating by gravity on a two-way cam, same principle as Vestibule Door. No springs. Outside door opened from inside by the advancing cake of ice. Sets entirely in the wall, made so ice slides in or out on edge (as illustrated) or upright on end. Furnished with inclined or level bottom. Ideal for handling milk or ice cream in cans or boxes. Equipped with Stevenson Roller Fastener, Jamison Self-tightening or Wedgetight Fastener as desired. Either Jamison or Stevenson Hinges.

STANDARD DIMENSIONS

No.	Size in clear or Opening between jambs of frame		No. of battens	Shipping wgt., lbs.	
	Width ft. in.	Height ft. in.		With C. S. doors	Without C. S. door
120	1 8	2 2	Single	280	130
122	1 8	2 2	Double	260	140
124	1 8	4 0	Double	400	200

Regularly furnished with cold storage door on exit end as shown or without when specified. Door may be on entrance end when so ordered. Inclined bottom protected with steel wearing plate.

Jamison Can-passing Vestibule

A vestibule with a small standard insulated door at each end for passing cans to or from the hardening room. Enables one man to operate plant without help. Practical in passing all small packages.

DIMENSION TABLE

Stock No.	5-Gal. cans—size or capacity		Sh. wgt., lbs. Box not insulated
	Cans wide	Cans deep	
111	2	3	300
112	3	2	330
113	3	3	385

Wall openings vary with type, dimensions furnished upon request.

"Noequal" All-steel Ice Chute

Sides, top and bottom are boiler plate steel, properly reinforced. The curved steel door—counterbalanced—built up of 1 $\frac{1}{2}$ -in. pure corkboard protected with sheet steel, the whole bolted together. Felt seals on the sides and bottom of door make airtight contact. "Noequal" Chute requires about 2 $\frac{1}{2}$ in. to 1 ft. less space in width than other chutes, and on the doubles and triples only $\frac{1}{8}$ in. of space between blocks, enabling them to be used at bottom of ice elevator shafts, or where the can dump is close to the wall.

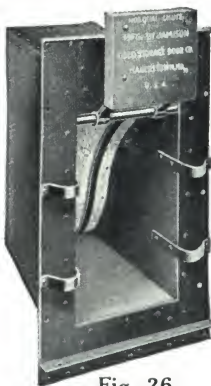


Fig. 26

POPULAR SIZES

Stock No.	300 and 400 lbs. block on edge	Wall opening		Sh. wgt., lbs.
		Width ft. in.	Height ft. in.	
126	Single.....	1 2 $\frac{1}{2}$	3 1	325
127	Double.....	2 3 $\frac{1}{4}$	3 1	565
128	Triple.....	3 4 $\frac{1}{2}$	3 1	785
129	Quadruple.....	4 5 $\frac{3}{4}$	3 1	1030

Incline bottom standard (level bottom optional).

Noequal Platform Chutes—Combined chute and standard cold storage or vertical sliding cold storage door on exit end, single or multiple openings, write for complete catalogue data.

Jamison Vertical Sliding Door (Figs. 27 and 28)

Insulated and counterbalanced on galvanized steel cable and roller bearing sheaves. Rubber contact-seals all around making it airtight, yet it slides with complete freedom.

POPULAR SIZES

Stock No.	Door in clear wall opening same size (Fig. 28)		Sh. wgt. with 2-in. corkboard insulation,* lbs.
	Width ft. in.	Height ft. in.	
90	2 0	2 6	260

Other sizes furnished when required. Can be used with conveyors. Information and dimensions on request.

*Insulation 2 in. corkboard.



Fig. 28

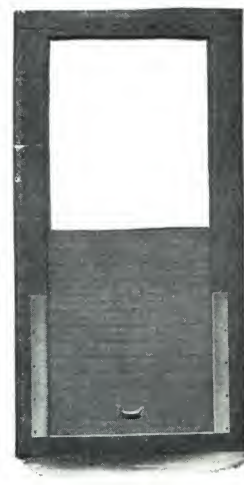


Fig. 27

Jamison Sanitary Door

For use by hospitals, public institutions, restaurants, hotels, etc., where the sanitary feature is desired. Not recommended for freezers.

Embodies standard Jamison or Stevenson Cooler Door construction and insulation except for its smooth laminated panel front. Special types of hardware, finished as desired to meet individual requirements. For wall opening, see table on the preceding page of Jamison and Stevenson Cooler Doors.

Other Jamison and Stevenson Products

Catalogue describing other products, such as refrigerator fronts, Dutch doors, cold storage windows, etc., gladly sent on request.

For variations of above or special protection to meet local conditions, we invite you to consult our Engineering Department of 33 years' experience.



Fig. 29

VICTOR PRODUCTS CORPORATION

FORMERLY VICTOR COOLER DOOR CO., INC.

"Standard" Refrigeration Products
HAGERSTOWN, MD.

NEW YORK, N. Y.

CHICAGO, ILL.

Products

REFRIGERATION DOORS:

Victor "Standard" Cooler Door.

Victor Auto-Close Vestibule Door.

Victor "Super" Freezer Door.

Victor "Standard" Track Door.

Special Milk Can and Case Passing Door.

Special Refrigeration Doors to suit your requirements.

VICTOR ICE CHUTES; VICTOR STANDARD HARDWARE.

Also Victor All-metal Door, Victor Fireproof Cold Storage Door, Victor "Standard" Windows, Mortuary Doors and Service Fronts, Victor "Standard" Waterproof Gaskets.

For Victor Steel Shelving, see Manufacturers' Index.

Victor "Standard" Cooler Door

The Victor "Standard" Cooler Door is furnished with angle iron, beveled oak or high sill.

Insulation—Granulated cork, corkboard (4 or 6 in.) laid between 3-ply waterproof paper.

Where corkboard is used in freezer doors, it can be laid in hot asphalt at small additional cost.

Hardware

Our Standard No. 200 Roller Fastener, as shown, is constructed of malleable castings and forged steel, galvanized by the hot dip process. Single action—easy to operate. Just pull lever forward and this one operation releases latch and operates door. Entrance doors equipped with single acting inside control.

Lumber—Panel door fronts and casings best grade yellow pine; high grade spruce or fir for backing, jambs and stiffeners.

Victor "Standard" Cooler Door

VICTOR "STANDARD" DOOR SIZES, ETC.

No.	Standard size	Approximate weight, lb.
x	2'0" x 2'0"	160
xx	2'0" x 2'6"	200
xxx	2'0" x 3'0"	220
xxxx	2'0" x 4'0"	240
1	2'0" x 6'0"	350
2	2'6" x 6'0"	390
3	2'6" x 6'6"	440
4	3'0" x 6'0"	450
5	3'0" x 6'6"	450
6	3'6" x 6'0"	460
7	3'6" x 6'6"	500
*8	3'0" x 7'0"	500
*9	3'6" x 7'0"	540
*10	4'0" x 6'0"	540
*11	4'0" x 6'6"	600
*12	4'6" x 6'6"	625
*13	4'0" x 7'0"	625
*14	4'6" x 7'0"	640
*15	5'0" x 6'6"	650
*16	5'0" x 7'0"	675

*Includes three hinges.

Brace—Iron, securely bolted in tension, with four large bolts, eliminates any possibility of joints opening. Frost line is avoided by completely covering the brace with insulation.**Shipping**—All doors shipped hung in frames, complete with hardware, ready to set in place.

Auto-Close Vestibule Door

The illustration shows door in action with truck opening



Auto-Close Vestibule Door

ing door as it passes through. Angle iron sill for concrete floor (also made with wood sill). Note the corkboard insulation in frame head over door. The Auto-Close Door is of the same standard construction as the "Standard" Door.

The Standard Victor Auto-Close Vestibule Door eliminates the necessity of building air locks, which are expensive and consume valuable storage space.

The Standard Victor Auto-Close Door will not stand open. This feature prevents the loss of refrigeration so frequently incurred by leaving doors

open, as is natural when hurried trips are made in and out of the freezer room. It is difficult indeed to estimate the losses during these periods; although of short duration, they will accumulate into a tremendous loss.

The bar on back of hinged door eliminates any possibility of being locked in the freezer, as it is only necessary to give swinging doors a push or bump with a truck which brings them in contact with hinged bar, that in turn operates the fastener. The Auto-Close Doors are practically indestructible. Bumping with trucks will not injure them.

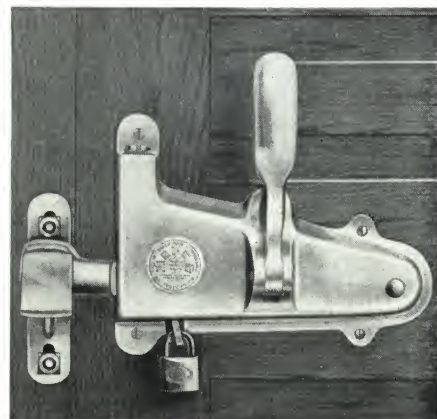
The working drawing of the "Standard" Door on following page applies to the Auto-Close Vestibule Door as well, except that the wall opening should be 7 in. wider and 10 in. higher than door in the clear.

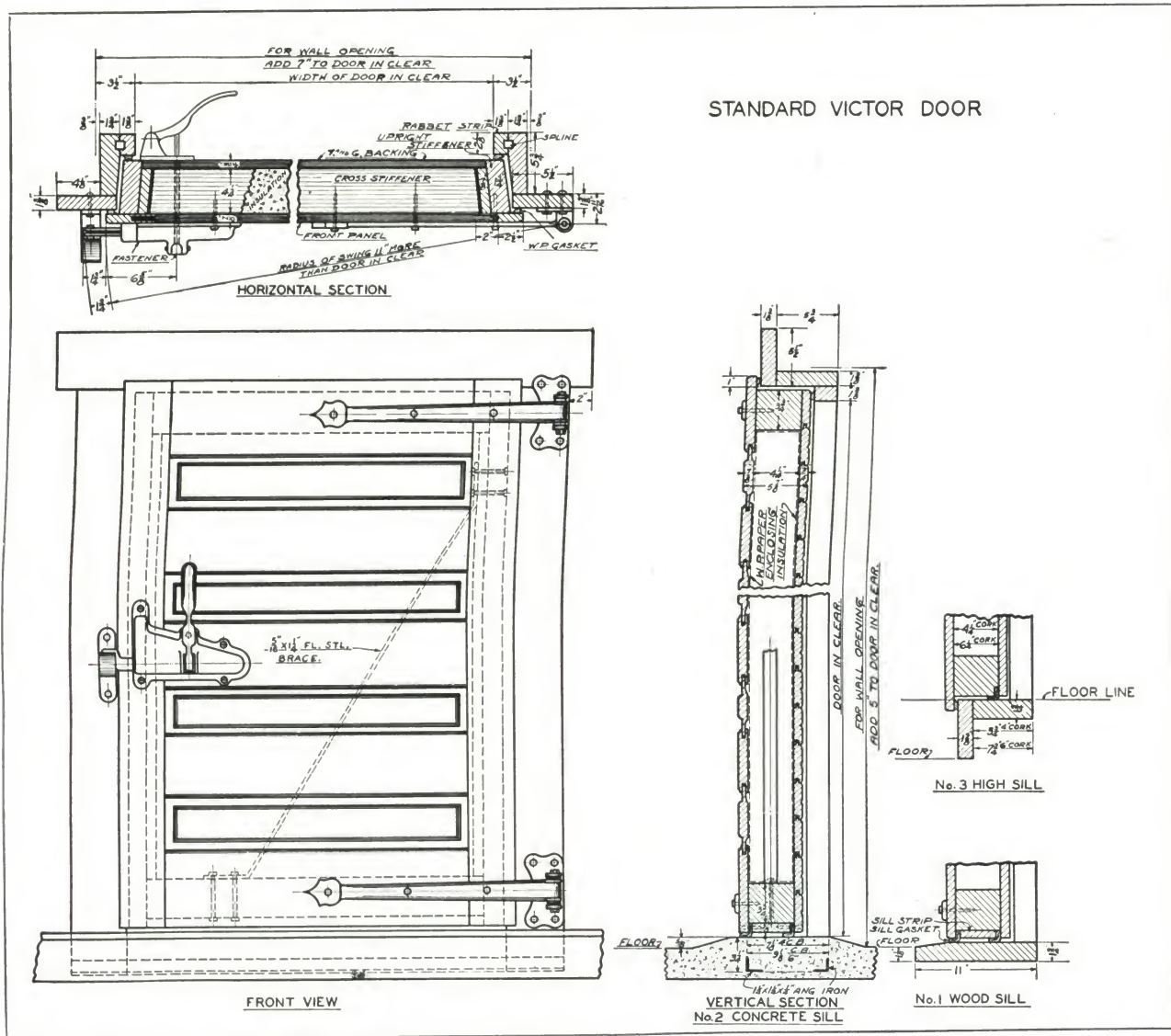
Victor Standard Hardware

Lock No. 200 is used on all Victor "Standard" Cooler, "Super" Freezer, Auto-Close Vestibule and all the larger doors.

It is finished either polished brass, nickel or galvanized.

This lock is a one-motion single-action lock; just pull the handle towards you and this releases the lock, at the same time opening the door.





Victor "Standard" Door Construction

Note the method of paneling Victor Door Fronts, and of insulating and bracing the doors.

The cross rails are mortised and tenoned in the stiles and pinned with iron dowels from the back.

The iron brace is sufficiently strong to prevent sagging and is surrounded with insulation which prevents the door frosting through.

The Victor Standard method of bracing is patterned after bridge construction and has proven efficient in many years of use.

Victor "Standard" Track Door

Made of the same materials and in the same sizes, with the same general specifications as the Victor "Standard" Cooler Door.

The Victor "Standard" Track Door is especially suited for use in packing houses where the meat or articles passed to and from storage are carried on tracks.

The working drawing of the "Standard" Door above applies to the "Standard" Track Door as well, except that the wall opening should be 7 in. wider and 10 1/2 in. higher than door in the clear.



Victor Standard Trap
Lifting Device



Victor "Super" Freezer Door



The Victor "Super" Freezer Door was designed especially for hardening rooms, etc. where it is desired to maintain an extremely low temperature or where on account of conditions ice would have a tendency to form in the doorway. This door cannot freeze in the frame and never needs to be cut or forced open.

The working drawing of the "Standard" Door on preceding page applies to the "Super" Freezer Door as well, the only exception being the wall opening which is 4 in. wider and 3 in. higher than door in the clear.

Victor "All-steel" Ice Chute

Victor "Standard" "All-steel" Ice Chutes are constructed of steel plates and angles of proper proportions, with patented curve door, cork insulated and carefully fitted with waterproof gaskets at points of contact. Door is pivoted on cold rolled steel shaft carefully balanced and requiring no springs to operate. No wood is used in the construction and all joints, including door joints, are riveted or welded. There are no bolts to work loose.

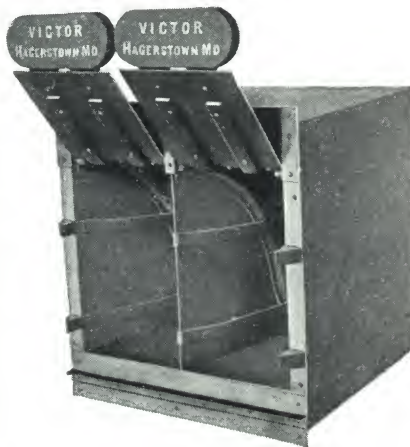
When a block of ice enters the opening, the top forward edge comes in contact with the curved door, which is so balanced that but little force is required to open door. This eliminates broken corners on blocks of ice.

The door and other exposed parts are insulated with corkboard. The Victor "Standard" "All-steel" Ice Chute will last indefinitely.

Victor "All-steel" Ice Chutes are also made with cold storage door on the discharge end if so desired. All bottoms are made slanting unless otherwise specified, eliminating the necessity of a man pushing the blocks of ice through.

The curved door strikes on waterproof gasket securely fastened to angle iron riveted to side of chute with curve corresponding to curve of door. The weighted flapper on point of door completes the seal. This is an *exclusive Victor feature*.

It is far more practical to use this standard Victor "All-steel" Ice Chute than any door you can buy or build. A greater quantity of ice can be handled through a Victor "All-steel" Ice Chute than through a door. You also have the advantage that the chute does not stand open waiting for some one to close



it, as compared with a door. A Victor "All-steel" Chute is always closed and the loss of refrigeration is negligible. This eliminates the chance of careless employees leaving hinged or sliding door open for short or long periods, during which time the cold air would be wasted.

Note: The block of ice fills the opening so that practically no cold air escapes while passing. Door automatically closes behind ice block in one second, reducing temperature loss to a minimum.

Provide wall opening 19 in. wide by 39 in. high for single chute. The Victor Standard Ice Chute can be furnished either single, double, or in batteries to suit these specifications.

Victor Milk Can or Case Passing Door



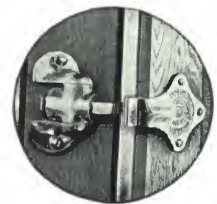
The Victor Milk Can or Case Passing Door was developed to meet a demand for an automatic closure for passing milk cans and cases, without upsetting. Before this door was developed it was necessary to use an ordinary hinged or sliding door that could easily be left open for indefinite periods, involving a tremendous loss of refrigeration.

The Victor Can or Case Passing Door is so sensitive that it closes a fraction of a second behind each entry. The roller bottom operates in unison with Victor gravity conveyor both to and from the door.

The Victor Milk Can or Case Passing Door is furnished for walls 12 in. thick unless otherwise specified. Hinged door hung either left or right hand. The clear opening necessary for this door is 18 by 31 in. and the wall opening 25 by 41 in.

Victor Standard Hardware

Lock No. 40 is supplied on all passing doors, windows, refrigeration fronts, etc., where a small, quick acting lock is necessary. The illustration shows the lock not engaged.



Estimates, etc.

When writing for quotations or ordering, please supply all the information that you possibly can, including:

(1) Size of door. (Use stock sizes where practicable.) The various standard sizes are listed on the second preceding page. Unless otherwise specified, 4-in. granulated cork will be furnished.

(2) State specifically what character of door.

(3) Give approximate temperature, both inside and outside of door.

(4) Kind of insulation preferred.

If you will advise purpose for which door is to be used we will be glad to offer suggestions as to the most practicable insulator.

(5) Give all dimensions necessary, see tracing.

(6) Specify whether right or left-hand door is wanted. Unless otherwise specified, we will ship right-hand door.

(7) Kind of sill. See tracing.

(8) Finish of hardware: galvanized, nickel, polished brass.

(9) Track doors; please specify height to bottom of track rails. This is very essential.



CORK
and
INSULATION

UNITED
CORK
COMPANIES

Lyndhurst, N. J.

ference in temperature per 24 hours or .267 B.t.u.'s per hour.

We think we are meeting the efficiency issue thoroughly when we unequivocally guarantee that United Corkboard (100% Pure Cork) is unexcelled in quality or efficiency by



United Corkboard Insulation (100% Pure Cork)

any other insulating board on the market.

United Corkboard (100% Pure Cork) is manufactured in standard sized boards 12 in. wide by 36 in. long, and in various thicknesses. (See table on page 5.)

USES OF CORKBOARD

The common uses of corkboard may be divided into six distinctive classes, as follows:

(a) Refrigeration—The principal uses under this class of work include insulation for cold storage buildings, refrigerated rooms, tanks, etc.; ice making plants; ice skating rinks, etc.; and refrigerators and refrigerated plants of all kinds.

The characteristic use of cork for such work, is the prevention of heat transmission where the maintenance of low temperatures is required.

The insulation of buildings against the heat of the sun and atmosphere, to provide comfortable habitation in summer, would incidentally come under this heading.

(b) Conservation of Heat—Insulation against the loss of heat covers various uses almost too numerous to mention but broadly speaking it includes all forms of insulation which prevent the escape of heat required for any heating purpose including the heating and ventilating of buildings in which economy of fuel is usually the objective. The characteristic use in this case is the prevention of heat loss.

(c) Prevention of Moisture Condensation—This class of use covers any case where neither refrigeration nor heating is the essential consideration but where damage from condensed moisture would be the difficulty to overcome. In this case the use of cork on roofs, walls, pipes, ducts, etc., accomplishes entirely satisfactory results in the most economical way. The purpose of cork insulation in this case is to prevent moisture laden heat from condensing into water upon cool surfaces.

As hereinafter mentioned, we have published a booklet on Roof Insulation which fully treats of this subject and we will gladly send it on application.

(d) Acoustics—Acoustic corrective treatment in rooms and auditoriums and soundproofing and sound-deadening are allied subjects under acoustics, and while often closely related they are also often distinctive. Acoustics concerns itself with the auditory properties of rooms, offices, auditoriums, etc.

Progress is being constantly made in the science of acoustics in which the use of cork is ever increasing. Research, experiment and actual use reveal that there is no material so versatile as cork in corrective acoustic treatment. Cork possesses unique properties in that it may, in various forms, be used to diffuse, reflect, absorb or reinforce sound. It provides a medium which

may be said to sensitively control sound, permitting different forms of correction for different zonal acoustic defects.

No problem in acoustics should be considered settled without considering the use of United Acoustic Corkboard.

Soundproofing and sound-deadening while intimately connected with acoustics are often distinctive subjects. Specifically, they have to do with sound penetration and sound absorption in numberless forms in various types of construction.

The battle against objectionable noise is being waged persistently from every possible angle. Soundproofing and sound-deadening for a very wide variety of uses are now regarded as of such importance that no architect would be justified in neglecting them, particularly for such buildings as banks, hospitals, apartments, offices, subways, overhead railroads and roadways, railroad terminals, depots, etc., and for sound-deadening in connection with machinery, etc. Cork for these uses is invaluable.

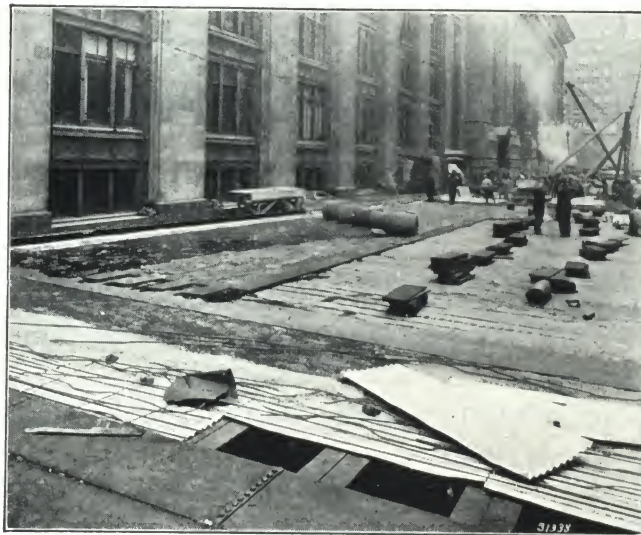
Our organization is thoroughly expert in these subjects and is keeping fully abreast of all developments in the science of acoustics in all its branches. We invite consultation on any problem dealing with this subject.

(e) Vibration Absorption—This use, while similar in some respects to sound-deadening is, nevertheless, frequently not associated with it. It is often desired to prevent the transmission to structures of the vibrations caused by machinery, which are known to cause fatigue and nervous disturbance to workers, resulting

in their discomfort and inefficiency. Of equal importance is the fact that such vibrations are often seriously injurious to the vibrating apparatus itself and the importance of the subject is therefore twofold. We manufacture a particular cork product called Crescent Machinery Isolation Corkboard which is not surpassed for this purpose.

(f) Flooring—In many respects cork provides the very best material for flooring purposes. In fact, it can be safely said that no other material offers quite so many advantages for this purpose. It is soft underfoot, noiseless, insulates against cold, and is durable. Even for the most severe uses the proper type of cork flooring will insure entirely satisfactory results.

Miscellaneous—Information in regard to the above uses and many other uses will be found in the succeeding pages.



Installing United Isolation Corkboard on Overhead Roadway Through New York Central Railroad Office Building, New York, N. Y.

ADVANTAGES OF CORKBOARD

The outstanding features which combined make cork the best and most economical form of insulation for all refrigerating plants are:

First—It provides the *maximum amount of insulation efficiency* because of its cellular structure. Each granule of cork contains thousands of small hermetically sealed air cells. The air is trapped in these cells, is consequently non-circulating, and therefore this particular construction approximates a vacuum—the highest type insulator—more closely than any other insulating material.

Second—It allows *compact construction* that occupies a

minimum of space, thus assuring increased storage capacity. That this saving of space is a factor of greatest importance is indicated by records kept of investment costs of cold storage buildings. These costs show a variation of from 45¢ to 60¢ per cu. ft. for land, building and insulation, depending upon location, exterior decoration, percentage of freezer space, etc.

Third—United Corkboard insulation remains *permanently efficient*. It has no capillarity. It resists moisture, hence undergoes no alteration in its insulation properties.

Fourth—It requires *no expense for repairs*. Once erected in a proper workmanlike manner it will stay put and last as

long as the building itself (unless structural defects appear in the building materials or in the building proper, to cause failure of the insulation).

Fifth—It is *free from odor and absolutely sanitary*, being non-absorbent, germ and vermin proof, and not subject to decay. These features are of greatest importance in rooms or buildings where perishable products such as milk, butter, eggs, meats, etc., are stored, because these products are readily affected by or are subject to contamination.

Sixth—United Corkboard applied directly to the surfaces and finished with $\frac{1}{2}$ -in. thick cement plaster or $\frac{3}{8}$ -in. United Sealite Mastic Finish is the only form of cold storage insulation that *provides an actual fire protection*.

MODERN WAREHOUSE INSULATION

Section opposite illustrates present day type of cold storage building construction. The building was designed for one of our largest cold storage warehouses. It is of the so-called mushroom type, reinforced concrete construction, enclosed with brick curtain walls. These walls are supported by a concrete wall beam extending between columns at each floor line.

The inside face of walls was coated with $\frac{1}{2}$ -in. Portland cement plaster, treated with Par-Lock to air-proof and dampproof the walls. The insulation was then erected against these Par-Locked walls in hot asphalt. United Sealite Mastic was used for the interior finish on the face of the cork.

Attention is called to the fact that each floor is insulated. This permits flexibility and economy in operation by enabling any room to be out of use without necessity of refrigerating it. First cost is so reasonable for insulating each floor slab that it is advisable to have this done in the beginning. All floor levels can then be satisfactorily established whereas if floor insulation work is delayed until later date countless troubles arise on account of levels, etc.

Bands (or ribbons) of cork are provided around the perimeter of the building as well as around elevator shafts, stairwells, etc., against the under surface of the ceiling slabs. These effectively block loss of refrigeration which might otherwise take place through the bottoms of the floor slabs. All exterior wall columns, caps and flares are also insulated.

The interior columns in the freezers are insulated from the floor line up to the bottoms of the flares to prevent transmission of heat through the column shaft. The second floor interior columns which occur over the uninsulated spaces of the first floor are insulated 6 ft. up from the floor line, for the same reason.

MATERIALS USED IN CONSTRUCTION

Nails, Discs and Skewers—Galvanized wire nails or wood skewers should always be used in erecting corkboard insulation. Common wire nails are useless as they will rust away.

Where corkboards are secured together, wooden skewers may be used. They are preferred by some engineers on account of being better non-conductors as compared to nails. Skewers should be made of hard wood $\frac{3}{8}$ in. thick and $\frac{1}{2}$ in. longer than the two thicknesses of corkboard.

Special galvanized wire nails called for in our specifications are made of small gauge to reduce the amount of metal and with extra large flat heads to give them more holding power.

When two courses of corkboard are erected to under side of wood framed and wood sheathed ceilings, first course nailed and second course erected in cement mortar with plaster finish, it is advisable to use galvanized iron discs of about 24-gauge and $1\frac{1}{4}$ -in. diameter for securely holding first course in place.

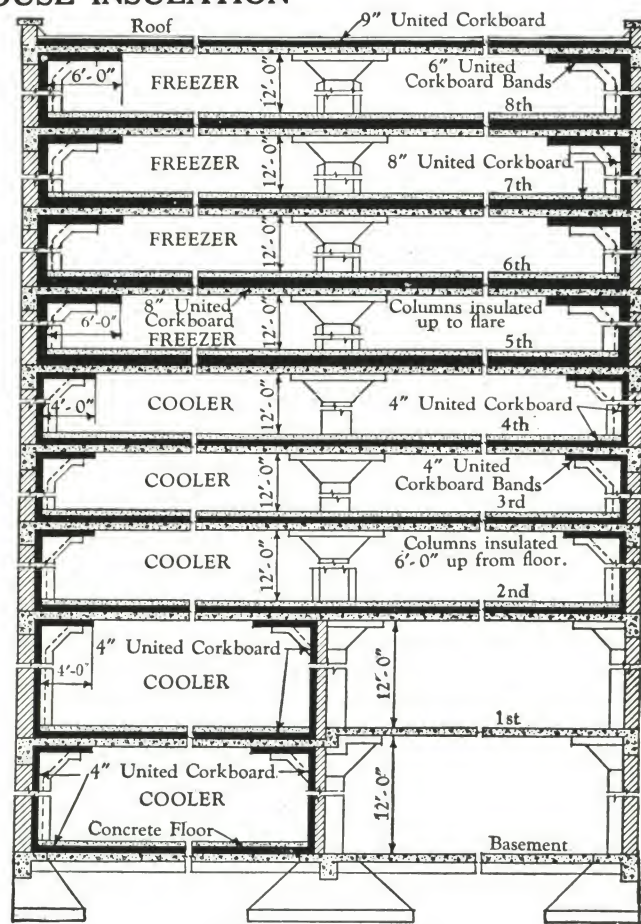
There is considerable weight to cement mortar and plaster finish which might be sufficient to pull the first course of corkboard over ordinary nail heads. Two or three special nails and one disc to each square foot of surface is all that is necessary.

Asphalt—Corkboard which is erected against walls in hot asphalt must be thoroughly coated with this material either by brushing asphalt on, or by dipping sheets of corkboard in hot asphalt. The characteristics of hot asphalt should approximate asphalt used in the Par-Locking of walls (Page 6).

Seventh—It has *superior structural strength* as compared with any other insulator. It can be used for the erection of partitions without any other supports; can be laid in floors carrying heavy loads without risk of deflection and can be built up the same as brick, also sawed, trimmed, and nailed the same as lumber.

A competent mechanic having some knowledge of cork can erect it, although we are convinced that money will be saved by placing the contract with us for *complete installation*.

Eighth—Corkboard is *the most economical insulation* that can be used when efficiency and permanent service are considered.



CROSS SECTION OF
MODERN COLD STORAGE BUILDING

In the selection of a suitable asphalt, there must be considered the following:

(a) The proper degree as to melting point. (b) Correct penetration (hardness or softness). (c) Proper ductility (stretch or yield without fracturing).

Paraffin base asphalts should always be avoided.

It has been a common practice until recently to use but one kind of asphalt for all types of construction, no matter whether the cork was to be laid on floors or roofs, or applied against walls. It is obvious, however, that an asphalt suitable for laying cork on floors would not necessarily be adaptable for applying cork against walls where much greater differences in temperature as well as stress have to be considered.

To insure permanence of the installation, the asphalt for walls should therefore be comparatively higher in melting point and relatively high in penetration and ductility; i.e., its characteristics should be such that it will not soften or run in the warmest summer temperature and still be sufficiently ductile to stretch or yield without fracturing in the coldest winter or cold storage temperature. In addition to these it must still hold the corkboard firmly in place. We have therefore made it a practice for many years to use a different grade of asphalt for wall work than that used for floors. The excellent results gained in our many large installations of corkboard conclusively prove that the asphalts we use possess the requisite properties for making permanent and efficient installations of corkboard.

GENERAL RECOMMENDATIONS AND SUGGESTIONS

In designing the proper insulation there are several factors to be considered which are likely to be different in every plant. They are:

(1) The temperatures to be maintained in the refrigerated rooms as well as the temperature outside surrounding the cold rooms.

(2) Climatic and atmospheric conditions.

(3) The kind of building, whether frame, brick, stone or concrete. (Hollow building blocks and tile construction should be avoided).

(4) Thickness of walls, ceilings and floors to which the insulation is to be applied.

(5) The kind of goods to be stored in the rooms.

(6) The cost of producing refrigeration.

Subject to these factors we have compiled the following tables giving thicknesses of corkboard that should be used for the various temperatures indicated. Under ordinary conditions these thicknesses have been found to give most economical results.

THICKNESSES OF UNITED CORKBOARD

For Rooms or Buildings					
Range of temperatures in storage areas	Walls, in.	Ceilings, in.	Floors on ground, in.	Floors above ground, in.	Roofs, in.
Below —15° F.	8	8	7	8	9
—15° F. to —5° F.	7	7	6	7	8
—5° F. to 10° F.	6	6	5	6	7
10° F. to 25° F.	5	5	4	5	6
25° F. to 40° F.	4	4	3	4	5
40° F. to 50° F.	3	3	2	3	4
50° F. to 60° F.	2	2	..	2	3
60° F. and above.	2	2	..	2	2

For Freezing Tanks					
If placed on foundation laid on ground, in.	If placed on floor above ground, in.	If placed directly over refrigerated rooms, in.	Granulated cork only, in.	Granulated cork and corkboard combined, in.	
				Gran. cork	Corkboard
Minimum, 5....	5	4	8	3	4
Preferably, 6....	6	4	12	4	3
.....	....	..	..	6	2

For Cylindrical Coolers, Tanks and Filters for Cold Liquids			
Range of temperatures	Sides, in.	Top, in.	Bottom, in.
Below 0° F.	6	6	6
0° F. to 10° F.	5	5	5
10° F. to 25° F.	4	4	4
25° F. to 45° F.	3	3	3
45° F. to 55° F.	2	2	2
55° F. and above.	1½	1½	1½

ERECTION OF CORKBOARD

Walls—There is taking place through the walls of most buildings a process called "breathing in of air." This is caused by the difference in air pressure between the cold interior of the room and the outside atmosphere. Where this occurs, air laden with moisture will be carried in through the walls and deposited within the cork insulation, destroying in time its insulating value.

This "breathing in of air" is a well known condition. It is aided by porous building material and it is of great importance to stop it, so that the insulation will give its maximum efficiency. Our aim should therefore be to airproof building materials as effectively as possible.

Theoretically, the outside of the building is the proper place for an airproof coating, and it is logical that the treatment should be applied there, but it is seldom practicable. We therefore have the alternative of coating the inside surface of the wall with a material which will assure both airproofing as well as the waterproofing of the surface.

To accomplish this all inside surface of walls should be "Par-Locked." This is a method of air and waterproofing which has been demonstrated to be the most highly efficient for use in connection with cork insulation; it is more particularly described on Page 6 of this catalogue.

After Par-Locking the walls, the cork insulation should be applied in two layers; the first layer in a bed of hot asphalt, and the second layer erected against the first layer also in a bed of hot asphalt. The interior should then be given a finish of either United Sealite Mastic or Portland cement as conditions require.

Ceilings—Insulation should preferably be laid on top of ceiling slabs whenever practicable. In one-story buildings, ice storages and other buildings of this type, slots may be left around the edges of the slab or ceiling construction to permit the insulation on the walls to pass between the walls and ceiling and tie in with the insulation laid on top of the ceiling.

Where the above type of insulation is precluded by the construction of the building, if it is a new building, the insulation should be laid directly in the ceiling forms when a concrete slab is used.

When the insulation is laid on top of ceiling slab and no slots are provided to permit connecting it with the wall insulation,

the underside of the slab adjacent to walls should be insulated with a band of corkboard as shown in section on page 12.

In cases where no provision has been made for slots to permit insulation to pass between walls and ceiling construction, and in cases where the insulation can not be laid on top of the ceiling, it is usually necessary to erect the insulation directly against the underneath side of the ceiling construction. Care should be taken to see that this insulation is erected securely.

When corkboard is erected against the underside of ceilings, its exposed surface should be given a finish of United Sealite Mastic or Portland cement plaster.

Where wood framed ceilings of rooms located directly under attics or ventilating lofts are insulated from the under side, the joists should be left open on top and where ceilings are insulated from the top side or floor above, the under side of joists should not be sheathed over, but left exposed.

By leaving the joists exposed to circulation of air dry rot or damp rot will be retarded.

Columns, Beams and Girders—It is just as necessary to insulate and protect columns, beams or girders as any other part of the building. Particular

attention should be given to columns in the lowest floor if the temperatures maintained are below freezing. The earth around the base of unprotected columns will freeze and expand to such an extent that serious damage to the building itself may occur.

Roofs—Adequate roof insulation is of still greater importance than that of floors or walls. Roofs are the greatest exposure of any building. Walls with northern exposure receive little or no sun; walls facing east, south or west may be exposed for several hours, but the roofs get the full effect of the direct rays of the sun all day long. Roofs, therefore, always should receive at least 1 in., but preferably 2 in., more corkboard than walls. Where roofs require protection against moisture condensation only, one course of 2 in. thick corkboard will usually suffice.

We have prepared a booklet on Roof Insulation describing the best methods of eliminating condensation and reducing heat loss through the roofs of buildings. We will gladly send copies of it to anyone interested.



Installing United Corkboard (100% Pure Cork) on Roof of Schering & Glatz Building, Bloomfield, N. J., to Prevent Condensation and Heat Loss

Cork Partitions—Cork partitions have remarkable strength, but are not intended to carry loads. This type of construction is recommended for forming walls of coolers not occupying the entire story of a building, or for making divisions between rooms. No studding or reinforcing other than the cement mortar core of plaster is required, excepting wooden frames at door or window openings. Where it is desirable not to build coolers to the full height of the story in which they are located, and it is found impracticable to suspend a ceiling from the floor above, the cork partitions may be reinforced with tee irons or wood studding to carry the weight of the roof or ceiling.

Coil Lofts or Bunkers—In many lines of trade, for example, meat packing, the desired temperature and necessary air circulation can only be obtained if the coolers are equipped with coil lofts or bunkers. They induce and promote air circulation. If the floors and curtain walls of bunkers are insulated, the rate of circulation will be increased and besides, condensation of moisture will be prevented on the under side of the bunker floor.

Floors on Ground—The importance of insulating ground floors is now generally recognized. The temperature of the ground is about 55° F., and remains fairly constant the year round. It is, therefore, of equal importance to insulate a floor on the ground as it is to insulate the walls or the ceiling. Not only will there be a great saving of refrigeration, but unless the floors of freezing rooms are adequately insulated the ground will freeze gradually and may cause an upheaval of the floor or even a derangement of the building's foundation. For this reason freezers with temperatures below 25° F. should always be located in the upper stories of a building.

Freezing Tanks—Freezing tanks should always be well insulated. The economical ice making capacity will be increased considerably if the bottoms and sides of tanks are insulated with the thicknesses given in the foregoing table.

Particular care for ample insulation should be given to the bottoms when placed on the ground. There are numerous cases on record where the bottoms of freezing tanks improperly insulated were forced up by frost to such an extent that the tanks became useless and had to be replaced at considerable expense.

Par-Locking

Failures of insulation begin because of improper contact between the corkboard and the surfaces against which it is applied. This is largely due to the fact that brick, tile, concrete, etc., against which corkboard is usually erected are porous materials.

Extensive research carried on over a period of years has shown that if the structural surface is properly coated with a sufficiently heavy layer of asphalt of permanent ductility and proper penetration (the process called Par-Locking) the following results are secured:

The ductile body of the asphalt used in the Par-Lock process equalizes the difference of expansion and contraction between the structural surface and the backing in which the corkboard is erected, thus preventing failure of the backing.

The suction of the structural surface is entirely removed, assuring full development of the entire strength of the backing (either Portland cement mortar or asphalt) while it is setting up.

The poorly formed bond between the structural surface and the backing (which has always been the weakest point in the application of corkboard) is mechanically overcome, because all detrimental surface voids of the structural surface are entirely eliminated, permitting perfect adhesion of the backing to the Par-Lock.

The action of efflorescence from the structural surface is stopped. This otherwise would weaken the grip of the backing.

In addition to the above, a positively tightly sealed wall surface stops all infiltration of air as well as moisture.

This process consists of coating the structural surfaces against which the corkboard is to be erected, with pure mineral asphalt, applied cold under gun pressure, evenly driving the asphalt into the surfaces, filling and sealing all pores.

The material used in Par-Locking walls is pure asphalt of about 210° r.m.p. which has no tendency to creep or buckle off the wall surface in warm weather. No coal tar pitch or low grade asphalt is used in the Par-Lock bond.

However, we wish to emphasize the fact that in order to obtain best results it is essential that the structural surfaces against which corkboard is to be erected with Par-Lock bond, are reasonably level. If there is unevenness, the surfaces should be first leveled up with a coat of Portland cement mortar, so that when the Par-Lock bond and corkboard are erected, there will be a smooth and even surface against which the corkboard may be stuck, thus leaving no chance for voids. Otherwise there remains the danger of an insufficient bond.

The backing in which the corkboard is erected is homogeneously tied to the structural surface with an adhesive strength several times greater than the tensile strength of the corkboard itself.

The method of Par-Locking serves to waterproof the insulation to a greater degree than any other method yet developed, as has been demonstrated by installations made as long as twelve years ago. We were the first to employ this method. It has since been adopted by all leading architects and engineers. Nearly all important modern cold storage plants are now insulated with walls airproofed and waterproofed by the Par-Lock method.

Par-Lock—One of the greatest improvements of all times for erecting insulation—is exclusively a "United Service" development.

Portland Cement Plaster

Portland cement plaster is the most durable finish over corkboard insulation on walls or ceilings of rooms where moisture conditions are not severe. It will, however, develop shrinkage cracks to some extent.

It should be scored off in squares of not over 5 ft. to minimize cracking. Cracks, however, will appear, but usually in the score marks. While these cracks do not impair the efficiency of the insulation it is well to point them up with a filler.

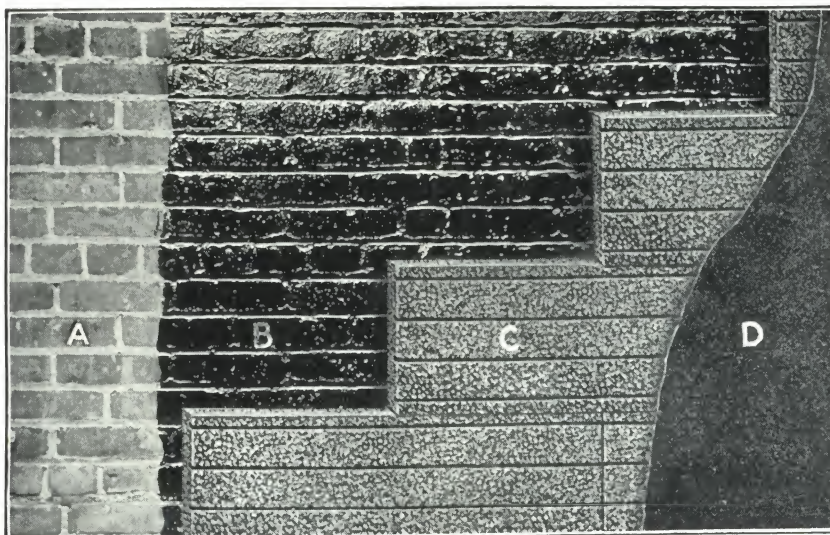
Portland cement plaster affords a hard, clean, sanitary finish for rooms where edible products are stored. It may be readily washed and it contains no irregularities or crevices where food particles may lodge and decay or rot. It thoroughly protects the insulation against damage from knocks and jars.

In many plants, especially where there is much trucking or moving of cased goods, etc., Portland cement plaster finish for walls is the very best material which we can recommend. However, where moisture conditions are severe and for ceiling work of many kinds, United Sealite Mastic is recommended in preference to Portland cement plaster. It is considerably lighter, sticks to the corkboard more tenaciously, does not check or crack like plaster, and affords a lighter and more waterproof ceiling finish for coolers of every description.

United Sealite Mastic

In ice storage rooms; cold storage rooms where doors are opened frequently; chill rooms in packing houses into which warm meats are placed to take out the animal heat; sweat rooms; coil bunkers, etc., moisture conditions are very severe.

Realizing that insulation must be properly protected on the interior from moisture as well as from the exterior, we have developed



A. Brick Wall. B. Par-Lock. C. United Corkboard (100% Pure Cork). D. United Sealite Mastic Finish

United Sealtite Mastic which is a moistureproof and airproof material applied cold directly on to the surfaces of the corkboard.

United Sealtite Mastic consists of an asphaltic base material and may be applied without the aid of heat or asphalt solvents. This is made possible by emulsifying the asphalt, i.e., the breaking up of it into minute particles suspended in water. Asphalt emulsion is one of the most important of recent process developments in the industry.

The water used in the emulsifying process acts both to keep the asphalt particles apart, and as a vehicle by means of which the asphalt or finished mastic may be spread on to the cork. Thus the mastic may be applied to the surface of the corkboard with a trowel and be

readily and smoothly worked. Any experienced plasterer can apply our Sealtite Mastic on to the corkboard just as easily as he can apply Portland cement plaster.

After the mastic has been applied, the water evaporates, the asphalt particles flow together and unite and form a continuous sheet of waterproof and airproof coating over the entire surface of the corkboard. There are no joints or cracks to be filled with a foreign material. Ultimate peeling and falling out of filler strips is eliminated and smooth, even appearances can be given to the room.

Where a color is desired, other than the natural gray black of our United Sealtite Mastic, we are in position to furnish and apply especially prepared paints with which the mastic may be given any desired color finish.

CRESCENT CORK COVERING

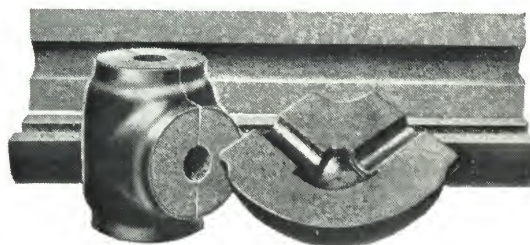
Crescent Cork Covering is a most efficient and economical insulation for brine lines, ammonia lines, ice or cold water lines, and special cold lines of every kind. It is manufactured of pure, clean, granulated cork, compressed and moulded in sectional forms to fit the various sizes of pipe. The fitting covers are moulded to conform to the shape and size of the various fittings in ordinary use. It is finished with a coating of mineral rubber that provides a waterproof covering for all lines and fittings. The insulation is applied with waterproof cement on all joints, which further assures covering that is impervious to moisture.

Crescent Cork Covering Provides—(1) Maximum insulating efficiency. (2) Permanent and durable insulation. (3) Neat, clean and sanitary covering. (4) A sav-

ing of at least 80% of the refrigeration lost from bare pipes. (5) An easily applied covering at a moderate cost.

Thicknesses—*Standard Brine Thickness*: 2 to 3 in. thick. Designed for brine and ammonia gas lines, and for lines where the refrigerant temperature ranges from 0° F. to 25° F. *Ice Water Thickness*: approximately 1½ in. thick—for drinking water lines, cold water lines, etc., where temperature of 25° F. and higher is carried. *Special Heavy Brine Thickness*: 3 to 4 in. thick—for lines where the temperature runs below 0° F.

Note: Covering of the proper thickness must be used to secure satisfactory results.



Crescent Cork Covering

United Cork Lagging for Cylindrical Tanks—United Cork Lagging and Discs beveled to any desired radius without finish, coated one side, or coated both sides with mineral rubber finish, are furnished for covering cylindrical brine tanks, ammonia accumulators, ice water tanks, filters, etc.

Send for our literature giving detailed information, list prices, etc., and for samples if desired.

CRESCENT CORK BRICK FLOORS, CORK TILE AND BULLETIN BOARDS

Crescent Cork Bricks—Consist of a mixture of finely ground cork and specially prepared asphalt binder. They make a floor which is warm and comfortable. They do not rot, chip or splinter, and will sustain exceptionally heavy loads. They resist wear indefinitely and are especially adaptable for floors of machine shops, industrial plants, factories, etc.—in fact, wherever heavy duty floors are required. They are never slippery when wet or dry. Size, 1¾x4x9 in. Laid flat, four will cover

a square foot. Weight, approximately 2½ lb. each.

Crescent Cork Tile—Manufactured in three shades of brown and in many sizes. It is either ¼ or ½ in. thick as may be desired, and it is a quiet, dignified yet attractive, and wearproof floor.

Crescent Cork Bulletin Boards—¼ in. thick unmounted; ½ in. thick mounted, and in various sizes up to 4x6 ft.

CRESCENT MACHINERY ISOLATION CORKBOARD

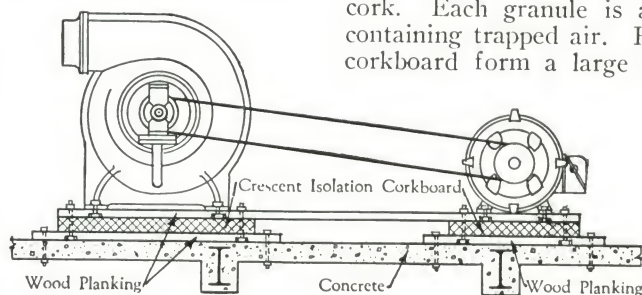
Every moving piece of machinery sets up vibrations. In the average manufacturing plant it is also the principal source of noise. Vibrations and noise have proved to be a direct cause of fatigue, accidents, and carelessness. They diminish the efficiency and output of employees. Vibrations and noise should be eliminated whenever possible.

Pumps, fans, compressors, generators, motors, steam hammers, lathes, presses, etc., produce vibration noises that are transmitted to and frequently amplified by the foundations or floors upon which machines stand. They should be isolated from foundation or floor with

a material capable of absorbing their vibrations.

Crescent Machinery Isolation Corkboard, because of its natural elasticity and vibration absorption qualities, is the logical material for this purpose. Similar to United Corkboard (100% Pure Cork) but more densely compressed, it consists of thousands of granules of cork. Each granule is a mass of small, sealed cells containing trapped air. Hence these sheets of isolation corkboard form a large air cushion that absorbs and

breaks up the vibrations of the machines placed upon it. The structure of this material is very strong and will support exceptionally heavy loads with negligible compression. It is moisture-proof, easily installed and reasonable in price.



SPECIFICATIONS

The following detailed specifications show practically every type of construction that may be employed in insulating old as well as new cold storage buildings. We recommend that they be used as given, changing the thickness of corkboard to suit the temperatures that are to be maintained.

There will occur, of course, special constructions to meet particular purposes, unusual atmospheric conditions, temperatures, etc. For such cases separate and individual consideration is required. We cannot too strongly advise consulting our experienced engineers before going ahead with any kind of insulation work.

Specification No. 1

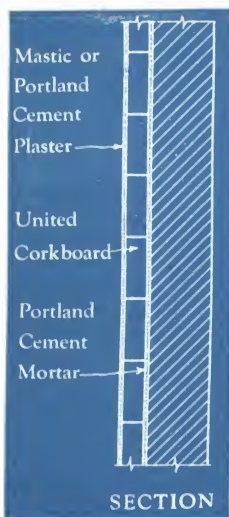
Walls—Masonry

One Course of Corkboard—

APPLIED WITH CEMENT TO BRICK, CONCRETE OR STONE—Two, three or four-inch United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The walls shall be insulated with a single course of . . . in. United Corkboard applied with a ½-in. bed of Portland cement mortar mixed one part cement and two parts clean, sharp sand. Corkboards shall be butted up close, making tight fitting joints, and all vertical joints shall be broken. The exposed cork surface shall be finished as described in Specification No. 34 or Specification No. 35.



Specification No. 2

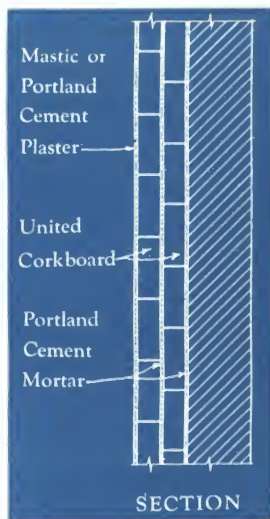
Walls—Masonry

Two Courses of Corkboard—

FIRST COURSE APPLIED WITH CEMENT; SECOND COURSE APPLIED WITH CEMENT TO BRICK, CONCRETE OR STONE—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The walls shall be insulated with . . . in. of United Corkboard in two courses. The first course shall be . . . in. thick applied with a ½-in. bed of Portland cement mortar, mixed one part cement and two parts clean, sharp sand. The second course shall be . . . in. thick applied against the first course in a ½-in. bed of Portland cement mortar and additionally secured with wood skewers or special galvanized wire nails of proper length. All corkboards shall be butted up



close, making tight fitting joints. All vertical joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The exposed cork surface shall be finished as described in Specification No. 34 or Specification No. 35.

Specification No. 3

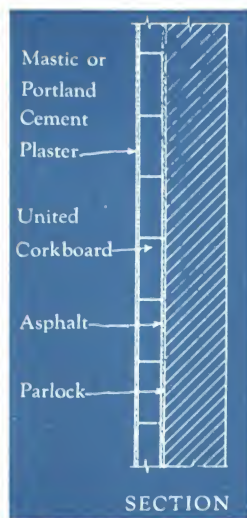
Walls—Masonry

One Course Corkboard—AP-

PLIED WITH ASPHALT CEMENT TO BRICK OR CONCRETE—Two, three or four-inch United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The walls shall be insulated with a single course of . . . in. United Corkboard applied with hot asphalt cement. Before applying the cork-



board, the walls shall be Par-Locked according to Specification No. 33. All corkboards shall be butted up close, making tight fitting joints, and all vertical joints shall be broken. The exposed cork surface shall be finished as described in Specification No. 34 or Specification No. 35.

Specification No. 4

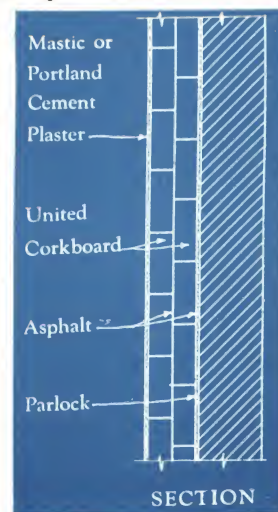
Walls—Masonry

Two Courses of Corkboard—

APPLIED WITH ASPHALT CEMENT TO BRICK OR CONCRETE—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The walls shall be insulated with . . . in. of United Corkboard in two courses. Before applying the corkboard, the walls shall be Par-Locked according to specification No. 33. The first course of corkboard shall be . . . in. thick applied with hot asphalt cement. The second course of corkboard shall be . . . in. thick applied against the first course with hot asphalt cement and additionally secured with wood skewers or special galvanized wire nails of proper length. All corkboards shall be butted up close, making tight fitting joints. All vertical joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The exposed cork surface shall be finished as described in Specification No. 34 or Specification No. 35.



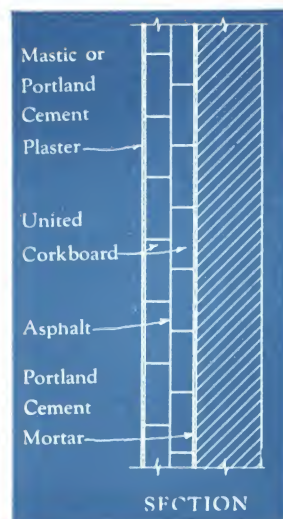
Specification No. 5

Walls—Masonry

Two Courses of Corkboard—FIRST COURSE APPLIED WITH CEMENT AND SECOND COURSE WITH ASPHALT CEMENT TO BRICK, CONCRETE OR STONE—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The walls shall be insulated with . . . in. of United Corkboard in two courses. The first course shall be . . . in. thick applied with a ½-in. bed of Portland cement mortar, mixed one part cement and two parts clean, sharp sand. The second course shall be . . . in. thick applied against the first course with hot asphalt cement and additionally secured with wood skewers or special galvanized wire nails of proper length. All corkboards shall be butted up close, making tight fitting joints. All vertical joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The exposed cork surface shall be finished as described in Specification No. 34 or Specification No. 35.



**Specification No. 6****Walls—Frame**

One Course of Corkboard—NAILED TO WOOD FRAME WALLS—Two, three or four-inch United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

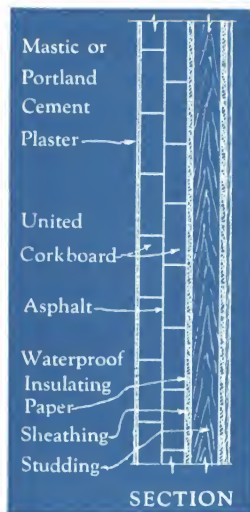
The walls shall be insulated with two layers of waterproof insulation paper lapped not less than 3 in., followed by a single course of in. United Corkboard securely fastened with special galvanized wire nails of proper length. Corkboards shall be butted up close, making tight fitting joints and all vertical joints shall be broken. The exposed cork surface shall be finished as described in Specification No. 34 or Specification No. 35.

Specification No. 7**Walls—Frame**

Two Courses of Corkboard—APPLIED BY NAILING AND ASPHALT CEMENT TO WOOD FRAME WALLS—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The walls shall be insulated with two layers of waterproof paper and in. of United Corkboard in two courses. Two layers of waterproof paper lapped not less than 3 in. shall be applied against walls, followed by the first course of corkboard in. thick, securely fastened with special galvanized wire nails of proper length. The second course of corkboard in. thick shall be applied against the first course in a bed of hot asphalt, and additionally secured with wood skewers or special galvanized wire nails of proper length. All corkboards shall be butted up close, making tight fitting joints. All vertical joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The exposed cork surface shall be finished as described in Specification No. 34 or Specification No. 35.

**Specification No. 8****Partitions—Cork**

One Course of Corkboard—SELF-SUPPORTED—Two, three or four-inch United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The partitions shall be solid cork and cement, constructed of a single course of in. United Corkboard erected on edge against temporary studs, securely toe-nailing each corkboard to adjacent corkboards with wood skewers or special galvanized wire nails of proper length. All corkboards shall be butted up close, making tight fitting joints and all vertical joints shall be broken. The exposed cork surface on each side shall be finished as described in Specification No. 34 or Specification No. 35.

Note: This class of construction is advantageous where no loads are to be carried and may safely be used with satisfactory results up to 9 ft. high for 2-in. corkboard, up to 12 ft. high for 3-in. corkboard and up to 15 ft. high for 4-in. corkboard.

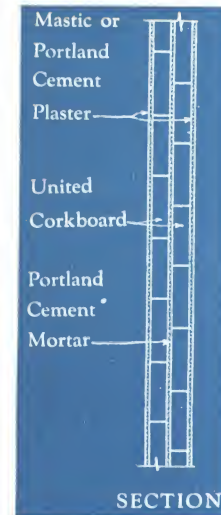
Specification No. 9**Partitions—Cork**

Two Courses of Corkboard—SELF-SUPPORTED, CEMENT CORE—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The partitions shall be solid cork and cement constructed of in. of United Corkboard in two courses with a Portland cement core between. The first course shall be in. thick erected on edge against temporary studs, securely toe-nailing each corkboard to adjacent corkboards with wood skewers or special galvanized wire nails of proper length. The second course shall be in. thick erected against the first course with a ½-in. bed of Portland cement mortar, mixed one part cement and two parts clean, sharp sand and additionally secured with wood skewers or special galvanized wire nails of proper length. All corkboards shall be butted up close, making tight fitting joints. All vertical joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The exposed cork surface on each side shall be finished as described in Specification No. 34 or Specification No. 35.

Note: This class of construction is advantageous where no loads are to be carried and may be used safely up to 25 ft. in height.

**Specification No. 10****Partitions—Cork**

Two Courses of Corkboard—STEEL SUPPORTED, FOR CARRYING CEILINGS—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The partition shall be cork and cement, constructed of in. of United Corkboard in two courses reinforced by steel Tees. The first course shall be in. thick erected between 1½x1½x¼-in. steel Tees placed 36 in. apart well secured to floor and ceiling. The second course shall be in. thick applied against the first course with a ½-in. bed of Portland cement mortar, mixed one part cement and two parts clean, sharp sand and additionally secured with wood skewers or galvanized wire nails of proper length. All corkboards shall be butted up close, making tight fitting joints. All joints in the second course shall be broken in both directions with the joints in the first course. The exposed cork surface on each side shall be finished as described in Specification No. 34 or Specification No. 35.

**Specification No. 11****Floors—Concrete or Wood**

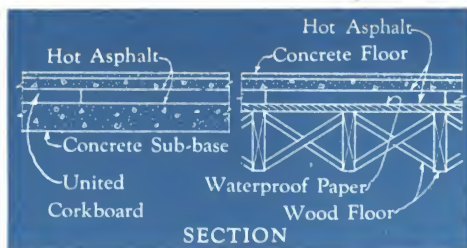
One Course of Corkboard—LAID ON CONCRETE OR WOOD BASE—CONCRETE AND CEMENT FINISH—Two, three or four-inch United Corkboard (100% Pure Cork) may be put down according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The floor shall be insulated with a single course of in. United Corkboard laid in a heavy mop coat of hot asphalt on a reasonably smooth and level concrete base. (Concrete base to be furnished by Owner). All corkboards shall be butted up close, making tight fitting joints and all transverse joints shall be broken. The top surface of cork shall be mopped with a coat of hot asphalt not less than ¼ in. thick, thoroughly sealing all joints. The insulation shall be finished with a

concrete and cement wearing floor 4 in. thick, consisting of 3-in. concrete and 1-in. Portland cement topping.

Note: This class of construction as specified may be used on wood floors, first covering the wood floor with one layer of waterproof paper lapped not less than 3 in. at each joint.



Specification No. 12

Floors—Concrete or Wood

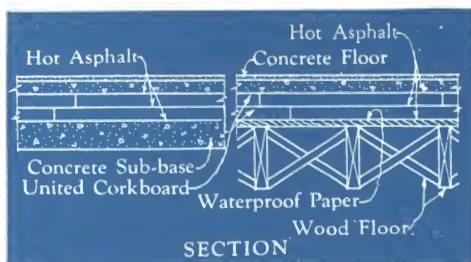
Two Courses of Corkboard—Laid on Concrete or Wood Base, Concrete and Cement Finish—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be put down according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The floor shall be insulated with in. of United Corkboard in two courses laid on a reasonably smooth and even concrete base. (Concrete base to be furnished by Owner). The first course shall be in. thick laid in a heavy mop coat of hot asphalt. The second course shall be in. thick laid on the first course in a heavy mop coat of hot asphalt. All corkboards shall be butted up close, making tight fitting joints. All transverse joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The top surface of cork shall be mopped with a coat of hot asphalt not less than 1/8 in. thick, thoroughly sealing all joints. The insulation shall be finished with a concrete and cement wearing floor 4 in.

thick, consisting of 3 in. of concrete and 1 in. of Portland cement topping.

Note: This class of construction as specified may be used on wood floors, first covering the wood floor with one layer of waterproof paper lapped not less than 3 in. at each joint.



Specification No. 13

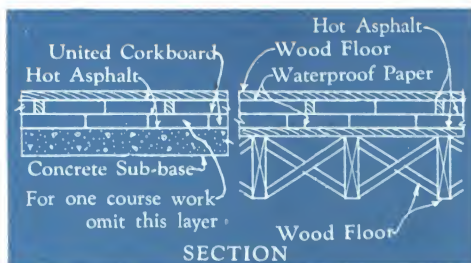
Floors—Concrete

One or Two Courses of Corkboard—Laid on Concrete or Wood Base—Wood Finish—Two, three or four-inch United Corkboard (100% Pure Cork) may be put down according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

One-course Work on Concrete—The floor shall be insulated with a single course of in. United Corkboard laid in a heavy mop coat of hot asphalt on a reasonably smooth and level concrete base. (Concrete base to be furnished by Owner.) Corkboards shall be laid between 2x.... in. wood sleepers placed 24 in. apart. All corkboards and sleepers shall be butted up close, making tight fitting joints and all transverse joints shall be broken. The top surface shall be mopped with a coat of hot asphalt not less than 1/8 in. thick, thoroughly sealing all joints. One layer of waterproof insulation paper lapped not less than 3 in. shall be laid on the cork followed by a wooden wearing floor of securely nailed to the sleepers.

Two-course Work on Concrete—When two courses of corkboard are required, the construction shall be similar to the



course in hot asphalt with wood sleepers as specified above. All joints shall be broken. A wood wearing floor of shall be securely nailed to the sleepers.

Note: Wood Construction—Either of these above types of construction as specified may be used on wood floors, first covering the wood floor with one layer of waterproof paper lapped not less than 3 in. at each joint.

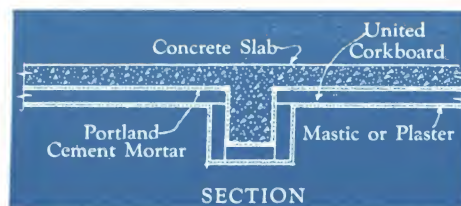
Specification No. 14

Ceilings—Masonry

One Course of Corkboard—Applied with Cement to Concrete, Brick or Hollow Tile Ceilings—Two, three or four-inch United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The ceiling shall be insulated with a single course of in. United Corkboard applied with a 1/2-in. bed of portland cement mortar, mixed one part cement and two parts clean, sharp sand. All corkboards shall be butted up close, making tight fitting joints, and all transverse joints shall be broken. Each corkboard shall be shored up with a suitable support firmly holding it against ceiling to insure proper adhesion. The shoring shall be left in place for at least 12 hours, but shall not be removed until the cement mortar is well set. The exposed cork surface shall be finished as described in Specification No. 34 or Specification No. 35.



Specification No. 15

Ceilings—Masonry

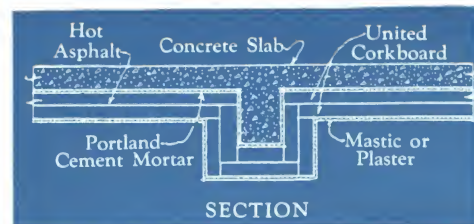
Two Courses of Corkboard—Applied with Cement and Asphalt to Concrete, Brick or Hollow Tile Ceilings—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be applied according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The ceiling shall be insulated with in. of United Corkboard in two courses. The first course shall be in. thick applied with a 1/2-in. bed of Portland cement mortar, mixed one part cement and two parts clean, sharp sand. The second course shall be in. thick applied against the first course in hot asphalt and additionally secured with wood skewers or special galvanized wire nails of proper length. Each corkboard of the first course shall be shored up with a suitable support firmly holding it against the ceiling to insure proper adhesion. The shoring shall be left in place for at least 12 hours, but shall not be removed until the cement mortar is well set. All corkboards shall be butted up close, making tight fitting joints. All transverse joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The exposed cork surface shall be finished as described in Specification No. 34 or

Specification No. 35.

Note: This class of construction may also be used, applying the second course of corkboard with a 1/2-in. bed of Portland cement mortar instead of hot asphalt.



Specification No. 16

Ceilings—Concrete

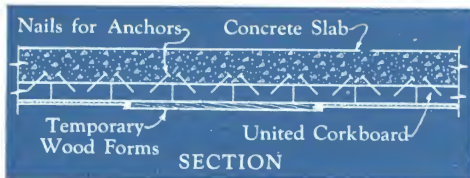
One or Two Courses of Corkboard—Laid in Ceiling Forms Before Concrete Is Poured—Two, three or four-inch United Corkboard (100% Pure Cork) may be laid according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

One-course Work—The ceiling shall be insulated with a single course of in. pure corkboard laid dry in ceiling forms. Forms shall be erected by concrete contractor and left in. lower for slabs, and in. lower and in. wider for beams than would otherwise be required. Special

galvanized wire nails $1\frac{1}{2}$ in. longer than the thickness of the corkboard shall be driven obliquely into the upper side of the corkboards, using not less than two nails to each square foot, leaving the heads protruding approximately $1\frac{1}{2}$ in. All corkboards shall be butted up close, making tight fitting joints, and all transverse joints shall be broken. Concrete contractor shall then pour the concrete slab directly upon the corkboard. After the forms are removed (by the concrete contractor), the exposed cork surface shall be finished as described in Specification No. 34 or Specification No. 35.

Two-course Work—When two courses of corkboard are required, the construction shall be similar to the above except that a second course (of the required thickness) shall be laid



directly on the first course in $\frac{1}{2}$ in. of Portland cement mortar or hot asphalt. This course shall be additionally secured to the bottom course with not less than two wood skewers or galvanized wire nails to each square foot, driven through the top course to within at least $\frac{1}{2}$ in. of the underside of the bottom course. The special galvanized wire nails for anchoring the corkboard into the concrete shall be driven into the upper course as specified above.

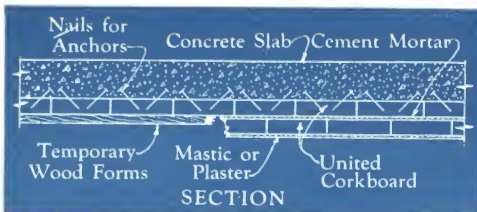
Specification No. 17

Ceilings—Concrete

Two Courses of Corkboard—FIRST COURSE LAID IN CEILING FORMS BEFORE CONCRETE IS POURED AND SECOND COURSE APPLIED WITH HOT ASPHALT OR CEMENT AFTER FORMS ARE REMOVED—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be laid according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The ceiling shall be insulated with in. of United Corkboard, the first course in. thick laid dry in the ceiling forms. Forms shall be erected by concrete contractor and left in. lower for slabs; in. lower and in. wider for beams than would otherwise be required. Special galvanized wire nails $1\frac{1}{2}$ in. longer than the thickness of the corkboard shall be driven obliquely into the corkboards, using not less than two nails to each square foot, leaving the head protruding approximately $1\frac{1}{2}$ in. Concrete contractor shall then pour the concrete slab directly upon the corkboard. After the forms are removed (by the concrete contractor) the second course of in. thick United Corkboard shall be erected against the first layer with a $\frac{1}{2}$ -in. bed of Portland cement mortar mixed one part cement and two parts clean, sharp sand. The two courses shall be securely nailed to each other with wood skewers or special galvanized wire nails of proper length, using not less than two nails per square foot. All corkboards shall be butted up closely, making tight fitting joints. All transverse joints in the first course shall be broken. All joints in the second course shall be broken in both directions with the joints in the first course. The exposed cork surface shall be finished as described in Specification



Specification No. 18

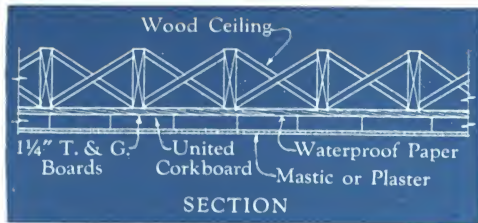
Ceilings—Wood Frame

One Course of Corkboard—NAILED TO WOOD FRAME CEILING—Two, three or four-inch United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The sheathed ceiling shall be insulated with two layers of waterproof insulation paper lapped not less than 3 in., followed by a single course of in. United Corkboard securely fastened with special galvanized wire nails of proper length driven through No. 22 galvanized iron discs $1\frac{1}{4}$ -in. diameter. All corkboards shall be butted up close, making tight fitting

joints and all transverse joints shall be broken. The exposed cork surface shall be finished as described in Specification No. 34 or Specification No. 35.



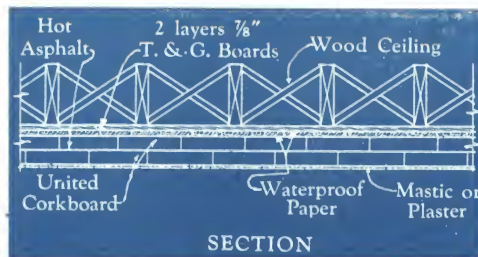
Specification No. 19

Ceilings—Wood Frame

Two Courses of Corkboard—APPLIED BY NAILING AND ASPHALT CEMENT TO WOOD FRAME CEILING—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The sheathed ceiling shall be insulated with two layers of waterproof insulation paper and in. of United Corkboard in two courses. The two layers of paper lapped not less than 3 in. shall be applied against sheathing, followed by the first course of corkboard in. thick, securely fastened with not less than 2 galvanized wire nails of proper length to each square foot, driven through No. 22 galvanized iron discs $1\frac{1}{4}$ -in. diameter. The second course of corkboard in. thick shall be applied against the first course with hot asphalt cement and additionally secured with not less than 2 wood skewers or special galvanized wire nails of proper length to each square



foot. All corkboards shall be butted up close, making tight fitting joints. All transverse joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The exposed cork surface shall be finished as described in Specification No. 34 or Specification No. 35.

Note: This class of construction may also be used, applying second course of corkboard in Portland cement mortar instead of asphalt.

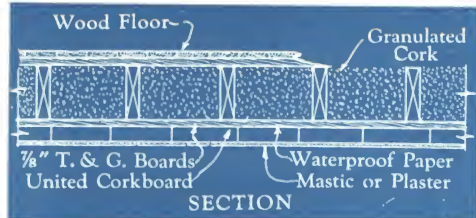
Specification No. 20

Ceilings—Wood Frame

Granulated Cork and One Course of Corkboard—APPLIED TO WOOD FRAME CEILINGS—Two, three or four-inch United Corkboard (100% Pure Cork) and granulated cork filling may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The ceiling shall be insulated with granulated cork filling and one course of in. United Corkboard. The underside of ceiling beams shall be sheathed with one course of $\frac{3}{4}$ -in. tongued and grooved boards and the spaces between beams shall be filled with granulated cork well packed in place. Two layers of waterproof insulation paper lapped not less than 3 in. shall be applied to sheathing followed by a single course of in. corkboard securely fastened with not less than 2 special galvanized wire nails of proper length to each square foot driven through No. 22 galvanized iron discs $1\frac{1}{4}$ in. in diameter. All corkboards shall be butted up close, making tight fitting joints



Specification No. 21

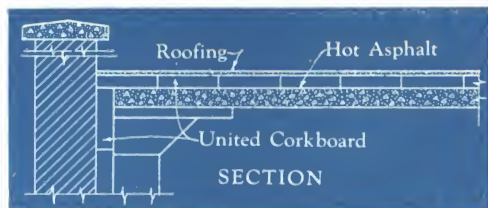
Roofs—Concrete

One Course of Corkboard—LAID ON CONCRETE ROOF SLAB—Two, three or four-inch United Corkboard (100% Pure Cork) may be put down according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The roof slab shall be prepared by giving the concrete surface a coat of special asphalt (or pitch) primer, evenly brushed on.

The concrete roof slab shall be insulated with one course of United Corkboard in. thick laid in a heavy coating of hot asphalt (or pitch); all joints to be sealed with the hot asphalt (or pitch) by pushing the corkboard a few inches into place. All corkboards shall be butted up close, making tight



fitting joints, and all transverse joints shall be broken.

On surfaces that are horizontal or nearly so, the slab shall be coated heavily

with hot asphalt and the boards pushed into place. On surfaces that are inclined or vertical, the corkboards shall be dipped in, or mopped with hot asphalt, to coat one side and two edges; then placed in position and nailed or held securely until the asphalt has cooled.

Note: Experience has demonstrated that hot asphalt (or pitch) mopped or poured, will not bond thoroughly to concrete surfaces, whereas the application of a primer will give the proper adhesion.

Specification No. 22

Roofs—Concrete

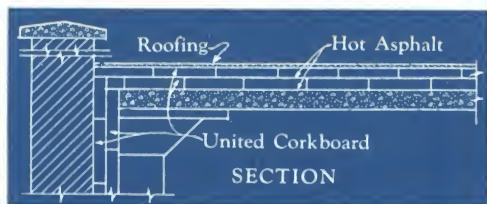
Two or Three Courses of Corkboard—LAID ON CONCRETE ROOF SLAB—Two, three or four-inch United Corkboard (100% Pure Cork) may be put down according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The roof slab shall be prepared by giving the concrete surface a coat of special asphalt (or pitch) primer, evenly brushed on.

The concrete roof slab shall be insulated with two courses of United Corkboard. The first course shall be in. thick laid in a heavy mopped coat of hot asphalt. The second course shall be in. thick laid on the first course in a heavy mopped coat of hot asphalt. (For three-course work, the third course shall be laid exactly like the second course). All corkboards shall be butted up close, making tight fitting joints. All transverse joints in the first course shall be broken and all joints in the second (or third) course shall be broken in both directions with the joints in the first (or second) course. The top surface of cork shall be left bare, and the roofing contractor, closely following the installation of the corkboard, shall lay the roofing in hot pitch or asphalt, directly upon the top of the corkboard.

Note: Experience has demonstrated that hot asphalt (or pitch) mopped or poured, will not bond thoroughly to concrete surfaces, whereas the application of a primer will give the proper adhesion.

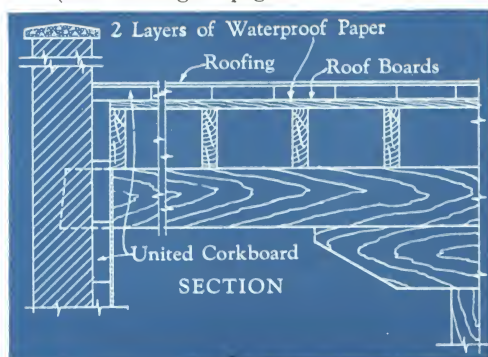


Specification No. 23

Roofs—Wood Frame

One Course of Corkboard—LAID ON WOOD SHEATHED ROOF—Two, three or four-inch United Corkboard (100% Pure Cork) may be put down according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).



The wood roof deck shall be insulated with two layers of waterproof insulating paper weighing not less than nine (9) pounds per hundred square feet laid with hot asphalt between the two layers; all pa-

per shall be lapped not less than 3 in. and tacked down. One course of United Corkboard in. thick shall be securely nailed in position directly on top of the paper with two galvanized wire nails to each sheet of corkboard. All corkboards shall be butted up close, making tight fitting joints and all transverse joints shall be broken. The top surface of the cork shall be left bare, and the roofing contractor, closely following the installation of the corkboard, shall lay the roofing in hot pitch or asphalt directly upon the top of the corkboard.

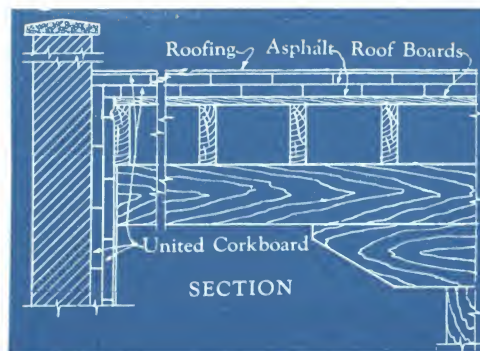
Specification No. 24

Roofs—Wood Frame

Two or Three Courses of Corkboard—LAID ON WOOD SHEATHED ROOFS—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be put down according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The wood roof deck shall be insulated with two layers of waterproof insulating paper weighing not less than nine (9) pounds per hundred square feet, laid with hot asphalt between the two layers; all paper shall be lapped not less than 3 in. and tacked down. Two courses of United



Corkboard shall be laid directly upon the paper. The first course shall be in. thick laid dry. The second course shall be in. thick laid on the first course in a heavy mopped coat of hot asphalt. (For three-course work the third course shall be laid exactly like the second course). All corkboards shall be butted up close, making tight fitting joints. All transverse joints in the first course shall be broken and all joints in the second (or third) course shall be broken in both directions with the joints in the first (or second) course. The top surface of cork shall be left bare, and the roofing contractor, closely following the installation of the corkboard, shall lay the roofing in hot pitch or asphalt directly upon the top of the corkboard.

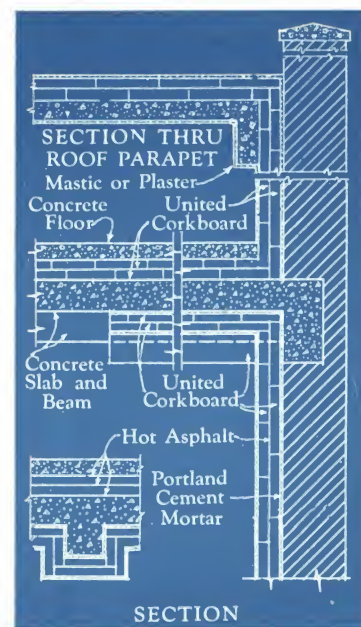
Specification No. 25

Concrete Construction Floor and Ceiling Bands (Ribbons)

Two Courses of Corkboard—APPLIED TO ENDS OF BEAMS, GIRDERS, FLOOR AND ROOF SLABS EXTENDING INTO WALLS—Two, three or four-inch United Corkboard (100% Pure Cork) may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

All beams and girders extending into the building walls shall be insulated on the sides and bottoms in from ends for a distance of 4 ft. 0 in. for coolers and 6 ft. 0 in. for freezers. All intermediate floor slabs shall be insulated on the bottom with a band (ribbon) extending 4 ft. 0 in. for coolers and 6 ft. 0 in. for freezers, in from insulated walls. All floor slabs and the roof slab shall be insulated on the top, from wall to wall, over the entire area. The insulation shall consist of two courses of in. thick United Corkboard. The application of the band (ribbon) to the bottom of the slabs, and to beams, shall be made as described in Specification No. 15. The application of the in-



sulation to the top of the floor and roof slabs shall be made as described in Specifications No. 12 and No. 22 respectively. All band (ribbon) insulation shall be thoroughly tied in with the wall insulation, breaking all joints.

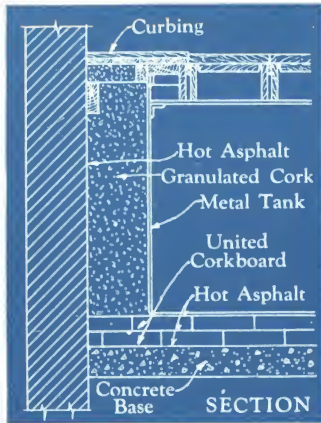
Specification No. 26

Freezing Tanks

Two Courses of Corkboard Under Bottom and Granulated Cork on Sides—ON WOOD FLOOR OR CONCRETE FOUNDATION—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) and any thickness of granulated cork may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

Bottom—The bottom of the tank shall be insulated with in. of United Corkboard in two courses laid on a reasonably smooth and even foundation. (Foundation to be furnished by Owner.)



The first course shall be in. thick laid in a heavy mop coat of hot asphalt. The second course shall be in. thick laid on the first course in a heavy mop coat of hot asphalt. All corkboards shall be butted up close, making tight fitting joints. All transverse joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The top surface of cork shall be mopped with a coat of hot asphalt not less than 1/8 in. thick, thoroughly sealing all joints, ready for the tank to be placed on top. This insulation shall be extended to

the outside of the insulation on the sides of the tank.

Sides—The sides of the tank adjacent to building walls shall be insulated by filling in the in. space between the tank and the walls with granulated cork well packed in place. The building walls shall be waterproofed with a heavy coat of hot asphalt to the full height of the tank, leaving no unprotected places. The top of granulated cork all around the tank shall be covered with a single course of in. thick United Corkboard carefully fitted between the tank and the building walls and the top surface coated with hot asphalt, thoroughly sealing all joints. The top of the insulation all around the tank shall be protected by a curbing consisting of two courses of 7/8-in. tongued and grooved boards with two courses of waterproof insulation paper between, laid on properly supported framing so that the top surface of curbing is flush with the ice can covers. The curbing shall extend from the outside of insulation to the ice can covers.

Specification No. 27

Freezing Tanks

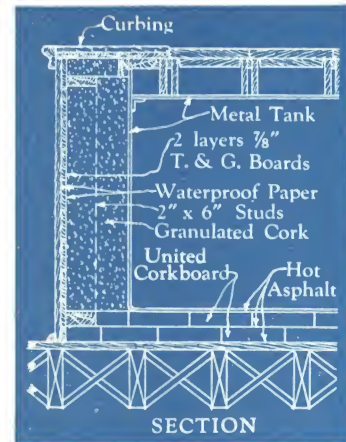
Two Courses of Corkboard Under Bottom and Granulated Cork on Sides, Wood Finish—ON WOOD FLOOR OR CONCRETE FOUNDATION—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) and any thickness of granulated cork may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

Bottom—The bottom of the tank shall be insulated with in. of United Corkboard in two courses laid on a reasonably smooth and even foundation. (Foundation to be furnished by Owner.) The first course shall be in. thick laid in a heavy mop coat of hot asphalt. The second course shall be in. thick laid on the first course in a heavy mop coat of hot asphalt. All corkboards shall be butted up close, making tight fitting joints. All transverse joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The top surface of cork shall be mopped with hot asphalt not less than 1/8 in. thick, thoroughly sealing all joints, ready for the tank to be placed on top. This insulation shall be extended to the outside of the insulation on the sides of the tank.

Sides—The sides of the tank shall be insulated with

in. of granulated cork well packed in between tank and retaining walls constructed of 2x6-in. studs at 16-in. centers placed in. away from the sides of the tank. The studding shall be sheathed on outside with two courses of 7/8-in. tongued and grooved boards with two layers of waterproof insulation paper between, lapping the paper not less than 3 in. The first course of tongued and grooved boards shall be erected horizontally and the second course vertically. The studs shall be nailed to a 2x6-in. plate at the bottom and shall be substantially secured to the top of the tank with suitable framing. The top of insulation all around the tank shall be protected by a curbing consisting of two courses of 7/8-in. tongued and grooved boards with two layers of waterproof insulation paper between laid on properly supported framing so that the top surface of curbing is flush with the ice can covers. The curbing shall extend from the outside of the installation to the ice can covers.



Specification No. 28

Freezing Tanks

Two Courses of Corkboard Under Bottom and One Course of Corkboard and Granulated Cork on Sides, Cement Plaster or United Sealtite Mastic Finish—ON WOOD FLOOR OR CONCRETE FOUNDATION—Two, three, or four-inch United Corkboard (100% Pure Cork) and 4 or 6 in. of granulated cork may be erected according to the following specifications: (See catalogue page 5 for recommendations of thicknesses).

Bottom—The bottom of the tank shall be insulated with in. of United Corkboard in two courses, laid on a reasonably smooth and even foundation. (Foundation to be furnished by Owner.) The first course shall be in. thick laid in a heavy mop coat of hot asphalt. The second course shall be in. thick laid on the first course in a heavy mop coat of hot asphalt. All cork boards shall be butted up close, making tight fitting joints. All transverse joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The top surface of cork shall be mopped with a coat of hot asphalt not less than 1/8 in. thick, thoroughly sealing all joints ready for the tank to be placed on top. This insulation shall be extended to the outside of the insulation on the sides of the tank.

Sides—The sides of the tank shall be insulated with in. of granulated cork and one course of in. pure corkboard. 3x4-in. (or 3x6-in.) studs shall be erected against the sides of the tank at 18-in. centers well secured to the top of the tank and to a 2x4-in. wood plate at bottom. The corkboard



shall be erected against the studs securely fastened with special galvanized wire nails of proper length. The space between the corkboard and the tank shall be filled with granulated cork well packed in place. All corkboards shall be butted up close making tight fitting joints and all vertical joints shall be staggered. The exposed cork surface shall be finished as described in Specification No. 34 or No. 35. The top of the insulation all around the tank shall be protected by a curbing consisting of two courses of 7/8-in. tongued and grooved boards, with two layers of waterproof insulation paper between, laid on properly supported framing so that the top surface of curbing is flush with the ice can covers. The curbing shall extend from the outside of the insulation to the ice can covers.

Note: Wood finish according to Specification No. 29 may be substituted for the cement or mastic finish.

Specification No. 29**Freezing Tanks**

Two Courses of Corkboard Under Bottom and Two Courses of Corkboard on Sides, Wood Finish, Portland Cement or Mastic Finish—ON WOOD FLOOR OR CONCRETE FOUNDATION—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) under bottom and on sides may be erected according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

Bottom—The bottom of the tank shall be insulated with in. of United Corkboard in two courses laid on a reasonably smooth and even foundation. (Foundation to be furnished by Owner). The first course shall be in. thick laid in a heavy mop coat of hot asphalt. The second course shall be in. thick laid on the first course in a heavy mop coat of hot asphalt. All corkboards shall be butted up close, making tight fitting joints. All transverse joints in the first course shall be broken and all joints in the second course shall be broken in both directions with the joints in the first course. The top surface of cork shall be mopped with a coat of hot asphalt not less than $\frac{1}{8}$ in. thick, thoroughly sealing all joints, ready for the tank to be placed on top. This insulation shall be extended to the outside of the insulation on the sides of tank.

Sides—The sides of the tank shall be insulated with in. of United Corkboard in two courses. Studs (2x3 in., 3x3 in., 3x4 in.) shall be erected against the tank 36 in. apart, well secured to the top of the tank and to a wood plate at the bottom. The first course shall be in. thick set between studs and applied against tank with hot asphalt and toe-nailed to studs. The second course shall be in. thick applied against the first course with hot asphalt and nailed to studding. All corkboards shall be butted up close, making tight fitting joints. All joints in the second course shall be broken in both directions with the joints of the first course and all vertical joints shall lap the studs by at least 6 in. The insulation shall be finished with two courses of $\frac{7}{8}$ -in. tongued and grooved lumber erected vertically with two layers of waterproof paper between, lapping the paper not less than 3 in. The wood finish shall be securely nailed to suitable wood furring strips placed along the top and bottom of the tank.

Note: Cement or mastic finish according to Specification No. 34 or No. 35 may be substituted for the wood finish.

Specification No. 30**Cylindrical Tanks, Coolers, Filters, etc., with Flat or Curved Tops**

One Course of Corkboard, Asphalt Finish—Two, three or four-inch United Corkboard (100% Pure Cork) Lagging may be applied according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The shall be insulated with one course of in. United Corkboard Lagging beveled to the proper radius to fit the cylindrical surface. The inside and outside surfaces of lags shall be asphalt coated. The lags shall be applied to the shell of the and to each other with asphalt paint and securely fastened with wire

every 6 in. The entire insulated surface shall be finished with a heavy coat of asphalt paint applied evenly, or given a mastic finish according to Specification No. 35.

The bottom of the shall be insulated with a disc of in. United Corkboard laid in hot asphalt. The top surface shall be flooded with a coat of hot asphalt.

For Flat Top—The top of the shall be insulated with a removable cover constructed in two halves of one course in. corkboard coated on all sides with asphalt placed between two courses of $\frac{7}{8}$ -in. tongued and grooved lumber and two layers of waterproof paper.

For Curved Top—For tanks, coolers, etc., with heads as changing instruction for top insulation to read as follows: per drawing (Specification No. 31), use the above specifications

The head of the shall be insulated with a cork disc made of in. United Corkboard, lagging quality, asphalt coated both sides and cemented together with asphalt, breaking all transverse joints. The disc shall be cemented to the ends of cork lagging on the sides of the with asphalt paint and the space between the head and the disc shall be filled in with fine re-granulated cork. The entire insulated surface shall be finished with a heavy coat of asphalt paint applied evenly, or given a mastic finish according to Specification No. 35.

Specification No. 31**Cylindrical Coolers, Brine Tanks, etc.**

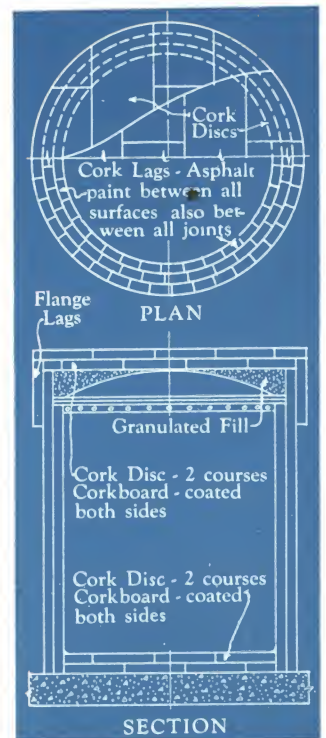
Two Courses of Corkboard—ASPHALT FINISH—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be applied according to the following specifications:

(See catalogue page 5 for recommendations of thicknesses).

The shall be insulated with two courses of in. United Corkboard Lagging beveled to the proper radius to fit the cylindrical surface. The inside and outside surfaces of lags shall be asphalt coated. The lags of the first course shall be applied to the shell of the and to each other with asphalt paint and securely wired in place. The lags of the second course shall be applied against the first course and to each other than asphalt paint and securely fastened with wire every 6 in. All joints in the second course shall be broken in both directions with the joints in the first course. The entire insulated surface shall be finished with a heavy coat of asphalt paint applied evenly, or given a mastic finish according to Specification No. 35.

The bottom of the shall be insulated with a cork disc in. thick made of two courses of in. United Corkboard, lagging quality, asphalt coated both sides and cemented together with asphalt. The joints of each course shall be broken in both directions with the joints of the other course. The disc shall be laid in hot asphalt and coated on all sides.

The head of the shall be insulated with a cork disc in. thick made of two courses of in. United Corkboard, lagging quality, asphalt coated both sides and cemented together with asphalt. The joints of each course shall be broken in both directions with the joints of the other course. The disc shall be cemented to the ends of cork lagging on the sides of the with asphalt paint and the space between head and disc shall be filled in with fine re-granulated cork. The entire insulated surface shall be finished with a heavy coat of asphalt paint applied evenly, or given a mastic finish according to Specification No. 35.



Specification No. 32**Cylindrical Brine Coolers**

Two Courses of Corkboard, Asphalt Finish—Four, five, six, seven or eight inches of United Corkboard (100% Pure Cork) may be applied according to the following specifications: (See catalogue page 5 for recommendations of thicknesses).

The body of the cooler shall be insulated between the flanges with two courses of . . . in. United Corkboard Lagging beveled to the proper radius to fit the cylindrical surface. The inside and outside surfaces of lags shall be asphalt coated. The lags of the first course, extending from flange to flange, shall be applied to the shell of the cooler and to each other with asphalt paint and securely wired in place. The lags of the second course, extending from top to bottom disc, shall be applied against the first course and to each other with asphalt paint and securely fastened with wire every 6 in. All joints in the second course shall be broken in both directions with the joints in the first course. The entire insulated surface shall be finished with a heavy coat of asphalt paint applied evenly, or given a mastic finish according to Specification No. 35.

The bottom of the cooler shall be insulated with a cork disc . . . in. thick made of two courses of . . . in. United Corkboard, lagging quality, asphalt coated both sides and cemented together with asphalt. The joints of each course shall be broken in both directions with the joints of the other course. The disc shall be laid in hot asphalt and coated on all sides. The space between the bottom of cooler and disc shall be filled in with fine re-granulated cork.

The head of the cooler shall be insulated with a cork disc . . . in. thick made of two courses of . . . in. United Corkboard, lagging quality, asphalt coated both sides and cemented together with asphalt. The joints of each course shall be cemented to the ends of cork lagging on the sides of the cooler with asphalt paint and the space between cooler head and disc shall be filled in with fine re-granulated cork. The entire insulated surface shall be finished with a heavy coat of asphalt paint applied evenly, or given a mastic finish according to Specification No. 35.

The flanges of the cooler shall be insulated with an additional course of . . . in. thick United Corkboard, lagging quality, applied in the same manner as specified for body lags. The top flange lags shall extend from the top disc to a point 6 in. below top flange of cooler.

The bottom flange lags shall extend from the bottom disc to a point 6 in. above bottom flange of cooler.

Specification No. 33**Par-Lock**

For Dampproofing and Airproofing Concrete, Brick or Tile Surfaces, Against Which United Corkboard (100% Pure Cork) Is to Be Erected—All surfaces to be Par-Locked shall be sufficiently cleaned to remove all dirt, oil, grease and other foreign matter. All large concrete and masonry clinkers and projections

necessary to be removed, and all interstices necessary to be filled up, shall be removed and filled before the application of Par-Lock. In case the surface to be Par-Locked is not perfectly uniform and level, such as would be the case with terra-cotta tile, uneven brick or masonry, etc., the inside surface of the walls shall be coated with one coat of Portland cement plaster mixed one part Portland cement, two parts clean, sharp sand, and proper amount of integral waterproofing, applied approximately $\frac{1}{2}$ in. thick, leaving a true, level and perpendicular surface.

All frozen surfaces shall be heated and the ice or frost thawed sufficiently to permit the driving of the bonding material into the voids. The surfaces must be dry when the Par-Lock is applied.

The Par-Lock bonding material furnished and installed by the UNITED CORK COMPANIES, Lyndhurst, N. J., shall be applied in the same consistency as received in the original package. If the bonding material thickens because of exposure to the air or during very cold weather, it may be thinned with naphtha sufficiently to permit an even flow for application.

The surfaces to be Par-Locked shall receive two thorough coats of bonding material evenly applied. Each course shall lap back one-half over the preceding course, and be applied sufficiently heavy for the first coat to cover approximately 200 sq. ft. and the second coat to cover approximately 125 sq. ft. per gal., and to afford an impervious film between the structural surface and the insulation. The first coat is to become hard dry before the second is applied. The Par-Lock should preferably be applied through a Par-Lock Asphalt gun under an air pressure of 50 lb. per sq. in. Where the job is not of sufficient size to warrant the use of a gun, Par-Lock bond may be applied with a brush by hand, taking particular care to thoroughly coat all surfaces.

United Corkboard shall then be erected against the Par-Lock bond in hot asphalt. (See Specifications Nos. 3 and 4.)

Specification No. 34**Portland Cement Plaster**

For Finish for United Corkboard (100% Pure Cork)—All exposed surfaces of the corkboard shall be finished with approximately $\frac{1}{2}$ in. Portland cement plaster applied in two coats, mixed one part Portland cement and two parts clean, sharp sand. The second coat shall be floated or troweled to a smooth and even finish and scored off in squares of not over 5 ft.

Note: Portland cement plaster is the best and most durable finish for corkboard insulation, but it will develop shrinkage cracks to some extent. The mixture of cement mortar as specified will give best results but cannot be guaranteed to be entirely free from cracking. Such cracks, however, do not impair the efficiency of the insulation, and if the surfaces are scored off in squares as specified the cracking will usually occur in the score marks and will not show.

Specification No. 35**United Sealtite Mastic Finish**

For Finish for United Corkboard (100% Pure Cork)—All exposed surfaces of the corkboard shall be finished with approximately $\frac{1}{8}$ in. United Sealtite Mastic applied in two coats and troweled to a smooth and even finish. Care shall be taken that all trowel marks are thoroughly worked out of the Mastic Finish.

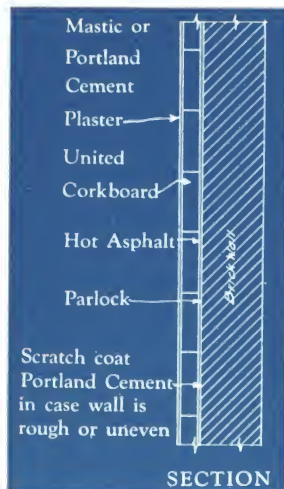
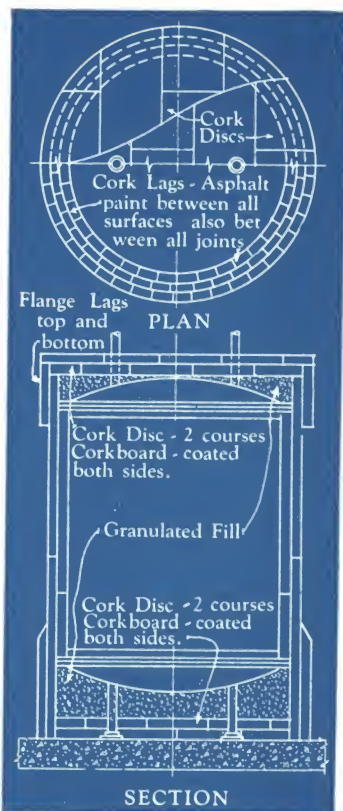
The Mastic Finish shall be applied in accordance with the following specifications:

(1) A priming coat of United Sealtite Neat Emulsion shall be applied directly on to the face of the corkboard of only sufficient thickness to well cover the granules of cork and the interstices. This priming coat may be readily brushed on. If it is necessary to thin out the material, add only sufficient water to bring it to the proper consistency. If a troweled on priming coat is desired, United Sealtite Fibrated Emulsion shall be used instead of Neat Emulsion, as it trowels much more readily.

(2) The second and finish coat shall be troweled on approximately $\frac{1}{8}$ in. thick, after the primer is hard and dry. It shall be mixed in the proportion, two parts United Sealtite Fibrated Emulsion and one part clean, sharp sand. Care shall be taken to see that the sand is thoroughly screened and free from all loam and gravel. Sufficient water shall be added to the mix to make it work easily.

After the finish coat has been applied, it shall be allowed to partly dry out and then it shall be troweled down again, when the trowel marks can be very readily worked out.

No artificial means of promoting the drying of the Mastic shall be applied.



Specification No. 36

Ice Storage Houses

The method of insulating ice storage houses is of such importance that we believe it is necessary to adopt a standard recommendation for this particular type of construction. If the following specifications are strictly adhered to, failures of insulation in Ice Storages will appear very seldom, as has been proven by actual installations that have been in use for a number of years.

(1) Walls: All exterior exposed walls should be erected of a required thickness with back bricks of No. 1 Common Brick and a face course of bricks which are impervious to water. The outside of the wall should preferably be treated with colorless waterproofing. (Hollow terra-cotta tile, cement tile and cinder block walls should be avoided).

(2) The inside surface of the wall shall be coated with one coat of Portland cement plaster mixed one part Portland cement, two parts clean, sharp sand, with proper amount of integral waterproofing compound floated on approximately $\frac{1}{2}$ in. thick, leaving a true, level perpendicular surface.

(3) After this coat of Portland cement plaster has thoroughly dried out, two coats of Par-Lock Bond shall be applied through a pressure gun.

(4) Directly against this wall one layer of 2 in. thick United Corkboard shall be erected against the Par-Lock in hot asphalt, followed by an additional layer of 2 in. thick United Corkboard erected against the first layer of corkboard in hot asphalt; and additionally secured in position by means of six $4\frac{1}{2}$ -in. wooden skewers to each sheet of corkboard. All joints between the sheets of corkboard shall be broken both horizontally and vertically.

(5) The exposed surface of the corkboard shall be given a finish of United Sealite Mastic approximately $\frac{1}{8}$ in. thick, applied in two coats and troweled to a smooth even finish. Care shall be taken that all trowel marks be thoroughly worked out of the Mastic.

(6) In new ice storages, $\frac{5}{8}$ -in. round expansion or $\frac{5}{8}$ -in. round anchor bolts shall be built into the brick walls 5 ft. 0 in. apart and 5 ft. 0 in. vertical centers. In existing buildings which are to be converted into ice storages, $\frac{5}{8}$ -in. round expansion bolts shall be anchored into the brick walls on the same centers as specified above. After the insulation is erected, 4x6-in. wooden vertical buck stays shall then be erected on edge drawn up tight against the surface of the insulation by means of wing nuts on the anchor bolts. Each bolt head shall be counter-sunk in the wooden buck stay at least 1 in. so that a 2-in. thick plug of corkboard may be wedged in, insulating the bolt head. The plug shall be mopped with hot asphalt. These buck stays positively must be used on all walls over 15 ft. 0 in. high.

(7) United Sealite Mastic shall be used in all seasonal ice storages, and preferably in all daily ice storages, except that in daily ice storages up to 16 ft. 0 in. high Portland cement finish may be used.

(8) A 3x6-in. wood bumper strip shall be installed at the floor line of all walls to protect the mastic finish from knocks and jars caused by sliding cakes of ice.

(9) Ceilings—In every ice storage where a trussed roof type of construction is used, a ventilated air space or loft shall be provided over the ceiling of the ice storage. This air space shall be thoroughly ventilated by means of louvers located in the walls at the ends of the loft.

(10) The wall spaces between each of the roof rafters shall be left open and covered on the outside with $\frac{1}{4}$ -in. galvanized wire mesh, to provide air circulation in the eaves of the building. Roof ventilators shall be provided whenever possible.

(11) Insulation shall be placed on the top side of ice storage house ceilings in every instance. A slot shall

be left around the entire perimeter of the building in the ceiling construction and be tied in with the insulation which is laid directly on top of the ceiling.

(12) In ceilings of wood construction, two layers of heavy insulating paper shall be laid directly on top of the wood sheathed ceiling. The first layer shall be laid dry but spotted with hot asphalt, and the second layer shall be laid in mopped hot asphalt. Directly on top of the paper, two layers of 2 in. thick United Corkboard shall be laid in hot asphalt, and the top surface of the corkboard shall be flooded with hot asphalt. All joints between the sheets of corkboard shall be broken.

(13) Five inches of corkboard (one layer of 3 in. and one layer of 2 in.) should be used in every instance where possible, although we will place our guarantee on an installation where two layers of 2 in. are used, only however, for an ice storage where there is an air space or loft above the ceiling.

(14) For ceilings of concrete construction, two layers of paper may be laid directly on the concrete in hot asphalt. For this type construction, however, the paper may be eliminated and concrete slab primed with asphaltic concrete primer or emulsified asphalt. The two layers of United Corkboard shall then be laid directly on top of the concrete slab in hot asphalt, and the top surface of the corkboard shall be flooded with hot asphalt. This also applies to ice storages only where there is an air space above the ceiling.

(15) In all ice storages where the ceiling of the ice storage is the roof of the building and has no air space over it, the corkboard shall be laid directly upon the roof construction in exactly the same manner as specified above except that two layers of 3 in. thick United Corkboard is the minimum amount of insulation that must be placed upon roofs of such ice storages. Two layers of 4 in. thick United Corkboard is preferable, and is recommended for warm climates, although we will guarantee an installation with 6 in. thick corkboard on the roof. No asphalt should be applied to the top surface of the corkboard, unless asphalt roofing is used. When pitch and felt roofing is used the top surface of the corkboard shall be left bare, and the roofing applied directly on the corkboard.

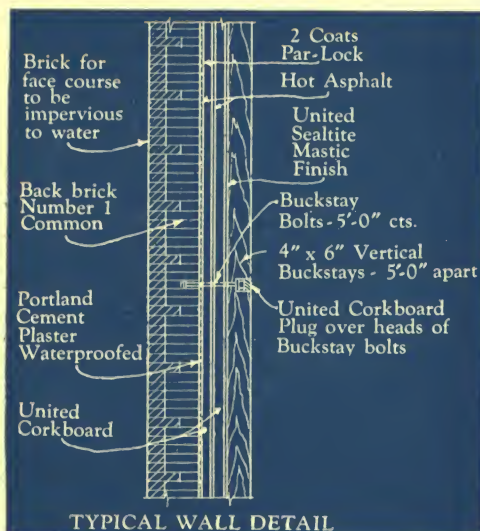
(16) In this type of construction, the ends of all beams bearing in the exposed walls shall be insulated by insulating the pocket in the brick wall on all sides with two layers of 2 in. thick United Corkboard, and by insulating each beam on the sides and bottom 4 ft. 0 in. in from each end with one layer of 3 in. thick United Corkboard erected in hot asphalt.

(17) In all installations where the corkboard is to be laid upon a concrete slab, the concrete slab must be floated to a smooth and even surface with no voids or pockets which would tend to prevent the insulation from lying absolutely flat. It is recommended that concrete slabs be given one coat of asphalt primer before laying the corkboard.

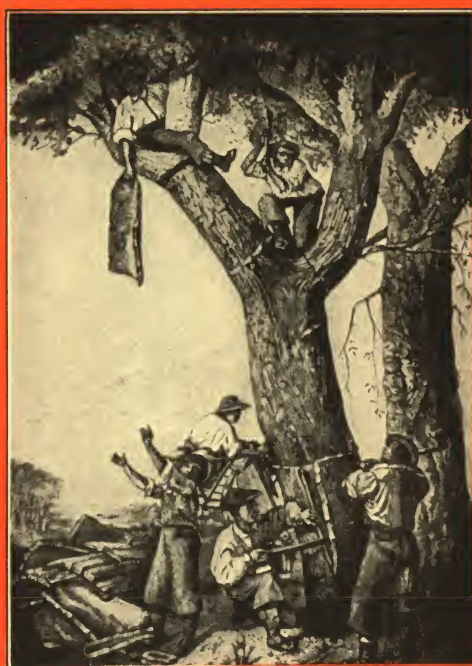
(18) Floors—A 6-in. concrete sub-base should be provided for the floors of all ice storage houses, and the top surface of this concrete sub-base must be floated smooth and even. (Thickness of and reinforcing for floors must be designed to suit conditions in each individual ice storage). Directly on top of this base, two layers of 2-in. thick United Corkboard shall be laid in hot asphalt flooding the top surface of the corkboard with hot asphalt. A 4-in. concrete wearing floor must then be installed directly on top of the corkboard with the floor pitched to the center of the storage for drainage. 4x4-in. racks shall then be placed on the floor 12 in. apart with a wood slat floor laid upon them on which the ice will rest. These racks provide for circulation of air under the ice pile.

A bell trap drain shall be provided in the floor at the center of the storage.

(19) Doors—Standard make regular cold storage doors shall be installed with door bucks thoroughly insulated.



TYPICAL WALL DETAIL



CORK INSULATION COMPANY, INC.

Manufacturers, Engineers, Contractors

GENERAL OFFICES

154 Nassau Street
NEW YORK, N. Y.

BRANCHES IN THE PRINCIPAL CITIES

IN CANADA: CORK INSULATION COMPANY (CANADA) LTD., MONTREAL, QUE., VANCOUVER, B. C.

Products and Service

CORINCO CORKBOARD for cold storage insulation.

CORINCO CORK PIPE COVERING for cold lines.

CORNICO CORK LAG COVERING for Cylindrical Tanks.

PANEL SYSTEM of MARINE INSULATION for the holds and storage rooms of vessels.

ENGINEERS and CONTRACTORS for Cold Storage Construction and Acoustical Correction.

For our pages on Acoustical Correction and Machinery Isolation, see Manufacturers' Index.

The Company

The CORK INSULATION COMPANY, INC., was organized in 1924 to provide a complete insulation service for architects, owners and builders. It manufactures its own cork products in modern factories at Wilmington, Delaware, and Algeciras, Spain. Staff engineers of the CORK INSULATION COMPANY, INC. are specialists in refrigeration and insulation, and are ready to assist architects without fee or obligation. Many noteworthy installations in the United States, Canada and Mexico stand to their credit. A typical example is the Pennsylvania Dock and Warehouse at Jersey City, New Jersey, where 3,500,000 ft. of Corinco Corkboard were installed. The engineering work and actual construction were entrusted entirely to CIC.

Advantages of Cork Insulation

Cork is composed of millions of tiny air cells and is therefore an excellent non-conductor of heat. As these



resinous cells repel moisture, cork is durable in service. It is odorless and sanitary; will not taint footstuffs or harbor vermin. It is compact and takes up little usable space; a feature of great importance where rooms are small and costs per cubic feet high. It is strong and easy to install. It is fire-retarding and slow burning, thus taking low insurance rates. Cork is moderately priced and effects great savings in refrigeration.

Corinco Corkboard

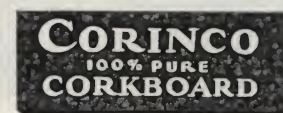
Firm, compact, long-lived, Corinco Corkboard is internationally known for its high insulating efficiency and great durability. It is made of granulated cork, compressed in moulds and baked until the natural gum melts



Unloading Baled Cork
Waste at Factory,
Wilmington, Del.



Cork Stripper Removing Bark from
the Cork Oak Tree in Spain



and binds the mass together. No artificial binder is used.

Corinco Corkboard is unexcelled for all cold insulation. Properly applied, it will not lose its efficiency even after years of use. It is handled like lumber, cut, sawed and nailed; and may be set in mortar or asphalt against masonry. Manufactured in sheets 12x36 in. and in the following thicknesses: 1, 1½, 2, 3 and 4 in.

Specification and Instruction Books—For the guidance of architects and builders, the CORK INSULATION COMPANY, INC. has prepared a manual of specification sheets covering the various methods of properly applying Corinco Corkboard. This manual may be obtained on request.

Corinco Cork Pipe Covering

Corinco Cork Pipe Covering, like Corinco Cork-board, is made of pure cork granules baked under compression to bring out the natural waterproof gum. It is made to fit all sizes of piping from $\frac{1}{4}$ in. up, and moulded jacket coverings are furnished for all types of fittings. Both the inside and outside surfaces of the covering are finished with a special airtight mastic ironed-on at the factory. With all cork covering sufficient Corinco Waterproof Cement for the joints, together with Corinco Seam Filler, copper clad steel wire and Corinco Cork Pipe Covering Paint, are furnished for the proper application of this material.

The use of regular fitting covers cannot be too strongly recommended. Materials that are built up on the job almost always leave air-pockets in which frost will form. Frost will break away the cover and attack the entire insulation. Corinco fittings covers are made to exact dimensions and fit as tightly as the straight pipe covering.

Thicknesses

Corinco Cork Pipe Covering is furnished in three thicknesses: *Special Thick Brine* (from 3 to 4 in. thick) for temperatures below 0° F.; *Brine* (from 2 to 3 in. thick) for temperatures 0° F. and 25° F.; *Ice Water* ($1\frac{1}{2}$ to 2 in. thick) for temperatures 25° F. to 45° F.

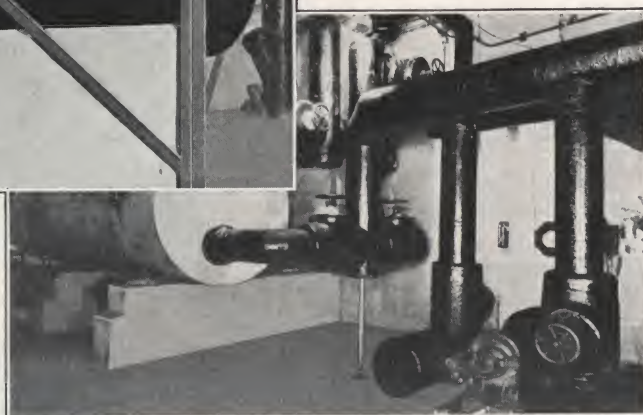
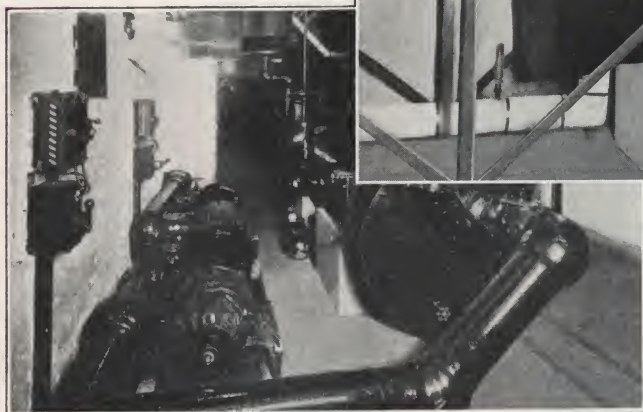
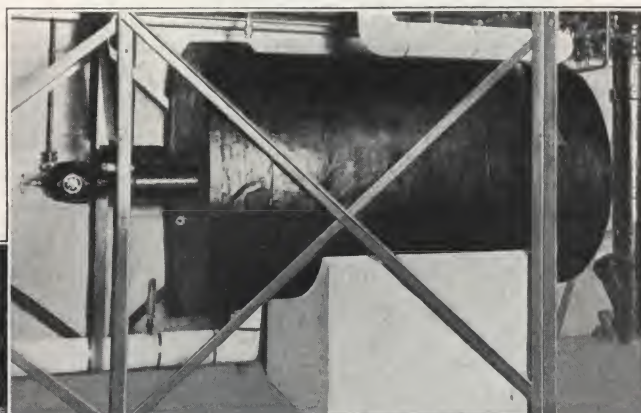
Corinco Cork Lag Covering

The insulation of cylindrical coolers, accumulators, and tanks for brine, ice water, etc., requires the use of Corinco Cork Lag Covering. This insulation is a special grade cork of extra density. It is built up on the surface to be insulated, as moulded covers for this purpose could not be manufactured practicably. For insulating the ends of tanks, discs of the required thickness of cork are made to order. Both these discs and the lagging are coated inside and out with a special airtight mastic ironed-on at the factory.

The many sizes and styles of this type of equipment make it necessary that we be furnished with a sketch

Right:

**Cylindrical Tank Covered
with Cork Lag Covering
Canvas Finished**



Corinco Cork Pipe Covering Installations

Drinking Water Lines

The refrigerated drinking water system is now recognized as an essential safeguard to health, as well as an economy in money and labor, in all public and semipublic buildings. When the lines are covered with Corinco Cork Pipe Covering, water will be delivered to all points at the most palatable temperature (45° to 50°) with a minimum of refrigeration. The use of cork pipe covering is essential where the lines are to be run behind walls or through chases, as inferior insulating materials will quickly become water soaked, damaging walls and ceilings in addition to losing efficiency.

giving accurate measurements, so that the covering may be supplied in the proper lengths, widths and bevel.

Catalog and Price List

The Corinco Cork Pipe Covering Catalog fully describes the entire line of Corinco Cork Pipe Covering, and also includes a detailed section of specifications for the proper application of Corinco Cork Pipe Covering and Lagging. The Corinco Cork Pipe Covering Price List supplies full information for determining and ordering the required units. These booklets will be forwarded on request.





Laying Corinco Corkboard on the Roof of a 300-ton Ice Plant for Rubel Corp., Brooklyn, N. Y.

Insulation was 8 in. thick and was built up in two layers of 3-in. corkboard and one layer of 2-in. corkboard



Corinco Corkboard Being Installed in the Pennsylvania Dock and Warehouse Co., Jersey City

One of the country's largest insulation jobs



Corinco Corkboard before Plastering, Fish Storage, Port of Seattle, Seattle, Wash.

Engineering and Construction Service

While cork is generally recognized as one of the finest materials for use in its several fields of application, much depends upon the methods of installation that are employed. This is particularly true of cold storage, where, for example, such factors as the inside temperature, outside temperature, mean annual temperatures and atmospheric densities must be correlated to the rate of thermal transmission of the walls, the ductility of the asphalt, etc., before the proper thickness of corkboard can be determined, or the methods of installation specified. To assist architects in this work, the services of the staff of insulation engineers of the CORK INSULATION COMPANY, INC., are freely offered.

As the actual work of installation is also highly specialized, the CORK INSULATION COMPANY, INC., maintains trained crews of erection men to properly handle insulation work.

The services of these crews are usually no more expensive than the work of local mechanics, and are invariably more satisfactory.

For any installations CIC *complete service* is recommended.

Patented Panel System of Marine Insulation

The CORK INSULATION COMPANY, INC., has the exclusive American rights to the revolutionary new

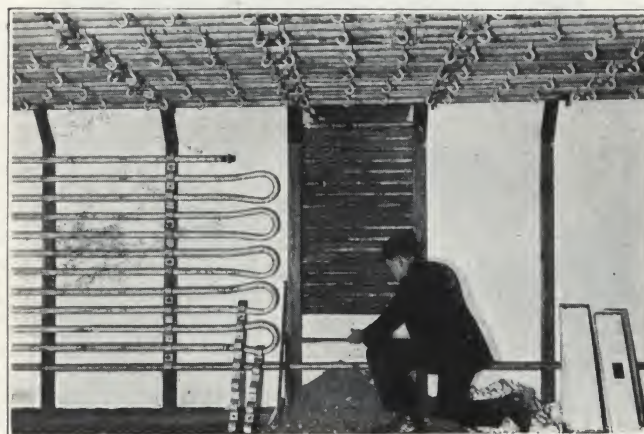
Panel System of Marine Insulation. This system is applicable to all types of refrigerated space on ships, and makes possible great

savings in time, labor, initial cost, and upkeep. Its outstanding features are, the independent insulation of each frame and beam space; the portability of the insulation linings; the standardization of the panel linings and the wood grounds; and the total elimination of wood buried in the insulation. The panels are filled with a mixture of light, clean, granulated cork and silicate cotton. At bulkheads or decks in the way of the machinery space and at bunkers, special fireproof construction is possible with this system. Scupper and brine service pipes, etc., behind insulation may be very readily inspected by simply removing one panel—or part of a panel.

As the Panel System is standardized throughout, all grounds being identical, all holes being bored to template, etc., much time and labor can be saved in designing, drafting, and installing. The CORK INSULATION COMPANY, INC., is equipped to furnish complete panel installations at less than the cost of the ordinary systems now in use. The Panel System is fully protected by patents and the rights to its exclusive use in the United States have been assigned to the CORK INSULATION COMPANY, INC. A folder giving all details of the Panel System will be sent on request.



A 'tween-deck Section in S. S. Rodney Star of Blue Star Line, Completely Insulated with Panel System



Shows How Easily the Panels Can Be Removed for Inspection or for Making Repairs

ARMSTRONG CORK & INSULATION COMPANY

Manufacturers of and Contractors for Cold Storage and Cold Pipe Insulation

935 Concord Street, LANCASTER, PA.

ALBANY, N. Y.
*ATLANTA, GA.
BIRMINGHAM, ALA.
*BOSTON, MASS.
*BUFFALO, N. Y.

CHARLOTTE, N. C.
*CHICAGO, ILL.
*CINCINNATI, OHIO
*CLEVELAND, OHIO
*DALLAS, TEX.

BRANCHES
*DENVER, COLO.
*DETROIT, MICH.
GRAND RAPIDS, MICH.
HARTFORD, CONN.
*HOUSTON, TEX.
JACKSONVILLE, FLA.

*KANSAS CITY, MO.
MEMPHIS, TENN.
MILWAUKEE, WIS.
*MINNEAPOLIS, MINN.
*NEW YORK, N. Y.

OMAHA, NEB.
*PITTSBURGH, PA.
ROCHESTER, N. Y.
*ST. LOUIS, MO.
SYRACUSE, N. Y.

*MONTREAL, QUE.

*TORONTO, ONT.

WINNIPEG, MAN.

*LONDON, ENG.

AGENTS

*BALTIMORE, MD., JOHN R. LIVEZEY, 526-530 St. Paul Street

*LOS ANGELES, CAL., GAY ENGINEERING CORP., 2650 Santa Fe Avenue

*NEW ORLEANS, LA., H. T. STEFFEE, 928-930 Tchoupitoulas Street

*PHILADELPHIA, PA., JOHN R. LIVEZEY, Glenwood Avenue, West of 22nd Street

*SPOKANE, WASH., D. E. FRYER & Co., 1111 Paulsen Building

*SAN FRANCISCO, CAL., VAN FLEET-FREEAR Co., 557 Howard Street

*SEATTLE, WASH., D. E. FRYER & Co., 1233 Utah Street

WASHINGTON, D. C., JOHN R. LIVEZEY, 902 Woodward Building

*These maintain ample warehouse stocks of Armstrong's Corkboard

Products

ARMSTRONG'S CORKBOARD for the insulation of cold storage, freezing and constant temperature rooms and tanks.

ARMSTRONG'S CORK COVERING for brine, ammonia, refrigerated drinking water and all other low temperature pipe lines.

For Armstrong's Corkboard for house and roof insulation, cork machinery isolation, Corkoustic for sound-quieting and acoustical treatment, Temlok for house and roof insulation, see Manufacturers' Index.

Armstrong's Corkboard

Armstrong's Corkboard is generally recognized as the standard insulation for cold storage and constant temperature rooms of all kinds.

Advantages—Containing no foreign substances and consisting only of pure cork, the heat conductivity of Armstrong's Corkboard is low. It will not absorb moisture. It is easy to install, and when erected properly, Armstrong's Corkboard is proof against mold, rot and vermin, and will not absorb or give off offensive odors or deteriorate in any way. Furthermore, Armstrong's Corkboard is slow burning and does not smolder or carry fire. It has been tested and approved by the National Board of Fire Underwriters.



Erecting Armstrong's Corkboard Against Concrete Walls in Portland Cement Mortar

Armstrong's Corkboard is giving excellent satisfaction in thousands of plants employing refrigeration, situated throughout the civilized world.



Cold Storage Room Insulated with 6 Inches of Armstrong's Corkboard, Fisherman's Cooperative Sales & Cold Storage Co., Detroit, Mich.

Specifications—An efficient barrier to heat flow to refrigerator areas necessitates the following:

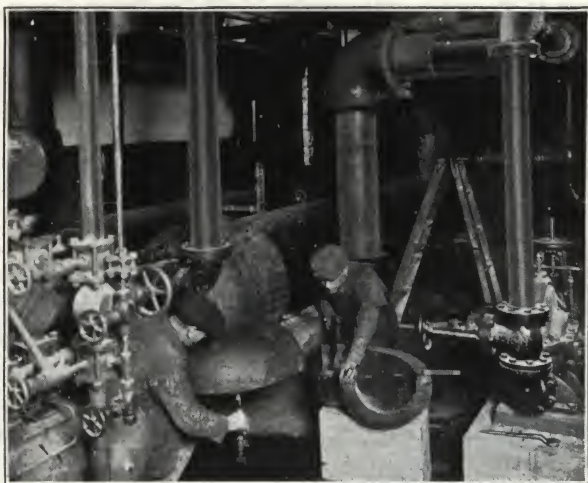
(1) Insulation which is structurally strong, a non-supporter of combustion, moisture resisting, easy to apply, and low in conductivity.

(2) Application with the right kind of sundry material including the proper preparation of the wall and selection of the right kind of material for finishing the insulation.

(3) Application by experienced craftsmen.

Generally speaking, a dense wall structure such as monolithic concrete is preferred. A porous material such as hollow tile should be avoided. The walls should be sprayed with two coats of Armstrong's No. 3 Asphaltic Paint according to our standard specifications. Armstrong's Corkboard in the proper thickness should then be erected in Armstrong's special erection asphalt, specially selected because of its ductility and holding qualities at low temperatures.

Ordinarily, Armstrong's Corkboard on walls and ceilings can be finished with portland cement plaster applied directly to the exposed cork surface. However, for ceilings or for other conditions where considerable mois-



Applying Armstrong's Cork Covering and Lagging at the Plant of J. Butler & Co., Long Island City, N. Y.

ture is prevalent, Armstrong's Mastic Finish should be used.

For a finish not quite as impervious as mastic finish, but which will give a smoother surface, specify Armstrong's Asphalt Emulsion, a plastic finish applied on the job in two coats, each one 1 in. thick.

Partition Walls—Partition walls can be erected of Armstrong's Corkboard without the necessity of a concrete, brick or tile supporting surface. If such a wall is built of an asphalt core it should have at least one surface plaster finish to give the wall rigidity. Some architects and engineers specify tee irons embodied in such walls to obtain the same result.

Thickness of Insulation to Be Used—The cost of refrigeration determines the economic thickness of insulation. Generally speaking, the following thicknesses should prove effective: Temperature differential between exterior and interior surface of insulation and corresponding insulation thickness.

30° F. difference.....	3 in.
40° F. difference.....	4 in.
50° F. difference.....	5 in.
60° F. difference.....	6 in.
70° F. difference.....	8 in.
90° F. difference.....	9 in.
100° F. difference.....	10 in.

Erection Service—For best results insist on Armstrong's Corkboard erected by Armstrong's Construction Department, or authorized agents employing qualified mechanics.

Armstrong's Cork Covering

Armstrong's Cork Covering has been used for insulation of cold lines for approximately thirty years. Its worth has been proved. Coated inside and out with a mineral rubber finish ironed on, Armstrong's Cork Covering is protected against deterioration due to moisture absorption and the dangers of frost. Armstrong's Cork Covering effects a saving of approximately 85% of the refrigeration which would be lost from bare pipes. Accuracy in manufacturing methods and good

application insure a finished job that frequently will outlast the pipe. You should therefore insist on Armstrong's Cork Covering being applied by Armstrong's Construction Department, or our authorized agents.

Forms and Sizes—Armstrong's Cork Covering is supplied in moulded covers for practically all standard, screwed and flanged fittings and in 36-in. split sections for straight pipe runs of the sizes ordinarily used. Armstrong's Cork Covering is made in three thicknesses:

(1) **Special Thick Brine**—For lines carrying refrigerant from 0° to -25° F.

(2) **Brine Thickness**—For lines carrying refrigerant between 0° F. and 35° F.

(3) **Ice Water Thickness**—For refrigerated drinking water lines and others where temperatures are above 35° F.

Armstrong's Cork Covering is also furnished in the form of lagging for the larger sizes of pipes and fittings, beveled to the proper radius; and in any thickness up to 6 in. for the insulation of tanks and other cylindrical cold surfaces.

Samples and Literature—Our book, "Armstrong's Cork Covering," contains complete information and specifications of inestimable value to all users of refrigeration. A copy of this book and a sample of the covering will be sent on request without charge or obligation.

Drinking Water Systems

The refrigerated drinking water system has, in recent years, become firmly established not only as a modern convenience, but as a requisite of economy and efficiency in mills and factories, hotels, office buildings, and other public and semi-public buildings.

Armstrong's Cork Covering in ice water thickness is especially adapted for the insulation of the distributing lines and apparatus. It is neat in appearance, moisture-proof and fire retardant. Its high insulating efficiency insures a minimum use of refrigeration, and its durability is a guarantee of long life in service.

Booklet—A new publication, "Refrigerated Drinking Water for Mills, Public Buildings, Hotels and Office Buildings" contains valuable data on water, power and refrigeration requirements, approximate costs, etc. A copy will gladly be mailed on request.

Special Service

The application of refrigeration to various kinds of equipment, the cost of refrigeration under various circumstances, and other factors make this science so complicated that few architects and engineers can specialize enough to keep step with the progress in the industry. We employ experienced sales engineers whose function it is to keep advised on what is best for each type of installation. We strongly suggest, therefore, that in contemplating a specification you avail yourself of the recommendations and services of our sales engineers. With a thoroughly trained construction force the ARMSTRONG CORK & INSULATION COMPANY is prepared to handle complete contracts of any size for the erection of its products.

CORK IMPORT CORPORATION

Pure Baked Corkboard and Cork Pipe Covering

345-349 West 40th Street, NEW YORK, N. Y.

BRANCH OFFICES AND DISTRIBUTORS IN PRINCIPAL CITIES

Warehouse stocks at New York, Newark, Houston, New Orleans, San Francisco, Los Angeles, Seattle, St. Louis, Chicago

Products

NOVOID CORKBOARD INSULATION—for all cold storage rooms, refrigerators, and the walls and roofs of all kinds of buildings.

NOVOID CORK PIPE COVERING—for all cold lines, tanks and refrigerated drinking water systems.

NOVOID CORK MACHINERY ISOLATION—for reducing the noise and vibration of moving machinery.

Novoid Corkboard

Made in the largest cork manufacturing plants in Spain, the home of cork, Novoid Corkboard is a high grade product with maximum insulating value and structural qualities.

In the making of champagne and fine tapered corks, cork discs for crown caps, cork lined helmets, cork paper for cigarette tips, and cork specialties, only the choicest grades of cork bark are used. The cork waste is granulated and sifted to remove dust and fine particles. Then it is screened and sorted according to the size of the granules and the different sizes of granules are mixed in the proper proportion to produce a close structured board



Double Width (24x36-in.) Sheets of Novoid Corkboard Are Especially Suitable for Insulating Roofs and Floors
They save labor in laying and reduce the number of joints 50%

—small granules between large ones—which eliminates voids in the finished material and makes for greater moisture-resistance and better all around insulation. The cork waste is compressed in moulds, and then baked by a slow and careful process in specially constructed ovens. In the baking process the natural resin binds the cork granules into strong, solid sheets that have *no voids or air spaces between granules*. No foreign binder is used.

Novoid Corkboard is entirely free from hard-back and "green centers." Green or improperly baked centers are disastrous to

any insulating job *after* the corkboard has been installed for some time. A surface inspection will not reveal "green centers" so, to guard against them, Novoid Corkboard is baked in special moulds 25x37 in. in size. After removal from the mould, each sheet is split and then finished full standard 12x36 in. As a result, the center of each sheet is open to thorough inspection by the purchaser and its high quality verified *before* it is installed. Corners and edges are cut true and square, insuring tight joints and reducing to a minimum the labor of erection.



Apple Storage of the Winchester Cold Storage Co., Winchester, Va.

Insulated with Novoid Corkboard



Six-story Factory Building of American Tobacco Co., Richmond, Va.

Insulated with 2-in. thick Novoid Corkboard on walls and roof

Novoid Corkboard Roof Insulation

Used on roofs, Novoid Corkboard prevents the transmission of heat, making a building *warmer in winter and cooler in summer*, saving fuel and adding to the comfort of the building's occupants. *Novoid Corkboard is unaffected by moisture. It is fire retarding, and will not smolder.*

Double Width Novoid Corkboard

Novoid Corkboard in the 24x36-in. size is as easy to handle as the usual 12x36-in. sheets. Every board covers twice the area and there are only half as many joints between the sheets when laid. In this way the chance of joint leakage is reduced 50%.

Double width Novoid Corkboard provides permanent insulation that never warps, shrinks, or buckles, and makes an ideal base for roofing. Packed in handy cartons, these 24-in. sheets save time, are handled quickly, and go down with an appreciable saving in labor.

NOVOID CORKBOARD

Thick- ness, in.	Per carton					Gross wt., lbs. per sq. ft.	
	*Number of sheets		Sq. ft.	Bd. ft.	Cu. ft.		Gross wt., lbs.
	12x36 in.	24x36 in.					
1	24	12	72	72	6.23	72	1.00
1½	16	8	48	72	6.23	64	1.33
2	12	6	36	72	6.23	64	1.78
3	8	4	24	72	6.23	64	2.66
4	6	3	18	72	6.23	64	3.56

*One size packed to a carton.

Novoid Cork Pipe Covering

This companion product to Novoid Corkboard is made in three thicknesses; *Heavy Brine*, for temperatures below 0° F.; *Brine*, for temperatures from 0° F. to 25° F.; *Ice Water*, for temperatures above 25° F.

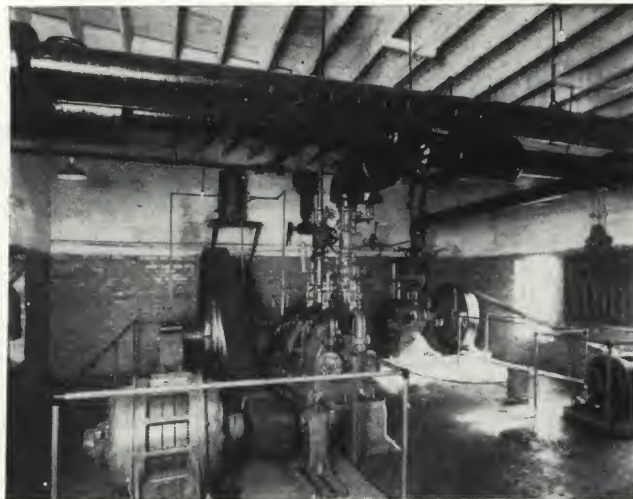
Novoid Cork Pipe Covering is used for covering all brine and ammonia lines, wherever located, and for insu-



Novoid Cork Covering and Fitting Jackets

Made in three thicknesses for all sizes of pipes and fittings in general use

lating the ice water lines of refrigerated drinking water systems in hotels, office buildings, and factories. The accurately moulded, mineral rubber coated, sections fit



Novoid Cork Covering on the Refrigerated Lines in the Plant of Foremost Dairy Products, Inc., Charlotte, N. C.

pipes tightly leaving no spaces in which moisture might accumulate, freeze and disrupt the insulation.

Novoid Cork Covering is made of pure cork. Its insulating efficiency is permanent as it will not absorb moisture.

For covering all fittings Novoid Cork Fitting Jackets are used. These cork jackets are moulded to fit closely so that no air spaces will exist between the fittings and the insulation.

For covering tanks we recommend the use of Novoid Cork Lagging.

Novoid Cork Machinery Isolation

Novoid Cork Machinery Isolation provides an economical and effective means of reducing the noise and vibration produced by fans, motors, pumps, engines, presses, and practically all other kinds of moving machinery.

Being made of pure cork it will not absorb moisture and does not rot. Furthermore it will not harden or take a permanent set, but retains its resilience indefinitely.

Novoid Cork Machinery Isolation is made in three densities—Light, Medium and Heavy—which provide a proper material for use under practically all conditions of service.

Literature and Samples

Bulletin 293—Novoid Corkboard Insulation. Sample on request.

Bulletin 292—Novoid Cork Covering. Sample on request.

BABCOCK-DAVIS CORPORATION

Mortuary Slides, Special Blanket Warmers, Bed Pan Racks, Sanitary
Legs and Cabinets

474 Dorchester Avenue
BOSTON, MASS.

For Our Other Pages, see Manufacturers' Index

BABCOCK-DAVIS SELF-SUPPORTING FULL LENGTH MORTUARY SLIDES

Patent Applied For

Mortuary racks and trays shown here and manufactured by us were carefully designed for rigidity, ease of operation and accessibility. They are self-supporting and insulating is not damaged in erection.

Heavy ball bearings are placed in every moving part so that the racks will move with the least possible effort.

With our equipment, when it is desired to view the cadaver, the easy moving ball bearing carriage is drawn out with tray on it fully supported its entire length. The tray remains in a horizontal position and is not released unless it is desired to remove it.

Trays cannot be pulled off the carriage accidentally. They are arranged so that at no time is it possible for

fluids or acids to flow towards the head; thus eliminating head rests. The entire rack is hot galvanized, double dipped.

All ball bearings are enclosed so that moisture or dampness cannot reach them.

The trays are manufactured in one piece and can be used for a stretcher; also they can be put on the carriage either way.

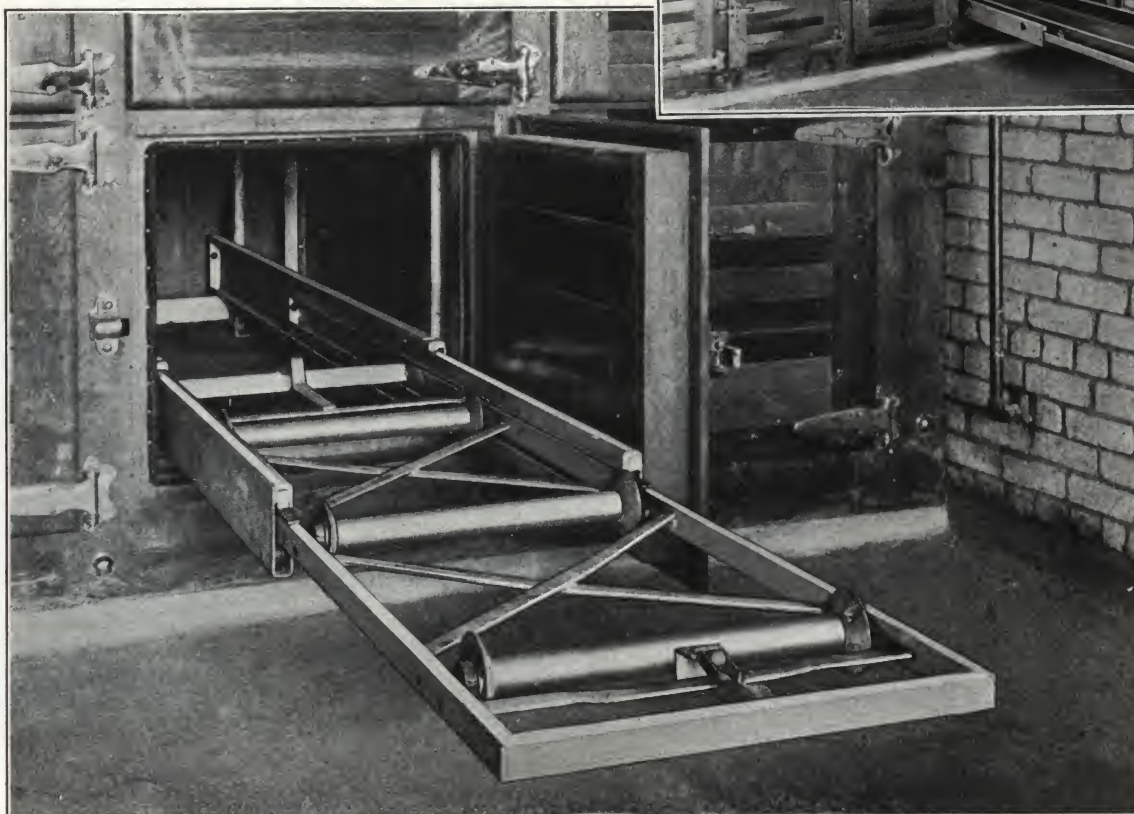
If you have any special problems, our engineers would be glad to confer with you.

Right:

Part of Battery of 15 Mortuary Racks Showing Trays Extended in Various Positions at Admission Building, Sanatorium Division, Mattapan, Mass. Boston City Hospital

Below:

Tray Removed to Show Sturdy Construction of Tray Support and Guides



Specification

Each opening shall be equipped with a removable mortuary tray telescoping track and rigidly braced tray carriage as manufactured by BABCOCK-DAVIS CORPORATION, 474 Dorchester Avenue, Boston, Mass.

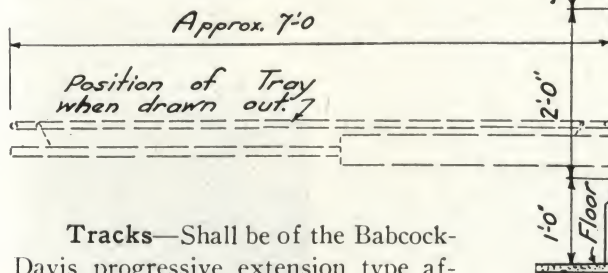
Tray—Shall be formed of No. 18 gauge iron over a continuous pipe frame which also forms handle full width of pan on each end.

Each tray shall be 31½ in. deep and of welded construction.

No rivets, heads, or crevices inside the pans to allow acids to accumulate.

Trays are to be set so acids will not collect at head of cadaver.

Tray Carriage—Shall be rigidly braced and equipped with ball bearing guides and rolls to support pans. Trays shall be locked in position on the carriage so that they cannot be pulled off of carriage until patented spring latch on front of carriage is released.



Tracks—Shall be of the Babcock-Davis progressive extension type affording complete support of tray for its entire length of travel and being equipped with specially designed ball bearings in bronze rollers. Shall be practically frictionless in their operation.

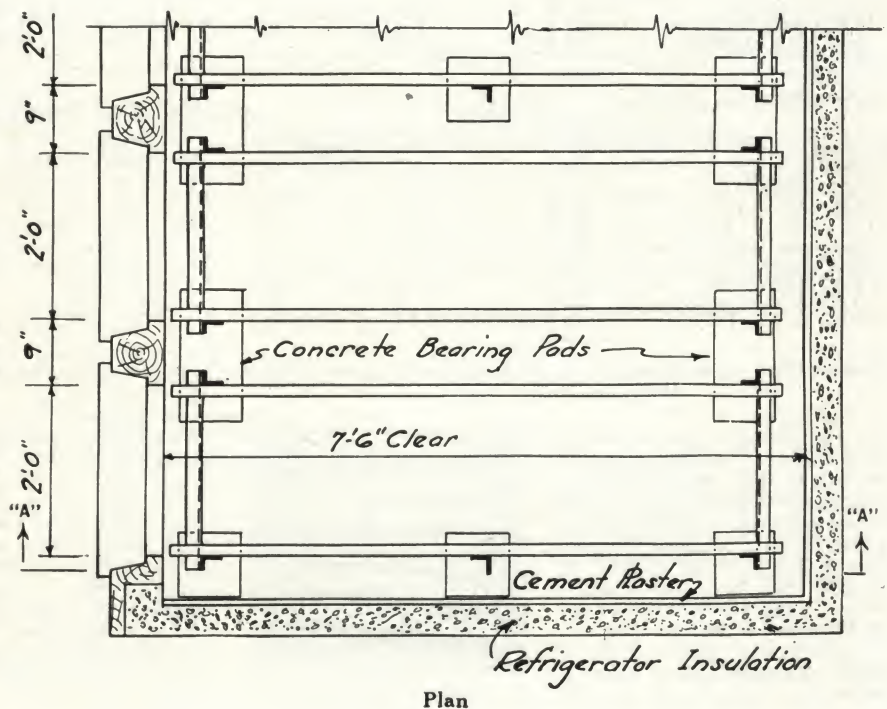
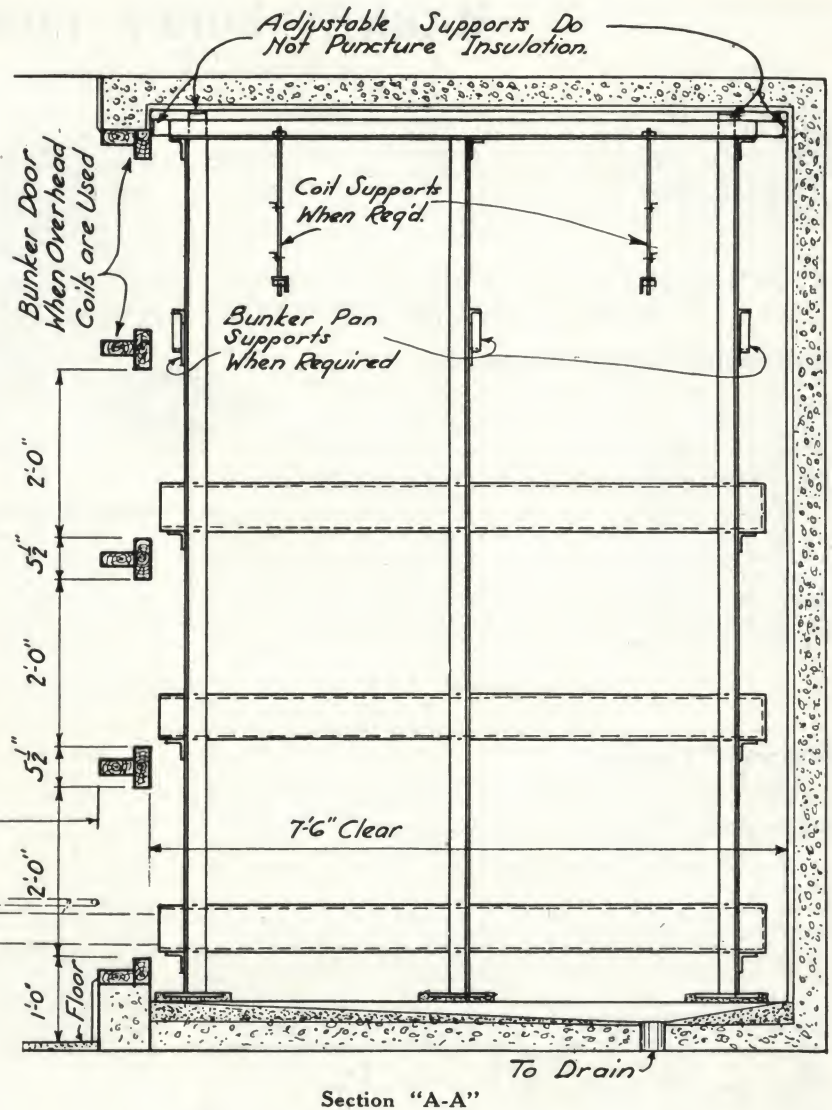
The tracks shall be equipped with rubber stops to insure quiet operation.

Supports—Shall be of angle iron construction held in position without puncturing the insulation in any way.

Note: Should the refrigerating system require overhead coils, track supports which can be extended to support the coils and bunker pans may be specified.

All parts shall be heavily hot galvanized to prevent corrosion and special composition bronze shall be used on rolling parts to insure the longevity of the mechanism.

The refrigerator front, insulation, equipment, construction of the coils and chest, are not in this contract.



ESTABLISHED 1897

MARKET FORGE COMPANY

EVERETT, MASS.

AGENCIES

BALTIMORE, MD., EDWARD J. SEAGER, Gunther Building
 CHICAGO, ILL., F. A. BOETTCHER, Diversey Parkway
 CINCINNATI, OHIO, WM. P. RIDGEWAY, 927 Provident Bank Building
 CLEVELAND, OHIO, CARL SPRIGADE, Keith Building
 DETROIT, MICH., H. W. REINDEL, 1115 Francis Palms Building
 GLENDALE, CALIF., EMMETT F. ANNIS, 1515 Gardena Avenue
 HOUSTON, TEX., C. M. GRUNDSTEIN, Box 1686
 TORONTO, ONT., CANADA, JOHN A. FINDLAY, Union Trust Building

KANSAS CITY, MO., J. F. CARTER, 505 Bluff Street
 NEW YORK, N. Y., L. W. TRACY, 152 West 42nd Street
 PHILADELPHIA, PA., E. F. JOHNSON, 1700 Walnut Street
 PITTSBURGH, PA., JAY R. WELLS, Keystone Building
 ST. LOUIS, MO., HERBERT GOLTERMAN, 717 Louderman Building
 ST. PAUL, MINN., R. E. STANTON Co., 2694 University Avenue
 LONDON, ENGLAND, YORK SHIPLEY LTD., British Columbia House

SPECIALISTS IN SANITARY SPACE SAVING INTERIOR EQUIPMENT FOR ALL TYPES OF REFRIGERATION STORAGE AND GENERAL STORAGE

Refrigeration Storage Equipment

The MARKET FORGE COMPANY was founded in 1897 and has since that time gradually and carefully developed its original line of refrigerator shelving to include the most complete, thoroughly satisfactory and practical designs to meet the needs of any and all types of refrigeration storage requirements.

Walk-in shelving; reach-in shelving; hook rails; cork insulated baffles; combined bunker equipment and coil supports; insulated and plain front drawers of all types, for all purposes; cheese drums; oyster and pastry pans; complete garde manger equipment. Drip pans and coil supports, fur storage racks and trucks, mortuary racks and trucks, rug storage racks.

The general and widespread acceptance of this equipment



has led the MARKET FORGE COMPANY to develop equally desirable products for general storage requirements.

There is now a standard type "Maforco" storage equipment to serve every conceivable storage requirement.

General Storage Equipment

Trunk storage racks; picture storage racks; tapestry racks; silver storage racks; florist fixtures; department store shipping room racks and trucks; hotel and hospital storeroom shelving; expanded metal and wire mesh partitions; linen room shelving and counters; and coffin storage racks.

Metal tables, trucks and skids for handling all material.

"MAFORCO" WALK-IN REFRIGERATOR EQUIPMENT

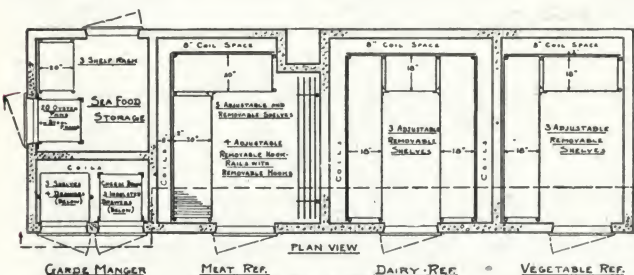
All Supports and Fittings Designed to Eliminate Puncturing of Insulation

Distinctive Features

Rigid and self-supporting, eliminating anchorage to refrigeration construction. This avoids puncturing of insulation and resulting disintegration. Racks assembled without bolts.

Vertical adjustment of post brackets to meet any need.

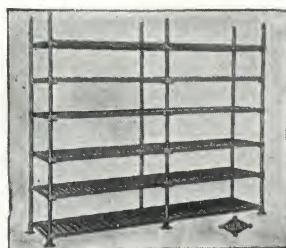
Shelves are continuous angle-bound units of strong construction. Straps are 1 in. wide, 1 in. apart, flush riveted to frame with edges well rounded and chamfered. It is vitally important that you insist upon riveted shelves. This construction leaves the slats permanently in place and should one come off, it can easily be repaired. Spot-welding is not satisfactory



Typical Plan and Elevation of Refrigerator Layout Where Wall Coils Are Used

for the slats come off easily, particularly after the action of hot galvanizing, and are difficult to repair in the field. Slatted construction permits a free circulation of air. Shelves are also furnished perforated or solid as desired. Standard finish, hot galvanized; also furnished in monel or Allegheny metal.

Posts are round, set on liberal diameter floor flanges and neatly finished with acorns.



Typical Shelf Rack

Shimming under posts is avoided by vertical adjustment of brackets to meet slope of floor.

Valuable refrigeration space is conserved because the equipment fits snugly into all corners and every inch of space is available.

Rail rack uprights are expanded between floor and ceiling. Indestructible rail brackets of stamped steel are vertically adjustable, also removable without disturbing uprights. Hooks are removable or rigid, as desired.

Where wall coils occur, "Maforco" cork insulated galvanized steel baffle boards supported by shelf posts are recommended.

These shields assist circulation of cold air—making the refrigerator more efficient, protecting products from the coil frosting and at the same time providing a stop at the rear of the rack.

"Maforco" equipment is all heavily hot galvanized after assembly, except meat hooks, which are tinned.

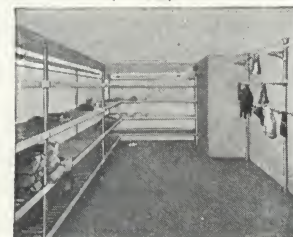
Wall Coil Supports

"Maforco" coil supports satisfy the demand for a simple economical method of hanging coils. By their use valuable refrigerator space is conserved since it is possible to bring coils nearer the wall than by old methods.

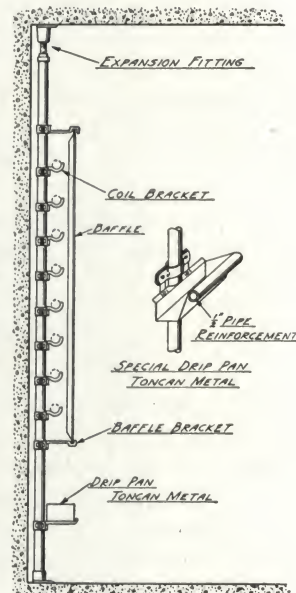
Coil brackets are furnished with 1/4-in. iron pipe size uprights expanded between floor and ceiling, eliminating puncturing of insulation.

This construction does away entirely with built-in supports and expensive special work.

Coil brackets are made to carry pipe coils of any size with hook offset, so drip will not run down the upright. Same type of clamp is furnished with hooks to carry special sections and drip pans. Standard brackets are also available to carry baffles on same posts.



Typical Installation



Continued on next page

"MAFORCO" REACH-IN REFRIGERATOR EQUIPMENT

Distinctive Features

Drawers operate upon ball bearing extension supports and may be withdrawn their full length outside the front of refrigerator and yet remain in a horizontal position. Galvanized ball bearing steel wheels turning on bronze axles are attached to the sides of each drawer. Wheels ride in hot galvanized telescoping channel construction rigidly attached to hot galvanized substantial angle frame. Insulated front drawers are provided with 2-in. cork insulation sealed in sheet metal. All drawers constructed of galvanized sheet iron or monel metal soldered watertight.

Drawers are furnished with perforations in the sides—also perforated false bottoms if desired. Front has overlapping galvanized steel plate for attaching wood facia and gasket. (Wood facia and gaskets not included by MARKET FORGE COMPANY.)

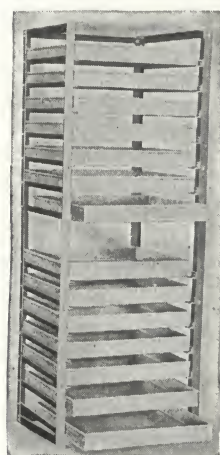


Insulated Front Drawer
Cabinet Type 113

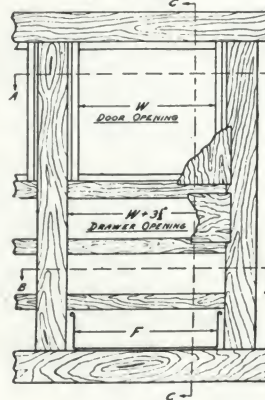
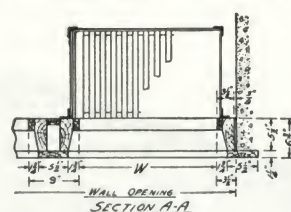
Where shelves are furnished over drawers, they are of "Maforco" standard slatted construction with no side angles and have front angles turned down to provide a stop, and back angles turned up to permit free sliding of shelves on angle bearers. This also prevents stored stuffs falling in back of refrigerator.

The shelf separating drawers and slatted shelves is of solid sheet metal to avoid any dripping into drawers below.

Oyster or pastry pans, as shown, are made of galvanized sheet steel or monel metal with double bent top edge soldered watertight if required. Pastry pans regularly furnished 7 to a half door, oyster pans, 10 to a half door. "Maforco" galvanized angle framework construction is applicable where all shelves, drawers, pans or any combinations are required. Framework is self-supporting but is provided with holes in front angles so that it may be fastened to inside face of door frame to insure rigidity.



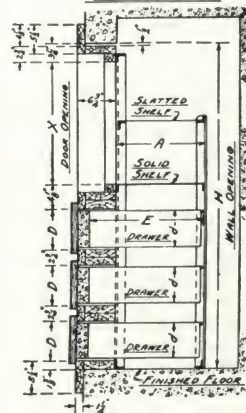
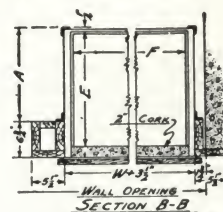
Oyster or Pastry
Pan Cabinet
No. 109



STOCK SIZES OF DRAWERS

WIDTHS "F"	18", 24", 30"
LENGTHS "E"	18", 24", 30"
DEPTHS "D"	6", 8", 10"

Any combination of width, length, and depth may be had
Special sizes made to order



$$W = F - \frac{1}{2} \quad D = d + \frac{1}{2} \quad A = E - \frac{1}{2}$$

For drawers below with shelves above—
 $H = X + 6" + (\text{No. of drawers})(D + 2\frac{1}{2})$

For all drawers—
 $H = \frac{1}{2} + (\text{No. of drawers})(D + 2\frac{1}{2})$

Standard Construction of Refrigerator Fronts to Fit Standard "Maforco" Cabinets

Fits stock cold storage door sizes

Unless otherwise specified, "Maforco" equipment is furnished hot-galvanized. As an alternate we use and advocate monel metal or Allegheny metal.

The importance of proper handling and storage of food can not be overemphasized; "Maforco" equipment in every detail lends itself to all requirements.

Specify—"Maforco" Refrigerator Equipment as made by the MARKET FORGE COMPANY, Everett, Mass.

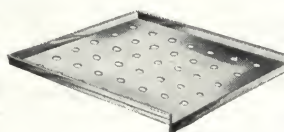
"MAFORCO" VERMIN-PROOF SHELVING AND SUPPORTS FOR FINEST INSTALLATIONS

Originally designed for those who seek the finest type of shelving made, its many desirable features have led to a generally popular demand for its use in better grade projects.

Made of polished monel metal in gauges proportioned to size of shelves. All edges doubled and soldered at all joints.

Brackets of stamped monel metal vertically adjustable on posts.

Generally used for reach-in shelving. The same design



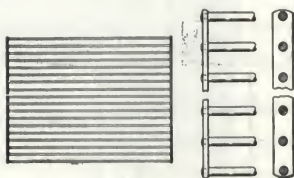
has been and is readily adaptable for those who require a superior class of equipment for walk-in refrigerators.

Supported on monel metal tubular posts expanded between floor and ceiling. All fittings and brackets of polished monel metal.

Other types of rust-resisting metal may be adapted to this construction.

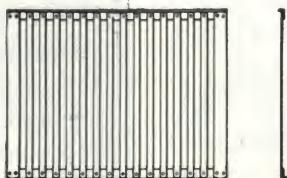
In this respect the industrial shapes and sizes available of material to be used should be borne in mind.

IMPROVED TYPES OF "MAFORCO" STANDARD REACH-IN SHELVING



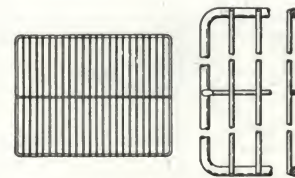
Aluminum Rod Shelf

Desirable construction for hospital work. Furnished with $\frac{1}{4}$ -in. or $\frac{1}{8}$ -in. rods $1\frac{1}{2}$ in. on centers machine riveted to flat stock aluminum end bars. Exceptionally strong and attractive



Slatted Shelf

Standard "Maforco" Slatted Shelves have 1-in. wide slats with 1 in. space between. Front angle has flange down to act as a stop and back angle with flange up to permit free sliding on angle bearers, also to prohibit stored stuffs dropping in back of refrigerator



Welded Wire Shelf

A light strong shelf made with wire electrically welded 1 in. on centers to frame. Finish hot-galvanized or tinned. This type of shelf is especially desirable where monel metal is required. Its strength and light weight make for the utmost in economy

"MAFORCO" IMPROVED DESIGN BUNKER EQUIPMENT

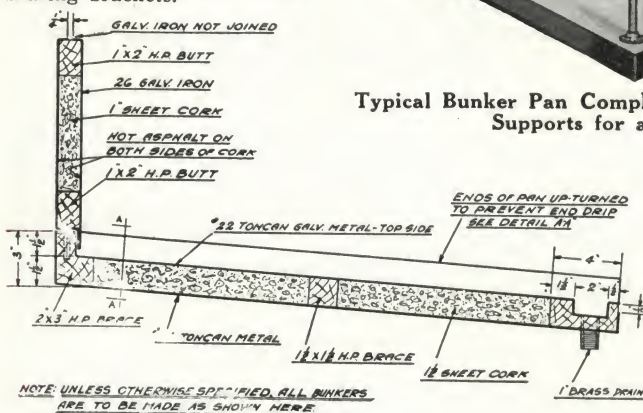
Affords Longer Life at Less Cost and Eliminates Puncturing of Insulation

All equipment is adjustable and removable—a very valuable feature allowing ready access to refrigerating equipment repairing service. Expensive built-in work is entirely avoided and the use of hot-galvanized material throughout insures long life at the lowest cost consistent with sensible economy.

Uprights are of 1½-in. iron pipe size rigidly expanded between floor and ceiling. Uprights run side walls spaced approximately 4 ft. on centers.

Longitudinal angles "A" supported by angle bearing brackets carry heavy cross angles "B" through which are bolted hangers for lower angles "C" on which refrigerating equipment is supported. Threads on trapeze rods allow for liberal vertical adjustment.

Bunker pan is furnished as shown in section. Construction eliminates any possible sag between supporting angles. Bunker pans and baffles are carried on angles "D" resting on vertically adjustable angle bearing brackets.



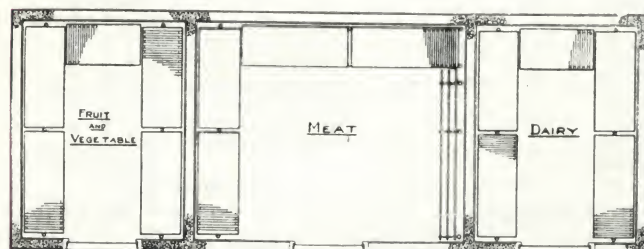
STANDARD CONSTRUCTION "MAFORCO" BUNKER PAN & BAFFLE FOR SINGLE OR DOUBLE CYCLE CIRCULATION

Section Through Bunker Pan and Baffle

Adjustability of brackets, angles supporting bunker pan, provides necessary tilt for proper circulation, approximately ¾ in. per ft.

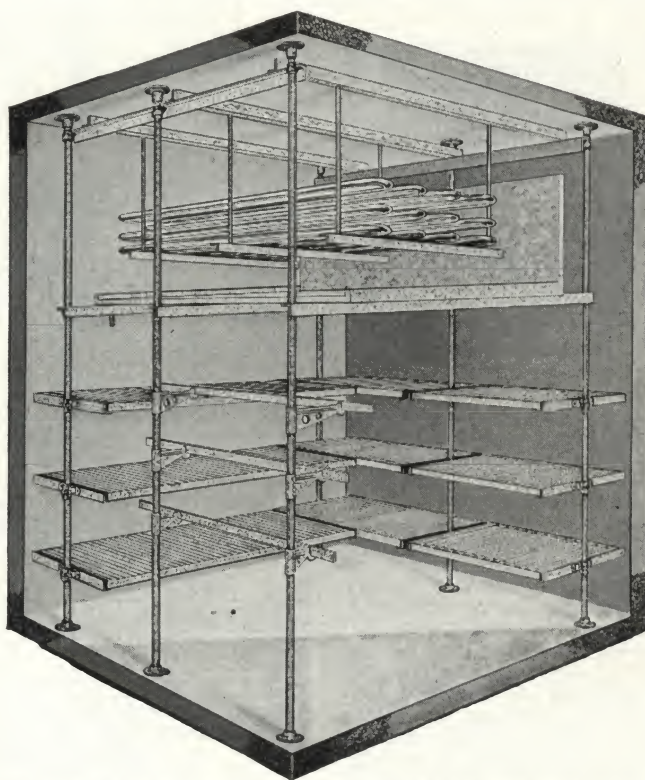
Bunker pan is watertight and furnished with threaded outlet ready for attachment of drain pipe.

Width of bunker depends upon allowance for cold and warm air flues. We suggest a cold air flue allowing 1½ in. per ft. of cooler width and 1 in. per ft. warm air flue. This



Plan

Typical Refrigerator Layout Showing Combined "Maforco" Storage Racks and Bunker Equipment



Typical Bunker Pan Complete with Baffle Board and Coil Supports for a Single Cycle Box

same type of construction is readily applicable to rooms requiring double cycle construction.

For reach-in boxes the same construction may be used. Also the same uprights may be used to carry "Maforco" shelving, thereby effecting a considerable saving.

Likewise same uprights used for supporting the bunker pan construction in walk-in boxes are also used to support rail racks and shelving where specified.

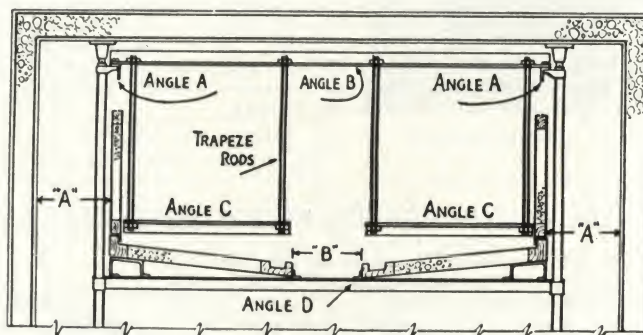
In addition to economy and satisfactory design, your attention is further directed to the very fine appearance of a box equipped completely with "Maforco" all-steel hot-galvanized bunker pan construction and shelving.

Where available ceiling height permits it, always use overhead location of refrigerating equipment.

This assists circulation and good circulation is one of the vital requisites of proper refrigeration.

For the finest installations specify monel metal lined and covered "Maforco" bunker equipment.

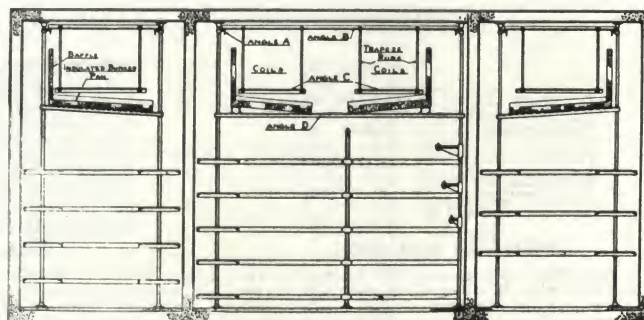
We suggest you specify "Maforco" bunker pan baffle



Section Through Double Bunker Pan Baffle and Racks

"A"—1 in. per foot of refrigerator width
"B"—1½ in. per foot of refrigerator width

board and coil support equipment as made by the MARKET FORGE COMPANY, Everett, Mass., wherever overhead coils are possible.



Elevation

"MAFORCO" EQUIPMENT FOR FUR STORAGE

All Equipment Designed to Allow Maximum Storage Capacity with Every Garment Readily Accessible and Protected from Damage in Handling

Single post construction, made possible by the use of "Maforco" fur fixtures, makes for the utmost in simplicity, economy of construction and low cost of erection.

Expensive pipe fittings are entirely eliminated; single posts also allow greater trucking space. Brackets are vertically adjustable for any desired spacing. Brackets added or removed without disturbing uprights.

Centers of robe rails made 24 in. for double brackets and 12 in. for single brackets.

Posts expanded between floor and ceiling eliminate puncturing of insulation. Posts are 1½-in. iron pipe size. Robe rails, 1¼-in. iron pipe size.

For ceiling heights from 14 to 20 ft. 2-in. iron pipe size uprights should be used. On greater ceiling heights up-



A Typical Installation of Fur Storage Racks

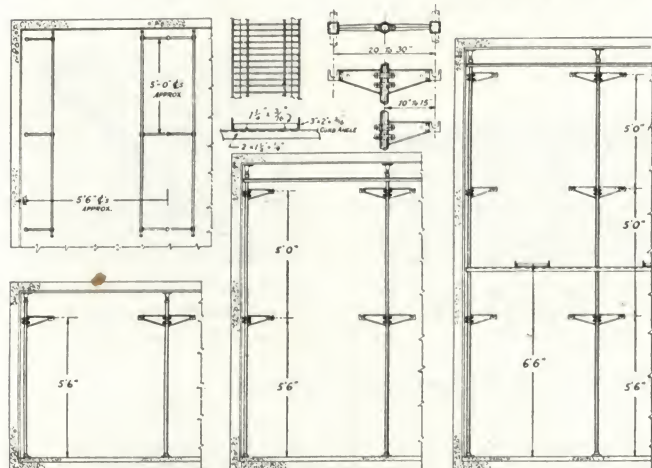
rights should be proportionately heavier.

Ends of robe rails are neatly finished with end caps serving the double purpose of stopping garments from slipping off the ends of rails and giving the equipment a finished appearance.

All equipment is built to eliminate projecting sharp corners, thus avoiding any possibility of damage to garments when handled in the vaults.

Posts are expanded between floor and ceiling avoiding puncture of insulation.

Do not puncture insulation to support sprinklers, ducts, and electric conduit. Same posts carrying fur storage racks provided with single and double angle bearing brackets are readily furnished with light angles laid out to carry this equipment.



Standard Layout Practice

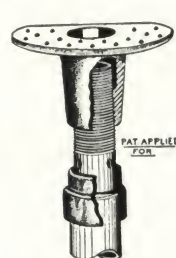
In many vaults, where space is sublet to individual users, separate compartments are economically and readily made available by the use of expanded metal partitions. The same posts which carry the fur storage racks are provided with special stamped steel brackets to which partitions are rigidly clamped.



To simplify loading and unloading upper tiers we recommend our standard fur storage hoist. This is manually operated and equipped to automatically stop at any desired height.

Construction allows relocation of equipment to suit revised space requirements.

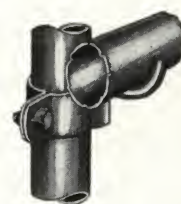
In planning vaults make the rack layout first and from this work out wiring, duct, and sprinkler system.



Expansion Fitting

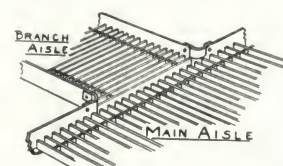


Top Flange, Lock Nut, and Bottom Flange



Bracket for Close Mounting

Posts adjacent to walls furnished with half round top and bottom flanges. Other posts with full round flanges



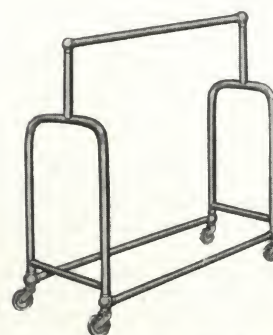
View Showing Curved Corners at Main and Branch Aisle

"Maforco" Garment Trucks

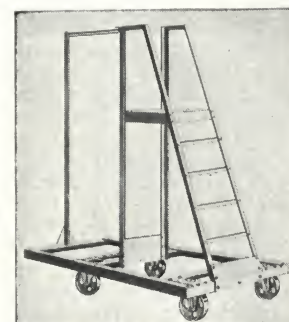
Always specify type and quantity of trucks required.

STANDARD SIZES

	No. 497	No. 492
Length	5'-0"	3'-6"
Width	1'-6"	2'-0"
Height	5'-6"	6'-6"



Garment Truck No. 497



Garment Truck No. 492

Hot Galvanized Finish on "Maforco" Equipment

We unconditionally advocate the use of hot galvanized finish throughout and unless otherwise specified "Maforco" Equipment is so furnished.

"MAFORCO" MORTUARY EQUIPMENT FOR HOSPITALS, MUNICIPAL MORGUES, AND MEDICAL SCHOOLS

Slides and Trays

Each compartment is equipped with removable telescoping tray carriage operating on ball bearing wheels in substantial steel frame. Framework is rigidly secured into place without puncturing of installation.

Tray of one-piece galvanized sheet steel or monel metal bent over continuous galvanized pipe frame with a handle formed at each end. No rivets pass through the body of the tray, thus eliminating all crevices leading to the accumulation of acids; tray rides on steel rollers. Frame, slide and tray are all heavily hot-galvanized. This is a most vital feature to consider where cadavers handled are mutilated or where death has occurred from a contagious disease.

Tray operates on telescoping carriage in such a manner that it may be withdrawn its full length and will remain in horizontal position without sagging. Tray is provided with handles the full width of both ends, for use as a stretcher. Units are furnished to slide one way, two ways, or sideways.

Ends of tray and carriage when slid back into position strike rubber bumpers thus insuring quiet operation.



Cook County Morgue, Chicago, Ill.
Capacity 135 cadavers

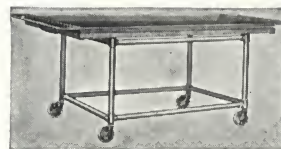
Where overhead coils occur we suggest the use of "Maforco" bunker pan equipment in conjunction with the mortuary units. There is the two-fold advantage of more desirable construction simpler to install yet low in cost.

Every morgue large or small for human or animal storage presents a different engineering problem. Let the MARKET FORGE COMPANY as specialists work with you.

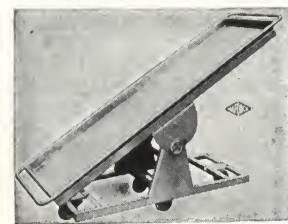
"Maforco" Tilting and Tray Carrying Mortuary Trucks

Designed especially to eliminate unnecessary handling of cadavers on and off of trays. Tilting type truck No. 525 especially desirable for use in viewing room of municipal and large hospital morgues.

Regularly furnished mounted on rubber tired wheels and finished hot-galvanized or in baked-on white enamel.



"Maforco" Tray Carrying Truck No. 526

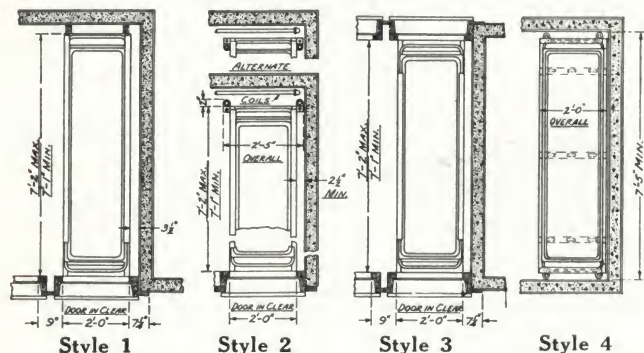


"Maforco" Tilting Mortuary Truck No. 525

Both types built to carry standard "Maforco" Mortuary Trays

General Information

All mortuary racks are built in sizes shown carried in stock ready for immediate shipment. Refrigerators should be built to conform with these specifications. Units are designed to conform with standard cold storage door sizes thereby lowering costs through the use of standard equipment and eliminating delay of securing special sizes.



Style No. 1 shows method of supporting the type which slides one way, by lagscrewing the front end to the inside of the door frame and the rear end to studs.

Style No. 2 construction shows mortuary units supported in rear by attachment to brackets vertically adjustable on 1 1/4-in. iron pipe size uprights expanded between floor and ceiling. If desirable, same construction may be used at both front and rear.

Style No. 3 unit is the type that is furnished to slide both ways. This makes it practical to have the mortuary refrigerator installed between the receiving room and the post mortem laboratory. The cadaver is then readily accessible from either room at a saving of much time and labor.

Style No. 4 is the unit which operates from the side. Many times space available does not permit the use of the end operating units. We advocate, however, the use of end operating units wherever possible.

Where installations are more than two units high the upper units are made accessible by means of a tiering machine furnished with a roller platform.

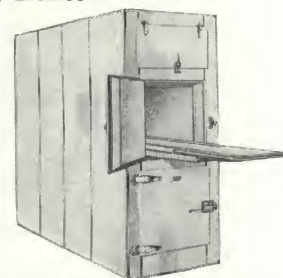
Furnished with crank for manual operation or with 1/2 hp. motor and equipped with automatic stops. Machine is mounted on rubber tired wheels making it readily portable. Finished in baked-on white enamel.

Portable Refrigerating Body Boxes

For small installations, funeral homes, etc., we recommend two-body capacity portable boxes with self-containing refrigerating unit. This eliminates the need of running pipe lines to the morgue storage space and keeps the body storage separated as it should be.

Boxes are cork-insulated, metal lined and covered, and are furnished to take sidewalls or overhead cooling apparatus, preferably the latter, as shown.

Equipment is standard "Maforco" mortuary racks, end operating type, with galvanized or monel metal trays as specified.



Portable Body Box

Recent Installations

Baltimore City Morgue, Baltimore, Md.
Cook County Morgue, Chicago, Ill.
University of Virginia, Charlottesville, Va.
Sacramento Hospital, Sacramento, Cal.
Hillman Hospital, Birmingham, Ala.
Cleveland Clinic Hospital, Cleveland, Ohio
Hebrew Home for Invalids, Brooklyn, N. Y.
Denver Hospital, Denver, Colo.
Sing Sing Prison, Ossining, N. Y.
Presbyterian Hospital, Philadelphia, Pa.
Bell Memorial Hospital, Kansas City, Kan.
U. S. Veterans Hospital, Miscellaneous
U. S. Naval Hospital, Miscellaneous
Bronx General Hospital, New York City
University of Michigan, Ann Arbor, Mich.
Smith's Funeral Home, Gary, Ind.
Pierce County Hospital, Tacoma, Wash.
French Hospital, New York City
Harbor View Hospital, Seattle, Wash.

"MAFORCO" CRYPT RACKS FOR COFFIN STORAGE

Racks are of angle iron uprights substantially gusseted and reinforced. Coffins slide on 1-in. tube rollers provided with ball bearings at each end.

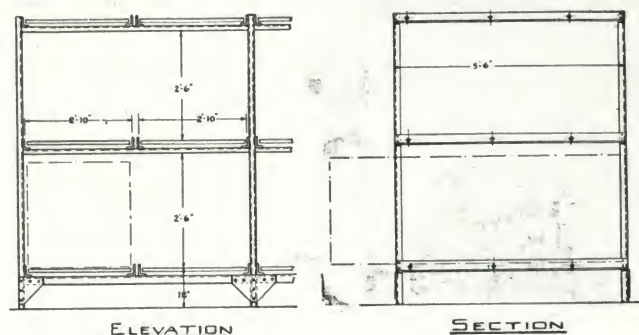
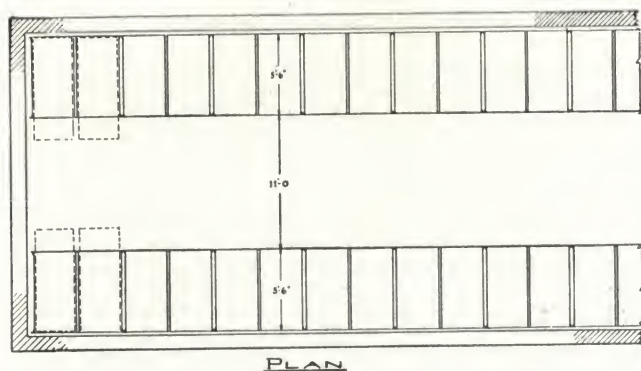
End operated units are most practical, but where space available warrants it, side operated units are also furnished. Standard size racks are shown. Special sizes also may be secured.

All equipment is hot galvanized after fabrication and may be painted in the field to match finish.

All equipment is self-supporting, requiring no anchorage to walls, floor or ceiling.

Where installations are more than two units high, the upper units are made accessible by means of hand or electrically operated 500-lb. capacity tiering machine designed especially for this type of storage.

Specify "Maforco" Crypt Racks for coffin storage.



"MAFORCO" LINEN ROOM SHELVING AND COUNTERS

Front uprights are 1¼-in. pipe equipped with cast brass nickel-plated sanitary base (fitting No. D9), which allows vertical adjustment with no threads showing or crevices for dirt and vermin to collect.

Rear uprights are 1¼-in. pipe furnished with flush socket elbow flange to provide for attachment to angle framework set in walls.

This construction keeps material away from walls and allows plenty clear space for cleaning.

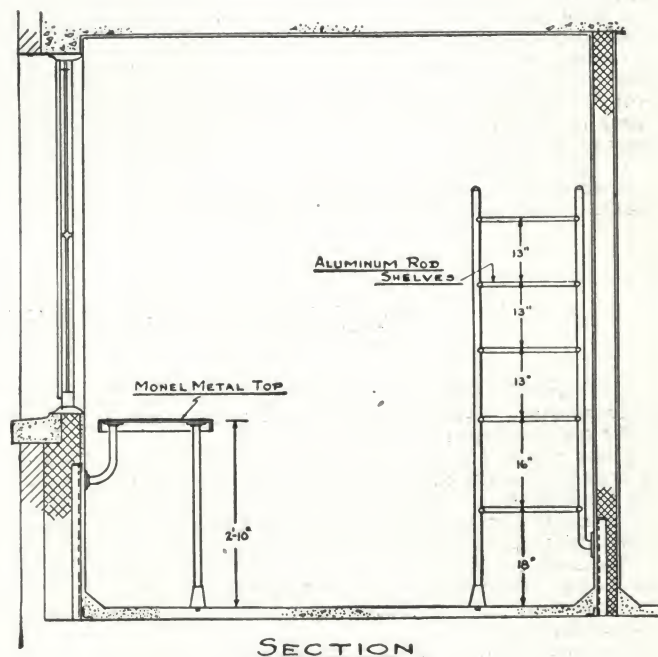
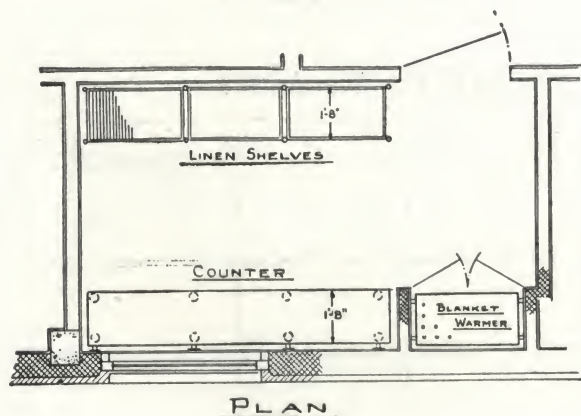
Aluminum shelves are made with 1-in. aluminum tube frames with ¼-in. aluminum rods spaced 1½ in. on center. Shelves rest on pressed steel section rigidly welded to uprights. They are removable and exceptionally light and easy to handle.

Shelves are furnished in natural finish. All other parts with one coat of flat white enamel baked on.

Monel counters are of No. 20 gauge polished monel rolled over No. 16 gauge galvanized iron, supported on front and rear legs similar in design to shelving.

Alternate layouts with shelves over monel counter also practical where space available is limited.

Specify "Maforco" linen room shelving and counters for linen rooms.



"MAFORCO" TRUNK STORAGE

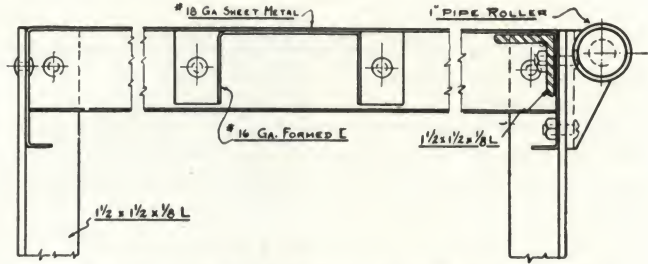
For Use in General Storage or with Expanded Metal Compartments for Individual Storage

Uprights $1\frac{1}{4}$ -in. outside diameter tube expanded between floor and ceiling. Shelves of sheet steel with reinforced edges are supported by means of malleable iron brackets vertically adjustable on the uprights. Shelves are readily removable. Standard size 4x3 ft. wide. Other sizes to conform with conditions. Furnished to conform with contour of room making "U" or "L" shaped racks, eliminating inside corner posts by means of a special fitting. This allows full sweep around all corners with no interfering posts.



Trunk Rack Tubular Construction

Four-way brackets at junction of four shelves and double brackets at junction of two shelves allows installation of racks in two or three sections in width and any number of sections in length. Shelves may be spaced on any desired vertical centers but for trunk storage we suggest 30-in. centers. To simplify loading and unloading shelves many users favor a roller along the front line of shelves. A slightly more economical design of trunk racks is effected by the use of angle iron uprights instead of tubular uprights. If this construction is used all fittings are eliminated and shelves are furnished to bolt in place. Uprights are punched 2 in. on centers to allow for vertical adjustment. Same type of roller is furnished where required.



Section Through Shelf Showing Application of Roller

Many times large spaces equipped are allotted to individuals or separate business houses. Either type of "Maforco" Trunk Rack lends itself readily to answering this requirement by the use of expanded metal partitions. They are clamped to the uprights by means of standard clamps and do not in any way interfere with the storage space.

Oval head carriage bolts hold partitions rigidly in position, all nuts are on inside of compartments thereby formed obviating the possibility of tampering by others. This construction permits separating individual shelves or entire tiers of shelving for separate users. Doors are furnished with approved cylinder locks, each with two keys and mastered if desired. Hasp is provided for use of additional padlock if specified.

Finish—We cannot advocate too strenuously the desirability of hot-galvanized finish for all storage racks. It does not scratch or mar readily and lasts indefinitely. It costs slightly more than an enameled finish but is well worth the small additional investment involved. As an alternate, all racks may be finished in either air-dry or baked-on high gloss enamel.

"MAFORCO" RUG STORAGE RACKS

The desirable features of single post construction are well illustrated in connection with "Maforco" Rug Storage Equipment.

Cantilever brackets single or double arm are vertically adjustable and removable. Standard single brackets 30 and 36 in. Standard double brackets 60 and 72 in.

Solid sheet steel shelves are removable and vertically adjustable on the cantilever brackets. Standard length shelf 5-ft. width to suit brackets.

Pipe uprights varying in size according to ceiling height, are rigidly expanded between floor and ceiling.

Utmost care has been used in the design of this equipment. There are no sharp corners to mar rugs. Any size rug may be stored. Construction makes available tiers of continuous open shelving with no crevices between shelves easily loaded or unloaded.

Finish hot-galvanized throughout.

Specify—"Maforco" Rug Storage Racks as made by the MARKET FORGE COMPANY, Everett, Mass.



Installation Rug Storage Racks—Lincoln Storage Warehouse, East Orange, N. J.

"MAFORCO" UPHOLSTERED FURNITURE RACKS

Standard "Maforco" post fittings and brackets have been readily adapted to the most economical and practical type of upholstered furniture racks built.

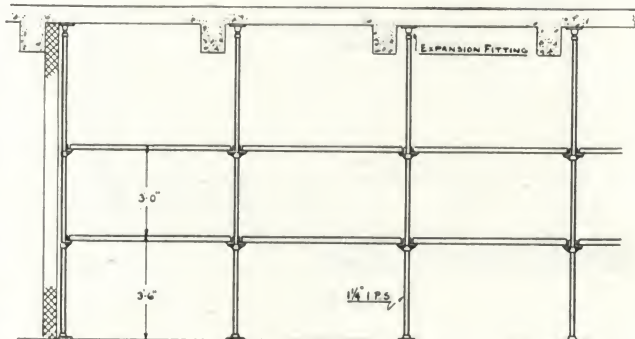
Posts are $1\frac{1}{4}$ -in. iron pipe size, expanded between floor and ceiling. Shelves are of galvanized sheet iron built-in sections as shown for strength, ease of handling and installation.

Shelves rest on angle iron bearers bolted to cast iron brackets vertically adjustable to any desired spacing.

Standard size sections are 6 ft. x 6 ft. wide. Other sizes may be furnished to suit requirements.

There are no sharp corners to injure or mar in any way stored materials.

Standard finish of racks throughout hot galvanized. For obvious reasons there is no other finish so completely desirable.



ELEVATION

"MAFORCO" HEAVY GENERAL STORAGE SHELVING

For Hospitals, Hotels, Schools, Institutions, Warehouses, and Manufacturing Plants

For heavy duty storage the usual type of commercial shelving is not rugged enough. The MARKET FORGE COMPANY has adapted its standard posts, brackets and fittings to satisfy this common requirement. It is not only the heavy loads carried that makes this heavier type of shelving necessary but years of rough abuse it must withstand.

"Maforco" construction allows vertical adjustment to the last fraction of an inch. Ordinary steel shelving is not adjustable to this fine point. This means in many cases inches of valuable space lost at every shelf. When you multiply this by total shelf areas the loss is amazing. Space in any building, anywhere, is valuable and should not be wasted.

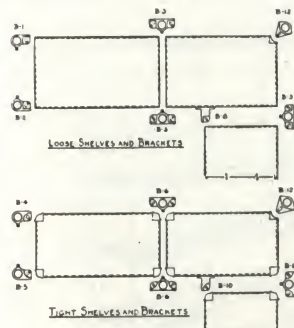
Racks are built with shelving having all "loose" corners with posts expanded between floor and ceiling or furnished with "tight" corners where necessary, to make self supporting where posts cannot extend to ceiling.

Furnished any number of sections long, wide or any number of shelves high. Racks readily furnished to fit around wall projections or in any shape room.

Shelves made in any width up to 36 in. and in any length up to 6 ft. to suit individual requirements. They are vertically adjustable and removable. Shelves over 24 in. wide are reinforced longitudinally with a stamped steel channel shaped member.

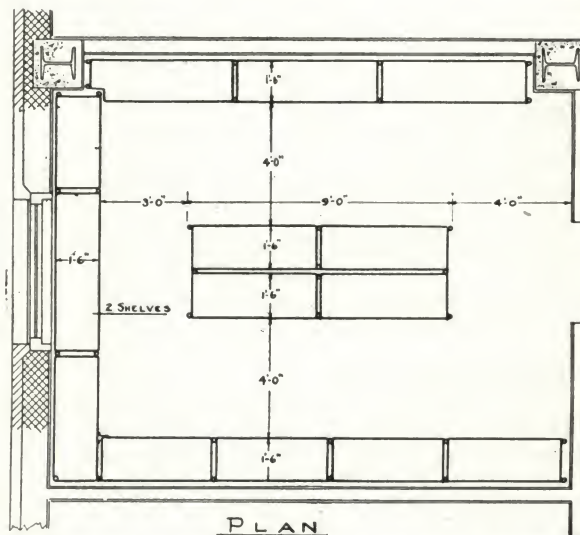
Posts are of 1¼-in. outside diameter tubing of heavy gauge. All brackets are malleable castings.

Shelves of galvanized sheet iron, all other parts hot-galvanized after fabrication.



Standard Post Fittings

justable and removable. Shelves over 24 in. wide are reinforced longitudinally with a stamped steel channel shaped member.



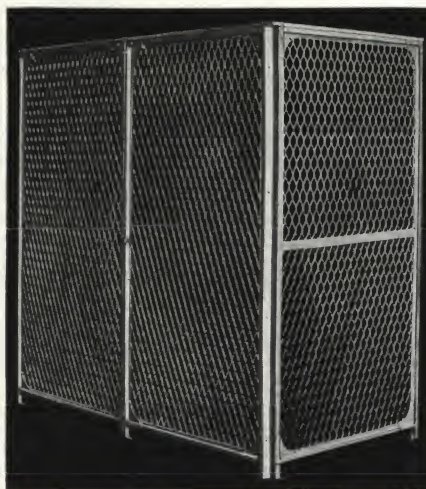
Typical Layout of Hospital Kitchen Storage for Canned Goods

"MAFORCO" EXPANDED METAL PARTITIONS

Many users of "Maforco" storages find it exceptionally economical and convenient to divide storage space into individual compartments by means of "Maforco" expanded metal partitions.

The advantages are manifold and exceptionally so in the case of refrigerated space.

Large areas can be insulated and refrigerated, then divided for individual users at a relatively very low cost. The saving in doors, insulation and refrigeration is readily apparent.



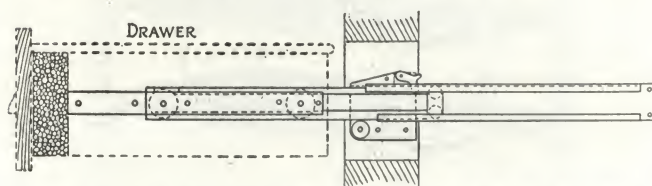
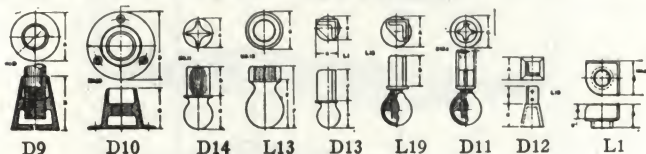
All "Maforco" racks are designed to permit application of this equipment. All parts are standard, avoiding special work. Construction permits of relocation or adjustment at any time, yet users are as thoroughly protected as if in an entirely separate compartment.

Different types of installations require different sizes and gauges of expanded metal. Submit your requirements to the MARKET FORGE COMPANY and let our engineers work out a proposal for your consideration.

SPECIAL "MAFORCO" FITTINGS AND FIXTURES

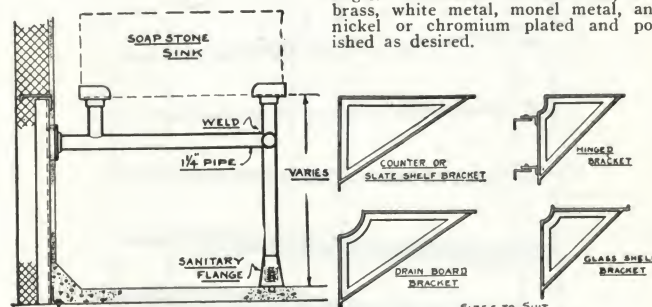
Our many years of close connection to this specialty field has led to the development of many special types of fittings and fixtures of sanitary and adjustable nature.

Fittings D9, D10, L13 and D14 are exceptionally fine for hospital, hotel and kitchen equipment work. They permit adjustment with no exposed threads and are verminproof. Their uses for tables, racks and stands are readily seen and need not be itemized here.



"Maforco" Telescoping Slides with Ball Bearing Rollers

The fittings in the opposite column are made for any size pipe or angle. Furnished in cast iron, cast brass, white metal, monel metal, and nickel or chromium plated and polished as desired.



Typical Section Through Sink Support

Utility Brackets

Wherever heavily loaded drawers are required specify them to be equipped with "Maforco" telescoping drawer slides. Their use permits easy operation and allows drawers to be withdrawn full length without sagging.

Slides are made in black iron, enameled or hot-galvanized after fabrication, or of monel metal, with chromium plated ball bearing rollers.

VICTOR PRODUCTS CORPORATION

FORMERLY VICTOR COOLER DOOR CO., INC.

Steel Shelving

MAIN OFFICE AND FACTORY

HAGERSTOWN, MD.

NEW YORK, N. Y.

CHICAGO, ILL.

Products

STEEL SHELVING for cold storage.

MEAT RACKS.

DRAWERS and SHELVING for refrigerators.

FUR STORAGE RACKS and TRUCKS.

Also Bunker Pans and Supports.

For our pages on Refrigeration Doors and Ice Chutes, see Manufacturers' Index.



run to ceiling. See method of expanding post between floor and ceiling to prevent puncturing insulation and plaster.

Arrangement of Shelving—An arrangement of shelving for two sides of room is

Guarantee and Facilities

Victor shelving has behind it our regular guarantee against defective materials and workmanship and to satisfactorily do the work for which it was intended.

The Victor plant is located in the heart of Maryland, excellent railroad facilities to all points.

A large stock of Victor standard products is always available for immediate shipment.

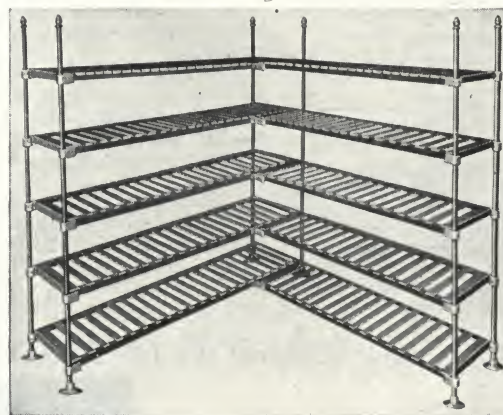
Steel Shelving

Victor standard steel shelving equipment comprises practically every type and kind of equipment required for the handling and storage of articles in cold storage from meats and vegetables to furs, rugs or flowers.

Victor steel shelving can be purchased very economically. It is extremely easy to erect and the shelves and racks are vertically adjustable. Additions can be made without disturbing your present equipment.

All equipment is galvanized after assembly to prevent rust, uprights and robe rails of fur racks are made of high carbon steel tubing. Supporting brackets are pressed steel or malleable iron. Shelving is made of $1 \times \frac{1}{8}$ in. steel flats spaced 1 in. apart and riveted to angle irons.

How Furnished—Shelves can be furnished either single or double section as desired but we do not recommend that any single shelf be more than 7 ft. 6 in. long. Furnished any number of shelves high. If shelves are to be only 2 or 3 shelves high we recommend that posts



Victor Shelving Along Two Sides of a Room

shown in illustration here. Shelves could be extended to third side of room if desired (see typical layout following page). Shelves are so constructed as to fit close to walls leaving no cracks behind through which produce can fall.

Where space will permit shelves in the center of refrigerator, the style of rack shown below gives maximum storage capacity with no loss of space. Can be furnished as single shelf if desired to a maximum of 2 ft. 6 in. wide. This type shelf gives access from either side, and insures rigidity. Racks can be furnished to any length desired and any number of racks high.



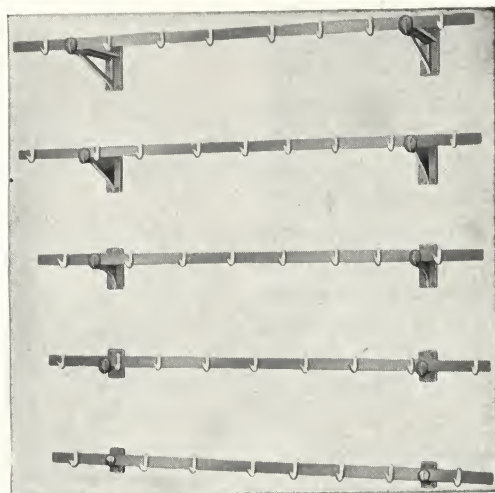
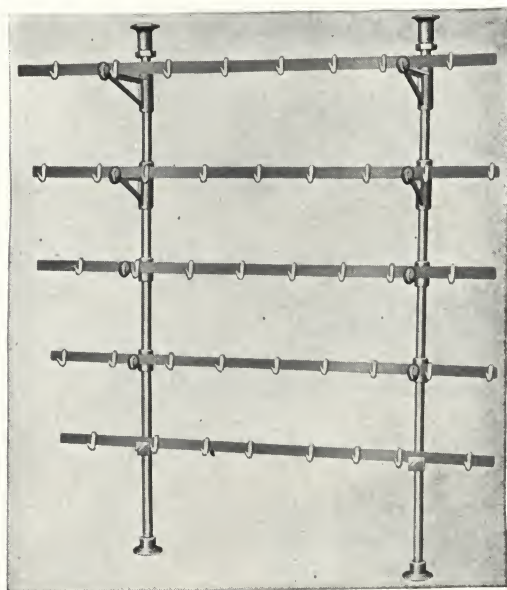
A Victor Double Section



Victor Refrigerator Shelving

Meat Rails and Brackets

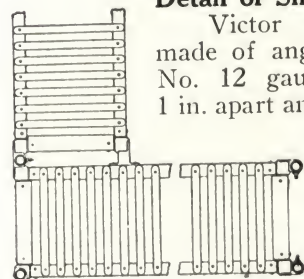
Meat rails and brackets for use where it is permissible to attach direct to walls. Bracket extension, flush 3, 6, 9 and 12 in. from wall. Meat rack sup-



ported by posts expanded between ceiling and floor. Brackets are vertically adjustable and have the same extensions as the wall type brackets. $1\frac{5}{16}$ in. posts for heavy duty. Rails either $1\frac{1}{2} \times \frac{3}{8}$ in. or $2 \times \frac{3}{8}$ in. Hooks either loose; attached with setscrews or riveted.

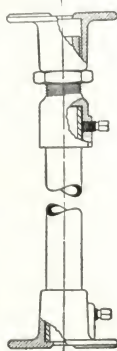
Expansion Stud

Detail of expansion stud used on shelves, meat racks, fur racks, etc. Stud is made cast brass and provides 2-in. expansion, giving ample space for adjustment. This device eliminates necessity of puncturing insulation and plaster.

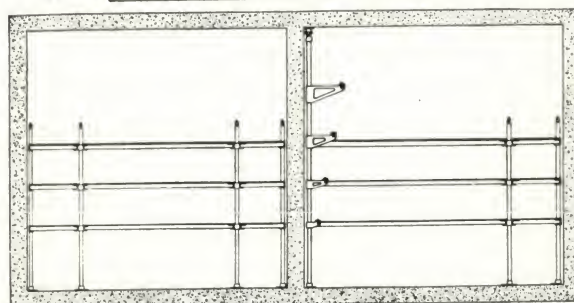
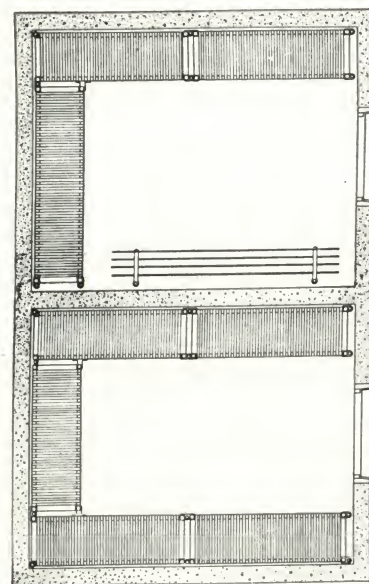


Detail of Shelving

Victor steel shelving is made of angles with 1 in. by No. 12 gauge straps riveted 1 in. apart and mounted on vertically adjustable brackets. Shelves are galvanized after assembly. They can be lifted out for cleaning without use of tools of any kind. Illustration at left

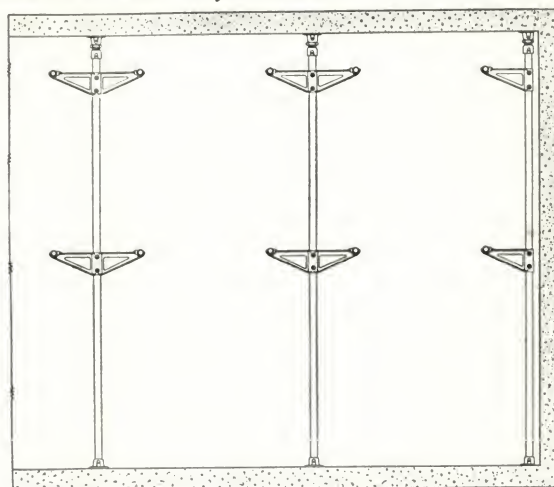


shows a typical arrangement of shelving and meat racks. Standard shelving can be made to fit any character or shape room and can be any number of shelves high. Note how closely shelves fit to walls.



Fur Racks

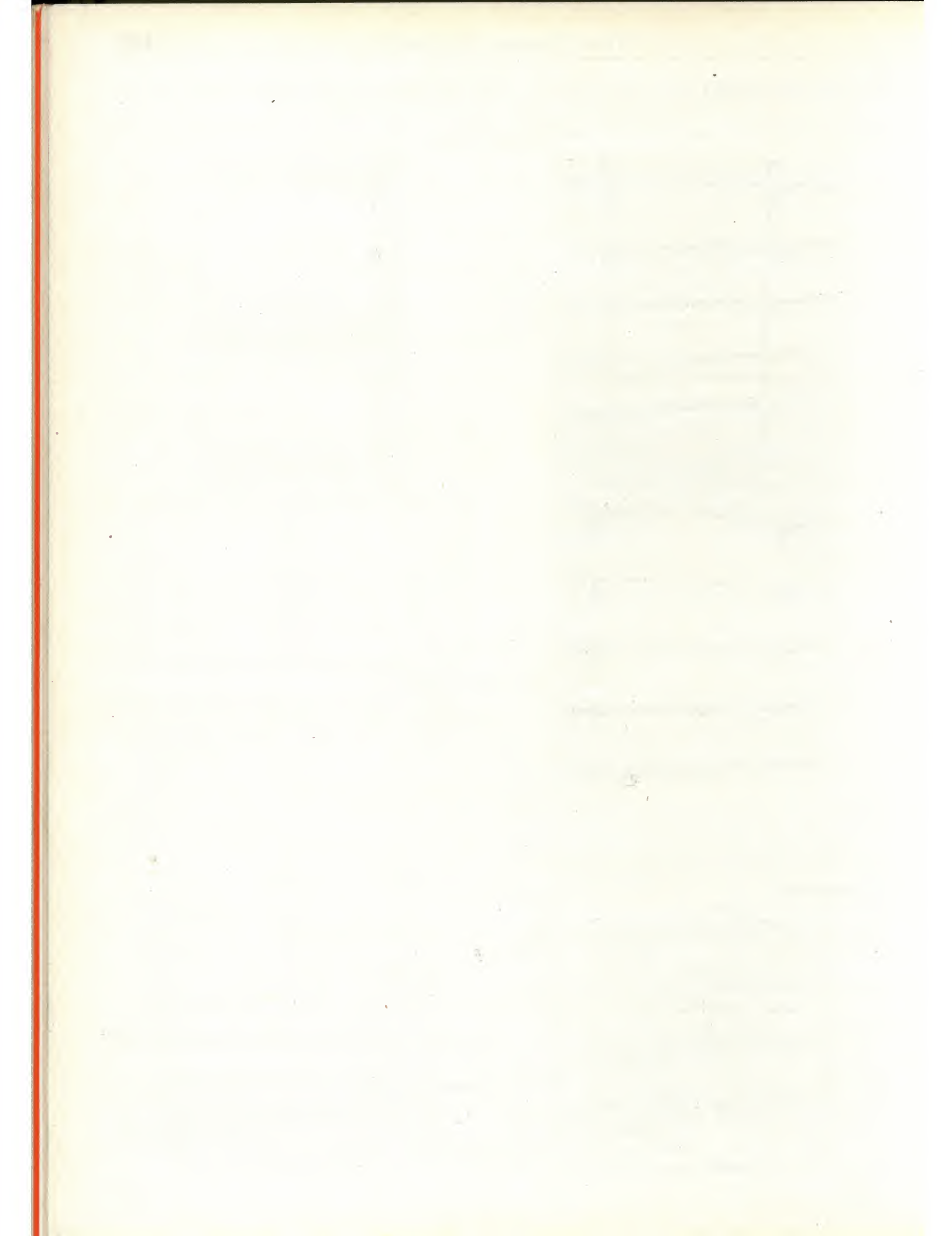
Fur racks are also part of our standard products furnished to meet any condition.



We manufacture a complete line of fur storage equipment, including lifts, garment trucks and racks, walkways, etc.

Engineering Service

The Victor Refrigeration Engineering Service is available to you, without cost. We are only too glad to give you the benefit of our years of experience on any problem of shelving or refrigeration equipment. Of course you will not be obligated in any way.



LAUNDRY EQUIPMENT WASTE COLLECTION AND DISPOSAL

Allen Air Appliance Co., Inc.....	C4518
Allen & Billmyre Co., Inc.....	C4519
Buffalo Co-operative Stove Co.....	C4524
Chicago Dryer Co.....	C4496-4500
Domestic Laundry Equipment Corp.....	C4502-4503
Duplex Incinerator Div. of the Duplex Hanger Co....	C4522-4523
Haslett Chute and Conveyor Co.....	C4510
Hill Laundry Equipment Co., Inc.....	C4509
International Nickel Co., Inc.....	C4501
Kahn Products Co.....	C4525
Kerner Incinerator Co.....	C4526-4532
Kernit Incinerator Co.....	C4533
Mann, Kellogg, & Co., Inc.....	C4534-4535
Metal-Vitrix Co.	C4512-4515
Mid-West Incinerator Corp.....	C4536-4537
Morse Boulger Destructor Co., Inc.....	C4538-4539
Pfandler Co.	C4511
Pittsburgh Incinerator Co.....	C4540-4541
Rex Incinerator Co., Inc.....	C4542
Spencer Turbine Co.....	C4520-4521
Stearns Incinerator, Inc.....	C4548-4549
Troy Laundry Machinery Co., Inc.....	C4504-4508
Tubular Chute Systems, Inc.....	C4516
Washburn & Granger, Inc.....	C4543-4547
Wilkinson, C. M., Co.....	C4517

CHICAGO DRYER COMPANY

ESTABLISHED 1886

TELEPHONE
BELMONT 1060

Laundry Room Equipment

2210-2220 North Crawford Avenue
CHICAGO, ILL.

BUFFALO, N. Y., GEO. H. DRAKE, 218 Lexington Avenue
CLEVELAND, OHIO, C. F. DIETHER, 504 Erie Building
DETROIT, MICH., MACK BUILDING SPECIALTY Co., 631 Fisher Building
INDIANAPOLIS, IND., HOOVER BROS. Co., Architects' & Builders' Building
LOS ANGELES, CAL., E. R. KUNS Co., Inc., 1221 W. 11th Street
WEST PALM BEACH, FLA., BURKE BLDG. SPECIALTIES Co., 234 Dyer Avenue

PHILADELPHIA, PA., J. F. ALEXANDER & Co., 1626 Wood Street
PITTSBURGH, PA., J. M. WEBBER, Dartmore Avenue, Overbrook
ST. LOUIS, MO., LAUNDRY DRYER & HEATING Co., 123 No. 11th Street
SAN FRANCISCO, CAL., M. E. HAMMOND, 557 Market Street
SEATTLE, WASH., S. W. R. DALLY, 332 Pioneer Building

Products

CHICAGO CLOTHES DRYERS.
CHICAGO-FRANCIS DRYERS.
CHICAGO ELECTRIC WASHERS.
CHICAGO LAUNDRY STOVES.
CHICAGO IRONING MACHINES.
CHICAGO IRONING BOARDS.
CHICAGO LAUNDRY EQUIPMENT.

CHICAGO

TRADE-MARK
(Registered U. S. Pat. Off.)

Catalogue and Co-operative Service

Architects and builders are invited to write for Bulletin No. S-28 which contains complete data and information pertaining to all clothes dryers and laundry appliances which we manufacture. Mailed free on request. Our engineering department is at your free disposal.

Scope of Use

Especially adapted for use in residences, apartment buildings, schools, clubs, colleges, gymnasiums, hotels, hospitals, sanitariums and institutions of all kinds.

Dryer Measurements and Sizes

All our dryers when equipped with racks or draws are built to order. These dryers (with exceptions as noted under illustrations) are generally built 7 ft. high and 7 ft. long, exclusive of the space where the racks pull out. When necessary, can vary the above measurements to suit conditions. Framework of each dryer is made of 1/8-in. thick angles of suitable size, firmly and substantially bolted together. Casing is of best quality galvanized sheet steel. When so specified, casing may be made double with air space intervening or double and interlined with sheet asbestos.

Front panels of racks are all made double and lined with sheet asbestos. Brackets of panels are equipped with all metal rollers with self-lubricating bearings or ball bearing type if so preferred.

Ventilated Hanging Bars

The bars on which the clothes are hung consist of *specially galvanized* tubular pipe. These bars are *ventilated* so as to prevent overheating or injury to the most delicate fabrics.

Racks or Draws

In order to meet various specifications, we can supply Dryers equipped with rack panels of various widths, viz: 7, 9, 12, 18 and 24 in. Except for special requirements, we recommend rack panels 9 in. wide. Each rack with 9-in. panel, unless otherwise specified, is provided with six bars on which to hang clothes. When dryer is built 7 ft. long, this provides a hanging capacity of 39 lin. ft. for each rack. When built 6 ft. long, it provides hanging capacity of 32 1/2 lin. ft. for each rack.

When dryers are built 7 ft. long, the total length over all when the racks are pulled out is 13 ft. 10 in.

Ventilation

Clothes dryer designated as "Chicago-Francis" indicates that it is a "Chicago" Dryer, equipped with our "Chicago-Francis" patented heating and ventilating system, which has been perfected and is used exclusively on dryers manufactured by us. With this ventilating system, we secure and maintain at all times a natural and constant circulation of air, and the moisture is carried away with minimum loss of heat, thus insuring maximum efficiency.

WIDTH OF DRYERS, NUMBER OF RACKS AND DIMENSIONS

Number of racks	Racks or draws 7 in. wide	Racks or draws 9 in. wide	Racks or draws 12 in. wide
2	21 in.	25 in.	31 in.
3	28 in.	34 in.	43 in.
4	35 in.	43 in.	55 in.
5	42 in.	52 in.	67 in.
6	49 in.	61 in.	82 in.
7	56 in.	70 in.	94 in.
8	63 in.	82 in.	106 in.

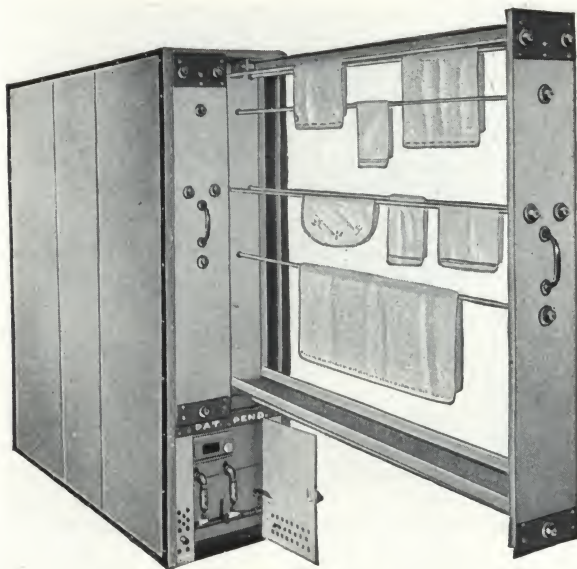
Widths are exclusive of laundry stove.

For gas heated dryers, provide a 3/4 or 1-in. gas supply, depending on size and number of dryers used.

Type S.C. (Self-contained) Rack

The illustration No. S.C. 296 on following page shows dryer equipped with what is known as our *self-contained rack*. With this type of rack, the overhead track system on the outside of the dryer is completely eliminated.

With the self-contained type of rack construction, the inside of dryer at top is provided with a heavy galvanized angle track made with 1/8 and 3/16 in. thick angle irons. This track is provided with antifriction metallic ball bearing rollers upon which the racks operate. The racks may be pulled out or pushed into the dryer with the utmost ease. The track construction is so made that when the racks are pulled out, even their full length, the rack retains its rigidity. The various dryers shown in illustrations with outside overhead tracks, can be supplied with Type S.C. Racks, when so specified.



Patents Pending

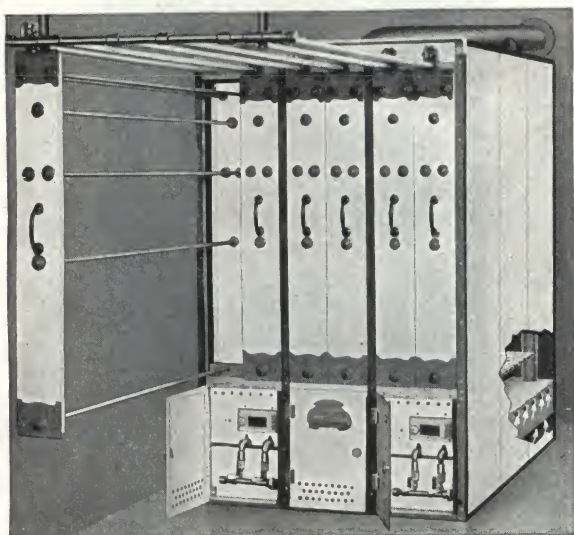
Type S.C. Chicago-Interior Gas Heated Dryer

Equipped with Type S.C. (Self-contained) Racks.
Standard sizes as follows:

Dryer No.	Contains	Height, in.	Length, in.	Width, in.	Hang. cap., lin. ft.
S.C. 296	2—9" racks	72	72	21	65
S.C. 297	2—9" racks	72	84	21	78
S.C. 396	3—9" racks	72	72	30	97
S.C. 397	3—9" racks	72	84	30	117
S.C. 497	4—9" racks	72	84	39	156

*When used in apartment buildings recommend one No. S.C. 296 or S.C. 297 with each set of laundry tubs.

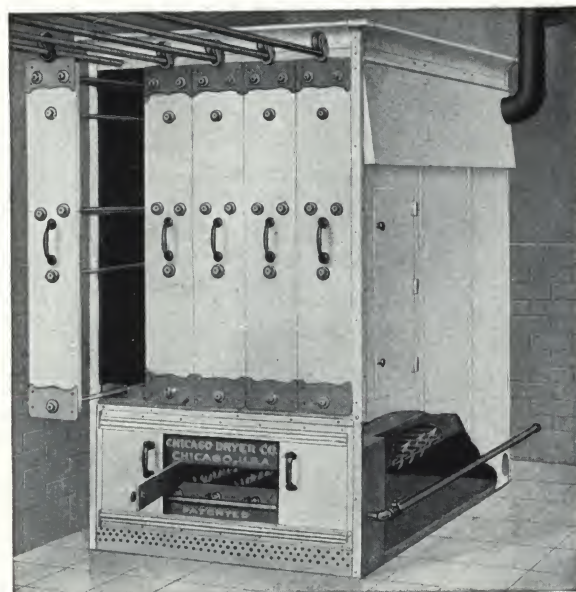
Equipped with indirect gas heating system. Gas burners are contained in an interior drum which extends full length of dryer. Vent pipe measures 5 in. in diameter and is brought out at top at rear end unless otherwise specified.

**Chicago-Interior Gas Heated Compartment Dryer**

Built in compartments containing two 9-in. racks, viz.:

Comp. No.	Contains	Height, in.	Length, in.	Width, in.	Hang. cap., lin. ft.
2972	2—9" racks	78	72	21	65
2984	2—9" racks	78	84	21	78

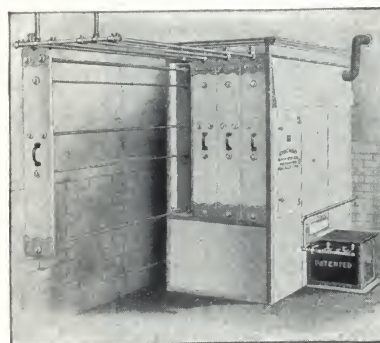
Each compartment equipped with indirect individual gas heating and complete ventilating system. When used in apartment buildings, we recommend one compartment for each set of laundry tubs. Vent pipe may be brought out at top or either side close to rear end, as may be required. Each compartment may be provided with locking bar attachment, when so specified. Can be supplied with any number of compartments desired.

**Chicago-Francis Interior Gas Heated Dryer, No. 5909**

When so specified, may be equipped with Type S.C. (Self-contained) Racks.

Sizes—Built in various sizes containing 2, 3, 4, 5, 6, 7, 8 or more racks or draws, as may be specified. Each rack measures 9 in. wide and has a hanging capacity of 39 lin. ft. Vent outlet from dryer, 5 in. in diameter.

Uses and Descriptions—Adapted for use in residences, apartment buildings and institutions of all kinds. Equipped with indirect gas heating system. Gas burners are contained in an interior heat retaining galvanized sheet steel drum, thus heating the dryer with minimum gas consumption. No flame is exposed. Only pure and clean heat. Provided with one or more burners, depending on size. Each burner provided with independent shut-off valve so that the heat in the dryer can be regulated to suit conditions. Base provided with independent vent ducts so that moisture is carried away by natural air circulation; minimum loss of heat. This is a very economically operated dryer.



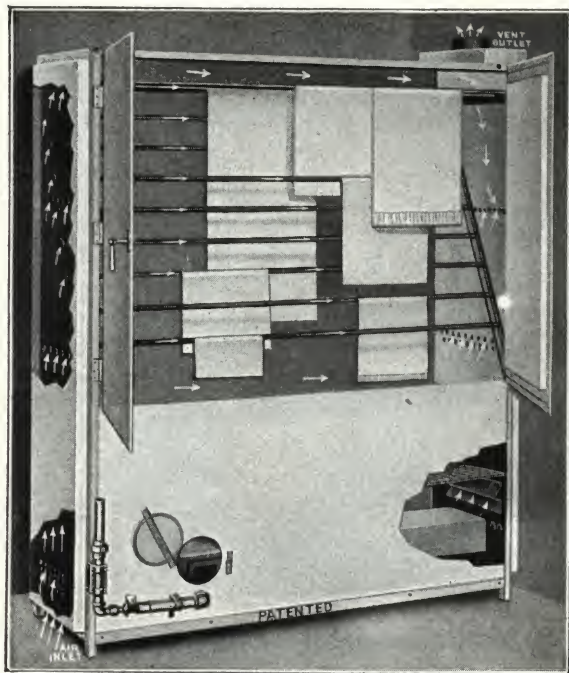
Note: When so specified, may be equipped with Type S.C. (Self-contained) Racks.

Chicago-Francis Dryer with Gas Laundry Stove Attached, No. 4906

Sizes—Various, containing 2, 3, 4, 5 or 6 racks or draws, as may be specified. Vent outlet from dryer, 5 in. in diameter. Stove, 22 in. square. Racks measure 9 in. wide. Hanging capacity of each rack, 39 lin. ft.

Uses and Operating Cost—Used in residences, apartment buildings, schools and institutions of all kinds. Stove may be used for boiling clothes or heating flat irons—waste heat heats drying cabinet and dries the clothes. Cost of operating stove 2 to 3½ cents per hour, figuring gas at \$1.00 per 1000 cu. ft. For residences we recommend dryers containing 3, 4 or 5 racks. Economically operated.

These dryers when built with three or more racks, may, when so specified, be provided (in lieu of gas stove) with our No. 10 stove which is designed for burning coal or wood. Our No. 10 stove occupies space of 27x30 in.



Chicago-Francis Gas Heated Cabinet Dryer

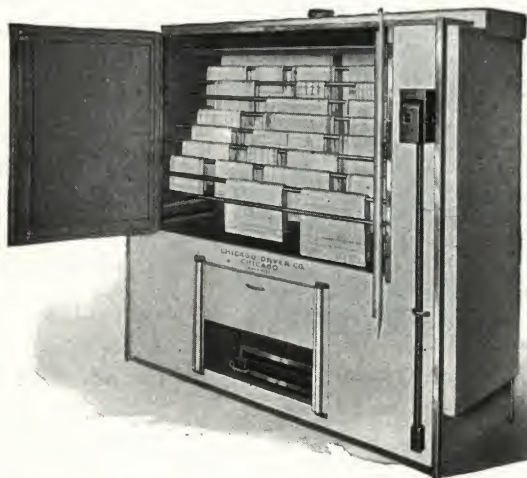
Uses and Sizes—Adapted for use in residences, apartment buildings, schools, clubs, etc. Sizes as follows:

Dryer No.	Height, in.	Width, in.	Depth, in.	Hanging capacity
G-209	72	62	21	60 lin. ft.
G-309	72	80	21	85 lin. ft.
G-409	72	80	26	117 lin. ft.

Description—Gas burner is contained in an interior drum. No flame exposed. No fumes or odors can possibly come in contact with the clothes. Complete air circulating system. Moisture carried away with minimum loss of heat. Equipped with ventilated hanging bars, which prevent overheating or injury to the most delicate fabric.

When used in apartment buildings, it is customary to provide one No. G-209 or G-309 size with each set of tubs. For residences, we recommend using the No. G-309 or G-409.

May be equipped with thermostatic heat control when so specified.



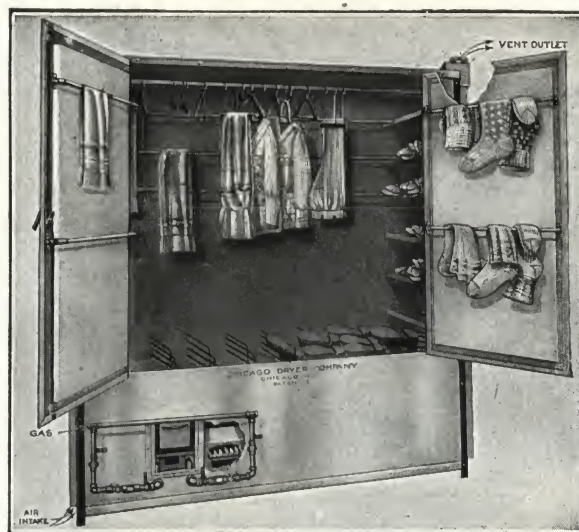
Chicago-Francis Electrically Heated Cabinet Dryer

Built in various sizes as follows:

Dryer No.	Height, in.	Width, in.	Depth, in.	Hanging capacity, lin. ft.
E-209	74	62	21	60
E-309	74	80	21	85
E-409	74	80	26	117

Approximate current consumption, 3 kw.

These dryers can be supplied for steam heat, in lieu of electric heat, when so specified. When steam heated, recommend that high pressure steam be provided.

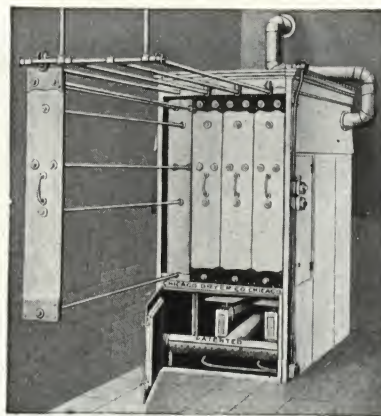


Chicago-Francis Cabinet Type Garment Dryer, No. 609

Suitable for use in golf club buildings for drying golf toggery, shoes, etc. Fire engine houses, athletic field houses, gymnasiums, baseball clubs, telephone exchanges, etc. Interior hanging arrangement may be varied to suit kind of garments, uniforms, athletic wearing apparel, boots, shoes, etc., to be dried. Standard size measures 84 in. high, 26 in. deep, 80 in. wide. Heated by means of gas, steam or electricity, as may be specified. When heated by electricity the current consumption is 4½ kw.

Chicago-Francis Electrically Heated Dryer (Rack Type) No. E49

Built in various sizes containing 2, 3, 4, 5 or 6 racks or draws, as may be specified. Each rack measures 9 in. wide and has a hanging capacity of 39 lin. ft.



Approximate current consumption, 1½ to 2½ kw. per each rack or draw, depending on requirements.

Chicago-Steam Heated Dryer, No. 8990



Built in various sizes containing 2, 3, 4, 5, 6, 7 or 8 or more racks or draws. Each rack measures 9 in. wide. Furnished either with or without heating coils as may be ordered. When we furnish heating coils, we supply 20 sq. ft. of radiation for each rack or draw.

For rapid service recommend that high pressure steam be provided.



*Chicago Electric Washer and Safety Wringer

Adapted for use in residences and small institutions.

Only machine on the market with wringer equipped with automatic conveyor for conveying clothes into rolls, and automatic safety stop which prevents tearing of clothes and insures absolute protection against possible accident to operator when wringing clothes.

Washer tub made of copper with nickeloid plating on inside. Framework is of heavy iron. Outside of washer tub, including framework, finished in white enamel. Provided with water inlet for stationary water and drain connections.

Will wash clothes thoroughly clean and without injury in 10 to 15 minutes. Equipped with $\frac{1}{4}$ hp. motor, which may be connected to any lighting circuit.

When planning, recommend washing machine being placed at either right or left end of stationary laundry tubs as shown in illustration.

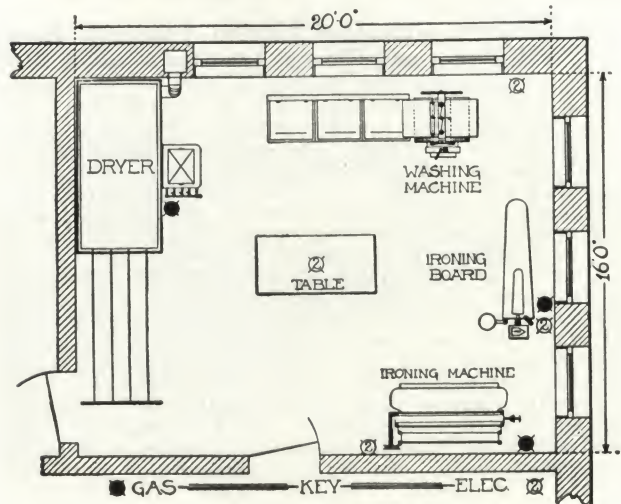
Made in the following sizes:

No.	Capacity, sheets	Size wringer, in.	Washer tub measures, in.	Occupies floor space, in.
214	9	14	26x18	26x34
314	12	14	26x21	26x37
414	15	14	26x24	26x40

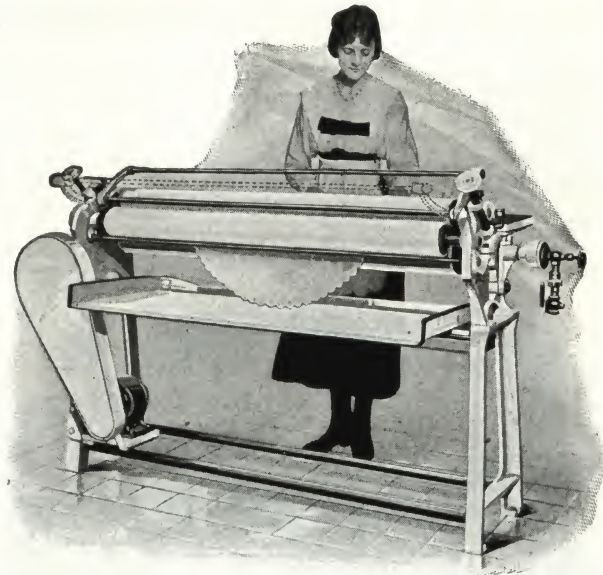
*Tested and approved by the Good Housekeeping Institute conducted by the "Good Housekeeping Magazine."

Floor Plan of Modern and Up-to-date Residence Laundry Room

Shows installation of Chicago laundry appliances.



SWEET'S



*Chicago Three-roll Gas Heated Ironer

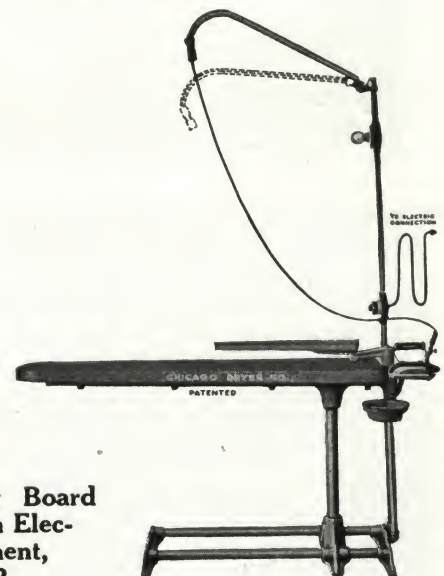
Suitable for ironing all kinds of flat work, such as sheets, pillow cases, towels, table linens, etc. Adapted for use in residences, apartment buildings and small institutions.

Equipped with 3 rolls, consisting of 1 heated and 2 compression rolls. All the rolls revolve. No wear on linens.

These machines are furnished equipped with atmospheric gas burner or burner with gas blower attachment in the following sizes:

Ironer No.	Length rolls, in.	Outside dimensions, in.	Size motor, h. p.	Type of gas burner
3-50A	50	28x 75	$\frac{1}{4}$	Atmospheric
3-50B	50	28x 75	$\frac{1}{4}$	Blower att.
3-60A	60	28x 85	$\frac{1}{4}$	Atmospheric
3-60B	60	28x 85	$\frac{1}{4}$	Blower att.
3-75B	75	28x100	$\frac{1}{2}$	Blower att.

*Tested and approved by the Good Housekeeping Institute conducted by the "Good Housekeeping Magazine."
Automatic Safety Stop Finger Guard approved by New York State Labor Safety Commission.



Chicago Ironing Board and Stand with Electric Attachment, *No. 302

Ironing board measures 60 in. long by $1\frac{3}{4}$ in. thick. Large end measures 16 in. wide and tapers to 10 in. at small end. Underside of board provided with patented attachment for holding padding. Base and stand finished in white enamel. Stand is self-contained and need not be fastened to floor.

*Tested and approved by the Good Housekeeping Institute conducted by the "Good Housekeeping Magazine."

Continued on next page

Chicago-Institutional Laundry Appliances

Chicago-Institutional Laundry Appliances may be advantageously used in hotels, hospitals, clubs, cafeterias, sanitariums, including public and private institutions of all kinds.

Chicago-Laundry Equipment eliminates the necessity of providing high pressure steam. Its initial cost as well as its operating cost is less than steam operated outfits. Our engineering department is at your free disposal. Plans and estimates submitted without obligation. We invite your inquiry.

We can supply individual machines or complete outfits consisting of Direct Motor Driven Cylinder Type Washing Machines, Gas or Electrically Heated Ironing Machines, Extractors, Tumbler Dry Rooms, etc. Our largest size gas heated ironer has a capacity of approximately 2000 lb. dry weight daily. Our complete outfits are used in hundreds of institutions with 100% satisfactory results in every instance. List of installations furnished on request.

Write for Bulletin No. 33.

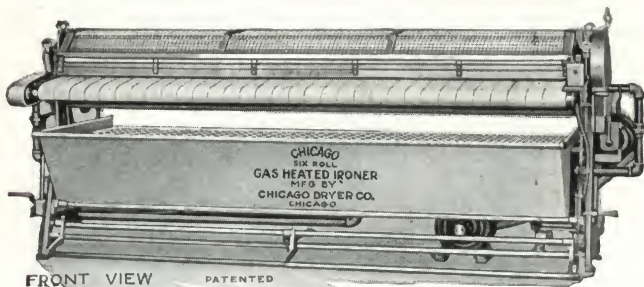


Chicago-Direct Motor Driven Cylinder Type Washing Machine, No. E-3136, No. E-3152 and No. E-3652

Operated by means of electric motor contained in housing. The direct unit drive attachment allows easy installation and economy in operation. Eliminates noisy and overhead line shaft. Made with wood shell and wood cylinder.

Built in sizes as follows:

Washer No.	Cylinder size, in.	Size motor, h. p.	Approximate capacity, sheets	Occupies floor space, in.
E-3136	31x36	$\frac{3}{4}$	30	46x76
E-3152	31x52	$\frac{3}{4}$	50	46x92
E-3652	36x52	1	75	54x100



Chicago-Six Roll Gas Heated Flatwork Ironer with Motor and Blower Attached

Completely Solves the Ironing Problem

For use in moderate sized hotels, hospitals, schools, clubs, sanitariums and institutions of all kinds.

Linens when run through singly may be taken *direct* from *extractor*, *dried* and *ironed* in *one pass*, at speed ranging from 10 to 20 lin. ft. per minute. Equipped with 6 rolls consisting of one hollow steel roll $10\frac{1}{2}$ in. in diameter which is heated internally by means of gas burner and 5 padded compression rolls. All the rolls revolve. No wear on linens. Compression rolls are compressed and raised from heated roll by means of *instantaneous foot control*. Equipped with ribbon feed attachment, including automatic safety stop finger guard and wire screen guard over compression rolls, approved by the New York State Labor Safety Commission.

Sizes as follows:

Ironer No.	Length of rolls, in.	Occupies floor space, in.	Size motor, h. p.	Approximate gas consumption per hour, cu. ft.
6-60	60	40x 90	$\frac{1}{2}$	75
6-80	80	40x110	$\frac{1}{2}$	100
6-100	100	40x130	$\frac{1}{2}$	125
6-120	120	40x150	$\frac{1}{2}$	150

Provide 1-in. gas supply.



Chicago-Direct Motor Driven Extractor, No. 20 in. Type M. D.

Basket measures 20 in. in diameter and is spun from extra heavy copper, tinned on inside and heavily reinforced to prevent bulging. Is supplied with safety cover interlocking device. Operated by means of $1\frac{1}{2}$ hp. motor. Occupies floor space 30x56 in.

Chicago-Six Roll Electrically Heated Ironer with Motor Attached

Made in two sizes, viz.:

Ironer No.	Length of rolls, in.	Occupies floor space, in.	Size motor, h. p.	Current consumption, k. w.
E6-75	75	40x105	$\frac{1}{2}$	16
E6-100	100	40x130	$\frac{1}{2}$	24

Descriptive folder with illustration furnished on request.

Chicago-Eleven Roll Gas Heated Flatwork Ironer with Motor and Blower Attached. No. 11-104

This machine has been designed to meet the requirements of larger sized hotels, hospitals, clubs and institutions, including commercial laundries, where capacity ironers are required. Our No. 11-104 is similar in design to our Six Roll Type. It is, however, equipped with 11 rolls consisting of one hollow steel roll, highly polished on external surface, measuring 24 in. in diameter, which is heated internally by means of 2 gas burners and 10 padded compression rolls. All the rolls revolve. No wear on linens. Rolls measure 104 in. in length.

Linens when run through singly may be taken *direct* from *extractor*—*dried* and *ironed* in *one pass* at speed ranging approximately from 10 to 40 lin. ft. per minute. Provided with ribbon feed attachment, including automatic safety stop finger guard and wire screen guard over compression rolls which has been approved by the New York State Labor Safety Commission. Capacity: approximately 2000 lb. dry weight daily.

The 10 padded compression rolls are compressed or released and raised from the heated roll by means of an *instantaneous foot control*. Our No. 11-104 measures 56 in. in width and 134 in. in length. Descriptive folder with illustrations furnished on request.

THE INTERNATIONAL NICKEL COMPANY, INC.

Monel Metal and Nickel and Allied Products

EXECUTIVE OFFICES
67 Wall Street
NEW YORK, N. Y.

MINES AND SMELTER: Copper Cliff, Ont., Canada
ROLLING MILL AND REFINERY: Huntington, W. Va.

REFINERY: Port Colborne, Ont., Canada
FOUNDRY: Bayonne, N. J.

For Our Other Products, see Manufacturers' Index

Products

MONEL METAL—available from stocks conveniently located throughout the country and made in all commercial forms required by manufacturers of laundry equipment. (See Manufacturers' Index, our section on Metals, for commercial forms and location of warehouses.) All necessary accessories such as nuts, bolts, screws, rivets, etc., are also available.



Monel Metal

Monel Metal is a registered trade-mark applied to a technically-controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Advantages of Monel Metal in the Laundry

- (1) Resists corrosive action of soaps, sour, bleaches, etc. Rustproof.
- (2) Does not spot or stain the wash.
- (3) Solid, glass smooth, wear-resisting surface that cannot harm delicate fabrics.
- (4) Saves floor space.
- (5) Strong as steel, withstands abuse.
- (6) Clean, sanitary and attractive in appearance.

Uses

Washers, extractors, trucks, utensils, chutes, hoppers, table tops, starching equipment, soap tanks, identification tags, clips, etc.

Development of Modern Laundry Machinery

In 1917 the first Monel Metal washers were built. These were placed in commercial laundry service for test and observation. The service given by these and other Monel Metal washers built during this experimental period was so satisfactory that Monel Metal was adopted as a standard material of construction for washers.

The new metal washers met with the general acceptance of the laundry industry and in the last ten years more than 15,000,000 lbs. of Monel Metal have been used in commercial, industrial, institutional and hotel laundries.

In 1929 one company adopted Monel Metal as standard basket construction for extractors. The satisfactory service of Monel Metal in laundries has naturally led to its wide adoption in dry cleaning plants.



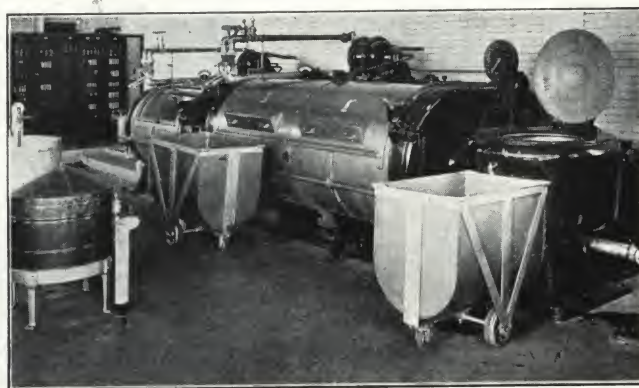
Some of the Monel Metal Washers in the Hotel New Yorker, New York, N. Y.

Transportation in the Modern Laundry

Chutes, hoppers and trucks. There is a definite trend in the modern laundry to adopt the production line principles so effective in industrial plants. Monel Metal construction has been found ideal for the various gravity hoppers and conveying chutes leading from washers on one floor to extractors below and for the trucks used to transport from washers to extractors where chutes are not used.

The same properties of Monel Metal, freedom from rust and corrosion, glass-smooth surface, strength and durability, as evidenced in washer service have been responsible for its wide specification for hoppers, chutes and trucks.

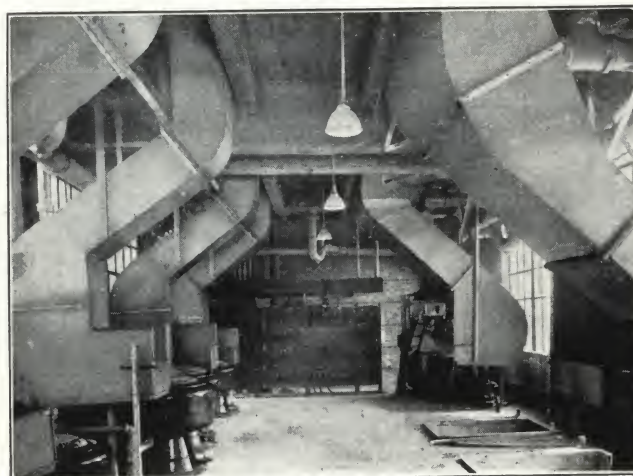
The names of reliable sheet metal workers skilled in building Monel Metal chutes, hoppers, and trucks will gladly be sent on request.



Monel Metal Washers and Trucks in the Laundry of the Montefiore Hospital, Pittsburgh, Pa.

Available Publications

- "Laundry Owners' Year Book."
- "Efficiency of Gravity Operation Is Introduced to the Laundry."
- "Gravity Operation Successful in Commercial Laundry."
- "Nesco Monel Metal Utensils."
- "A Laundry Is as Modern as Its Equipment."



Monel Metal Chutes in the Excelsior Laundry, Cincinnati, Ohio

DOMESTIC LAUNDRY EQUIPMENT CORPORATION

ENGINEERS, MANUFACTURERS AND CONTRACTORS

Efficient Drying Equipments and Laundry Appliances,
and "Judelson" Dryers

TELEPHONE
STILLWELL 4594-5-6

OFFICES, PLANT AND SHOWROOMS

Harris Avenue and Boulevard, LONG ISLAND CITY, N. Y.

Every Device for the Domestic Laundry in Single Units or Complete Plants

Complete Laundry Equipments for the home, apartment buildings, clubs and small institutions.

Clothes Dryers constructed to fit any requirements.

Clothes Washers.

Ironing Machines.

Special made Laundry, Skirt and Valeting Tables with Electric or Gas Equipment.

Gas, Steam or Electric Heated Clothes Boilers, Soap Tanks and Starch Cookers.

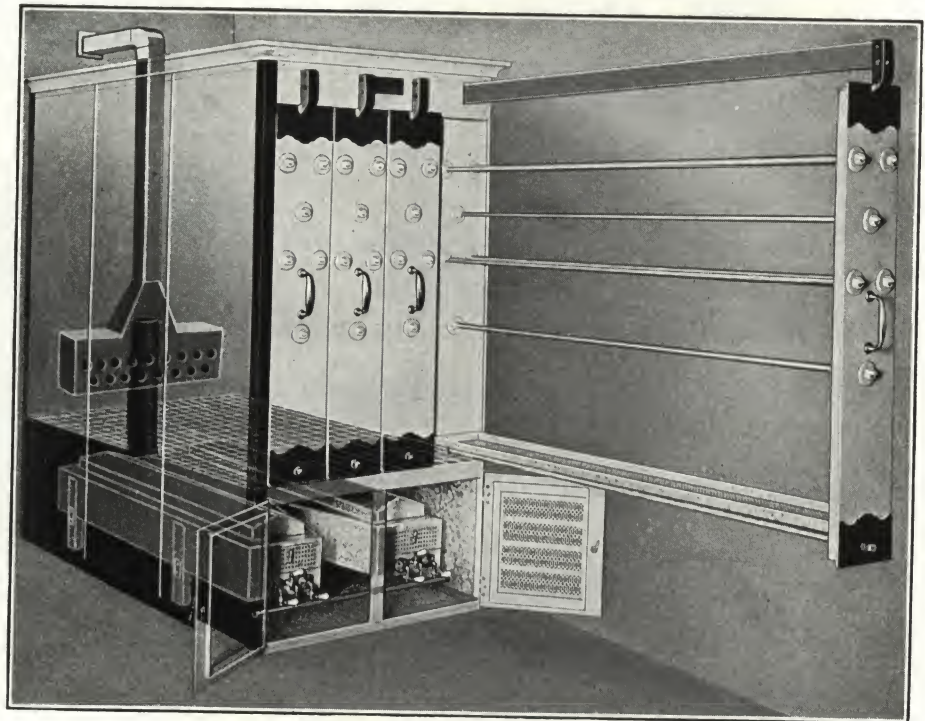
Laundry Supply and Linen Cabinets.

Experience

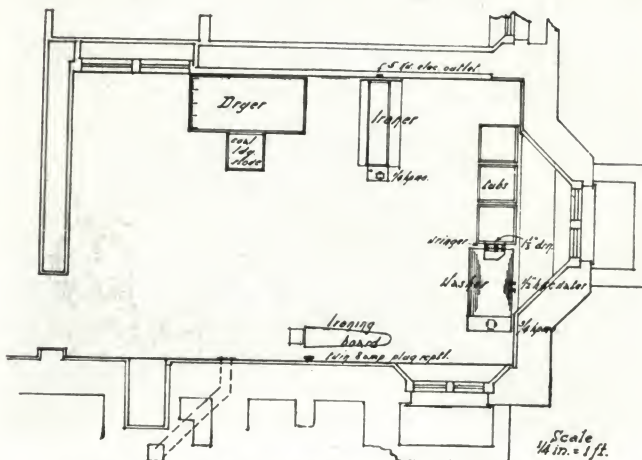
Over thirty years of actual knowledge of, and experience with, the requirements in this line have caused us to create and develop the most efficient and highest type of laundry devices for the domestic service, and our many complete equipment installations in the finest homes have won for us the distinction of being specialists in this field.

Note to Architects

We solicit the privilege of assisting and co-operating in the planning and proper arrangement of laundry rooms for apartment houses, residences or institutions. Send in blue print or tracing of space to be allotted to the purpose and a general idea of the requirements, and we will return plans, specifications, illustrations and prices.



"Judelson" Dryer with (Patented) Indirect Interior Gas Radiator



Floor Plan of a Typical Residence Installation

An outstanding feature of this Dryer (illustrated above) is the new "Judelson" Type of hanging rack construction which eliminates both (1) overhead traveler bars, and (2) the floor carriage rack arrangement previously in use.

This is the latest and most perfect development in rack construction, and is adaptable to conditions where doors and overhead obstructions interfere. Its appearance is a radical improvement over former types, doing away with the unsightly superstructure heretofore required.

Heated by either interior gas radiator, gas or coal stove attached, steam coils or electric elements.

The number of racks selected is determined by the volume and character of work to be done.

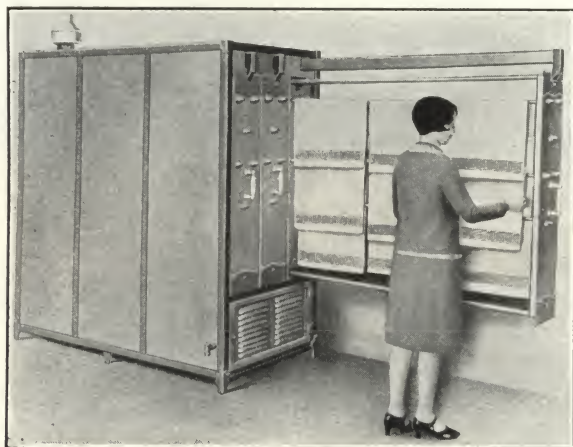
Standard over-all dimensions—length 7 ft., height 7 ft. 6 in. (subject to modification to suit job conditions), width determined by number of racks required.

Rack widths 9 in. (6 bars 39 lin. ft.) and 10 in. (8 bars 52 lin. ft.).

JUDELSON DRYERS—APPROVED BY AMERICAN GAS ASSOCIATION TESTING LABORATORIES

Drawer Style

This style of Judelson Dryer has been given the preference in many of America's finest homes and apartment houses. The racks slide in and out smoothly on a ball bearing arrangement and laundry may be placed on or removed from the hanging bars with the utmost ease and comfort. When racks are extended the rear panels of the drawers seal the front of the cabinet, preventing escape of heat and discomfort to user.

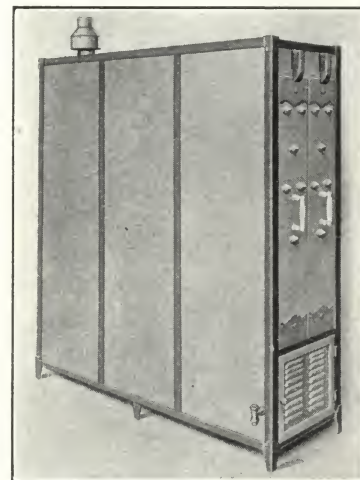


No. 903. Three-drawer Type

Eighteen-sheet capacity—equal to 97½ feet of clothes line. Dimensions: width, 2 ft. 7 in.; height, 6 ft. 3 in.; height, including down-draft diverter, 6 ft. 9 in.; length, 6 ft.; rack extension, 5½ ft. Floor space, 3x11½ ft. Shown with one rack extended. Note how rear panel on extended rack seals front of dryer—preventing escape of heat and discomfort to user when drawer is opened for hanging or removing clothes.

The body construction is exceedingly rigid and rests on sturdy legs raising it 3 in. from the floor. *Double wall panels with ¾-in. air insulating space between casings* are made of heavy gauge, rust-resisting Cop-R-Loy steel. The unique method of construction not only adds strength and rigidity to the cabinet but also conserves the heat in the dryer, prevents it from radiating into the laundry room and eliminates hot outer casings.

The patented Judelson Heating System is highly efficient, distributes the heat evenly throughout the drying chamber and is controlled by *automatic thermostat*. A protective screen is placed above the enclosed heating element and there is an extra screen at the bottom of each individual drawer for drying anything that cannot be readily placed on the bars. Finished attractively in French gray with light blue trim.



No. 902. Two-drawer Type

Twelve-sheet capacity—equal to 65 feet of clothes line. Dimensions: width, 1 ft. 10 in.; height, 6 ft. 3 in.; height, including down-draft diverter, 6 ft. 9 in.; length, 6 ft.; rack extension, 5½ ft. Floor space, 2 ft. 3 in. x 11½ ft.

Cabinet Style

The Judelson Cabinet Dryer embodies the most desirable features ever combined in a cabinet style dryer. The heating, ventilating and evaporating system is the same as that used in the Judelson drawer style dryer and carries the same high standards of workmanship and materials. The cabinet is made of heavy gauge Cop-R-Loy rust-resisting steel and the rigid, *air-insulated double panels* prevent radiation of heat into the laundry room and eliminate hot outside casings.

Another special feature of the Judelson Cabinet Dryer is the arrangement of baffles which prevent the escape of heat and discomfort to the user when the cabinet doors

are open for hanging or removing clothes. The baffles operate automatically with opening and closing of cabinet doors. An interior view is shown below at right.

The patented Judelson Heating System is highly efficient, distributes the heat evenly throughout the drying chamber and is controlled by *automatic thermostat*. A protective screen is placed above the baffles and enclosed heating element. The hanging bars are conveniently arranged and have a capacity in excess of the full load of a domestic washer. Finished attractively in French gray with light blue trim.



No. 602. Cabinet Type

Twelve-sheet capacity—equal to 65 feet of clothes line. Dimensions: width, 6 ft.; height, 6 ft.; depth, 2 ft. Floor space, 2 ft. 5 in. x 7½ ft.

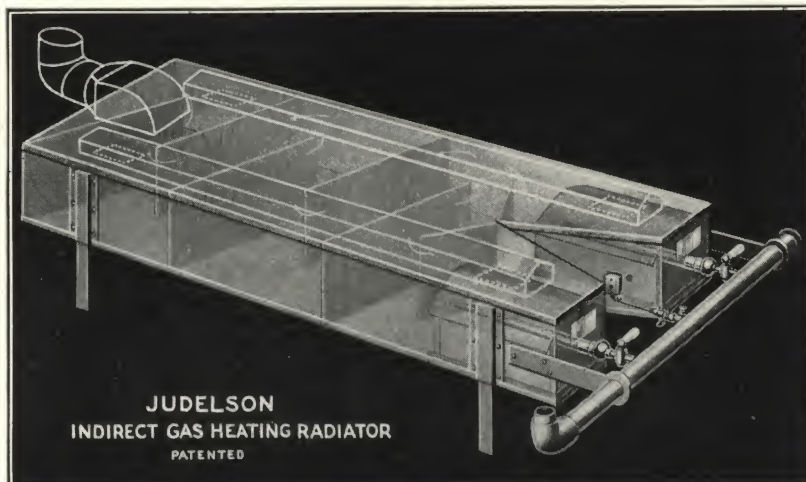
All Judelson Dryers forwarded in knock-down form, properly crated and marked for assembling and erection. No bolts or screws required. Easily assembled by following instructions in about thirty minutes.

The Judelson Heating Element for Gas

The interior portion of the Judelson Gas Heating Element is shown at the right.

An unusually long heat travel is created in the radiating drum by means of the patented arrangement of baffling, which controls the flow of heat and breaks up the products of combustion. The construction and arrangement of the essential parts develop the highest efficiency ever obtained in a gas-heated dryer.

All products of combustion consumed within heating unit; only moist vapors passing through to flue. Adapted for city, manufactured, mixed or natural gas. In ordering, designate which is required. Maximum efficiency at minimum operating cost.



"DOMESTIC" DRYERS OF VARIOUS TYPES FOR VARIOUS PURPOSES

All our dryers are built-to-order to suit the locations for which they are intended. The number and size of racks are determined by the number of persons to be provided for and the character of work to be done. The heating system is chosen by conditions governing the jobs—if gas is available it should have preference; if not, coal stove, steam or electric heating may be employed.

All dryers are constructed of heavy angle iron framework, with casing or housing of best galvanized iron. Housing and top doubled with 1-in. air space to prevent heat radiation. Rack fronts are doubled and asbestos lined. Separate hinged access doors

to heating system. Handles and hardware of brass.

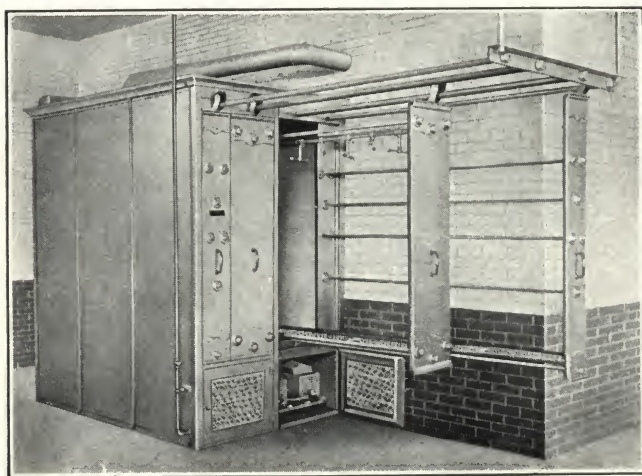
All dryers are equipped with double wire mesh screen guard, one over the heating system and one attached to bottom of each rack for drying articles that cannot be conveniently hung on bars, and to catch garments that may slip from bars while racks are in motion.

When racks are extended the rear frame seals the aperture in face of dryer cabinet, conserving temperature and preventing escape of heat. All hanging bars are specially hot galvanized and ventilated.

All features are patented.

Standard over-all dimensions of all dryers—length 7 ft., height 7 ft. 6 in. (subject to modification to suit job conditions), width determined by number of racks required.

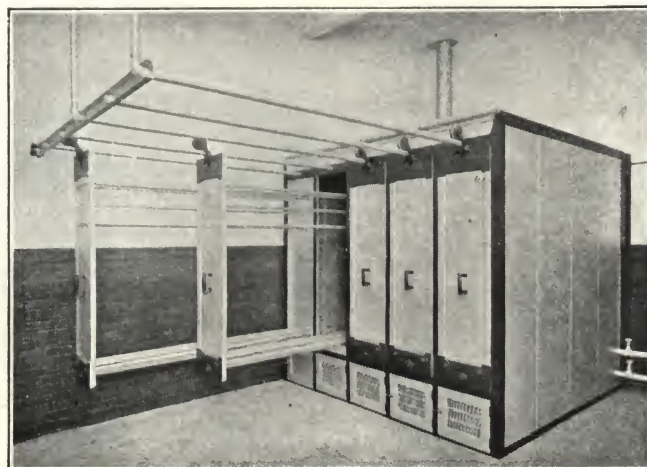
Rack dimensions are 9 in. wide (6 hanging bars 39 lin. ft.) and 12 in. wide (8 bars 52 lin. ft.).



"Domestic" Athletic Garment Dryer—For Golf, Tennis Clubs, Squash Courts, Stadiums, Gymnasiums, etc.

A sanitary cabinet designed for the efficient drying of wearing apparel in the locker room. Eliminates the discomfort of wet clothes and their menace to health; removes body moisture from garments and insures an odorless locker room with clean smelling garments for the day's play. A vital and essential service for the comfort and convenience of members and guests.

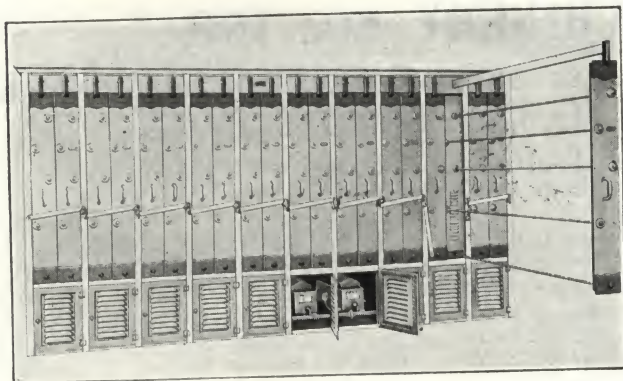
Heated by interior gas, steam or electric units. Contains two 15-in. and two 9-in. racks (or such sizes and combinations as required). Wide racks for coats, knickers, sweaters, hose, etc. Narrow racks for underwear, towels and flatwork. Screen shelves for shoes, etc.



"Domestic" Model Type Steam Heated Dryer

For use in institutions where steam is available. Dryer is heated by steam coils within casing.

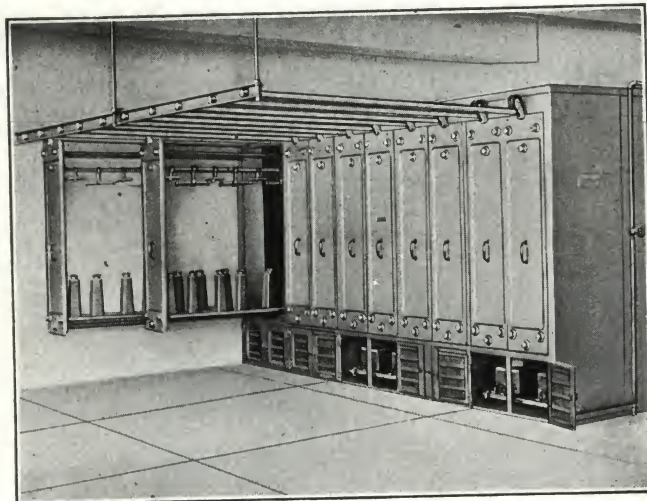
Requires steam supply and return connections—sizes governed by amount of radiation



"Judelson" Multiple Family or Apartment House (Locking) Dryer

For use in apartment houses or similar requirements. Built in sections or compartments each containing two or three racks, with angle iron uprights and galvanized iron partitions between compartments. Each compartment is numbered and secured with a cross bar and individual lock with duplicate keys. Racks are 7½ or 9 in. wide. Interior gas or steam heated.

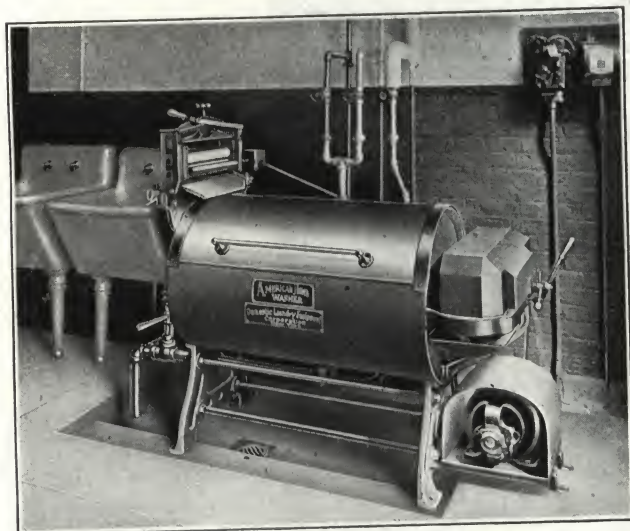
Allow one compartment for each set of tubs, or the number of compartments may be determined by the number of families based on a 3-day service, for example—a 30-family apartment requires a 10-compartment dryer to do the work in 3 consecutive days



"Domestic" Type "U" Uniform, Garment, Blanket and Rubber Boot Dryer

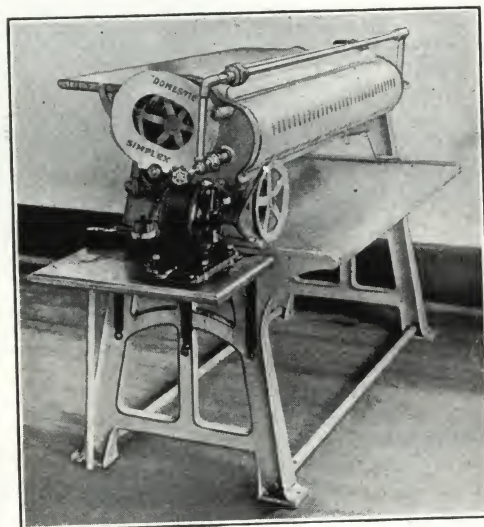
Designed for use in fire houses, police stations, post offices, stables, milk depots and similar requirements.

Equipped with coat and trouser hangers, garment and blanket racks, boot holders, etc., in such combination as may best suit the purpose in hand. Cabinet is 7 ft. 6 in. long and 7 ft. 6 in. high, the width determined by the number and sizes of racks. The racks are 15, 16¼ or 18 in. wide. Heated by either steam, gas or electricity



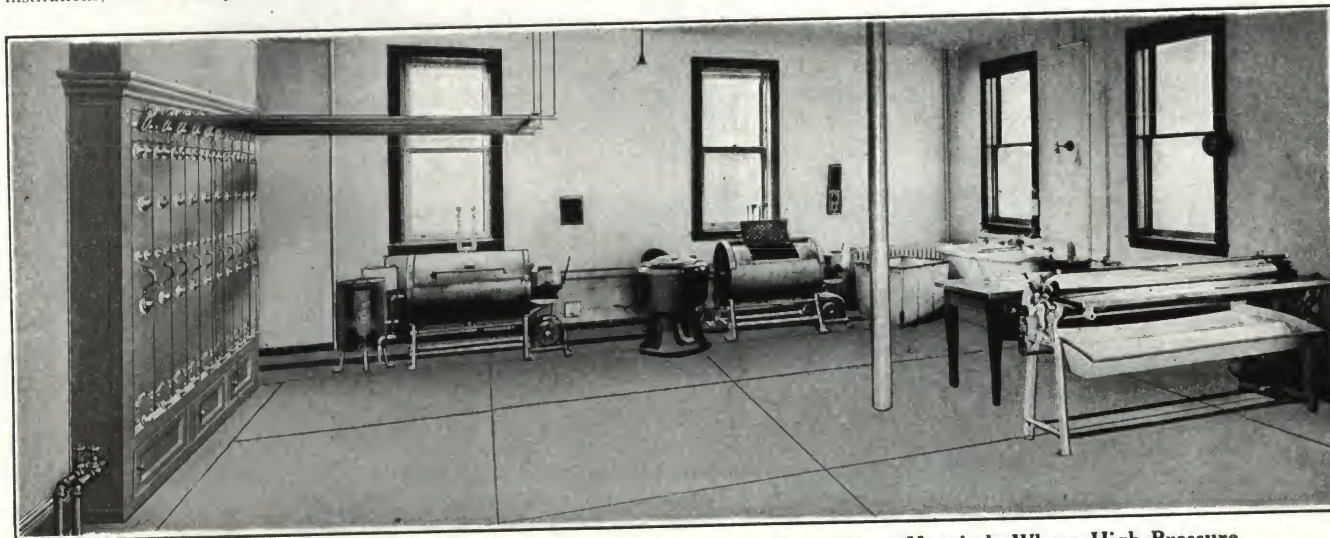
"Domestic" Washer and Safety Wringer

A substantial and efficient motor driven washer. Made in two sizes, 20 and 25-sheet capacity; particularly adapted to large families, clubs, institutions, etc. Brass cylinder, copper body



"Domestic" Simplex Ironer

Stationary shoe and revolving padded roll, gives results of handwork on all kinds of flat work. Gas or electric heated. Made for every requirement in three sizes, 46, 48 and 56-in. roll lengths



A Comprehensive "Domestic" Laundry Plant, Designed for Institutions or Hospitals Where High Pressure Steam Is Not Available

TROY LAUNDRY MACHINERY CO., INC.

Manufacturers of Complete Laundry Equipment for Commercial and Industrial Laundries, Dry Cleaning Plants, Hospitals, Sanatoria, Hotels, Schools and Clubs

FACTORY
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EUROPEAN AGENTS: JAMES ARMSTRONG & CO., LTD.

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LAUNDRY MACHINERY



Troy-equipped Laundry of Essex County Isolation Hospital, Belleville, N. J.

Troy Engineering Service

Our Engineering Service Department will assist in planning, laying out and preparing specifications for laundries of any size or type.

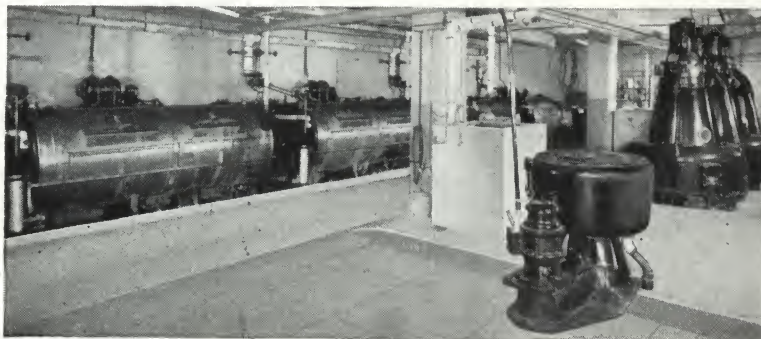
Care and expert attention should be employed in planning the laundry. Many factors are to be considered. Machinery installations and equipment layout vary with the work to be done, the space available, the location of doors, windows and bin space. Linens and garments should pass through the various processes without waste motion—in a direct line from one operation to another.



As an aid to architects, engineers, building committees and executives in laying out laundry facilities, Troy offers without charge the Troy Engineering Service for assisting in any phase of planning and equipping laundry plants in any size or type of project.

Troy Laundry Machinery

Feel free to consult Troy Engineering Service on any problems involving laundry plans, construction, equipment and operation. Write for complete information on Troy Machinery and Troy Service.



Troy Machinery in the Laundry of the Ambassador Hotel, Los Angeles, Cal.

Information Required

When estimating or planning laundry equipment it is necessary and advantageous to all parties concerned to supply the following information:

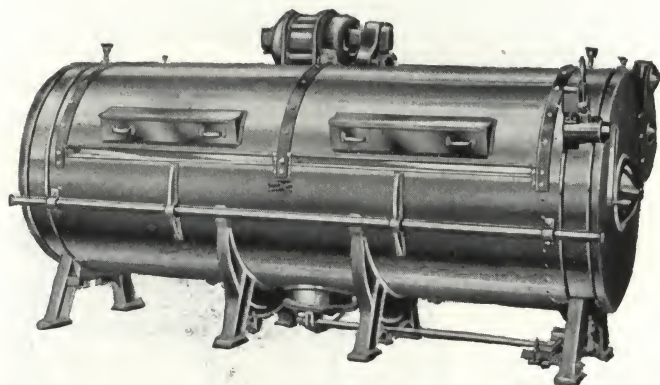
- (1) Type and size of institution or plant.
- (2) Nature of work to be done.
- (3) Number of square feet of floor space available for laundry.
- (4) Height of ceiling.
- (5) Size of doors, windows, or other openings to laundry.
- (6) Current characteristics of lighting system and power lines.
- (7) Ventilation facilities available.
- (8) Number and size of electric power outlets.
- (9) Number and size of electric motors.
- (10) Number and size of steam, water and waste outlets.
- (11) Size of soiled linen room.
- (12) Size of clean linen room.

Premier Washers, Motor or Belt Driven

Troy Premier Washers are built in three cylinder diameter sizes, 36, 42 and 54 in. The two smaller sizes are available with horizontally or vertically partitioned monel cylinders and either wood or monel shells. The 54-in. Premier has the "Y pocket" type of horizontal partition and is monel throughout.

Premier Washers are made in either motor or belt driven models.

Type A motor drive consists of (a) direct geared reversing motor, mounted on channel supports; (b) a combined inching switch and mechanical brake in conjunction with gear lock; (c) a timer station and re-



Premier Washer, 42x94 In., Monel Shell, Monel Cylinder, Type A Motor Drive

DETAILED SPECIFICATIONS, TYPE A MOTOR DRIVE PREMIER WASHERS

Size of machine, in.	Cylinder, r.p.m.	Floor span, in.	Floor space, in.			Shipping weight, lbs.	Cylinder volume, cu. in.	Maximum capacity dry wt., lbs.
			L	W	H			
36x36	26	39 1/2	81	59	68	2750	36644	110
36x54	26	39 1/2	99	59	68	3400	54967	165
36x62	26	39 1/2	107	59	68	3650	63110	190
36x70	26	39 1/2	115	59	68	3900	71253	215
36x84	26	39 1/2	129	59	68	4150	85504	260
36x94	26	39 1/2	139	59	68	4400	95683	285
42x36	22	39 1/2	81	64	72	3900	49874	150
42x54	22	39 1/2	99	64	72	4150	74812	225
42x62	22	39 1/2	107	64	72	4300	85895	260
42x70	22	39 1/2	115	64	72	4550	96978	290
42x84	22	39 1/2	129	64	72	4900	116374	350
42x94	22	39 1/2	139	64	72	5050	130228	395
54x84	16	49	121	82	88	8100	192376	580
54x108	16	49	145	82	88	9700	247341	740
54x120	16	49	157	82	88	10800	274824	820

*Shipping weight on belt driven washers averages 300 to 600 lbs. less; on Type B motor driven washers 50 lbs. less.

versing control, arranged for wall or panel mounting; and (d) a safety switch on shell doors.

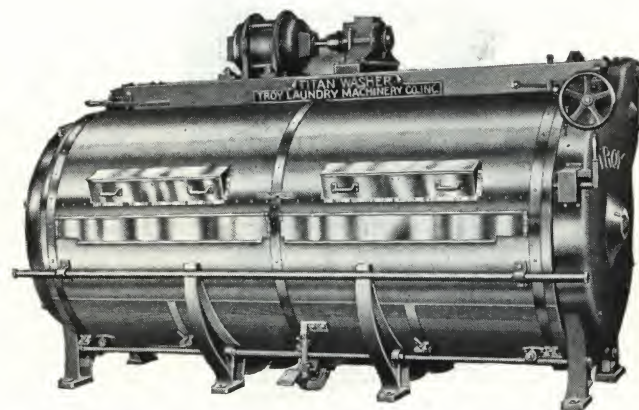
Type B motor drive consists of a one-way motor belted to countershaft by Graton & Knight chain belt, with starting switch or rheostat in steel cabinet.

Belt drive with elevated header consists of a positive reversing mechanism, arranged for wide belts and furnished with handle for starting and stopping machine.

Titan Washers, Wood Cylinder, Motor or Belt Driven

This new Troy Washer, the Titan, is built to handle large volume at low cost for operating and maintenance expenses. Its cylinder diameter is 44 in. and may be had in lengths up to 120 in.

The cylinder is made of close-figured, long-leaf yellow pine. Perforations are staggered for cross-sectional strength. Cylinder hoops, shell trim, ribs and



Titan Washer, 44x84 In., Wood Cylinder, Wood Shell with Monel Trim, Type A Motor Drive

pullman partitions are made of strong brass or monel metal, whichever the purchaser prefers.

The frame of the Titan—made of iron cast in one piece—supports the shell and cylinder independently, assuring full absorption of driving strength. Every advanced safety feature is incorporated to make operation absolutely danger-free.

Titan Washers may be had in either Type A motor drive or belt drive-elevated header models.

DETAILED SPECIFICATIONS, TYPE A MOTOR DRIVE TITAN WASHERS

Size of machine, in.	Cylinder, r.p.m.	Floor span, in.	*Floor space, in.			Shipping weight, lbs.	Cylinder volume, cu. in.	Maximum capacity dry wt., lbs.
			L	W	H			
44x48	25	39 1/4	81	66	81	6000	55411	175
44x54	25	39 1/4	92	66	81	6200	63234	195
44x60	25	39 1/4	98	66	81	6500	71057	220
44x72	25	39 1/4	110	66	81	7000	86702	270
44x84	25	39 1/4	122	66	81	7400	102348	320
44x96	25	39 1/4	134	66	81	7900	117994	365
44x108	25	39 1/4	146	66	81	8300	133639	415
44x120	25	39 1/4	158	66	81	8900	149285	465

*Width of belt driven-elevated header washers is 67 in.; height is 73 in. †Shipping weight on belt driven-elevated header washers averages 300 to 500 lbs. less than on Type A motor driven washers.

Marathon Extractors, Motor or Belt Driven

The Marathon Extractor is designed to handle large size loads with an economy of space and power consumption. Its speed, smooth running, easy starting and stopping assure savings in operation. Its rigid construction—shell and curb of heavy cast iron; basket of hand hammered, corrosion-defying copper, reinforced by steel bands—guarantees long service under stress and

strain. Perfect balance, improved lubrication make operation and maintenance simple.

Vertical motor, mounted on cast iron base with adjustable platform for tightening belt and equipped with push button starter and control for wall mounting, is standard motor drive for Marathons. Horizontal motor if desired.

When belt driven, the Marathon Extractor is equipped with angle or straight type countershaft attached, consisting of tight and loose pulleys with friction pulley, mounted in a cast iron frame bolted to the curb. The countershaft is so arranged that the extractor can be set either facing the same direction as the washers when driven off the same lineshaft, or at end of a row of washers, or between a row of washers. The Marathon is also available with a detached countershaft.



**Marathon
Extractor,
Vertical Motor
Drive,
26-in. Size**

DETAILED SPECIFICATIONS, MARATHON EXTRACTORS

Size of machine, in.	Volume of basket, cu. in.	Basket, r.p.m.	Floor range, in.	Dry weight, lbs.	Wet weight, lbs.	Shipping weight* lbs.
20	3060	1500	24x24	20	30	1200
24	5110	1300	29x29	36	54	1800
26	5920	1200	29x29	40	60	1950
28	7580	1100	32x32	52	78	2050
30	9920	1000	32x32	66	100	2200

*Figures listed are for vertical motor model. Shipping weight on countershaft models averages 400 lbs. less; on horizontal motor driven models 100 lbs. less than on vertical motor model.

Mercury Clear Top Extractor, Motor Drive

The Mercury Extractor is a highly perfected self-balancing, time controlled and automatically operated clear top extractor of large capacity. Its design is a complete departure from that commonly used in clear top machines in that all exterior parts of the extractor,

**Mercury Clear Top
Extractor, Motor Drive,
48-in. Size**



including the entire curb and motor, are all stationary, the basket being of the self-balancing type, free to oscillate independently of curb and motor mounting. This insures vibrationless operation with the resultant freedom from shocks, strains and jars which weaken floor bolts and transmit stress to foundations.

All of these bearings are provided with alenite lubrication.

Easily accessible brake, safety cover and automatic timing control are additional Mercury features which make for fast, efficient, trouble-free extraction.

DETAILED SPECIFICATIONS, MERCURY CLEAR TOP EXTRACTOR, MOTOR DRIVE

Size of basket, in.	Motor hp.	Volume of basket, cu. in.	Basket and motor, r.p.m.	Floor space, in.			Shipping weight, lbs.
				L	W	H	
48	5	37000	800	74½	83	48	6800

Premier Drying Tumblers, Motor or Belt Driven

The Premier Drying Tumbler, utilizing the most modern, nature-like drying principle, constant up-draft suction of great volumes of fresh air at low temperature, leads in drying capacity and cleanliness of operation.

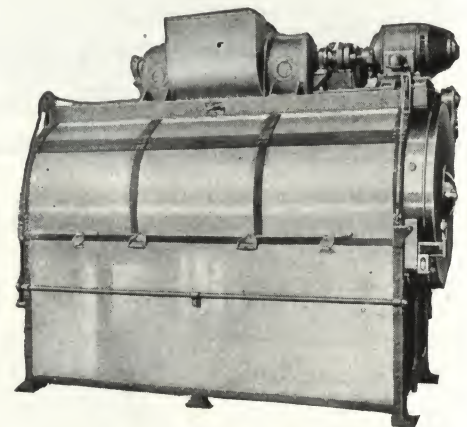
High speed, high volume fans, with fan inlet ducts at the top of the tumbler, assure perfect circulation of air through wide-mesh wire cylinder. Steam coil is at bottom of machine, correctly placed. Steady up-draft suction and absence of blast-drying eliminate lint trouble, as all lint is blown away from machine through outlet piped to outside of building.

Premier Tumblers are motor or belt driven. 120-in. models are available in Type A motor drive or belt drive with elevated header only.

All other models may be had in Type A, Type B motor drives and belt drive.

For special installations all models other than 120-in. size can be had with belt driven cylinder—motor driven fan, or with countershaft drive.

**Troy Premier
Drying Tumbler,
42x90-in.
Size, Type A
Motor Drive**



DETAILED SPECIFICATIONS, PREMIER DRYING TUMBLERS, TYPE A MOTOR DRIVE

Size of machine, in.	Cylinder, r.p.m.	Floor space, in.			Shipping weight, lbs.	Capacity dry load, lbs.
		L	W	H		
36x36	28	80¼	50¼	85¼	4800	30 to 40
36x48	28	87	50¼	85¼	5300	45 to 45
42x42	26	77½	53½	98	5400	55 to 70
42x60	26	88¾	53½	98	6600	85 to 100
42x90	26	112	53½	98	8600	125 to 150
42x120	26	168	53½	98	12000	170 to 200

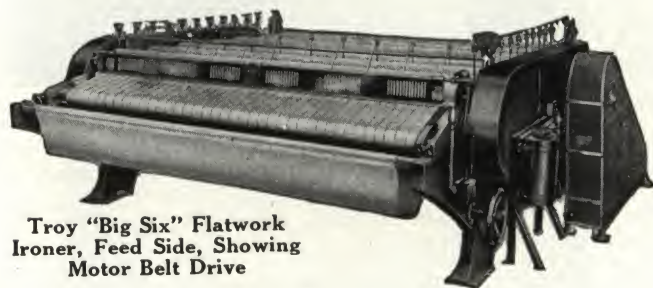
Troy "Big Six" Flatwork Ironers

This flatwork ironer is a chest type machine, having six steam chests and six padded rolls, with the necessary canvas aprons for conveying the goods being ironed, from chest No. 6 to the front side of the machine and back to the delivery table. Fully equipped with controlling and safety devices, Troy Flatwork Ironers provide an economical, efficient machine for turning out large quantities of smooth-finished flatwork.

The driving mechanism of this machine is what is known as the *motor belt drive*. This drive consists of a motor located at the rear of the ironer, then belted direct to the pulley on the drive shaft of the ironer. A suitable drum controller or rheostat is provided, this device enabling the user to change or vary the speed of the machine according to the class of work being ironed, without the use of countershaft or any variable speed device not directly connected with the machine.

Troy "Big Six" Ironers are made in the 110 and 120-in. widths only. The Troy "Big Four" Flatwork Ironer, made in 100, 110 and 120-in. widths, each having four steam chests and four padded rolls, is constructed in accordance with the general specifications of the "Big Six."

For heavier work there is the Troy "Big Eight" Flatwork Ironer constructed on the same plan as the "Big Six" Ironer but with eight steam chests and eight padded rolls. The "Big Eight" Ironer is made in the 120-in. width only.



Troy "Big Six" Flatwork Ironer, Feed Side, Showing Motor Belt Drive

DETAILED SPECIFICATIONS, TROY FLATWORK IRONERS

Type	Size of machine, in.	Floor space, in.			Shipping weight, lbs.
		L	W	H	
Big 4.....	100	149	149	64	14000
Big 4.....	110	159	149	64	16000
Big 4.....	120	169	149	64	17000
Big 6.....	110	152	181	64	22000
Big 6.....	120	184	181	64	24000
Big 8.....	120	184	213	64	32000

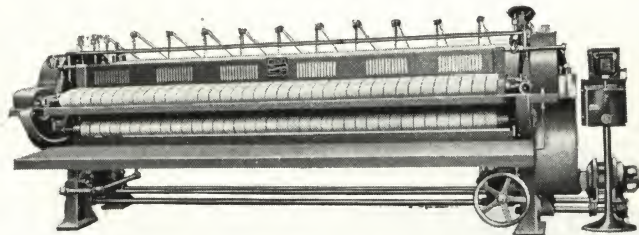
Troy Standard Two-roll Ironers (Motor or Belt Driven)

This machine is a chest type ironer, having two steam chests and two padded rolls and using the same major parts and general construction as is used in the Troy "Big Four," "Big Six," and "Big Eight" Roll Flatwork Ironers. The principal difference is that the Two-roll Ironer utilizes a set of return ribbons which hold the goods being ironed against the bottom of the chest, and deposit them on a table directly below the feed. This eliminates the necessity of maintaining operators on the side of the machine opposite the feed. This feature of same-side feed and delivery provides an ironer of exceptional capacity for the floor space required and cuts labor costs practically in half.

The drive of this machine consists of a variable speed motor directly geared to the main drive shaft.

A suitable rheostat or speed changing controller is provided for changing the speed of the ironer according to the thickness of work being put through. Just above the ribbon feed device is hung a safety stop plate so arranged that the operator's fingers cannot pass between it and the ribbon feed, and a very slight touch of the fingers moving the plate will disengage the power mechanism and bring the machine to an instantaneous stop.

This ironer is also made in belt driven types.



Troy Standard Two-roll Flatwork Ironer, 100-in. Size, Motor Drive

DETAILED SPECIFICATIONS, TROY STANDARD TWO-ROLL FLATWORK IRONERS, MOTOR DRIVE

Size of machine, in.	Motor hp.	Floor space, in.			Shipping weight, lbs.
		L	W	H	
100	1	152	62	54	8100
120	1	172	62	54	9100

Troy Dry Cleaning Machinery

Troy manufactures a complete line of dry cleaning machinery. All dry cleaning equipment is designed to afford lasting economical service to the dry cleaner and each unit is constructed in strict accordance with safety codes. Machines are belt driven or equipped with explosion proof motors.

Listed below are the major Troy-made dry cleaning units. Full details and specifications on request.

Deodorizing cabinets
Marathon extractors
Mercury clear top extractors
Over belt driven extractors
Large piece dry cleaning washers
Metal shell dry cleaning washers
Premier tumblers
Star dry cleaning washers
Titan dry cleaning washers

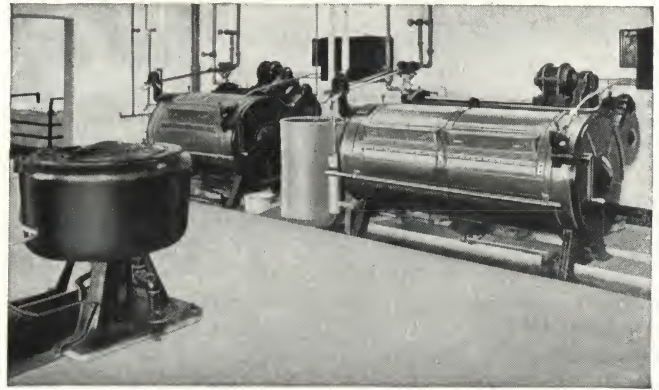
Troy Laundry Accessories

Blanket napping machines
Blanket washers
Body presses
Collar presses
Collar starchers
Copper kettles
Cuff presses
Curtain stretchers and dryers
Dampeners
Deodorizing cabinets
Disinfectors
Dry rooms
Electric irons
Folding and stacking tables
Handy (small size) ironers
Ironing boards
Laundry tubs
Neckband presses
Panel control boards
Scales
Scoop shake out tables
Shirt ironing boards
Sleeve ironers
Soap tanks
Starch cookers
Sterilizing washers
Starch extractors
Suspension brackets
Truck tubs
Utility presses
Ventilating fans
Ventilating hoods
Washroom trucks
White pine tables
Wringers
Yoke presses

Representative Troy Installations

Hospitals and Institutions

Hillman Hospital, Birmingham, Ala.
 Peralta Hospital, Oakland, Cal.
 Royal Victoria Hospital, Montreal, Can.
 Denver General Hospital, Denver, Colo.
 Waterbury Hospital, Waterbury, Conn.
 City Hospital, Miami, Fla.
 Athens General Hospital, Athens, Ga.
 Garfield Park Hospital, Chicago, Ill.
 Indiana Methodist Hospital and Nurse's Home, Indianapolis, Ind.
 Mercy Hospital, Cedar Rapids, Iowa
 Boston City Hospital, Boston, Mass.
 U. S. Naval Hospital, Chelsea, Mass.
 Cooley-Dickenson Hospital, Northampton, Mass.
 Henry Ford Hospital, Detroit, Mich.
 General Hospital, Kansas City, Mo.
 St. Luke's Hospital, St. Louis, Mo.



Troy Premier Washer and Marathon Extractor in the Laundry of the Peralta Hospital, Oakland, Cal.



Troy-equipped Laundry of the Presbyterian Hospital, Newark, N. J.

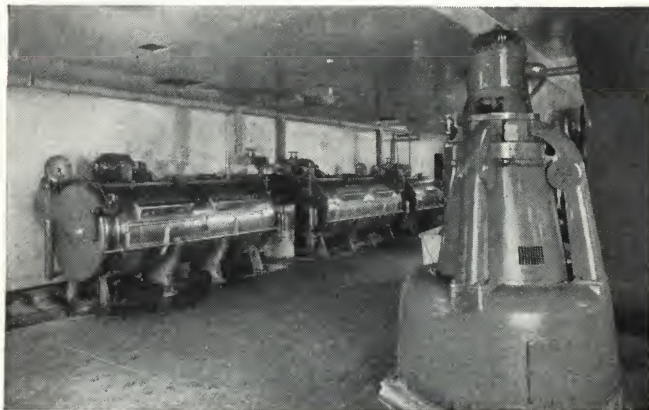
New Hampshire State Hospital, Concord, N. H.
 Essex County Isolation Hospital, Belleville, N. J.
 Englewood Hospital, Englewood, N. J.
 Presbyterian Hospital, Newark, N. J.
 Buffalo General Hospital, Buffalo, N. Y.
 Brooklyn Eye and Ear Hospital, Brooklyn, N. Y.
 German Evangelical Home, Brooklyn, N. Y.
 Long Beach Hospital, Long Beach, L. I., N. Y.
 Rockefeller Institute Hospital, New York, N. Y.
 Women's Hospital, New York, N. Y.
 Leake and Watts Orphanage, Yonkers, N. Y.
 City Hospital, Cleveland, Ohio
 Shriner's Hospital, Portland, Ore.
 Torrance State Hospital, Torrance, Pa.
 Lying-in Hospital, Providence, R. I.
 Columbus Hospital, Seattle, Wash.
 Misericordia Hospital, Milwaukee, Wis.

Hotels

Ambassador Hotel, Los Angeles, Cal.
 Los Angeles-Biltmore, Los Angeles, Cal.
 Sir Francis Drake, San Francisco, Cal.
 Taft, New Haven, Conn.
 Grace Dodge, Washington, D. C.
 Miami-Biltmore, Coral Gables, Fla.
 Henry Grady, Atlanta, Ga.
 Blackstone, Chicago, Ill.
 Stevens, Chicago, Ill.
 Lord Baltimore, Baltimore, Md.
 Kimball, Springfield, Mass.
 Chase, St. Louis, Mo.
 Ambassador, Atlantic City, N. J.
 Statler, Buffalo, N. Y.
 Ambassador, New York, N. Y.
 Biltmore, New York, N. Y.
 Commodore, New York, N. Y.
 Park Central, New York, N. Y.
 Onondaga, Syracuse, N. Y.
 Pittsburgher, Pittsburgh, Pa.
 Providence-Biltmore, Providence, R. I.
 Schroeder, Milwaukee, Wis.

Schools, Colleges and Clubs

Gables Club, Santa Monica, Cal.
 Boca Raton Club, Boca Raton, Fla.
 Hebron Academy, West Minot, Me.
 Bradford Academy, Bradford, Mass.
 Smith College, Northampton, Mass.
 Peddie Institute, Hightstown, N. J.
 Wells College, Aurora, N. Y.
 Crescent Athletic Club, Brooklyn, N. Y.
 Cornell University, Ithaca, N. Y.
 Barnard College, New York, N. Y.
 New York Athletic Club, New York, N. Y.
 West Side Y. M. C. A., New York, N. Y.
 Davidson College, Davidson, N. C.
 Salem Indian School, Salem, Ore.
 Brown University, Providence, R. I.
 Converse College, Spartanburg, N. C.
 Women's University Club, Seattle, Wash.



New York Athletic Club, New York, N. Y., Uses Troy Machinery to Launder 8500 Washable Articles Daily

HILL LAUNDRY EQUIPMENT COMPANY, INC.

(NO CONNECTION WITH ANY OTHER COMPANY OF SIMILAR NAME)

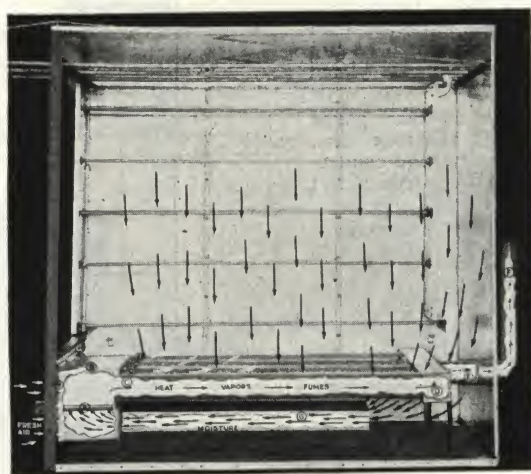
TELEPHONE
STILLWELL 5720

67-79 Sixth Street
LONG ISLAND CITY, N. Y.

Product and Service

HILL "INDESTRUCTO" LAUNDRY DRYERS of all descriptions for the residence, club, apartment and institution.

We have on hand drawings and statistics covering the development of laundry equipment for the past thirty years, and are glad always to place these at the disposal of architects, builders and owners in the form of advice on plans and specifications, which will undoubtedly result in great saving and efficiency.



System of Heating and Ventilating in "Indestructo" Gas Radiator

Arrows indicate moisture, vapor and fumes being drawn out of the dryer through the ventilating duct

"Indestructo" Laundry Dryer Provides Positive Ventilation

The "Indestructo" laundry dryer we believe is the only indoor dryer in which thorough ventilation is actually accomplished while the clothes are being dried.

Our sanitary radiator, which is an *exclusive* feature, distributes the heat equally through the cabinet on a *minimum* of gas consumption.

Rapid drying can be accomplished only through perfect ventilation—and our dryer has the only system which does this without requiring a flue.

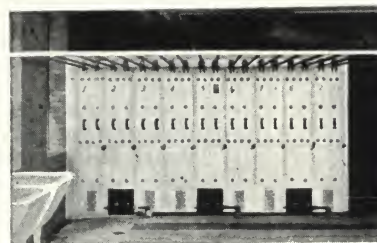
Dampness is removed from the bottom of the dryer, thus facilitating heating and insuring pure white clothes

at a great saving in gas. If this dampness is not removed it requires additional gas heat to overcome it.

Construction Features

The individual drying compartment of our apartment house dryers having 10 hanging bars, each 6½ ft. long, has a linear equivalent of 66 ft. of hanging space. In a residence type of dryer, each rack has 6 hanging bars totaling 39 linear feet.

Hanging bars are spaced about 5 in. apart thus allowing *adequate circulation* for drying and are ventilated and rustproof. "Indestructo" dryers are built en-



"Indestructo" Apartment Dryer

This dryer has 18 racks or 9 compartments. Dryers of this type can be made up with an indefinite number of units depending on requirements

tirely of heavily galvanized sheet iron and angle iron.

Gas cocks are on outside of dryer protected by a guide bar and are always visible to the laundress. The operators, and owners of apartment buildings, note the great saving in floor space required and in gas consumption.

The travelling bar system is supported by truss rods through the roof of the dryer, thereby eliminating the necessity of supporting these bars from the ceiling of the room.

Built in Any Size

Hill "Indestructo" dryers are always built to order in any size, and are especially constructed for each individual building thus meeting special requirements.

Guarantee

Hill "Indestructo" dryers are guaranteed, in writing, for five years against mechanical defects.

HASLETT CHUTE AND CONVEYOR CO.

Aluminum Laundry Chutes; Waste and Rubbish Chutes

FACTORY AND ENGINEERING DEPARTMENT

OAKS, PA.

For Branch Offices, see our Conveyor Page
For our page on Conveyors, Spiral Chutes, etc., see Manufacturers' Index

Engineering and Architectural Co-operation

Architects and engineers are invited to call for the service of our Engineering Department at any time.
Qualified engineers with wide experience that covers hos-

pital, hotel, and residential work will be assigned to your inquiries. Architects and engineers have availed themselves of this service to their own advantage.

Haslett Aluminum Soiled Linen Chutes

Tube—Furnished in three standard diameters, 18, 20 and 24-in. Built of 16 B.&S. gauge aluminum plate, rolled to Haslett standards for linen chute construction. Vertical seam lock joined, horizontal seams slip joined, all seams leakproof.

Intake Throats—16 B.&S. gauge aluminum plate welded to tube forming an integral part of chute. Throats to have sloping bottoms.

Tube Cap—Flat aluminum plate with collar for 3-in. standard vent welded to center.

Supports—Outlet supported by structural steel pedestal from foundation. Tube supported and stayed by ring and angle frame at each floor.

Flushing Ring—1-in. brass pipe flushing ring provided with 1½-in. tee for water connection.

Intake Doors—Solid cast aluminum intake doors, buffed and polished, located approximately 4 ft. above each floor. Doors furnished in three standard diameters, 18, 20 and 24-in., provided with soft rubber cushions closing against polished cast aluminum frames set flush with partition wall. Doors equipped with nickel plated self-latching levers.

Outlet—90° elbow same diameter as chute, 16 B&S gauge aluminum plate welded into single unit, encased in 14 gauge steel, equipped with standard 2-in. cast iron flange for drainage connection. Sand finished cast aluminum door, with rubber cushion and self-latching lever, same type as intake doors.

Vents Not Included—Vent-flushing and drain connections. Foundations and openings through floors. Enclosing walls not to be constructed until chute is erected.

Haslett Rubbish Chutes

Stack—Standard stack constructed of 14-gauge steel, all seams flanged out and securely bolted. Standard sizes, 22, 28, 34 and 46 in. square. Sizes may be varied to meet conditions.

Cap—14-gauge steel cap provided for stack, with collar for 3-in. vent welded at center.

Interlocking Door Intakes—Located on each floor. Hoppers and doors, 14-gauge steel, welded construction. Intakes have two doors, one through which rubbish is placed in hopper and other opening into stack. Doors connected to operating handle by interrupted cut tooth gears and cams, so that one door is securely locked in closed position while other opens and closes.

Outlet—90° elbow, 12-gauge steel sides and ¼-in. plate bottom. 12-gauge steel hinged door with heavy double latch. Elbow and door strongly reinforced with angles.

Supports—Elbow supported by structural steel pedestal from foundation. Stack carried and stayed at each floor by angles across floor opening.

Painting—One shop coat gray lead and oil paint.

Work Not Included—Vent and field painting. Foundations and openings through floors. Enclosing walls not to be constructed until chute is erected.

Haslett Installations

Hotels

BUILDING AND LOCATION	STORIES	ARCHITECT
New Yorker, New York, N. Y.	44	Sugarman & Berger
New Waldorf Astoria, New York, N. Y.	42	Schultze & Weaver
Governor Clinton, New York, N. Y.	30	Murgatroyd & Ogden
St. Moritz, New York, N. Y.	31	Emery Roth
Parker House, Boston, Mass.	14	Desmond & Lord
American Women's Club, New York, N. Y.	25	Benj. Wistar Morris
N. Y. Athletic Club, New York, N. Y.	18	York & Sawyer
Breakers, Palm Beach, Fla.	9	Schultze & Weaver
Benjamin Franklin, Philadelphia, Pa.	19	Horace Trumbauer

Hospitals

BUILDING AND LOCATION	CHUTES	ARCHITECT
Hahnemann, Philadelphia, Pa.	2	H. Hall Marshall
Johns Hopkins, Baltimore, Md.	3	Jos. E. Sperry
Massachusetts State Hospitals	13	Gordon Robb
Yale Medical School, New Haven, Conn.	3	H. C. Pelton
Battle Creek Sanatorium, Battle Creek, Mich.	2	M. J. Morehouse
New York State Hospitals	135	Kohn & Butler
Arnot Ogden Memorial, Elmira, N. Y.	1	State Architect
Beth Israel, Newark, N. J.	1	York & Sawyer
	1	Frank Grad

ESTABLISHED 1888

THE PFAUDLER CO.

Glass Lined Steel Laundry Chutes

ROCHESTER, N. Y.

DOMESTIC SALES OFFICES

NEW YORK, Suite 1103, 8 West 40th Street SAN FRANCISCO, PFAUDLER SALES CO., 122 New Montgomery Street CHICAGO, 1442 Conway Building

FOREIGN SALES OFFICES

LONDON, W. C. 2, ENGLAND, ENAMELLED METAL PRODUCTS CORP., LTD., SYDNEY, N. S. W., AUSTRALIA, MAURI BROS. & THOMSON, LTD.,
56 Kingsway 121-23 Castlereagh Street

FACTORIES: ROCHESTER, N. Y.; ELYRIA, OHIO, and SCHWETZINGEN, BADEN, GERMANY

Products

GLASS LINED STEEL LAUNDRY CHUTES for hospitals, hotels, apartments, clubs, residences.

GLASS LINED OR PLAIN STEEL DUST OR RUBBISH CHUTES.

GLASS LINED STEEL WATER COOLING TANKS.

GLASS LINED STEEL EQUIPMENT for the dairy, chemical, food processing, and beverage industries.



Schedule of Chute Prices Reduced

As the result of an entirely new method of fabrication and without sacrifice to quality, the new Pfaudler glass lined laundry chute is offered at greatly reduced prices. Consequently, the most sanitary and direct method of disposing of soiled laundry can now be incorporated into the plans of hotels, hospitals and similar buildings at a very reasonable figure.

Improved Pfaudler Glass Lined Steel Laundry Chute

The Pfaudler laundry chute will meet every condition exacted in the disposal of soiled linen in the most sanitary, permanent and economical manner. Basic materials are open hearth steel, $\frac{1}{8}$ in. in thickness, on to which is fused a genuine glass enamel. This provides a degree of rigidity and sanitation which is unsurpassed by any other chute. Steel is used in preference to light-gauge pliable metals because it is essential to its durability.

The combination of steel and glass also makes the Pfaudler chute corrosion proof and fireproof, and hence the need of ever repairing it is at once eliminated.

Construction Data—A Pfaudler glass lined chute is made of $\frac{1}{8}$ -in. open hearth steel in sections not exceeding 6 ft. long. It is made in two standard diameters: 18 in. inside, 20 $\frac{1}{2}$ in. outside; 24 in. inside, 26 $\frac{1}{2}$ in. outside (including flanges).

Note: Please state dimensions from center of chute to face of finished wall as chute is installed just before floors and walls are finished.

Chute sections are properly flanged and punched. Pfaudlerite gaskets are provided for joints to make chute watertight. Glass lining extends well beyond inner edges of gaskets and to outer edges of door throats and facings. Top section is furnished with special spray nozzle for cleaning inside of chute. The top section of chute is provided with 3-in. coupling for ventilator pipe. No other fittings furnished for this section.

A gray lacquered finish aluminum door with flat aluminum handle, rubber cushion and secured by cam-type combination clamp and handle, is located at each floor approximately 47 in. above the floor level. Throat to which door is attached is integral with chute proper, approximately 20 in. inside diameter, and of sufficient length to bring its outer edge flush with face of finished wall.

Bottom of chute is an elbow, closed watertight with cast aluminum door. This door is secured by three cam-type combination clamp and handles, and is provided with supporting hinges.

Chute has 2-in. standard pipe outlet threaded for drain connection (no other fittings furnished).

Chute is supported by one 2-in. standard steel pipe leg with cast iron base, and by $\frac{3}{8}$ -in. tie rod on each floor connected to angle irons set in steel work of floor construction.

Note: Floor openings and plumbing connections to be provided by owner.

Key to Diagrams

Diagram A—General drawing of chute.

(1) 3-in. coupling for ventilator pipe (no other fittings furnished).

(2) $\frac{3}{4}$ -in. pipe for connection to water service pipe (for spray nozzle).

(3) Lacquered door, fitted with combination clamp and handle.

(4) Standard Pfaudlerite gasket for each joint.

(5) 2-in. standard pipe outlet (threaded for drain connection).

Diagram B—Cross section floor (showing method of securing chute at each floor).

(1) Supporting angle irons.

(2) Tie rods.

Note: Floor openings and plumbing connections to be provided by owner.

Complete details covering Pfaudler chutes are contained in Bulletin No. 717.

Diagram C—Slanting door throat which may be had as an alternative. Inside diameter 18 and 24 in.; G, 17 $\frac{3}{8}$ and 21 $\frac{3}{8}$ in., respectively.

Steel Dust and Rubbish Chutes

A glass-lined or plain steel dust or garbage chute is also manufactured and is constructed along the same principles as the laundry chute. Details will be furnished on request.

Glass Lined Water Cooling Tanks and Containers

In instances where hotels, hospitals and other public buildings must have a balance tank for their drinking water system, a glass lined water cooling tank is manufactured which is ideally suited for this purpose. Among recent installations are the following: Federal Reserve Bank, Richmond, Va.; Maryland Casualty Building, Baltimore, Md.; Bulletin Building, Philadelphia, Pa.; Hotel Statler, Buffalo, N. Y.; Everett Building, New York, N. Y.

Complete data on this unit as well as on our general line of glass lined steel equipment will be sent at your request.

Complete Details Furnished on Request

For complete information on all products, address THE PFAUDLER CO., 89 East Avenue, Rochester, N. Y.



New Pfaudler Glass Lined Steel Laundry Chute

Fitted with gray lacquered doors and quick closing door clamps

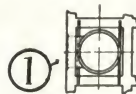


Diagram B
Cross Section
at Floor Level

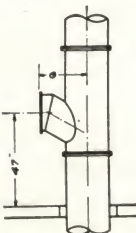


Diagram C

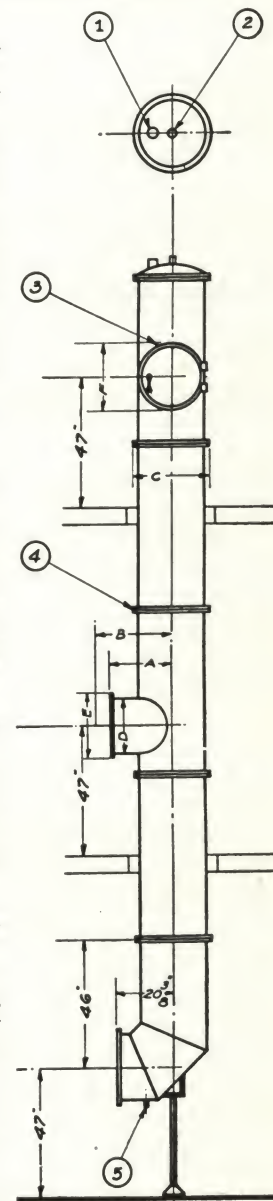


Diagram A

METAL-VITRIX COMPANY

201 North Wells Street, CHICAGO, ILL.

Representatives in All Principal Cities, see Local Telephone Directory

Products

METAL GLASS LAUNDRY CHUTES; WELDED ALUMINUM LAUNDRY CHUTES; WELDED ARMCO IRON LAUNDRY AND WASTE CHUTES; METAL GLASS RESIDENCE LAUNDRY CHUTES; LOCKSEAM METAL LAUNDRY CHUTES; LOCKSEAM METAL RUBBISH CHUTES; STANDARD CHUTE DOORS.

Service

Our Engineering Department will be glad to aid architects in the solution of any problems concerning the planning of laundry or waste chute installations.

Metal Glass Laundry Chute

Description—The Metal Glass Chute is a clean, glistening enameled tube built of armco ingot iron and glass enameled, both *inside* and *outside*. Not a rivet is used in its construction.

Welded Armco Iron Laundry and Waste (Rubbish) Chutes

For either laundry or waste disposal, are identical in construction to the Metal Glass Chutes with the one exception that they are painted instead of being enameled. The cost is proportionately less.

Welded Aluminum Laundry and Waste Chutes

Identical in construction to the Metal Glass Chutes except that the chute is made of $\frac{1}{8}$ -in. sheet aluminum. (See specifications.)

Metal Glass Residence Laundry Chutes

Description—The Metal Glass Residence Chute is made of the same material and constructed in the same manner as the standard Metal Glass Chutes described above, except that it is not provided with vent and drain connection and flushing ring.

Dimensions—In the domestic type laundry chute we have standardized on the 12-in. inside diameter cylindrical type, but they can also be furnished rectangular, 10x12 in. or square 12x12 in.

Moderate Cost—With polished doors, the chute is highly ornamental, as well as extremely sanitary, but can be installed at a surprisingly low cost. Its installation on the average two-story dwelling runs about \$150.00. (See specifications.)

(A) METAL GLASS LAUNDRY CHUTE—SPECIFICATIONS

Note: This same specification applies to Welded Armco Iron Chutes except that in (A1) (A2) Glass Enameled is omitted and chute is painted one coat of metallic paint inside and out.

(A1) **General**—Furnish and install where indicated on plans one (1) (specify number) Standard Metal Glass Laundry Chute(s) 12, 18, 20 or 24-in. (state which) [12 in.] [18 in.] [20 in.] [24 in.] inside diameter as manufactured by the METAL-VITRIX COMPANY, Chicago.

(A2) **Materials and Construction**—The entire area of chute, both *inside* and *outside*, shall be surfaced with Glass Enamel fused into the metal. Chute shall be made of 18 gauge Armco Ingot Iron with all seams welded and ground perfectly smooth before enameling. *No rivets shall be employed.* Chutes shall be made in suitable sections to meet building requirements. Sections shall be flanged at the ends and joined together securely with galvanized bolts. Provide flat rubber gasket between all joints.

(A3) **Door Throats**—The throat sections to which service doors are attached shall be welded to and form an integral part of the chute proper. They shall be of lengths required on plans to bring the door frames flush against the finished wall. Each throat shall be made with a groove in the bottom side sloping downward in the direction of travel to insure prompt drainage when the chute is flushed.

Note: Throats are 20-in. diameter on 24-in. size, 18-in. diameter on 20-in. and 18-in. sizes, and 12-in. diameter on 12-in. size.

(A4) **Service Doors**—At each floor to be served, provide one solid, polished, Cast Aluminum Door and Frame, the cen-



Lockseam Laundry Chutes

Description—These tubes, for use as linen chutes in institutions, hotels, hospitals, etc., are made of aluminum, ascaloy, monel, copper, galvanized steel, etc. Vertical joints are lockseamed. Horizontal joints are lap-seamed with a shoulder on inside of outer sheet and soldered lugs on outside of inner sheet. When galvanized steel is used, all raw edges on inside are covered with tin or solder.

All steel work not galvanized is painted with one coat before leaving factory. (See specifications and third page following for drawings.)

Lockseam Rubbish Chutes

These tubes, for waste and paper chutes in buildings of any type, are made square in four different sizes (see specifications) of No. 14 U. S. gauge steel, galvanized or blue annealed. All seams, horizontal and vertical, are flanged and bolted together. The intake hopper is made with two doors. When the outer door is opened the inner door automatically closes. When the outer door is closed, the inner door opens to allow the rubbish to enter the chute. All steel work not galvanized is painted one coat before leaving the factory.

Sprinkler Jet

As a standard accessory to the Lockseam Rubbish Chute and to *all* laundry chutes, there is offered a connection for a fusible sprinkler jet placed in an offset in the chute. As many jet connections as may be desired can be placed at different locations. (See drawings on fourth page following.)

Standard Chute Doors

These standard service doors are furnished as standard equipment on *all* laundry chutes and on Welded Armco Iron Waste Chutes. They not only are furnished by us as a regular part of our chute installations, but are available for application to chutes other than our own.

Description—Door assembly consists of backer ring, in two parts, flat rubber gasket, door frame, door proper, round rubber door gasket and sufficient brass nickelplated screws. They are made of solid, polished cast aluminum. They are hinged at one side and each fitted with nickelplated lever latch which catches and holds the door when it swings closed and starts it opening when released. Right-hand swing door has hinge on right side. Left-hand swing, on left.

ter of which shall be 47 in. above the finished floor line. Each door and frame shall be cast with hinge lugs and fitted with one $\frac{3}{8}$ in. brass nickelplated hinge rod. The door frames shall be securely fastened to throat flanges by brass nickelplated screws and aluminum backer rings. Each door shall be furnished with quick acting refrigerator latch and with round rubber cushion gasket. All doors shall be water and smoke tight.

Note: Doors are 20-in. diameter on 24-in. chute, 18-in. diameter on 20-in. and 18-in. chutes and 12-in. diameter on 12-in. chute.

(A5) **Outlet**—**Note:** Select type desired.

(A5a) The bottom of chute shall terminate in a 90° elbow of same diameter as the chute proper, center of which shall be 47 in. above the finished floor line. It shall be fitted with a heavy cast aluminum door, attached to chute in the same manner as service doors. The door shall be provided with a round rubber cushion gasket and shall seal watertight when closed. In the elbow there shall be a standard 2-in. iron pipe connection with strainer, for connecting drain pipe to sewer.

(A5b) The bottom of the chute shall terminate in a 45° elbow of same diameter as the chute proper, without a door.

(A5c) The bottom of the chute shall terminate in a straight run . . . inches below basement ceiling, without a door.

(A5d) Furnish outlet with an automatic fire door.

Note: Adapted to (A5c) only.

(A6) **Top**—Approximately 24 in. above top floor service door provide enameled disc top with 3-in. standard iron pipe connection in center for vent pipe. Top shall be bolted to flange of chute section and provided with a flat rubber gasket.

(A) METAL GLASS LAUNDRY CHUTE—Specifications (Continued)

(A7) **Flushing Ring**—A perforated $\frac{3}{4}$ -in. brass flushing ring shall be installed above the top throat section near the top of chute. Flushing ring shall have standard $\frac{3}{4}$ -in. iron pipe connection for water supply line.

(A8) **Supports**—Chute shall be supported by two angle irons and four tie rods at each floor (and by pipe legs with cast iron bases at the outlet elbow).

(B) WELDED ALUMINUM LAUNDRY CHUTE—SPECIFICATIONS

Note: The specification (A) Metal Glass Laundry Chute applies to Welded Aluminum Laundry Chute in all details and construction, except as follows:

(C) METAL GLASS RESIDENCE LAUNDRY CHUTE SPECIFICATIONS

Note: The specification (A) Metal Glass Laundry Chutes in general applies to Residence Chutes, except as follows:

(A) **Sizes**—Sizes are 12-in. diameter cylindrical only, or 10x12-in. rectangular or 12x12-in. square as selected and specified.

(D) LOCKSEAM METAL LAUNDRY CHUTE—SPECIFICATIONS

(D1) **General**—Furnish and install where indicated on plans one (1) (specify number) Lockseam Metal Laundry Chute(s) as manufactured by the METAL-VITRIX COMPANY, Chicago, Ill.

(D2) **Materials and Construction**—Tube shall be [12] [18] [20] or [24] in. (state which) made of (state metal desired [aluminum] [galvanized iron] etc.). Vertical joints shall be lockseamed.

Note: Top end of each section shall be flanged. At lower end an angle ring shall be riveted on approximately 1 in. from the end. The joint shall be made by bolting the flange and the angle ring together.

Sections shall telescope in direction of travel.

(D2a) All raw edges on inside shall be covered with tin or solder.

Note: Include clause (D2a) only where "galvanized iron" is specified in (D2).

(D3) **Door Throats**—At a point, approximately 47 in. above each floor, shall be installed a door throat. The throat shall be made of a 10° incline. Aluminum throats shall be welded to the chute, galvanized iron and other metals, riveted.

Note: Throats are 20-in. diameter on 24-in. chute, 18-in. diameter on 20 and 18-in. chutes, and 12-in. diameter on 12-in. chute.

(4) **Service Doors**—At each floor to be served, provide one solid, polished, cast aluminum door and frame. Each door and frame shall be cast with hinge lugs and fitted with one $\frac{3}{8}$ -in. brass nickelplated hinge rod. The door frames shall be securely fastened to throat flanges by brass nickelplated screws and aluminum backer rings. Each door shall be furnished with quick acting refrigerator latch and with round rubber cushion gasket. All doors shall be water and smoke tight.

Note: Doors are 20-in. diameter on 24-in. chute, 18-in.

(E) LOCKSEAM METAL RUBBISH CHUTE—SPECIFICATIONS

(E1) **General**—Furnish and install where indicated on plans one (1) (specify number) Lockseam Metal Waste Chute(s) as manufactured by the METAL-VITRIX COMPANY, Chicago, Ill.

(E2) **Materials and Construction**—The tube shall be constructed of No. 14 U. S. gauge steel (galvanized, or blue annealed—state which), 13x13 in., 22x22 in., 28x28 in., 31x31 in. square (state which). All seams horizontal and vertical shall be flanged and bolted together.

Note: Waste chutes also made cylindrical, 12, 18, 20, 24 or 30-in. diameter.

Note: Add (4 in.) to the tube size for size of opening in floors.

(E3) **Inlets**—(Patents pending.) At a convenient point above each floor there shall be provided an inlet hopper made of No. 14 U. S. gauge steel equipped with an inner and outer door. Opening of hopper shall be 2 in. less than size of tube hopper. Hopper doors shall be so arranged that one door will always be closed when the other door is open. The lug holding the inner door closed shall be provided with an adjusting screw to maintain the proper tension.

(E4) **Outlet**—At a point approximately 4 ft. above the delivery floor the chute shall terminate in an elbow boot made

(A9) **Piping**—All piping to and from chute (including vent pipe and ventilator) shall be furnished and installed by others.

(A10) **Sprinkler Jets**—Provide one (1) (specify number and location) standard 1-in. size automatic sprinkler jet(s) set in (an) offset recess accessible from the inlet door.

(A) **Material**—Chute shall be made of $\frac{1}{8}$ -in. aluminum (bottom elbow $\frac{1}{4}$ in.).

(B) **Outlets**—Same as (A5a) or (A5c) with or without fire door as in (A5d). Drain fitting omitted in Outlet E.

(C) **Top**—Same as (A6) with the exception that ventilator outlet is customarily omitted. This can be furnished where specified.

diameter on 20 and 18-in. chutes, and 12-in. diameter on 12-in. chute.

(D5) **Outlet**—Chute shall terminate in a 90° elbow set approximately 4 ft. above delivery floor. Terminating elbow shall be provided with a drain and strainer having 2-in. diameter cast iron screw flange, or the bottom of the chute shall terminate in a 45° elbow of same diameter as the chute proper, without a door.

Note: The following are alternate items for the outlet:

(1) Outlet to be furnished with automatic fire door.

(2) Outlet to terminate in 45° elbow.

(3) Outlet to terminate in straight run ... inches below basement ceiling.

(D6) **Top**—Top cover of chute shall be of the same metal as the tube set approximately 18 in. above center of top service door and provided with a 3-in. diameter cast iron screw flange for vent.

(D7) **Flushing Ring**—The flushing ring shall be of $\frac{3}{4}$ -in. brass pipe equipped with a $\frac{3}{4}$ -in. galvanized iron pipe connection for water supply line.

(D8) **Supports**—At each floor the chute shall be supported by a steel angle ring clamped to the tube below lugs, and resting on the floor slab. At the outlet elbow a structural steel cradle support shall be provided from the floor to the elbow.

(D9) **Painting**—All steel work not galvanized shall be given one coat of good lead and oil paint before leaving factory.

(D10) **Piping**—All piping to and from chute (including vent pipe and ventilator) shall be furnished and installed by others.

(D11) **Sprinkler Jets**—Provide (1) (specify number and location) standard 1-in. size sprinkler jet(s) set in (an) offset recess accessible from the inlet door.

of No. 12 U. S. S. gauge steel with a heavy hinged door provided with a substantial latch.

Note: The following are alternate items for the outlet:

(1) Outlet to be furnished with automatic fire door.

(2) Outlet to terminate in 45° elbow.

(3) Outlet to terminate in straight run ... inches below basement ceiling.

(E5) **Top**—The top of chute shall be a cover made of No. 14 U. S. S. gauge steel. This top shall be fitted with a 3-in. diameter cast iron screw flange for vent.

(E6) **Supports**—At each floor the chute shall be supported by two angles, bolted to the flanges. The end of these angles shall be supported to the floor. The bottom of the chute shall be supported by a structural steel cradle resting on floor.

(E7) **Sprinkler Jets**—Provide one (1) (specify number and location) standard 1-in. size automatic sprinkler jet(s) set in (an) offset recess accessible from the inlet door.

(E8) **Painting**—All steel work not galvanized shall be painted one coat before leaving factory.

(E9) **Piping**—All piping to and from chute (including vent pipe and ventilator) shall be furnished and installed by others.

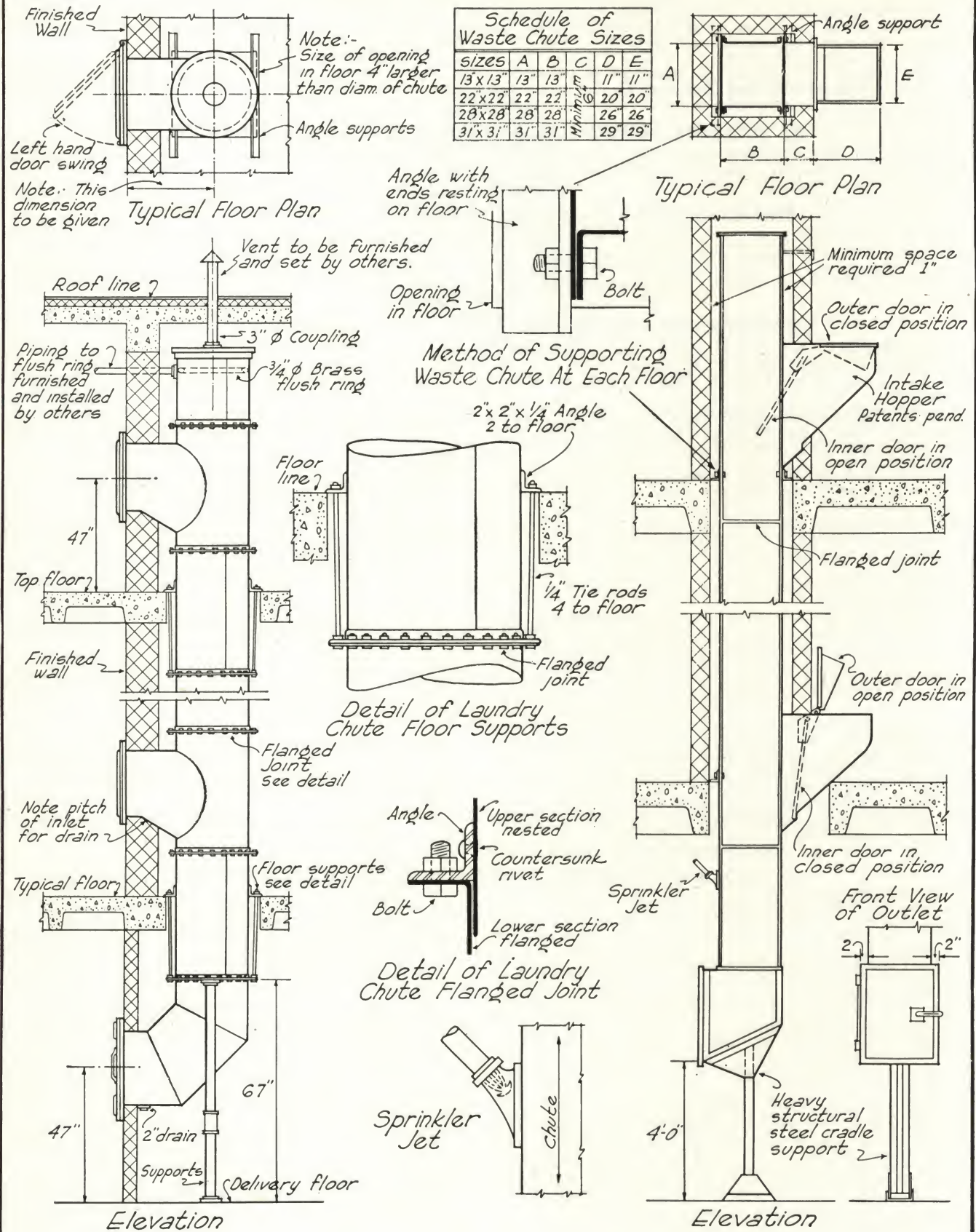
Notice to Architects

(1) Provide opening in floor 4 in. larger than size of chute.

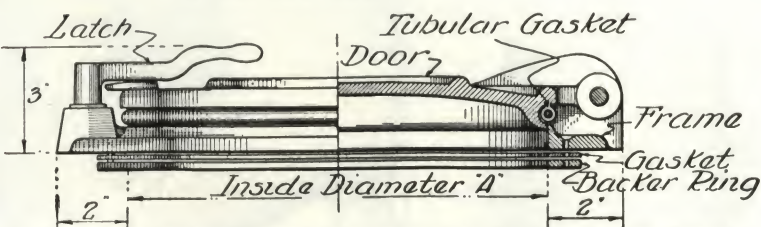
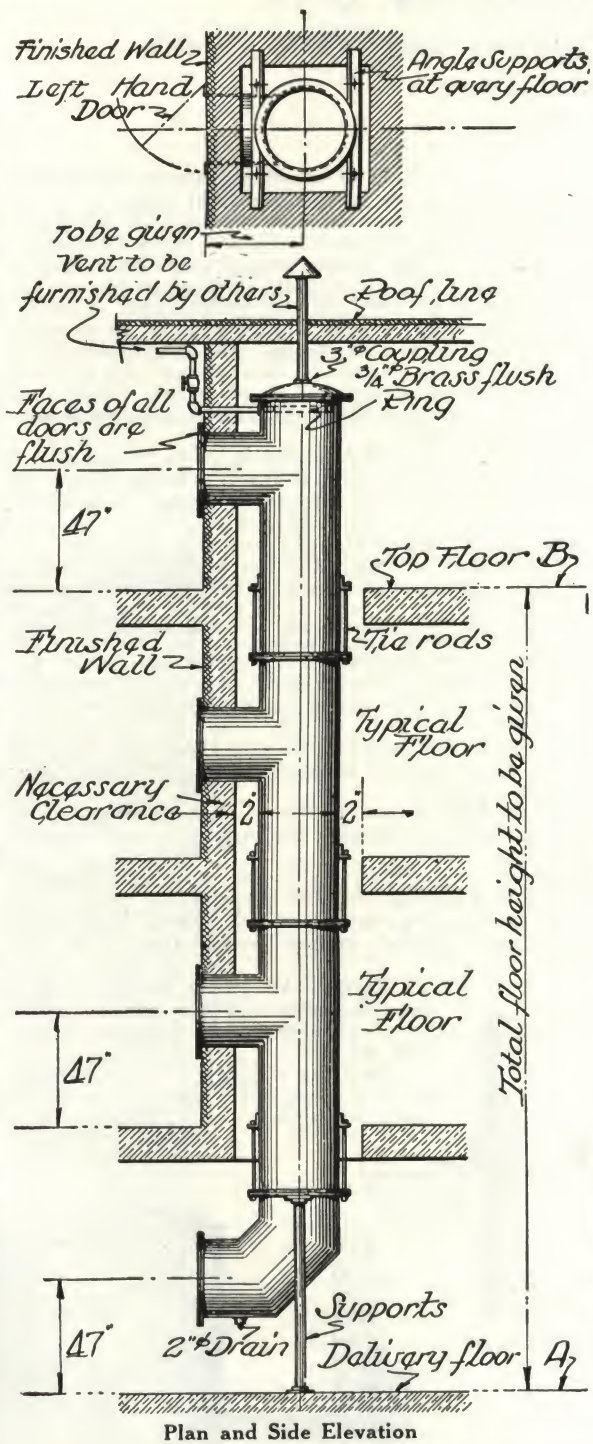
(2) Provide for 3-in. vent through roof and for 2-in.

drain pipe at bottom. Ventilator and all piping to be furnished and installed by others.

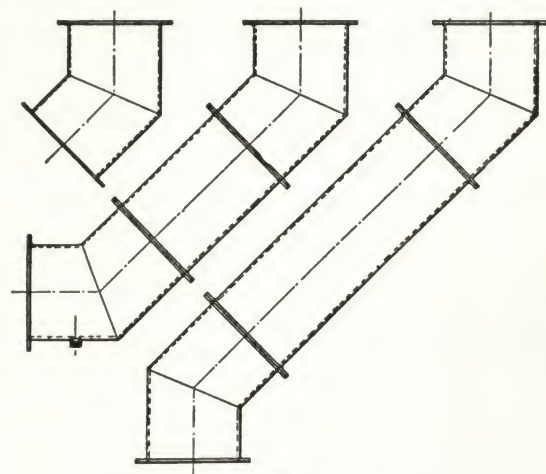
(3) Chute must be installed before partition walls are set up.



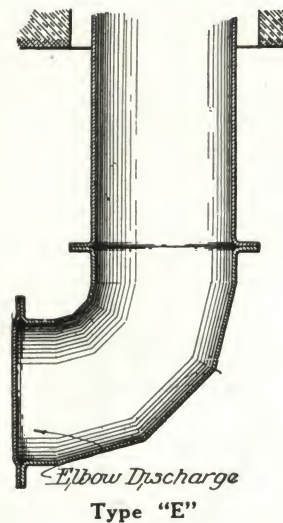
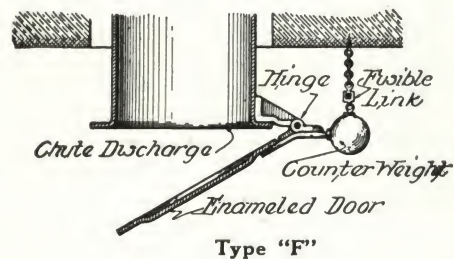
LOCKSEAM LINEN WASTE CHUTES



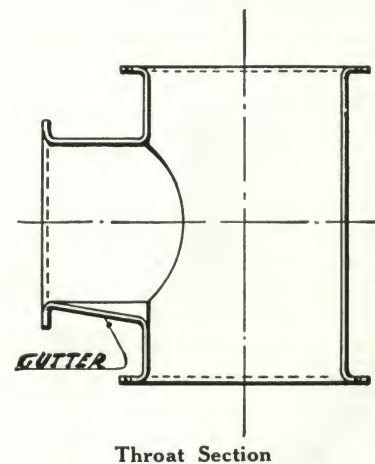
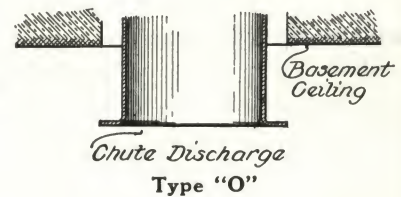
A—Doors are made in four sizes to fit throats 12", 18", 20" and 24" in diameter



Typical Offset Sections



Types of Basement Outlets



METAL GLASS LAUNDRY CHUTE

TUBULAR CHUTE SYSTEMS, INC.

Manufacturers of "Indestructible" Laundry and Waste Chutes

1569, 20 North Wacker Drive
CHICAGO, ILLINOIS

Products

COPPER LAUNDRY and WASTE CHUTES (Tinned or Plain).

Chutes made of Aluminum, Ascoloy, Galvanized Iron and other metals.

Copper Laundry and Waste Chutes

"Indestructible" non-corrosive metal chutes possess all the advantages of more expensive equipment in this field while avoiding disadvantages and dangers. They have been designed to meet the growing insistence on the part of architects and builders for equipment that is positively non-corrosive in itself, sturdy, sanitary and moderately priced. The chutes are rugged and strongly anchored in place. The interior of the tube is perfectly smooth and will permanently remain so. The doors are of polished aluminum and highly ornamental. Each chute is provided with a brass spiral flushing device, with connection at top for vent pipe and at bottom for drain pipe. In addition, provision is made in our construction for inserting an automatic sprinkler jet above the outlet, at slight additional cost.

Standard "Indestructible" copper chute specifications following, apply exactly to standard chutes made of aluminum, ascoloy and galvanized iron with the exceptions only that in our standard equipment we use $\frac{1}{8}$ -in. aluminum and ascoloy and No. 18 U.S.S. gauge galvanized iron.

We are equipped to manufacture chutes of heavier or lighter weights than above standards, if desired, and to meet any special construction requirements.

Standard Specifications

Tube—Shall be 18 in. [24 in.] inside diameter, made of 24-oz. cold rolled copper, tinned over entire inner surface [plain], and constructed in sections of required lengths. All vertical joints shall be lock seamed. All horizontal joints shall be lapped and riveted to angle iron braces so that at no point in chute proper will two sheets of thin metal be joined together. Only copper rivets shall be used, all countersunk and ground smooth. All riveting shall be done at the factory. Sections shall be

telescoped in the direction of travel and adjacent angle irons bolted together to assure smooth and tight joints.

Intakes—Center of intake door throats shall be approximately 45 in. above the finished floor line. All throats shall be 18 in. in diameter. The bottom side of each throat shall descend at an angle of 30° to facilitate quick evacuation of linen. Where the throat is joined to the chute proper it shall be lapped, riveted, ground smooth and soldered, so as to make a perfectly smooth joint on the inside. The door assembly shall consist of backer ring, frame and door proper, each part made of aluminum. Intake doors shall be of artistic design, highly polished and watertight, hinged and fitted with quick acting refrigerator type latch.

Outlets—The chute shall terminate at the bottom in a 90° elbow (see note) fitted with a heavy polished water tight aluminum door, center of which shall be approximately 48 in. above the finished floor. This elbow shall rest in a steel cradle designed to give ample reinforcement against impact. The cradle in turn shall be supported from the floor by a steel leg. A 2-in. drain pipe connection with strainer is to be provided in the outlet elbow.

Note: The Chute may be terminated at bottom in a 45° elbow or in a direct run without elbow, with or without automatic fire door.

Automatic Jet Sprinkler—(Furnished only when specified). In an accessible offset in chute, opposite and slightly below the first intake door install one 1-in. fusible sprinkler jet through chute.

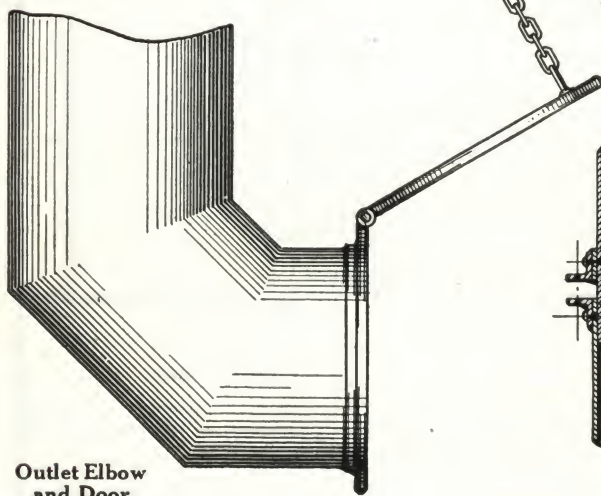
Top—Above the top intake provide a flat top of the same material as the chute, provided with 3-in. pipe connection for vent pipe, in center.

Flushing Ring—Near the top of chute install a 1-in. circular perforated brass flushing ring with 1-in. pipe connection for water line.

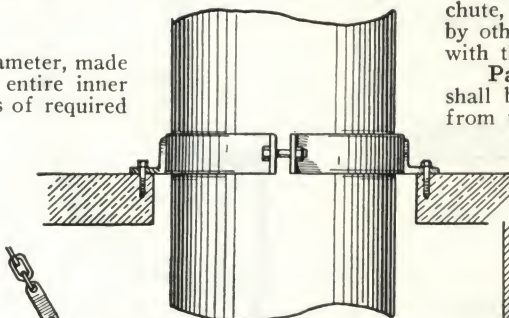
Supports—In addition to cradle and leg support at bottom elbow the chute shall be supported at each floor by two steel lugs resting on the floors. These lugs shall be welded to steel bands, clamped firmly around the chute proper.

Piping—All piping to and from the chute, including vent pipe, shall be provided by others. Connections only are furnished with the chute.

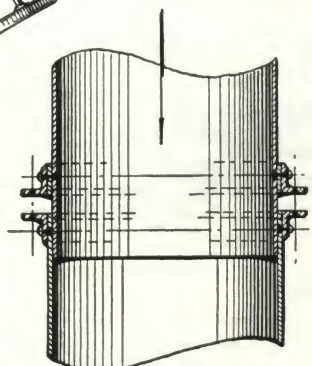
Painting—All steel not galvanized shall be painted one coat before shipment from the factory.



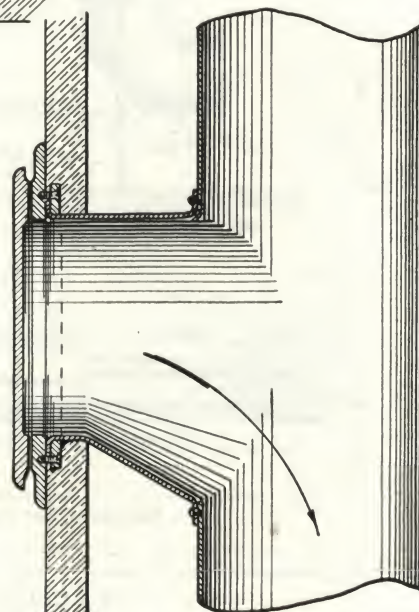
Outlet Elbow and Door



Manner of Supporting at Floors



Method of Joining Sections



Intake Door Throat Section

C. M. WILKINSON COMPANY

Citizens Building
CLEVELAND, OHIO

Products

WILKINSON SOILED LINEN CHUTES, WILKINSON RUBBISH CHUTES and WILKINSON WASTE TOWEL CHUTES, for hospitals, hotels, apartment hotels, schools, dormitories, institutions, office buildings, industrial establishments, residences, etc.

Exclusive Advantages of Wilkinson Chutes

Wilkinson Chutes are better chutes. Scientifically designed as the result of 20 years' experience in chute engineering, every Wilkinson Chute embodies many exclusive features which give it decided advantages. Among their outstanding improvements are these:

No gaskets—nothing to wear out or deteriorate.

No rivets to rust or mar their smooth interior surface. Inside projections of every kind are eliminated.

Every horizontal joint is an expansion joint. Each chute length is fitted into the one below with inside lap assuring "give and take" to allow for expansion or contraction. Wilkinson Chutes cannot crack wall enclosures.

Each story height of chute is individually supported at its respective floor.

Foot operated intakes—Wilkinson Intakes are the outstanding development in chute design.

Hopper type, self-closing, aluminum doors, flush with walls—no projections.

Sloping intake extensions—of aluminum.

Patented slanting impact plate—to prevent puncturing or damaging the bottom of chute or discharge door.

Counterbalanced, top-hinged discharge door.

Wilkinson Soiled Linen Chute

This chute cannot wear out or lose its value. There is nothing to get out of order, nothing to replace, nothing to repair.

Wilkinson Soiled Linen Chutes are made of aluminum sheets. Intake doors, intake extensions, and discharge doors also of aluminum.

Metal trim around intake doors furnished in aluminum or steel, finished as specified.

Wilkinson Rubbish Chute

With the exception that Wilkinson Rubbish Chutes are made of galvanized iron instead of aluminum and that their intakes have double doors instead of single doors, these chutes are identical with and embody all of the advantages of Wilkinson Soiled Linen Chutes.

Intakes of the Wilkinson Rubbish Chute are equipped with double interlocking aluminum doors to prevent back-draft and minimize fire hazard. Pressing the foot lever opens the hopper door and the inner door locks shut. Removing the foot closes the hopper door. As the hopper door is closed the inner door opens long enough to let material pass into the chute, then closes automatically.

All doors and intake extensions are of aluminum as in the Wilkinson Soiled Linen Chute but the chute proper is made of galvanized iron to prevent rust or corrosion. This copper-bearing metal will outlast steel or iron from five to eight times.

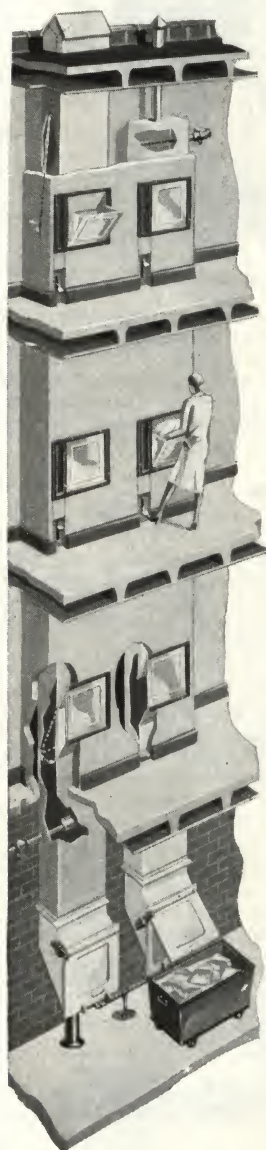
Wilkinson Waste Towel Chute

For the easy disposal of waste paper towels in toilet rooms. Chute of aluminum patterned after Wilkinson Soiled Linen Chutes. Single, top-hinged, inside swinging intake doors. Doors and frames furnished in aluminum, bronze, steel or other metals, finished as specified.

Specify Wilkinson Chutes

Wilkinson Soiled Linen or Rubbish Chutes are made in sizes for every need. The correct applications are shown below. Send for detail plans and specifications.

Type or Model No.	Chute size, in.			Intake door, in.		Discharge door, in.	
	Width	Depth	Diam.	Width	Height	Width	Height
For Hospitals, Hotels and Office Buildings							
W-2	27	27	27	22	22	27	36
W-3	22	22	24	18	18	22	30
For Apartment Hotels, Schools, Dormitories, Institutions, etc.							
W-4	18	18	18	15	15	18	24
W-5	14	14	15	12	12	14	20
For Residential and Domestic Purposes							
W-6	11	8	.....	9	12	to suit	



Wilkinson Chutes Are Furnished Complete with Intakes Fully Assembled

Any good sheet metal contractor or carpenter can easily install them.



Pressure of the Foot on a Lever Opens Hopper Door to Receive Material for Deposit

ALLEN AIR APPLIANCE CO., INC.

Manufacturers of Stationary and Portable Vacuum Cleaners

94 East 45th Street
NEW YORK, N. Y.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

Products

STATIONARY and PORTABLE VACUUM CLEANERS.

Also Pneumatic Conveying Systems; Centrifugal Blowers and Exhausters and Allied Lines.

"Triple-A" Stationary Vacuum Cleaners

These are made in three distinctly separate groups or classes, as follows:

- (1) Institutional types
- (2) Residential types
- (3) Industrial types

This condensed catalogue sheet is intended only to give brief information concerning classes 1 and 2, i.e., for institutional and residential service. Condensed data concerning "Triple-A," industrial types of pneumatic sweeping and conveying systems, may be found in SWEET'S ENGINEERING CATALOGUES.

"Triple-A" Stationary Machines are made in a complete range of sizes and types, suitable for all classes of buildings, from the smallest residence to the largest hotel or office building. Standard sizes, most frequently used, are shown in the following schedule. Complete data concerning these standard machines, or concerning special types of systems for unusual conditions, will be promptly forwarded upon request.

CONDENSED SCHEDULE OF STANDARD SIZES

Size	Sweeper capacity	Motor, hp.	Duty
51-C	1	$\frac{1}{2}$	Light
11-B	1	1	Medium
21-B	1	2	Medium
30-A	1	3	Heavy
50-A	2	5	Heavy
75-A	3	$7\frac{1}{2}$	Heavy
100-A	4	10	Heavy
150-A	6	15	Heavy
200-A	8	20	Heavy
250-A	10	25	Heavy
300-A	12	30	Heavy
400-A	16	40	Heavy
500-A	20	50	Heavy
750-A	30	75	Heavy
1000-A	40	100	Heavy

Light and Medium Duty Machines

The light and medium duty machines listed above are intended for service in residences and other smaller buildings where the service conditions are not as severe as in hotels, schools, theaters, etc. These light and medium duty machines are of the positive rotary type, equipped with automatic lubrication and requiring practically no care or attention. In every respect, these machines are ideally suited for residential and small building service, being extremely quiet in operation, and using small diameter, light-weight hose which is suitable for operation by the housewife or maid.

Heavy Duty Machines

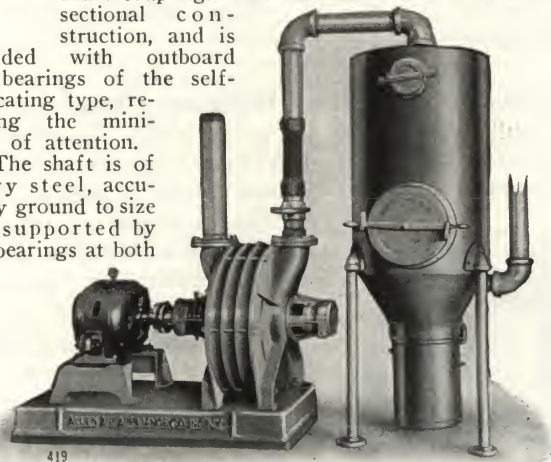
All of the heavy duty machines are of the multi-stage centrifugal type, and are intended for heavy, continuous service in all classes of buildings, including schools, hotels, theaters, clubs, hospitals, municipal buildings, churches, etc.

Construction Details—The accompanying illustration shows a typical heavy duty stationary machine, of the multi-sweeper type complete with dust separating tank.



Attention is called to the substantial cast iron construction throughout, both exhauster and motor being mounted on a common cast iron base, and directly connected by means of a high grade, flexible shaft coupling. The exhauster itself is of cast iron, sectional construction, and is provided with outboard ball bearings of the self-lubricating type, requiring the minimum of attention.

The shaft is of heavy steel, accurately ground to size and supported by ball bearings at both



Stationary Vacuum Cleaner

ends. The impellers are one-piece aluminum castings, accurately finished and balanced, and with ample clearances throughout.

Standard "Triple-A" Dust Separators are of the combination precipitation and filtration type, thus insuring practically 100% separation of dust before the air enters the exhauster. This type of separator is recommended for standard service, but other special types can be supplied when required.

Cleaning Tools and Accessories

"Triple-A" Cleaning Tools and Accessories are of the very highest grade construction throughout. Their design is based on more than twenty-five years' experience, and they are fully supplied with all necessary hinge and swivel joints for easy, fast, and convenient operation. Complete information concerning "Triple-A" Cleaning Tools, Hose, Inlet Valves, etc., will be promptly supplied upon request.

Portable Machines

The "Triple-A" line also includes several sizes of medium and heavy duty portable vacuum cleaners, ranging from 1 to 3 hp. for service in hotels, garages, etc., and 3 to 15 hp. for heavy duty industrial service. Complete data on request.

Installations

"Triple-A" machines and systems are in satisfactory service not only in all parts of the United States, but in many foreign countries. Having no wearing parts other than the ball bearings, these machines render dependable service over periods of many years, without the slightest expense for repair or upkeep.

A Few of Many Hundreds of Satisfactory Installations

Piedmont Hotel, Atlanta, Ga.
Anthony Wayne School, Detroit, Mich. (and about six additional schools in Detroit)
Claridge Hotel, Atlantic City, N. J.
Glens Falls Insurance Company, Glens Falls, N. Y.
New York Telephone Company, New York, N. Y. (two large installations)
Dixie Hotel, New York, N. Y.
St. Moritz Hotel, New York, N. Y.
Memorial High School, Pelham, N. Y.
Municipal Courthouse, Ridgewood, Brooklyn, N. Y.
Five School Buildings, Akron, Ohio
Masonic Temple, Philadelphia, Pa.
State Theater, Philadelphia, Pa.
City Hall, Milwaukee, Wis.

ALLEN & BILLMYRE COMPANY, INC.

Pneumatic Cleaning, Sweeping and Conveying Systems; Centrifugal Blowers and Exhausters

706 Grand Central Palace, NEW YORK, N. Y.

REPRESENTATIVES IN PRINCIPAL CITIES

Products

"Tabco" PNEUMATIC CLEANING and SWEEPING SYSTEMS for theatres, hotels, schools, office and institutional buildings.

Mechanical Features of "Tabco" Systems

"Tabco" Cleaners are extremely simple and sturdy. There is but one moving part—the balanced impeller which runs without vibration, and which turns in lubricant-packed and anti-friction bearings which have proved to be practically wearproof. There are no wearing parts whatever—valves, pistons or diaphragms. Superior design assures maximum air displacement per unit of power—high economy.

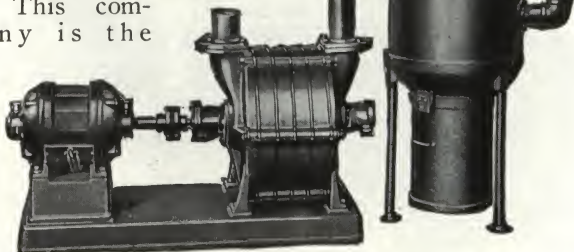
"Tabco" units are inherently self-governing—no auxiliary power regulator or unloading device is needed. A uniform vacuum is maintained without pulsations, and power is automatically proportioned to load.

"Tabco" Stationary Cleaner Units

There are self-contained units made in a series of sizes ranging from $\frac{3}{8}$ to 100 hp. Each consists of a multistage centrifugal exhauster direct-connected to a motor, and a compact dust-collecting tank with centrifugal separator, dust bags, and removable dust can. "Tabco" cleaning tools and accessories especially designed for institutional cleaning have been accepted by the leading architects and engineers throughout the country.

"Tabco" Pneumatic Sweeping Systems

This company is the



"Tabco" Stationary Pneumatic Cleaning Unit

Consists of turbo exhauster, direct-connected motor, and dust separating and collecting tank



pioneer in the design, manufacture and installation of heavy-duty pneumatic cleaning systems, as distinguished from the common "vacuum cleaner." Its extensive specialized experience covers installations of "Tabco" systems in

schools, hotels, theatres, public buildings, office buildings, and hospitals—as well as in industrial plants in wide variety. Since each installation involves distinct problems in engineering design, experience in such problems is as essential to success as high quality of equipment. Each "Tabco" installation is made up of standard "Tabco" units of equipment, combined in a complete system to best meet the conditions of the job. The uniform success thus attained justifies the extreme en-

gineering care given to each special case.

Engineering Service

As each installation is a separate engineering problem, the company's engineers will welcome an opportunity to work with architects and to make layouts which will be the basis of intelligent estimates of cost. No obligation is incurred in taking advantage of this service.

Complete descriptive "Tabco" literature will be sent on request.



"Tabco" Portable Cleaner Units

These small but powerful cleaners are provided with a $\frac{3}{4}$ hp. motor driven centrifugal exhauster

THE SPENCER TURBINE CO.

Manufacturers of Blowers and Exhausters

488 New Park Avenue
HARTFORD, CONN.

Products

SPENCER TURBINE VACUUM CLEANERS; SWIMMING POOL CLEANING EQUIPMENT; BOILER FLUE CLEANING APPARATUS.

Also manufacturers of Turbine Compressors and Exhausters, Organ Blowers (Spencer Steel Orgoblo).

The Spencer System of Vacuum Cleaning

The Spencer multistage turbine system has met with the approval of architects and engineers, and has been installed in more than 10,000 hotels, theaters, office buildings, hospitals, schools, banks, etc. List of important installations will be gladly sent.

The system consists of a turbine exhauster, a piping system with outlets throughout the building and an equipment of light weight hose and tools for cleaning all floors, walls, furniture, etc.

All Spencer cleaners are of the multistage low velocity turbine type, which adapts itself to the proportions of vacuum and volume required for vacuum cleaning work better than any other type of exhauster.

Simplicity in design and high grade construction insure low maintenance cost. The entire system is designed to produce correct air stream conditions, and to do universal vacuum cleaning with uniform efficiency, speed and thoroughness.

Advantages of the Spencer System

All dirt is sucked out through a tube and no foul exhaust air or any part of the dust is discharged back into the rooms.

There is nothing to handle in the rooms but the hose and cleaning tools, which are so light and easy to use that a maid, or even a child, enjoys using them.

All the machinery is in the basement where it is not moved or handled, and is therefore not skimped in size, weight or efficiency; it hence supplies a strong, even vacuum, so well controlled as to avoid all possibility of injury to rugs or fabric, and removes all dust and grit from cracks or pores of bare floors.

Spencer Turbine Vacuum Cleaners

The Spencer multistage turbine is a machine of great simplicity and durability. Its one moving part is the multistage impeller which revolves smoothly and quietly on ball bearings within its casing, with wide clearances on all sides. There are no pistons, valves, water seals, drive chains, belts, cloth bags or wet auxiliary tanks; no close adjustments to be disturbed by dirt. Without the use of complicated and troublesome governing apparatus, the multistage fan in-

herently maintains a constant vacuum under a varying volume and is so perfectly controlled that the turbine responds to, and co-operates with, every movement of the tool at the cleaning hose.

Turbine Impellers or Fans—Securely fastened to the shaft, making one single moving element which revolves smoothly and quietly within the deflectors.

There is a wide clearance of from $\frac{1}{8}$ to $\frac{3}{8}$ in. between the stationary and moving elements throughout the entire turbine. The bearings are the highest grade and of liberal capacity.

Separators—Of the centrifugal type, of high efficiency and with dirt receptacles of large size.

On the $\frac{3}{4}$ hp. machines the dirt receptacles are in the base of the machine, while the 2 hp. and larger equipments have the dirt separators as a separate unit.

Motors—Are of the highest grade and the most approved makes.

Tools—Superiority of cleaning implements and accessories is universally acknowledged. Spencer tools are designed with openings in correct proportion to the rest of the system; also with special consideration as to convenience and fitness of the various requirements. Strong in construction, light in weight, and shaped for fast and effective work. Tools are equipped with Spencer patented universal controllable swivel, which enables operator to remove dirt beyond the reach of the rigid tool.

All wearing surfaces are renewable. Tools are attached to handle by means of steel locking chuck.



$\frac{3}{4}$ Hp. Vertical Spencer Turbine



5 Hp. Horizontal Spencer Turbine

Specifications—While our engineering department prefers to examine each particular job before making definite recommendations regarding layouts or specifications, the following may serve as a general guide when this is not possible:

Piping System—Inasmuch as the hose causes greater vacuum loss than any other part of the system, requires labor in handling, and eventually wears out, while the stationary piping system possesses none of these characteristics, it is obvious that to secure permanent efficiency plenty of piping and short hose runs are the most economical, besides rendering the entire equipment much more rapid, efficient and easily handled by the operator.

A dirt handling pipe system must be of smooth, uniform bore throughout both pipe and fittings. Long turn "drainage" or Durham fittings with horizontally disposed clean-out plugs at the foot of risers have proved satisfactory. Long sweep pipe bends should, however, be used at points where the dirt is required to go from a horizontal pipe up a vertical one.



Spencer Horizontal Turbine

For large installations THE SPENCER TURBINE CO. has developed a line of horizontal direct connected turbine equipments operating at a speed of 1750 r.p.m. as distinguished from the 3500 r.p.m. apparatus which has heretofore characterized all fan and turbine type vacuum cleaners. In addition to this desirable feature, this equipment retains all the superior features which have characterized the earlier Spencer models.

Piping should not be so small as to require too high vacuum, high velocity and low density with the accompanying reduction in carrying capacity and increase in "sand blast" wear; nor on the other hand so large as to reduce the velocity sufficiently to permit "dirt settling."

Rules for Determining Pipe Sizes—Size of pipe used for any vacuum cleaner installation should be that given at left of diagram, horizontally opposite the intersection of curve for the total number of sweepers to be operated simultaneously with vertical line above the number corresponding to total length of pipe from the end of exhaust pipe to the most remote inlet valve in the building.

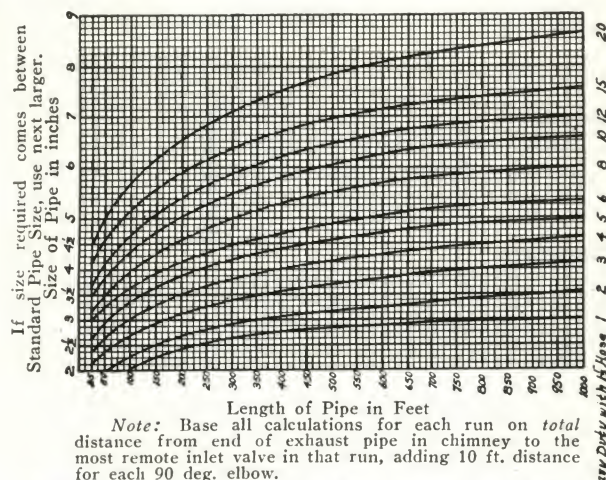
The curves shown on this page give the correct size of piping for any vacuum cleaning system.

Size of Machine to Install—The following rules afford a reasonably accurate and definite method of determining the sweeper capacity of plant required for any given building, if heavy duty standards are used, i. e., a minimum vacuum of 2 in. Hg. with $\frac{7}{8}$ -in. round sharp edged open orifice for bare floor sweeping and 3-in. Hg. with a similar $\frac{7}{8}$ -in. orifice for carpet cleaning, both at end of 50 ft. of hose with all sweepers working. Use following formula:

The square foot floor or carpet area divided by 7500 times the available hours for each cleaning equals the number of sweepers required.

Capacity Test—For heavy duty work specification should provide that the plant shall maintain a minimum vacuum of at least 2 in. Hg. in back of each of as many $\frac{7}{8}$ -in. round sharp edged orifices as the system is designed to operate simultaneously, and a vacuum of not less than 3 in. Hg. in back of

each of as many $\frac{7}{8}$ -in. round sharp edged orifices as the system is designed to operate simultaneously. This test to be made at the end of 50 ft. of hose.



Piping Diagram Based on Use of 1 1/2-in. Hose for Each Sweeper

If fewer sweepers are to be operated simultaneously through part of piping system, the size pipe for such part can be reduced to that given in diagram for the number of sweepers that will actually be used simultaneously through that part of piping, based on same total length of pipe from end of exhaust pipe to most remote inlet valve in the building.

Truck Type Cleaners

The Spencer portable truck machine embodies the same principles of design and construction as characterize the larger stationary equipments. The primary separator collecting 95% of the dirt is of the centrifugal type; the secondary separator, which is only called upon to handle approximately 5% of the dirt, is of the bag type.

The equipment is thoroughly high grade in construction and offers the maximum of power consistent with reasonable weight and ease of handling.

Boiler Flue Cleaning Apparatus

By installing a few additional attachments the Spencer system can be used in cleaning horizontal return tubular and cast iron sectional boilers with a remarkable economy in fuel consumption. The saving in fuel alone frequently amounts to a liberal return on the entire investment for the cleaning system.

Swimming Pool Cleaning Equipment

By means of special cleaning tools usually employed in connection with the pump on the filtering system it is possible to remove accumulated sediment from swimming pools without the waste of water involved in draining the pool.

Engineering Service

The Engineering Department offers its services without obligation in recommending the proper size and type of equipment, piping layout, or other engineering details.

Installations

The Spencer system is installed in a very large number of the best buildings of all types throughout the United States and Canada. Lack of space prevents mentioning any of these particular buildings but full information will be gladly furnished on inquiry.

DUPLEX INCINERATOR DIVISION

OF THE DUPLEX HANGER COMPANY

Manufacturers of Duplex-Krause Incinerators

East 53rd Street and Lakeside Avenue, CLEVELAND, OHIO

Product

BUILT-IN STANDARD CHIMNEY-FED and Special Incinerators for all purposes.

Description

The Duplex-Krause Incinerator is arranged with a brick combustion chamber of highly efficient, though simple, design having a brick lining.

It is located at the base of a chimney, usually in the basement of the building.

Into this chamber is built grate rests with full dumping grates, wall bearings, stops, waste distributor, access doors, draft regulator and miscellaneous supporting trim.

The chimney starts on top of the incinerator and extends straight up through the building, usually in the kitchen wall or convenient to corridor or rear porch. Service or receiving hopper doors are built into chimney wall at the most convenient point on the floor or floors above.

All metal parts are furnished by us with $\frac{3}{4}$ -in. scale installation detail drawings for the guidance of the mason in setting the parts.

LOCAL REPRESENTATIVE

Operation

All waste—garbage, paper, sweepings, etc.—is deposited in the receiving hopper doors, on any number of floors above the basement-located incinerator.

Through the chimney, it drops to incinerator chamber where, through the Duplex-Krause method of aeration, it dries for burning.

When incinerator is nearly full, the contents are lighted and are burned without the use of any fuel other than the waste itself and without offensive odor. The principles of operation are more fully described below.

Broad Guarantee

Every Duplex-Krause Incinerator is sold with a broad guarantee and free service policy that insure the satisfaction of the purchaser.

Suggested Insert for Architects' Specifications

The Contractor (Mason Contractor) shall furnish all materials and labor to construct where shown on plans Duplex-Krause Incinerator Models according to detail plans furnished by the DUPLEX INCINERATOR DIVISION of the Duplex Hanger Company, Cleveland, Ohio.

OUTSTANDING ADVANTAGES OF DUPLEX-KRAUSE INCINERATORS

Economy, Operation, etc.

Duplex-Krause Incinerators are economical because they provide Large Capacity; Operation without Cost; Fire Safety and Permanence.

Full dumping grates of heavy pattern are a non-clogging type that will not tip under load, yet are easily dumped with the unbreakable forged lever.

Fire and ash doors are of special design, having carefully machined gray iron castings with deep wall frames that will not loosen, and are furnished in various sizes to meet every requirement.

Basement location allows use of available space—where ash removal is fitting and convenient—where no heat is radiated into the kitchen in summer, yet the receiving door is right at hand for convenient waste disposal.

Principles of Construction

Aerator Lattice—Air is drawn by the chimney through the draft regulator (R) into the primary chamber (PC) and is distributed by the aerator lattice (L) which extends the full width and height of the incinerator. This current of air passes through and over all the garbage and other waste in the main incinerator chamber.

Between Burnings—This greater air circulation prepares the waste for burning by evaporation of moisture.

During Burning—The incoming air is heated by the hot fire brick in the aerator lattice which is in contact with the fire, feeding a perfectly distributed supply of preheated oxygen to maintain combustion on top of the waste accumulation. Odorous gases released by the heat approaching waste below must pass through the fire and be sterilized or consumed. The draft regulator allows complete control.

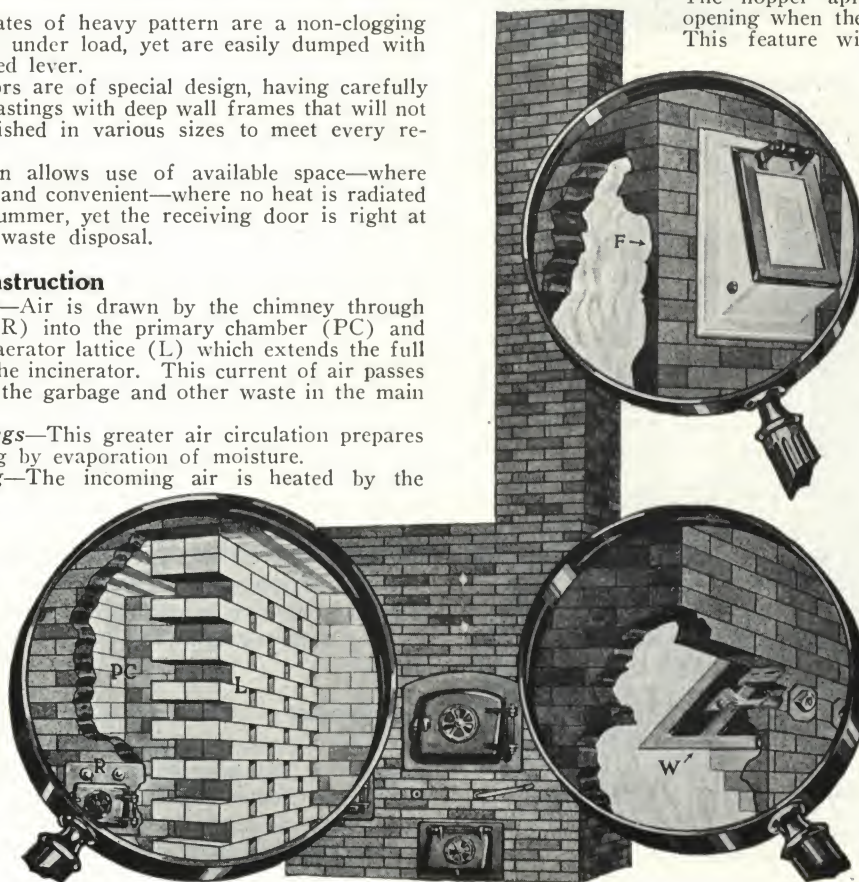
Receiving Doors—The separate wall sleeve frame (F) is built into the chimney wall. Then, after the building is completed, the finished hopper door and trim frame are put on.

The hopper apron closes the chimney opening when the receiving door is open. This feature with

carefully fitted and ground parts, and the normal suction of the chimney draft, prevent any possibility of leakage into room of smoke, odors or gases.

Finish—The modern idea of color and beauty in the home has extended to the kitchen and service hall. Duplex-Krause Standard Vitreous Porcelain Enameled or Chromium Receiving Doors are permanently beautiful fixtures that add much to the attractiveness and value of the building.

Waste Distributor—The waste distributor (W) prevents the compression of accumulated waste due to the impact of its fall from upper floors of the building and shifts the waste in a loose pile toward the point of incoming air to insure its contact with drying current.



Model S

For—Residences not exceeding 10 rooms.
Minimum chimney flue 12x12 in.
Standard fire door, No. D-1, openings 17x11 in.
Length 4 ft. 6 in., width 3 ft. 5 in., height 6 ft. 3 in. to 6 ft. 10 in.

Model B

For—Residences of 10 to 14 rooms.
Apartments under 18 rooms.
Minimum chimney flue 12x12 in., if receiving doors 1 floor.
Minimum chimney flue 16x16 in., if receiving doors 2 to 4 floors.
Standard fire door, No. D-1, opening 17x11 in.
Length 4 ft. 8 in., width 3 ft. 9 in., height 6 ft. 3 in. to 6 ft. 10 in.

Model D

For—Very large residences.
Apartments 18 to 40 rooms.
Minimum chimney flue 16x16 in., if receiving doors 2 to 4 floors.
Standard fire door, No. D-1, opening 17x11 in.
Length 5 ft. 9 in., width 4 ft., height 6 ft. 3 in. to 7 ft. 6 in.

Model L

For—Apartments 40 to 80 rooms.
Hospitals under 500 beds.
Schools under 300 students.
Small stores—1 to 6 average group.
Use for Model D purposes when 22x18-in. fire door desired.
Minimum chimney flue 16x16 in., if receiving doors 1 to 4 floors.
Minimum chimney flue 20x20 in., if receiving doors 5 to 7 floors.
Standard fire door, No. D-2, opening 22x18 in.
Length 6 ft., width 4 ft. 4 in., height 6 ft. 3 in. to 7 ft. 6 in.

Model T

For—Apartments 80 to 120 rooms.
Hospitals 50 to 90 beds.
Schools 300 to 500 students.
Small stores 6 to 8 average group.

Minimum chimney flue 16x16 in., if receiving doors 1 to 4 floors.
Minimum chimney flue 20x20 in., if receiving doors 5 to 7 floors.
Standard fire door, No. D-2, opening 22x18 in.
Length 7 ft., width 4 ft., height 6 ft. 10 in. to 8 ft. 2 in.

Model N

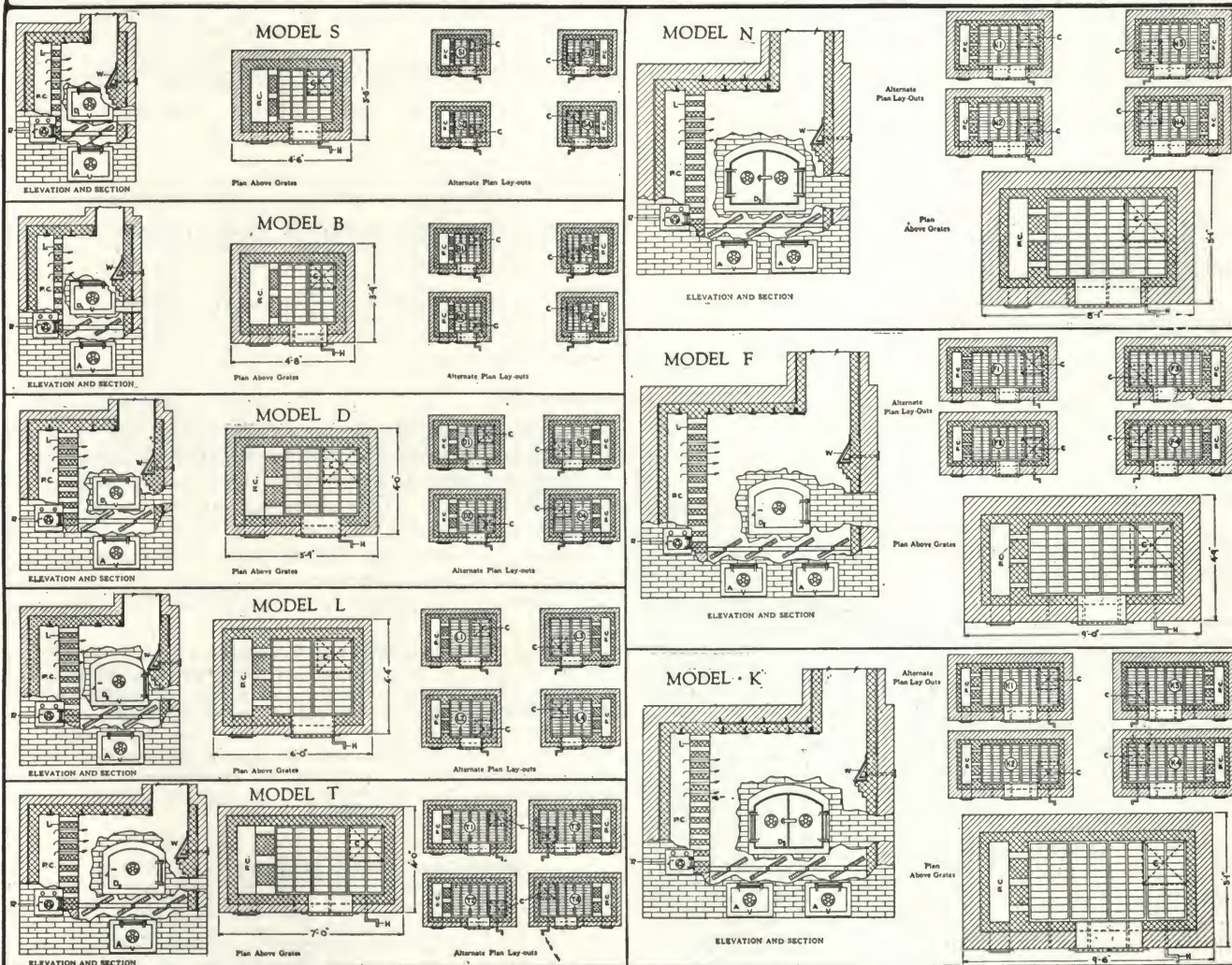
For—Apartments 120 to 160 rooms.
Hospitals 90 to 120 beds.
Schools 500 to 700 students.
Small stores 8 to 10 average group.
Use for Model T purposes when 30x24-in. fire door desired.
Minimum chimney flue 16x16 in., if receiving doors 1 to 4 floors.
Minimum chimney flue 20x20 in., if receiving doors 5 to 7 floors.
Minimum chimney flue 24x24 in., if receiving doors over 7 floors.
Standard fire door, No. D-3, opening 30x24 in.
Length 8 ft. 1 in., width 5 ft. 1 in., height 7 ft. 6 in. to 8 ft. 2 in.

Model F

For—Apartments 160 to 240 rooms.
Hospitals 120 to 180 beds.
Schools 700 to 1000 students.
Small stores 10 to 15 average group.
Use for Model F purposes when 30x24-in. fire door desired.
Minimum chimney flue 16x16 in., if receiving doors 1 to 4 floors.
Minimum chimney flue 20x20 in., if receiving doors 5 to 7 floors.
Minimum chimney flue 24x24 in., if receiving doors over 7 floors.
Standard fire door, No. D-2, opening 22x18 in.
Length 9 ft., width 4 ft. 9 in., height 7 ft. 6 in. to 8 ft. 2 in.

Model K

For—Apartments 240 to 320 rooms.
Hospitals 180 to 260 beds.
Schools 1000 to 1200 students.
Small stores 15 to 18 average group.
Use for Model F purposes when 30x24-in. fire door desired.
Minimum chimney flue 16x16 in., if receiving doors 1 to 4 floors.
Minimum chimney flue 20x20 in., if receiving doors 5 to 7 floors.
Minimum chimney flue 24x24 in., if receiving doors over 7 floors.
Standard fire door, No. D-3, opening 30x24 in.
Length 9 ft. 6 in., width 5 ft. 1 in., height 7 ft. 6 in. to 8 ft. 2 in.



Common Brick Fire Brick PC—Primary Chamber L—Aerator Lattice C—Chimney Flue
W—Waste Distributor H—Dumping Lever R—Draft Regulator A—Ash Door D—Fire Door

STANDARD MODELS OF DUPLEX-KRAUSE INCINERATORS

BUFFALO CO-OPERATIVE STOVE COMPANY

Manufacturers of Incinerators for Many Purposes

Amherst Street, BUFFALO, N. Y.

DISTRIBUTORS

BIRMINGHAM, ALA., C. P. LICHTY ENGINEERING CORPORATION, 1216 Martin Building
 CHATTANOOGA, TENN., CURRIN & ANDREWS, 819 Georgia Avenue
 DALLAS, TEX., SAM P. CLARK, Santa Fe Building
 DENVER, COLO., S. HOWARD EISENBERG, 2812 Ash Street
 HUNTINGTON, W. VA., BANKS-MILLER SUPPLY CO.
 LOS ANGELES, CAL., C. P. HELPMAN, 722 Story Building

MIAMI, FLA., FUEL OIL EQUIPMENT CO., INC., 410-419 E. 13th Street
 NASHVILLE, TENN., RYAN SALES CO., 1122 Stahlman Building
 NEW YORK, N. Y., JAMES A. RABBITT, 50 E. 42nd Street
 PHILADELPHIA, PA., FREEMAN & CRUTHERS, 2401 Chestnut Street
 PITTSBURGH, PA., W. F. SANVILLE, 411 Boulevard of the Allies
 ST. LOUIS, MO., GEORGE A. RAWLINGS, Arcade Building
 TULSA, OKLA., W. H. YOUSE, 215 So. Cincinnati Street
 TORONTO, ONT., T. G. GRIFFITH & Co., 165 King Street, East

Amherst Garbage Incinerator

For destroying kitchen garbage in homes occupied by six to twelve persons.

Description—The Amherst incinerator is built on the principle of heat convergence. It is heavily insulated and so constructed that the hot gases are utilized to destroy all odors of incineration. Its appearance is equal to the demands of the finest homes.

Operation—Deposit garbage in hopper, adjust timing device for burning period, ignite gas and the

garbage will be destroyed.

Types and Sizes—Made in "Portable" and "Built-in" types; two sizes, Nos. 20 and 30, for kitchen, basement or garage installation. Requires 3/4-in. gas connection and 6-in. smoke pipe.

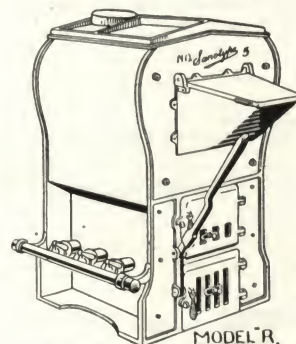
AMHERST GARBAGE AND HOSPITAL INCINERATORS

Size No.	Capacity, bu.	Height, in.	Width, in.	Depth, in.	Weight, lb.
20	1	42	22	22	425
30	2	43 1/2	24	24	525

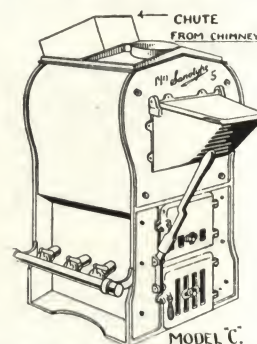
Sanotype Refuse Incinerator

The Sanotype incinerator is a cast iron sectional incinerator for rubbish and garbage disposal in resi-

dences, apartments and hospitals. Made in two models, designated as "R" and "C," illustrated below. Each model is made in two sizes, designated as No. 5 and No. 10.



MODEL R
For Pipe Connection to Chimney, Direct Feeding



MODEL C
For Connection to Chimneys, which Serve also as Feeding Chutes from Floors Above

Sanotype Refuse Incinerators—Single Section

Size No.	Capacity, bu.	Height, in.	Width, in.	Depth, in.	Weight, lb.
5	4	46	30	23	735
10	6	46	40	23	1050

Each model may be furnished in two sections, thereby doubling the capacity.

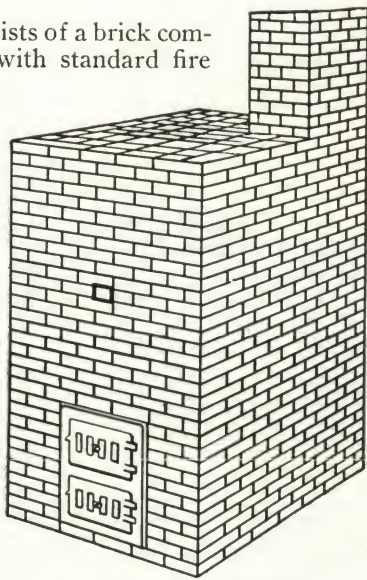
RECOMMENDATIONS FOR SIZE OF SANOTYPE INSTALLATIONS

Purpose	No. 5	No. 10
Residence	10 to 20 persons	15 to 30 persons
Apartment	2 to 4 apartments, rooms not more than 16 15 beds	4 to 6 apartments, rooms not more than 24 25 beds
Hospital		

Bricktype Incinerator

A built-in chimney fed incinerator, located in the basement, for destroying kitchen garbage and waste material in homes, apartment houses, hospitals and institutions.

Description—Consists of a brick combustion chamber lined with standard fire brick and equipped with horizontal, stationary grates. These grates are on a level with the cleanout door for easy removal of sterilized, non-combustible articles. Stationary grates are 14 in. from ash pit floor providing maximum incinerator capacity. The location of the grates so near the ash pit floor permits a sufficient amount of heat to radiate, absorbing the moisture and destroying the vermin in the ash pit.



Bricktype Incinerator

The patented, automatic airport introduces air into the combustion chamber providing a controlled supply of oxygen for complete and odorless destruction of garbage and refuse. Attractive aluminum receiving doors are built in the flue and located in the various apartments. These hopper doors are packed with asbestos which has a two-fold purpose—preventing leakage as the doors are hermetically sealed and eliminating the annoying metallic slam.

For the Building Already Erected—The same incinerator can be installed in an old residence using existing flues in conjunction with furnace or heaters at a nominal expense. This contemplates the use of our special receiving door so that all refuse can be disposed of without going into the basement or outdoors. The floor door operates with a disappearing treadle and is guaranteed to be sanitary and smokeproof. The same mechanical features of efficiency in drying and burning are incorporated in this type of incinerator.

BRICKTYPE—CAPACITIES AND DIMENSIONS

Type	Grate area, sq. ft.	Dimensions		Clean-out doors	Cap., bu.	Type	Grate area, sq. ft.	Dimensions		Clean-out doors	Cap., bu.
		Width, ft.	Depth, in.					Width, ft.	Depth, in.		
25	5 1/4	1	7	3	10	1	24	5 1/4	3	10	1
26	6 3/4	1	7	4	7 1/2	1	28	3 12	3	10	2
36	6 3/4	2	4	3	1	1	28	3 12	4	6	2
46	6 3/4	3	1	2	4	1	28	3 12	4	7 1/2	1
28	9	1	7	6	2	1	42	6 12	3	1	2
48	9	3	1	3	1	1	42	4 14	5	4	1
39	10	2	4	4	7 1/2	1	47	7 14	3	1	2
410	11 1/4	3	1	3	1	1	47	5 15	3	10	4

KAHN PRODUCTS CO.

Manufacturers of "Kahn" Incinerators

2216-2218 West Columbia Avenue

PHILADELPHIA, PA.

"Kahn" Incinerator

Made in seven standard sizes for installation in residences, apartment houses, schools, hospitals and institutions. The entire outfit consists essentially of a combustion chamber built in the basement, the stack or flue with receiving doors at each floor landing, and the grates, lighting and ash pit doors.

The refuse is wrapped in paper and dropped through the receiving doors to the combustion chamber. When a sufficient amount has accumulated in the combustion chamber (generally about once a day) it is ignited through the lighting door. There is no fuel required for maintenance of the "Kahn"; the garbage and refuse bundled in waste paper are sufficient to consume all materials and odors.

The "Kahn" Is Fireproof—The incinerator itself is so designed that it will create a powerful draft, and yet it is such that this draft can not in any manner operate as a fire hazard. The receiving doors, installed at each floor, are airtight and close automatically. They are lined with galvanized iron hoppers, especially designed so as to prevent smoke, flare or odors

from emanating from the flue while refuse is being deposited.

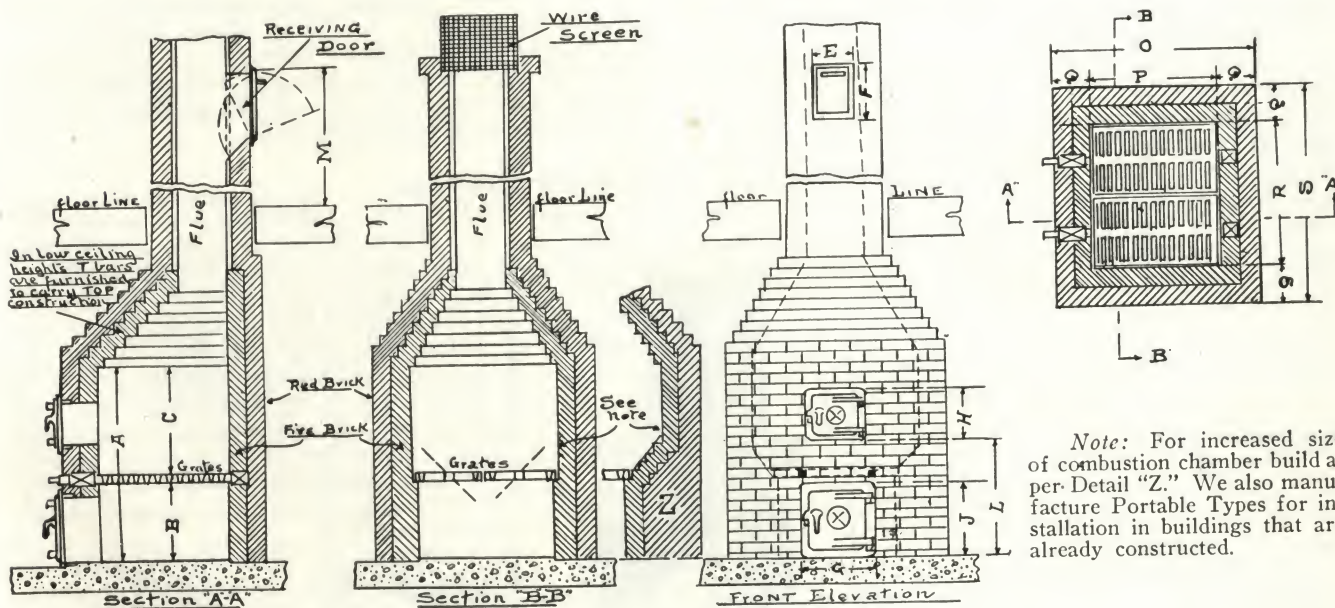
The "Kahn" Handles All Refuse—Not only garbage but broken crockery, bottles and even tin cans may be deposited in the incinerator. The ash deposits underneath can be cleaned out at regular intervals through the cleanout door.

An Absolute Guarantee—"Kahn" Incinerators are guaranteed when installed in accordance with our detail drawings and specifications. Should our Incinerator fail in any way, we will either rectify the cause of the trouble or we will refund all payments and pay all transportation charges when parts are returned to us.

Write for testimonial letters from satisfied users. They will be mailed on request.

Architects' Specifications

The Incinerator shall be the Kahn, Type as made by KAHN PRODUCTS CO., 2216-2218 West Columbia Avenue, Philadelphia, Pa., and shall be installed in accordance with the detail drawings as furnished by the manufacturers. All material shall be first class and the Incinerator shall be of such size to take care of the number of apartments as shown on plans.



Note: For increased size of combustion chamber build as per Detail "Z." We also manufacture Portable Types for installation in buildings that are already constructed.

DIMENSIONS AND SPECIFICATIONS OF THE SEVEN STANDARD SIZES OF "KAHN" INCINERATORS

DIMENSIONS AND SPECIFICATIONS OF THE SEVEN TYPES																												
Type	Suitable for	Size flue, in.	Number of fire bricks required	Sacks of fire clay required	Equipment furnished for "Kahn"										Dimensions in in. as shown on diagram above													
					Receiving doors	Number grates	Lighting doors	Cleanout doors	Shakers	Front bearings	Rear bearings	Grate shanks	Wire screens, in.	A	B	C	E	F	G	H	J	L	M	O	P	Q	R	S
A	Residences.....	8x12	200	1	1	1	1	1	1	1	1	1	0	48	20	27	13	13½	21	17	21	30	45	42½	24½	9	18½	36½
B	Residences and duplex.....	12x12	250	1	2	1	1	1	1	1	1	1	14x14	50	20	29	13	13½	21	17	21	32	45	50	32	9	18½	36½
C	Four-flat type.....	16x16	450	3	2	1	1	1	1	1	1	1	16x16	50	20	29	13	13½	21	17	21	32	45	50	32	9	36	54
D	6 to 20 apartments.....	18x18	450	3	2	2	1	1	1	2	2	2	24x24	50	20	29	13	13½	21	17	21	32	45	50	32	9	37	55
E	24 to 60 apartments.....	22x22	650	4	3	2	1	1	1	2	2	2	24x24	50	20	29	13	13½	21	17	21	32	45	50	32	9	54	72
F	Schools, etc., up to 80 apartments.....	24x24	1050	10	3	3	1	1	2	3	3	3	24x24	50	20	29	13	13½	21	21	21	32	45	50	32	9	72	90
G	80 to 100 apartments.....	24x24	3000	30	3	4	2	2	2	4	4	4	24x24	50	20	29	13	13½	21	21	21	32	45	50	32	9	96	114

*Note: Flues can be erected to the right or left, in the center or front, to suit any layout.

KERNER INCINERATOR COMPANY

701 East Water Street, MILWAUKEE, WIS.

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BALTIMORE, MD.
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BOSTON, MASS.
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Products

THE KERNERATOR CHIMNEY-FED INCINERATOR, BASEMENT-FED and ESTATE TYPE, made in eight standard models, and other designs to meet special requirements.

Garbage and Waste Disposal Without Cost

Fire-safe, sanitary and odorless disposal of garbage and rubbish of all kinds by burning *without cost*. Made in sizes to fit the various requirements of homes, apartments, schools, hospitals and any other type of building where economical and convenient garbage and refuse disposal is desirable.

Guaranteed Incineration by the Pioneer Flue-fed Incinerator Company

Nearly twenty years ago the KERNER INCINERATOR COMPANY introduced flue-fed incineration. Today it is one of the largest incinerator companies in the world—a position established through continuous specialization in the manufacture of a single product of a proven practicability and merit. The Kernerator is the only incinerator legally authorized to use the by-pass or secondary flue—a patented, exclusive feature. The company guarantees the Kernerator to be *permanently* satisfactory—a guarantee backed by recognized integrity and a stable, trained organization throughout the country.

Kernerator Service

Through nearly twenty years of contact with every phase of incineration and as a result of exhaustive and constant study of conditions essential to successful flue-fed incineration, the KERNER INCINERATOR COMPANY is enabled to render valuable service in connection with this equipment.

We are in a position to supply authoritative information, drawn from original sources, on important features of successful incineration—factors of moisture, air movement, smoke control, gas distillation and flame control. A trained organization of experts in incineration, who know what *will* and what *will not* work successfully, will promptly co-operate with the architect to the full extent.

LOCAL REPRESENTATIVE

KERNERATOR
INCINERATION

*"Garbage and Waste Disposal
for New and Existing Buildings"*

Description of the Kernerator

The Chimney-fed Kernerator consists of a brick combustion chamber, with fire brick lining, located in the basement of the building at the base of a *straight* chimney flue. It is constructed when the building is erected in accordance with clear detailed Kernerator working drawings and specifications.

Into this incinerating chamber is built a special arrangement of grates with a patented by-pass flue which provides proper draft control and insures complete odorless combustion of garbage and waste.

One or more receiving hopper doors are located in the flue on the floor or floors above, opening into kitchens, pantries or adjacent halls, etc. The flue serves as a fallway for the refuse deposited in the hopper doors and also as a chimney to carry off the products of combustion during the burning periods.

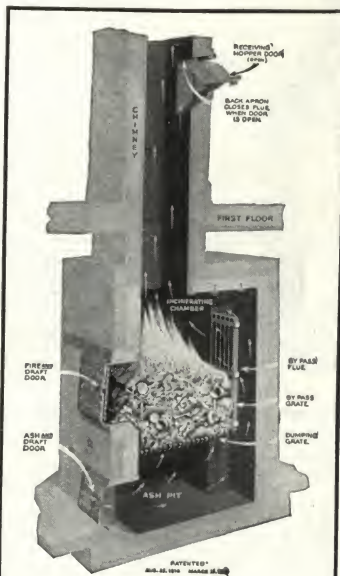
Kernerator Operation

No gas, coal or other commercial fuel is required.

All garbage and waste (sweepings, waste paper, tin cans, broken crockery, bottles, etc.) are placed in the hopper doors. When the doors are closed this refuse falls down the flue into the incinerator combustion chamber where it spreads out on the grates into a more or less separated and loose pile, permitting the constant flow of air up the by-pass to circulate through and around it causing a surprising amount of evaporation between burnings.

When the combustion chamber is nearly full the refuse is lighted (a match does it) and the whole mass burns without further attention. Due to the by-pass flue, combustion is from the top downward and all unpleasant odors are destroyed.

The fire feeds upon the waste paper and other combustible material and gradually dries the damp substances so that they also burn to a fine ash. After several burnings the ashes along with cans, bottles and other non-combustible articles, which are thoroughly flame sterilized, are dumped into the ash pit for removal every few weeks.



Interior Construction and Operation of Kernerator

Notice the draft reaching the point of burning through by-pass grate. Fire is always on top of the burning material, consuming offensive odors

Importance of the By-pass Flue and Vertical Grate

At the side of the horizontal grates, upon which the refuse falls, is the by-pass or upright grate. Behind this is the by-pass or secondary flue. This exclusive feature permits air to pass up from the ash pit through and over the refuse material spread on the horizontal grates. Between burnings this circulation of air causes considerable evaporation. During burnings air comes up the by-pass flue, passes through the vertical grate and feeds heated oxygen to the top of the fire. As the heat liberates the gases from the refuse beneath they pass up through the flames, are mixed with a plentiful supply of heated air at this point and are consumed.

No Heat, Smoke or Odor Escapes into the Building

There is always a draft into and up the chimney, consequently when the hopper doors are open, either between burnings or during burnings, the air is drawn from the rooms into and up the flue. There is never a possibility of either heat or smoke escaping into the room—the suction of the chimney draft prevents it.

Flue Is Always Clean and Sanitary

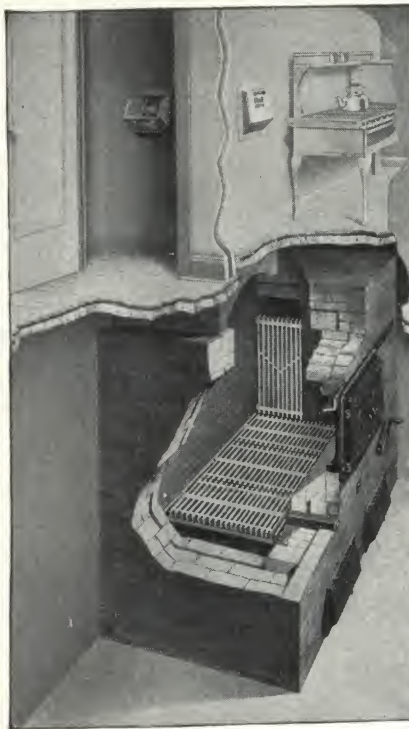
The heat from the burning sterilizes the entire chimney flue, maintaining a clean, sanitary condition. The oily soot and creosote on the inside of the flue walls prevent waste particles from adhering. Falling waste prevents any large accumulation of soot.

Kernerator Hopper Doors

Kernerator hopper doors are of heavy gray iron castings with edges, and seats on which they rest, emery ground, carefully fitted to make them as airtight as possible. The frames, weighing from 27 to 47 lbs., depending on size, are firmly anchored into the masonry. The back aprons (hoppers) on doors are so constructed that the opening into the flue is closed when the door is open. The hopper limits the size of the package which can be deposited in the flue but leaves sufficient opening to take ordinary packages of garbage and waste.

Hopper Door Model 003 is $11\frac{1}{4} \times 14\frac{1}{4}$ in. measured outside the door casing. The daylight opening is $8\frac{1}{4} \times 8\frac{1}{4}$ in. The over-all width of frame is 10 in. This door cannot be used in flues less than 12×12 in. (inside dimensions).

Hopper Door Model 005 (for schools, hospitals and other larger installation) is 15×19 in. measured outside the door casing. The daylight opening is $11\frac{1}{4} \times 12$ in. The over-all width of frame is $13\frac{1}{2}$ in. This door cannot be used in flues less than 20×20 in.



Combustion Chamber and Two Methods of Placing Hopper Doors on Floors Above

One in kitchen, the other in apartment corridor service closet

(inside dimensions). Where the building is six stories or higher use this door in a flue not less than 24×24 in. (inside dimensions).

Hopper Door Model 1A3 (for cases where a door larger than Model 005 adds efficiency) is 18×18 in. measured outside the door casing. Daylight opening is $14\frac{1}{2} \times 11\frac{1}{2}$ in. Over-all width of frame is $16\frac{1}{2}$ in. This door cannot be used in flues less than 24×24 in. (inside dimensions).

Double and Single Leaf Firing or Charging Door

In the larger apartment houses, apartment hotels, hospitals and institutions the Kernerator Fire Door opening into the combustion chamber in the basement is frequently used for feeding purposes. The larger this fire door the more satisfactory the incinerator installation.

The large single leaf fire door (clear opening 22×18 in.—weight 110 lbs.) is standard in the Kernerator Models G, O and L.

A larger double leaf fire door (clear opening 30×22 in.—weight 220 lbs.) is standard on Kernerator Models M and P.

These large fire doors enable the janitor or building custodian to feed berry crates and other bulky waste not delivered to the upper floors, directly into the incinerator combustion chamber in the basement. It also provides an adequate opening for conveniently stoking of the fire.

Selection of Model—Kernerator Detailed Plans

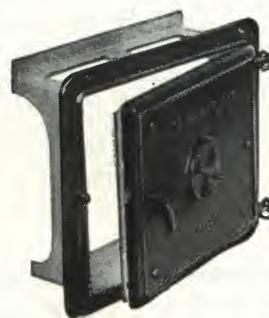
Select the correct sized model from the capacities noted on layouts on Kernerator Pages 3 to 7, inclusive. Then choose the basement arrangement of that model which will best meet the building conditions. On application, the KERNER INCINERATOR COMPANY will furnish $\frac{1}{2}$ -in. scale working drawings and specifications of the model and basement arrangement selected.

Where none of the standard arrangements meet the particular basement conditions consult the local Kernerator representative or send to the home office a sketch of the conditions surrounding the flue to be used (basement and typical floor plan and clear basement height) and our drafting department will prepare special drawings to fit these conditions.



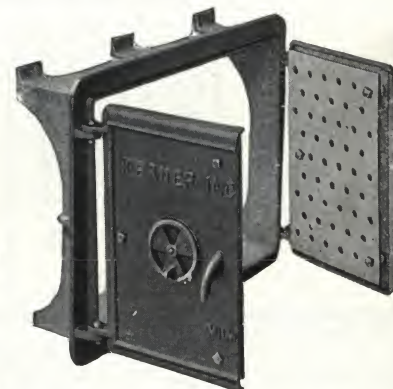
Hopper Door and Frame Complete

Note that the back apron closes off the opening into the flue when the door is open



Large Single Leaf Firing Door

Standard on Models G, O and L



Double Leaf Firing Door

Standard on Models M and P

Note particularly descriptive text on Kernerator Pages 6 and 7 under headings "General Information," "Construction Details" and "Flue Construction." Observe carefully the flue size requirements given with each standard model and plan arrangement.

Incinerator Specifications

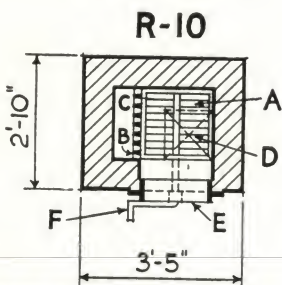
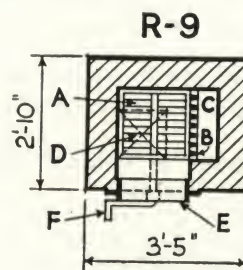
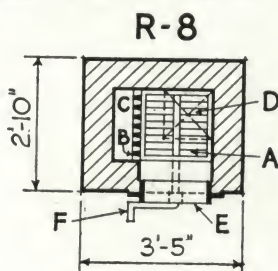
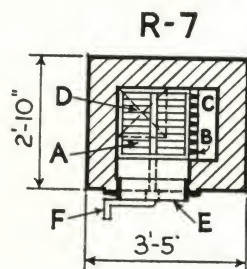
(A) **Work Included**—The work included under this heading is the furnishing of all materials and labor for the complete Incineration System consisting of (state number) flue (s) and combustion chamber (s) (give locations) and hopper doors opening into the following rooms (list or locate).

(B) **General**—The Incineration System shall be Kernerator as manufactured by the KERNER INCINERATOR COMPANY, Milwaukee, Wis.

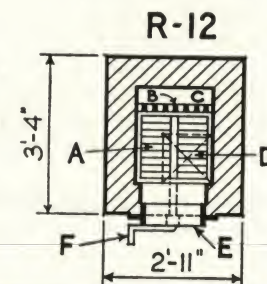
(C) **Materials and Workmanship**—All materials and workmanship shall be the best of their respective kinds meeting fully the standard specification requirements of the KERNER INCINERATOR COMPANY.

(D) **Installation**—Construction of flues, combustion chamber (s) and the installation of grates, combustion chamber doors and flue hopper doors shall be in strict accordance with the detailed working drawings furnished by the KERNER INCINERATOR COMPANY.

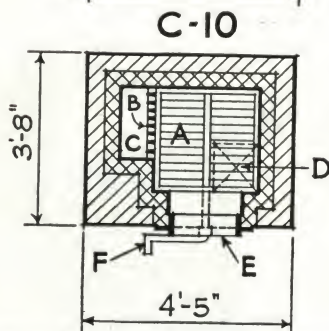
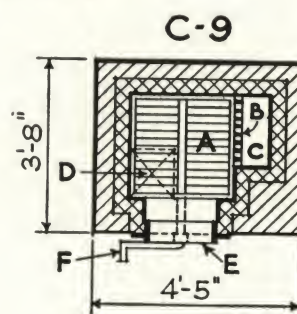
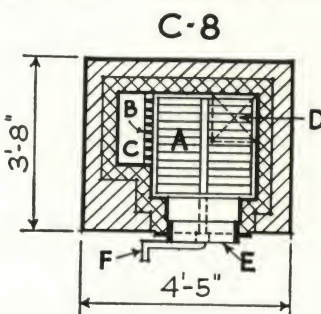
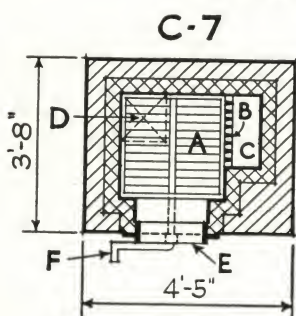
MODEL-R FOR RESIDENCES OF NOT MORE THAN 6 ROOMS



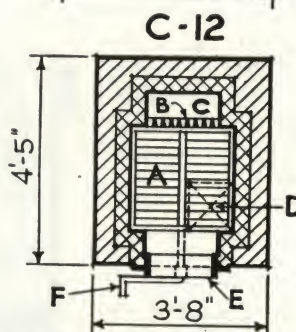
STANDARD HEIGHT OF INCINERATOR,
5'-11" above basement floor.
FLUE SIZE must be not less than
12"x12". If an additional receiving
door is desired on the second floor,
flue must be at least 16"x16".
BRICK QUANTITIES
930 common brick required.



MODEL-C FOR RESIDENCES OF NOT MORE THAN 10 ROOMS



STANDARD HEIGHT OF INCINERATOR,
6'-2" above basement floor.
FLUE SIZE must be not less than
12"x12". If an additional receiving
door is desired on the second floor,
flue must be at least 16"x16".
BRICK QUANTITIES
980 common brick required.
360 fire brick required.



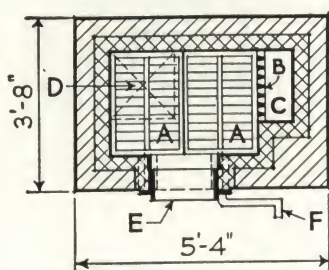
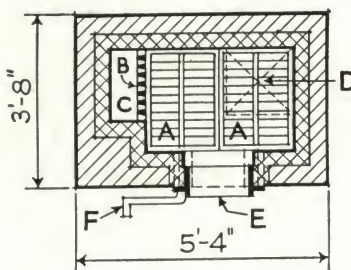
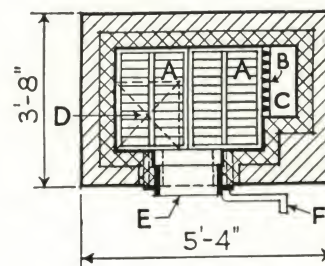
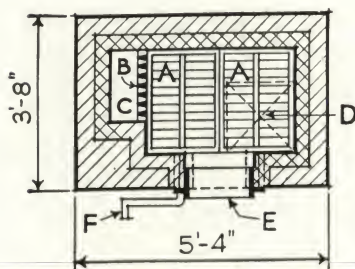
A-Dump grate
B-Vertical grate
C-Bye-pass flue

KERNERATOR STANDARD MODELS
Scale - $\frac{1}{4}" = 1'-0"$

D-Chimney flue
E-Fire & Ash door
F-Dumping lever

MODEL-F

FOR RESIDENCES OF NOT MORE THAN -12-ROOMS.
UP TO -16- EFFICIENCY APARTMENTS. ALL OTHER
APARTMENT BUILDINGS CONTAINING NOT OVER -32- ROOMS IN ALL.

F-7**F-8****F-9****F-10**

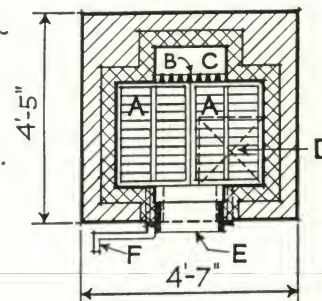
STANDARD HEIGHT OF INCINERATOR
6'-2" above basement floor.

FLUE SIZE must be not less than
16"x16", except in residences with
only one receiving door on the first
floor, where a 12"x12" flue may be used.

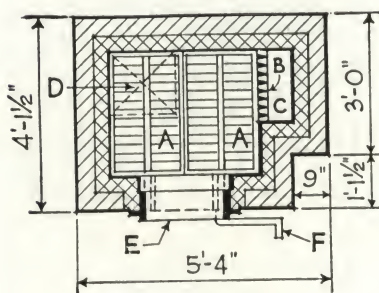
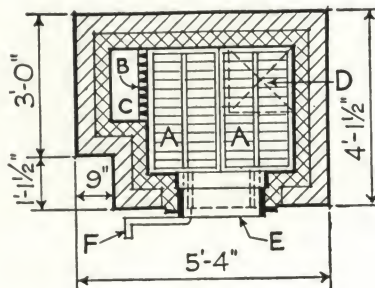
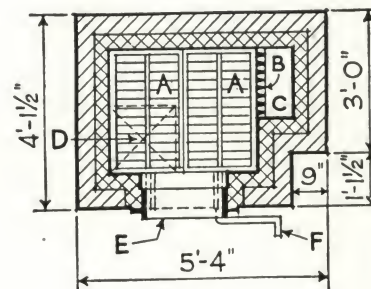
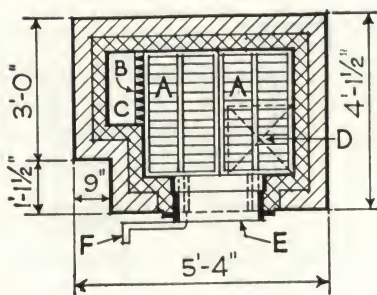
BRICK QUANTITIES

1065 common brick required.

425 fire brick required.

F-12**MODEL-G**

UP TO -24- EFFICIENCY APARTMENTS. OTHER APARTMENT
BUILDINGS CONTAINING NOT OVER -50- ROOMS IN ALL.

G-7Z**G-8Z****G-9Z****G-10Z**

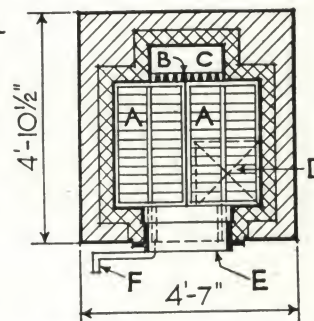
STANDARD HEIGHT OF INCINERATOR
6'-2" above basement floor.

FLUE SIZE must be not less than
16"x16". For buildings four or more
stories in height, flue size must
be not less than 20"x20".

BRICK QUANTITIES

1080 common brick required.

455 fire brick required.

G-12Z

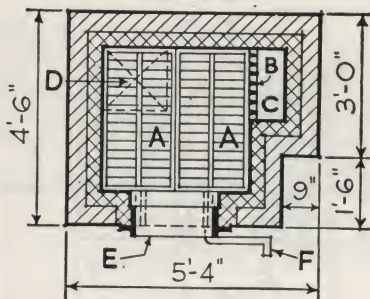
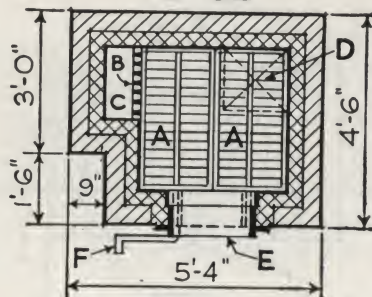
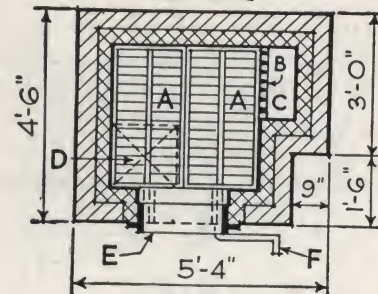
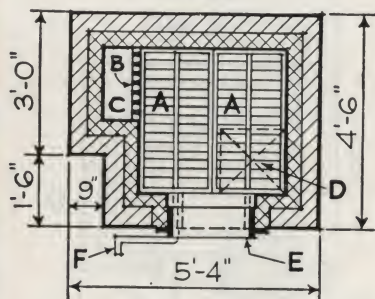
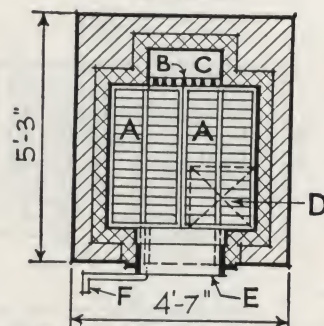
A-Dump grate
B-Vertical grate
C-Bye-pass flue

KERNERATOR STANDARD MODELS
Scale - $\frac{1}{4}$ " = 1'-0"

D-Chimney flue
E-Fire & Ash door
F-Dumping lever

MODEL - O

UP TO -36- EFFICIENCY APARTMENTS. ALL OTHER APARTMENT BUILDINGS CONTAINING NOT OVER -90- ROOMS IN ALL. HOSPITALS UP TO -35- BEDS. SCHOOLS UP TO -500- PUPILS.

O-7Z**O-8Z****O-9Z****O-10Z****O-12Z**

STANDARD HEIGHT OF INCINERATOR 6'-2" above basement floor.

FLUE SIZE must be not less than 16"x16". For buildings four or more stories in height, flue size must be not less than 20"x20".

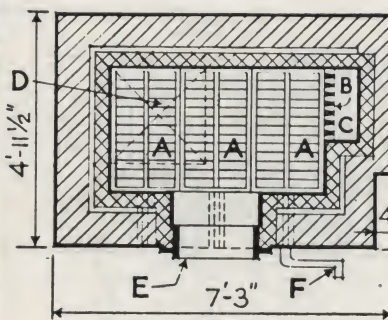
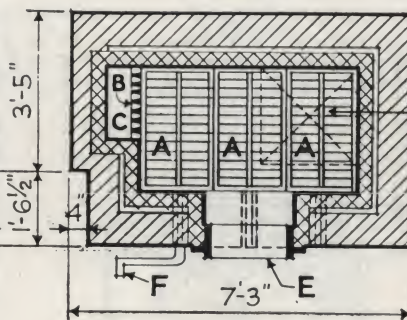
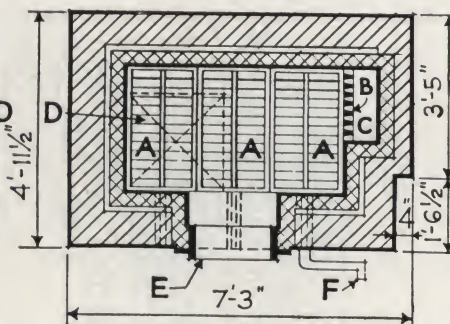
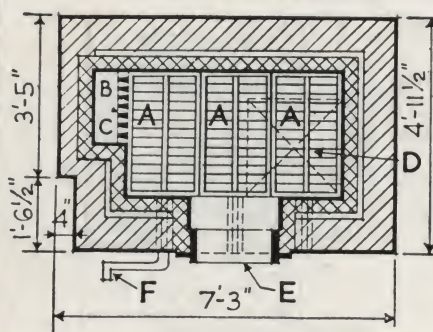
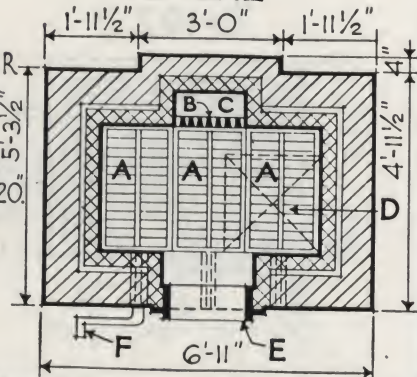
BRICK QUANTITIES

1150 common brick required.

485 fire brick required.

MODEL - L

UP TO -60- EFFICIENCY APARTMENTS. OTHER APARTMENT BUILDINGS CONTAINING NOT OVER 130 ROOMS IN ALL. HOSPITALS WITH FROM 35 TO 60 BEDS. SCHOOLS WITH FROM 500 TO 800 PUPILS.

L-7AZ**L-8AZ****L-9AZ****L-10AZ****L-12AZ**

STANDARD HEIGHT OF INCINERATOR 7'-7" above basement floor.

FLUE SIZE must be not less than 24"x24" except for buildings less than seven stories in height, where flue size must be not less than 20"x20".

BRICK QUANTITIES

2145 common brick required.

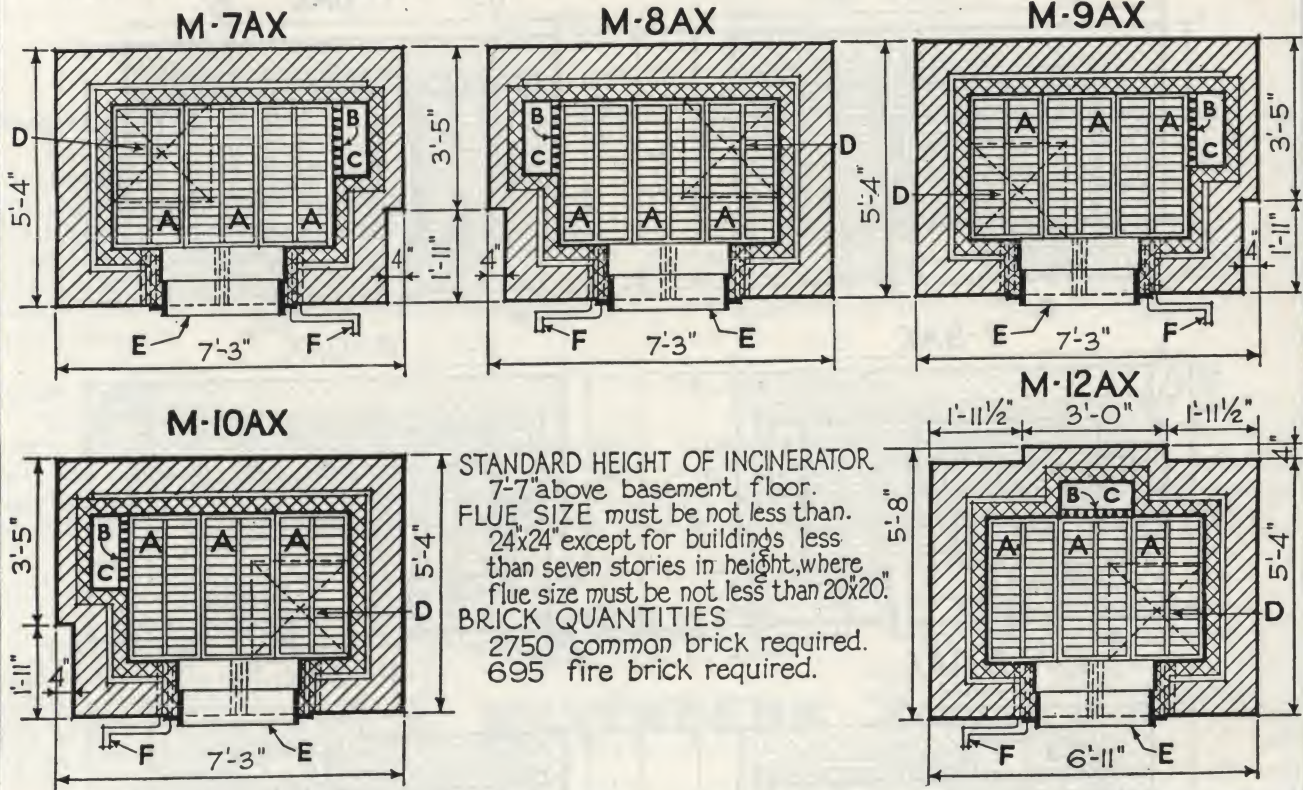
650 fire brick required

A-Dump grate
B-Vertical grate
C-Bye-pass flue

KERNERATOR STANDARD MODELS
Scale - $\frac{1}{4}$ " = 1'-0"

D-Chimney flue
E-Fire & Ash door
F-Dumping lever

MODEL-M UP TO 80-EFFICIENCY APARTMENTS. OTHER APARTMENT BUILDINGS CONTAINING NOT OVER 170 ROOMS IN ALL. HOSPITALS WITH FROM 60-TO-80-BEDS. SCHOOLS WITH FROM 800-TO-1000-PUPILS.



Construction Details

Footings for incinerators should extend 6 in. beyond the outer edges of the incinerator walls. Top of footings should be 4 in. below floor level.

In the Models "C" to "O," inclusive, the combustion chamber is built with a 9-in. wall, the inside portion of which is built of fire brick from three courses below the grate level up to and including the inner course of the top. Model "R" does not require fire brick lining—only a first-grade hard burnt common clay brick is needed.

In Models "L," "M" and "P" the combustion chamber is built with 14-in. walls made up of $4\frac{1}{2}$ in. of fire brick on the inside, 8 in. of common brick on the outside, and with $1\frac{1}{2}$ -in. air space between. Method of bonding is shown in construction details. Fire brick shall be laid in fire clay, joints dipped and not buttered.

Flue Construction

Flues measuring 16x16 in. or less shall be en-

closed by common brickwork $3\frac{3}{4}$ in. thick and shall be lined with standard fire clay flue lining.

Flues larger than 16x16 in. shall be enclosed by common brickwork $3\frac{3}{4}$ in. thick with a lining of $4\frac{1}{2}$ in. of fire brick for a distance of not less than 30 ft. above the roof of the combustion chamber; beyond this point, flue enclosing walls shall consist of common brickwork not less than 8 in. thick.

All flues must continue up straight from the combustion chambers to the topmost hopper door, without offsets or slopes of any kind, and shall be finished smooth on the inside.

The chimney top must extend high enough above any roof obstructions to avoid interference with draft. On flat roof buildings, the chimney should clear roof of the building by at least 10 ft. and should clear all obstructions on the roof within 10 ft. of the chimney, by at least 4 ft.

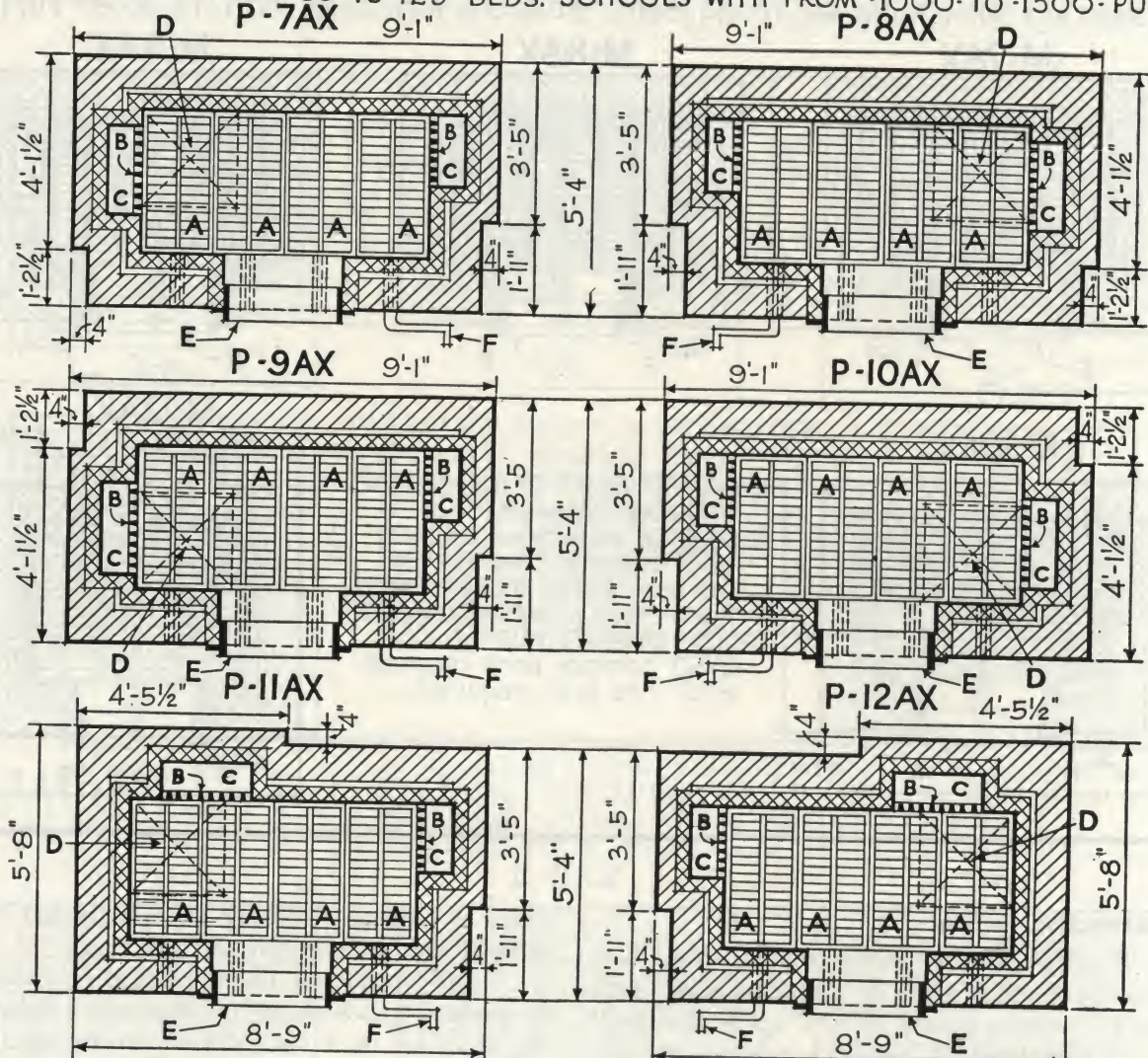
On residences, or other sloping roof construction, the top of the chimney should extend at least 2 ft. above the highest ridge of the roof.

A-Dump grate
B-Vertical grate
C-Bye-pass flue

KERNERATOR STANDARD MODELS
Scale - $\frac{1}{4}$ "=1'-0"

D-Chimney flue
E-Fire & Ash door
F-Dumping lever

MODEL - P UP TO -150- EFFICIENCY APARTMENTS. OTHER APARTMENT BUILDINGS CONTAINING NOT OVER -300- ROOMS IN ALL. HOSPITALS WITH FROM -80- TO -125- BEDS. SCHOOLS WITH FROM -1000- TO -1500- PUPILS.



STANDARD HEIGHT - 7'-7" above basement floor.
BRICK QUANTITIES
3200 common brick - 880 fire brick required.

FLUE SIZE must be not less than 24x24" except for buildings less than seven stories in height, where flue size must be not less than 20x20".

General Information

The Kernerator becomes a permanent part of the building in which it is installed. It should therefore, be incorporated in the building plans to avoid the necessity of later changing the plans and figuring the brickwork for the incinerator as an extra.

Each of the layouts shown has a corresponding detailed installation drawing, which will be furnished together with specifications any time before installation.

The capacities listed for the various models on layouts, Kernerator Pages 3 to 7, inclusive, are as near as can be figured in a general way. If in doubt

about the selection of a suitable model for any particular job, or where requirements are not specifically covered in these layouts, consult the local Kernerator Representative or write to the Home Office.

The incinerators can be placed in any position, using the chimney flue as a pivot, but the relative positions of the fire and ash doors, and the by-pass flue must remain the same as shown. If desired, grates may be dumped from the side opposite that shown.

See text "Construction Details" and "Flue Construction," Kernerator Page 6.

A-Dump grate
B-Vertical grate
C-By-pass flue

KERNERATOR STANDARD MODELS
Scale - $\frac{1}{4}" = 1'-0"$

D-Chimney flue
E-Fire & Ash door
F-Dumping lever

KERNIT INCINERATOR CO.

Portable Gas-Fired Incinerators
MILWAUKEE, WIS.

Products

Two styles of GAS-FIRED PORTABLE INCINERATORS (Kernit with capacities of 3 and 4 bushels, and Kleenburn with capacities of 2 and 3 bushels) to meet the requirements of various conditions, and of all pocket-books. Each in its range represents the utmost for price expended.

Scope of Use

Kernit and Kleenburns, while primarily built for homes, are also suitable for stores, small hospitals, doctors' and dentists' clinics, morticians, banks and other financial institutions, schools, charitable institutions, florists and small stores. They will dispose of all household

LOCAL REPRESENTATIVE

waste, wet and dry garbage, rags, sweepings, papers, etc., and cremate them into pure powdery ash.

Tested and Approved

Kernit and Kleenburn are tested and approved by various testing laboratories, and unconditionally guaranteed by the KERNIT INCINERATOR COMPANY.

Efficient Operation

Kernit and Kleenburn both employ the principle of air drying between burnings which makes for efficient and economical operation—low cost for fuel. Both Kernit and Kleenburn Incinerators are equipped with automatic gas shut-off valve which prevents waste of gas fuel.

Kernit Incinerator

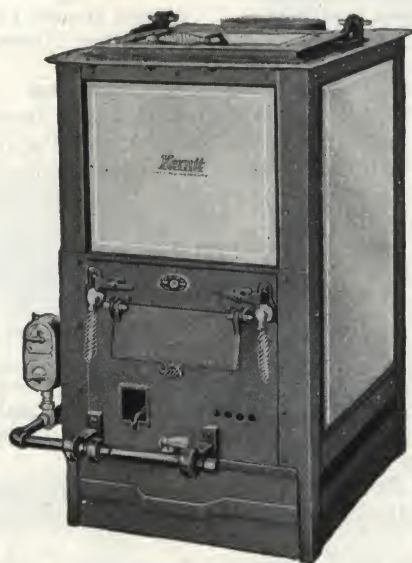
The Kernit Incinerator is recognized as among the best gas-fired incinerators on the market. It has been built up to a standard, and no expense has been spared in its construction. It is most ruggedly built with full cast iron linings, and attractively trimmed with vitreous external sheets. It is the fine incinerator for the finest homes.

KERNIT
INCINERATION

KLEENBURN
INCINERATION

Kleenburn Incinerator

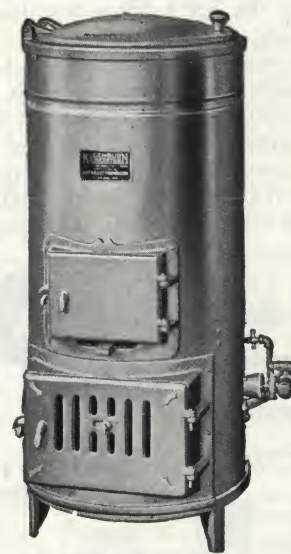
The Kleenburn Incinerator is designed to meet the demand for a popular priced incinerator for domestic use. Its remarkably low price (quality considered) makes it possible now to install gas-fired incineration in nearly every home. Only the best quality of materials are used in its construction, and scientific principles are used in its design.



Kernit 3

KERNIT SPECIFICATIONS

Details	Model	
	3	4
Capacity	3 bu.	4
Width	21 in.	26
Depth	25 in.	29
Height	37 1/2 in.	37 1/2 in.
Gas connection	3/4 in.	3/4 in.
Flue connection	8 in.	8 in.
Burner capacity, mfd. gas ...	100 cu. ft. per hr.	120
Weight uncrated	425 lb.	535
Weight crated	510 lb.	650



Kleenburn 2-A

KLEENBURN SPECIFICATIONS

Details	Model	
	3-A	2-A
Capacity	3 bu.	2
Diameter	24 in.	18
Height	42 in.	42
Gas connection	1/2 in.	1/2 in.
Flue connection	7 in.	5 in.
Burner capacity, mfd. gas ...	60 cu. ft. per hr.	60
Weight uncrated	175 lb.	150
Weight crated	215 lb.	180

KELLOGG MANN & CO., INC.

Manufacturers of K-M Incinerators

315 Grote Street, BUFFALO, N. Y.

BRANCH: 551 Fifth Avenue, NEW YORK, N. Y.
DISTRIBUTORS EVERYWHERE

Product

K-M CHIMNEY-FED INCINERATORS, of the built-in, fuelless type, for the disposal of garbage and refuse in residences, apartments, hotels, office buildings, etc.

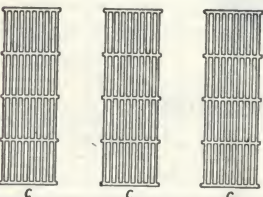
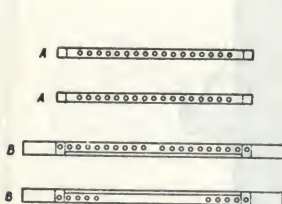
General Description

The K-M Incinerator consists of a brick combustion chamber of blast furnace design, with fire brick lining. It is located in the basement at the base of the chimney. Refuse is fed into it through a receiving door opening into the flue from the kitchen, pantry or other convenient points on the floors above. (An unlimited number of receiving doors may be used to feed one incinerator.)

Patented Grate Arrangement Speeds Drying and Promotes Strong Draft

The arrangement of the grates in the K-M Incinerator is similar to a suspended basket. The ends of two sustaining pieces B-B (see illustrations below) are embedded in the fire brick sidewalls. The ends of the two pieces A-A interlock into the two sustaining pieces forming a square support for the horizontal grate sections CCC, which form the bottom of the basket, as well as for the bottom of the vertical sides of the basket. Lugs on the bottom of the vertical grates fit snugly into holes in pieces AA and BB. A number of hooks, D, set into the fire brick sidewalls, hold the vertical grates in place at the top.

The vertical grates, or sides of the basket, entirely surround the combustion chamber with the exception of the space occupied by the clean out door. A 2-in. space between these vertical grates and the sidewalls keeps the refuse away from the brick, thus speeding the drying process and permitting the circulation of air and combustion on all sides as well as at the top of the mass.

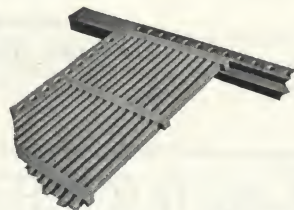


Separate Sections of Stationary Horizontal Grates

There are either three or four sections CCC depending upon size of incinerator



Section A Fitted into Section B



Grate Sections CC Fit Snugly on Lip or Sustaining Pieces



Typical Side or Vertical Grate



Typical Single Leaf Clean Out or Fire Door (Closed)



Typical Single Leaf Clean Out or Fire Door (Open)



Typical Double Leaf Fire Door (Closed)



Typical Double Leaf Fire Door (Open)

Reasons for Unusually Efficient Operation

The satisfactory operation of an incinerator depends upon two things: the rapidity and the thoroughness with which the damp refuse dries out, and speedy, complete combustion. These in turn are dependent upon a satisfactory draft. There are three outstanding reasons why K-M Incinerators insure a maximum draft and hence guarantee unusually efficient waste disposal.

(1) The blast furnace design of the combustion chamber.

(2) The arrangement of the grates holding the refuse away from the sidewalls and forcing the draft from the ash pit up through the center of the mass to the sides and top.

(3) The two-point draft which comes both through the ash pit and clean out doors.

Simple in Design and Foolproof in Operation

K-M Incinerators are simple in design without bearing blocks, nuts, bolts, shakers, handles or moving parts. There is nothing which can possibly get out of order or cause annoyance in operation. Since the grates are of the non-dumping, stationary type, they never give trouble by clogging or warping. The ash pit is always clear, hence providing an unimpeded draft. Ashes and unburnable materials are easily raked out through the fire or clean out door.

K-M Parts Are Few and Simple

The grates are made in simple sections which fit snugly together without the use of nuts, bolts or rivets. They are of the finest quality gray iron of sufficient weight to eliminate the danger of breakage.

Clean out and ash pit doors are of smokeproof construction with interlocking lips and baffle plates. The receiving doors are either of gray iron or aluminum as may be desired. A sturdily constructed spark screen is provided to fit over the top of the flue to prevent sparks, unburned or burning papers, etc., from escaping and becoming a nuisance to the community.

Economical to Install

The cost of K-M Incinerator parts is extremely reasonable. Furthermore, the brickwork is simple and easily erected. The design is such that fewer bricks are required than with most other incinerators. For these reasons, the initial installation cost is less than you have probably been accustomed to figure for incineration.

Seven Models

The seven sizes in which K-M Incinerators are made care for every requirement from the smallest of private residences to the largest of apartment houses.

Guarantee

If the K-M Incinerator, installed according to factory plans and specifications, does not give complete satisfaction, all payments, including freight both ways, will be refunded on the return of the incinerator parts.

Service to Architects

The installation of an incinerator is a specialized subject. In order to assist the architect in selecting the



Typical Cast Iron Receiving Door

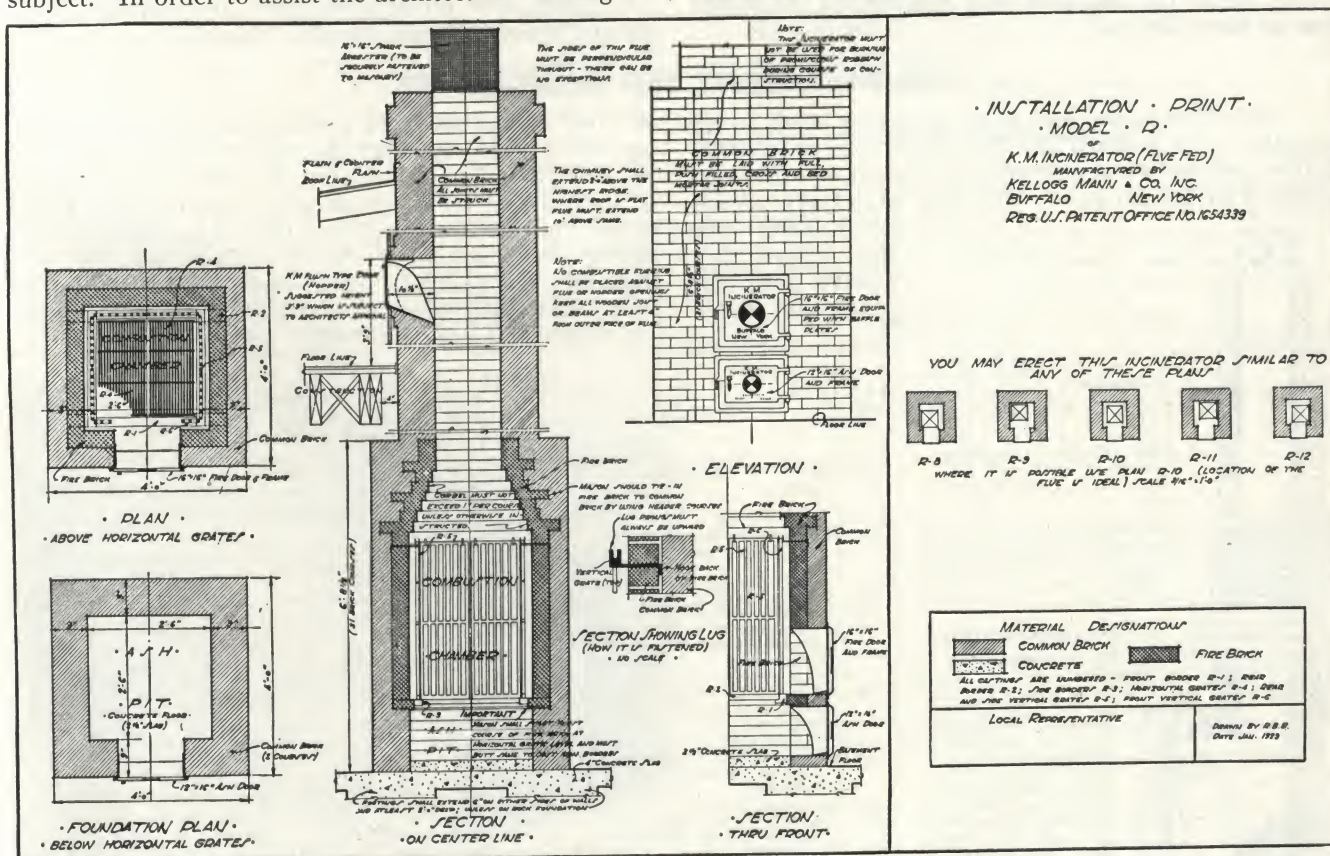


Typical Aluminum Receiving Door (Ship Design)

correct type of incinerator and installing it to insure maximum efficiency and satisfaction, the Kellogg Mann engineering department will gladly study preliminary sketches and plans and recommend the correct flue size and type of incinerator and prepare specifications to insure proper installation. Supervision of the work itself is provided for through the K-M field staff and distributing organizations. There is, of course, no charge for this service.

Typical Specifications (to Be Included Under Masonry)

The contractor shall furnish and install a K-M Incinerator as manufactured by KELLOGG MANN & CO., INC., Buffalo, N. Y. It shall be installed in the basement with receiving door(s) located in the flue at point(s) shown on the plans in accordance with the instructions and detailed drawings furnished by the manufacturer. Spark screen as furnished by the manufacturer shall be installed at the top of the flue.



MID-WEST INCINERATOR CORPORATION

154 East Erie Street, CHICAGO, ILL.

AGENCIES IN ALL PRINCIPAL CITIES

Product

CHUTE FED INCINERATORS for the destruction of combustible wastes from residences, apartment houses, schools and small hospitals.

HEAVY DUTY INCINERATORS for the destruction of combustible wastes in larger quantities in hotels, clubs, hospitals and industrial plants—100 to 3000 lb. per hour. A Mid-West Heavy Duty Incinerator can be built for any kind of reducible material and in any size.

Catalogues and specifications on request.

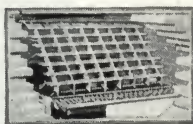
Technical Staff

The MID-WEST INCINERATOR CORPORATION employs a staff of Combustion Engineers of wide experience. The services of this staff are available gratis to architects, engineers, and others having waste disposal problems.

Installation

Mid-West Chute Fed Incinerators are usually installed by a mason contractor according to plans and specifications furnished by the MID-WEST INCINERATOR CORPORATION.

Mid-West Heavy Duty Incinerators are erected by crews of especially trained incinerator builders employed by the MID-WEST INCINERATOR CORPORATION for this purpose. Each installation is turned over to the owner ready for operation with instructions for proper use of the equipment.



TRADE-MARK

General Description

Mid-West Incinerators of both the Chute Fed and Heavy Duty types employ the step grate principle of grate construction because of the following advantages:

First—Increased burning capacity per unit of incinerator volume, thus reducing the first cost of the installation.

Second—High efficiency and high temperatures because air for combustion is fed to the fire through the fuel bed in the normal and proper manner from beneath the grates.

Third—Increased dehydration of wet material because it comes in direct contact with the incandescent fuel bed.

Fourth—Impossibility of smothering the fire because of the shape of the fuel bed.

Fifth—Impossibility of wet material clogging the air spaces of the grates.

Sixth—Drip-proof grate construction.

Seventh—Assurance of a clean dry ash because all material deposited in the incinerator must pass through a highly incandescent zone before reaching the dump grate.

Eighth—Odorless and smokeless operation because of high temperatures produced by the Mid-West method of combustion.

Ninth—Concentration of stoking and ash cleaning to one set of doors, reducing operating labor to a minimum and increasing sanitation of the incinerator room.

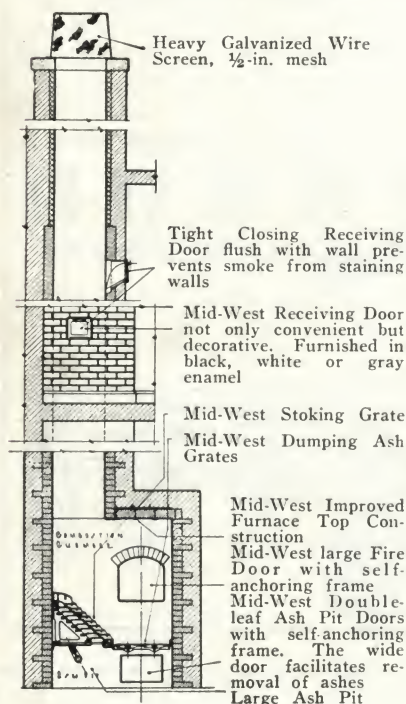
Tenth—All refractories used are standard commercial shapes, always locally obtainable.

MID-WEST CHUTE FED INCINERATORS

Mid-West Chute Fed Incinerators are made in six standard sizes as listed in table. Reference to the illustration will show the general construction of Mid-West Chute Fed Incinerators. The step grates are always placed under the flue where they receive the material and form

the fuel bed properly to produce the maximum burning effect. The shape of the fuel bed is such that the stack draft pulls the fire into the mass of material to be burned and the air passing through the step grates causes this mass to become highly incandescent, producing the maximum drying effect on the wet material. The resulting high temperatures in the incinerator effectively sterilize and deodorize the flue gases.

DIMENSIONS AND CAPACITIES



Series Model No.	Capacity	Dimensions			No. brick		Minimum flue sizes, in.	Wall thickness			Fire door sizes in.	Ash pit door sizes in.
		Length ft. in.	Width ft. in.	Std. height ft. in.	Fire brick	Com. brick		Tot'l in.	Fire brick in.	Com. brick in.		
000	Residences of not more than 12 rooms.....	3 10	2 9	5 11½	300	610	16x16 below intakes	9	4½	4½	12x15	12x18
100	Residences 12 to 18 rooms. Buildings up to 30 rooms total....	4 2	3 2	6 9½	425	775	16x16 below intakes	9	4½	4½	12x15	12x18
200	Buildings from 30 to 50 rooms..	5 3	3 2	6 9½	502	835	16x16	9	4½	4½	12x15	12x18
250	Buildings from 50 to 70 rooms. Hospitals having 75 beds as maximum.....	5 3	3 7	6 9½	540	900	18x18	9	4½	4½	12x15	12x18
300	Buildings from 70 to 100 rooms. Hospitals having 90 beds as maximum.....	5 3	4 0	6 9½	575	980	18x18	9	4½	4½	12x15	12x18
350	Buildings from 100 to 150 rooms. Hospitals having 115 beds as maximum.....	6 9	4 8	7 4	665	2200	20x20	13	4½	8½	22x20	12x18
400	Buildings from 150 to 200 rooms. Hospitals having 150 beds as maximum.....	6 9	5 1	7 11½	800	2400	24x24	13	4½	8½	22x20	12x18
450	Buildings from 200 to 300 rooms. Hospitals having 200 beds as maximum.....	7 9	5 1	8 11½	950	2800	24x24	13	4½	8½	30x25	12x18

Ash Pit and Charging Doors

Mid-West ash pit and charging doors can be placed in any convenient wall of the incinerator. They are of pleasing as well as of exceptionally heavy design. The door frames are provided with improved anchorage in the brick work of the incinerator walls, insuring these frames against becoming loose even under the severest handling.

Charging doors are made in three sizes; a 15 in. wide by 12 in. high single leaf door for the smaller incinerators, a 22 in. wide by 20 in. high double leaf door for intermediate sizes, and a 30 in. wide by 25 in. high double leaf door for the large models or for incinerators where special conditions make a very large door desirable. Ash pit doors are 18 in. wide by 12 in. high giving ample room for removal of ash.

Mid-West Intakes

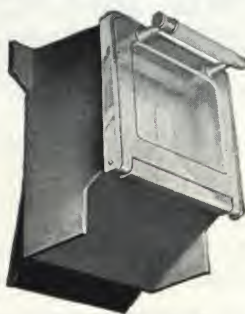
Mid-West vitrified enamel finished intakes meet all requirements for sanitary, attractive and efficient equipment.

The distinctive features of Mid-West refuse intakes are as follows:

First—No screws, bolts, or nuts, because of the patented Mid-West hinge.

Second—Large size.

Third—Recessed door preventing smoke stained walls.



Midwest Intake

Fourth—Rust proof, leak proof bucket eliminating any possibility of moisture stains.

Fifth—Firm, positive anchorage of the frame in the wall, preventing loosening in service.

Sixth—Vitrified enamel finish that will not discolor from heat and is easily cleaned.

Seventh—Intakes do not protrude more than 2 in. from wall.

Suggested Architects' Specifications

The Contractor shall furnish all labor and materials necessary to install (No.) Mid-West Chute Fed Incinerators, model No. () in the location shown on plans.

The incinerator shall be built in strict accordance with the drawings and specifications to be furnished by the MID-WEST INCINERATOR CORPORATION and the intake doors in the flue shall be set in the manner indicated on these drawings.

Incinerator lining shall be high grade fire brick laid in a thin batter of fireclay with brick to brick joints. Thick fireclay joints or fire brick laid with mortar joints will not be permitted.

All work shall be done in a neat and workmanlike manner and all materials used shall be of an approved make.

MID-WEST DESTRUCTOR TYPE INCINERATORS

Advantages

Mid-West Destructors eliminate fire risk; reduce insurance rates; reduce costs of waste and garbage disposal; eliminate waste and garbage storage.

Mid-West Destructors are built of standard commercial brick shapes. *No special fireclay shapes are used.* This feature of design and construction reduces maintenance costs to a minimum, because repairs may be made by any competent brick mason and the necessary brick can be secured easily.

In the design of Mid-West Incinerators proper provisions for expansion and contraction are made in each of the parts. The fuel supporting members are made of material which is universally recognized by the engineering profession as most suitable for the purpose, namely heat resisting cast iron. The design of the grate surface provides for ample cooling of the metal and

permits of free expansion and contraction of the individual members, eliminating warping and cracking.

Should the material to be destroyed demand the use of commercial fuel, Mid-West Destructors may be adapted for use with coal, oil or gas.

Mid-West Destructors are manufactured of any size and for any purpose.

Standard sizes are given in table.

Suggested Architects' Specifications

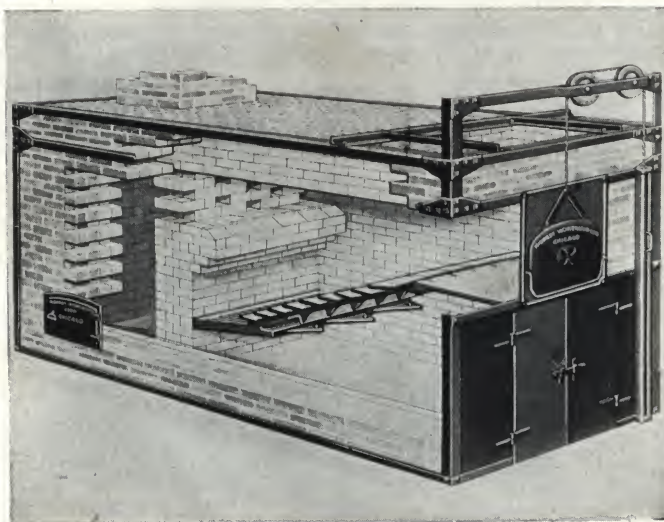
The Contractor shall furnish Mid-West Destructor(s) Model No. in accordance with plans and specifications on file in the architect's office. The Destructor(s) shall be erected complete ready for operation.

DIMENSIONS AND CAPACITIES

Type	Dimensions				Capacity per hr., lb.	Flue size, in.
	Height, ft. in.	Width, ft. in.	Length, ft. in.	From face of furnace to center line of intake, ft. in.		
Types 2-A to 8						
2-A	6 7¾	3 6⅞	4 6	.....	125	12x12
5	7 0	5 2¾	6 5½	Inclined front	175	14x14
5-A	7 0	4 2¾	5 11½	Inclined front	125	12x12
6	8 0¼	5 2¾	6 2	2 0	175	14x14
7	6 0	7 2¾	5 2¾	2 0	175	14x14
8	7 0	6 3¾	5 11½	Inclined front	125	12x12
Types 10 to 16						
10	8 3	4 11½	11 0½	2 4¼	300	18x18
12	8 3	5 11½	12 0½	2 4¼	450	20x20
14	8 3	8 0½	12 0½	2 4¼	600	24x24
16	10 0¼	10 0½	13 6	2 4¼	850	24x30
Types 14 and 16 are two-cell units.						
Types 20 to 27						
20 and 21	8 3	8 0½	7 11½	2 4¼	300	18x18
22 and 23	8 3	12 0½	7 11½	2 4¼	450	20x20
24 and 25	8 3	13 10½	7 11½	2 4¼	600	24x24
26 and 27	8 3	17 10½	7 11½	2 4¼	850	24x30

Types 14 and 16 are two-cell units.

Furnaces Nos. 20, 22, 24, 26 have combustion chamber on right side of furnace chamber; Nos. 21, 23, 25, 27 on left side.
Types 24 and 26 are two-cell units.



Construction of Destructor Fire and Combustion Chambers

MORSE BOULGER DESTRUCTOR COMPANY, INC.

213 East 42nd Street, NEW YORK, N. Y.

AGENCIES IN ALL PRINCIPAL CITIES

Heavy Duty Destructors

Heavy Duty Destructors are built for the sanitary and economical disposal of wastes collected in institutions, industrial and mercantile establishments.

Morse Boulger Destructors are of the brick-set, high temperature type. Destructors are built in standard types and sizes for garbage and rubbish to effect economy in design and construction. Special destructors are designed and built for the incineration of reluctantly combustible or highly inflammable wastes.

Workmanship and Materials

Morse Boulger Destructors are erected by a crew of experienced and skilled mechanics. All materials used

LOCAL REPRESENTATIVE

HEAVY-DUTY INCINERATION MORSE BOULGER DESTRUCTORS

are fabricated especially for use in Morse Boulger equipment, and are designed to withstand hard usage for a long period of time. The steel framing is amply rugged to withstand expansion stresses; the doors and grates are of heavy cast iron; the fire brick lining is made of selected materials specially processed to withstand slagging, spalling, abrasive action and rapid heating and cooling.

Installation

The MORSE BOULGER DESTRUCTOR COMPANY has been designing and building equipment for the disposal of every conceivable type of waste for thirty-five years. Installations have been made in 33 states and in 14 foreign countries and United States possessions.

Garbage Destructors—"G" Type

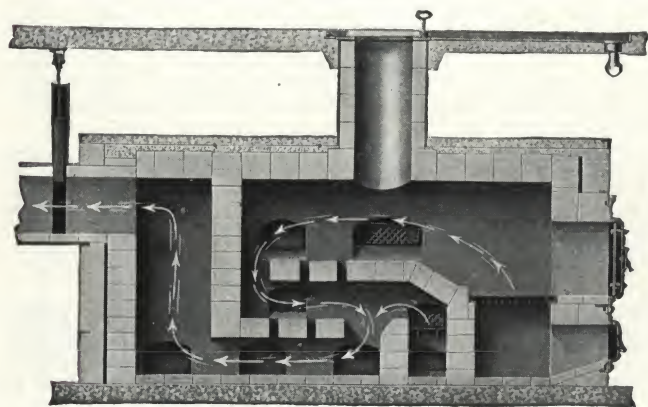
Designed for the incineration of *garbage*. The garbage is burned on two horizontal sets of fire clay grate-arches; a three-way passage of the hot gases, a hot ash pit, and an adequate combustion and settling chamber are provided.

The fuel grates are of cast iron and are separate from the garbage grates, assuring high temperatures and efficient use of any type of fuel. The design is long and narrow, which results in short spans for roof arches and garbage arches, and makes stoking and ash removal easy.

The three-way passage, with its "over and under" action, insures effective utilization of the heat for rapid drying and burning of the garbage. A long flame travel is secured and combustible gases are thoroughly mixed with air while in the heated zone. This feature enables Morse Boulger Destructors to incinerate wet garbage with no offensive odors or smoke, and with a minimum fuel consumption.

Coal, oil or gas can be used. (Specify kind of fuel, so that details of design are adapted for fuel selected.) Combustible rubbish serves as fuel and frequently is all the fuel that is necessary.

Standard sizes 160 lb. per hour and up, as given in the table on the following page.



Typical Morse Boulger Garbage Destructor—Type "G"

Uses—Especially designed for use in hotels, hospitals, clubs, institutions, etc.

Rubbish Destructors—"R" Type

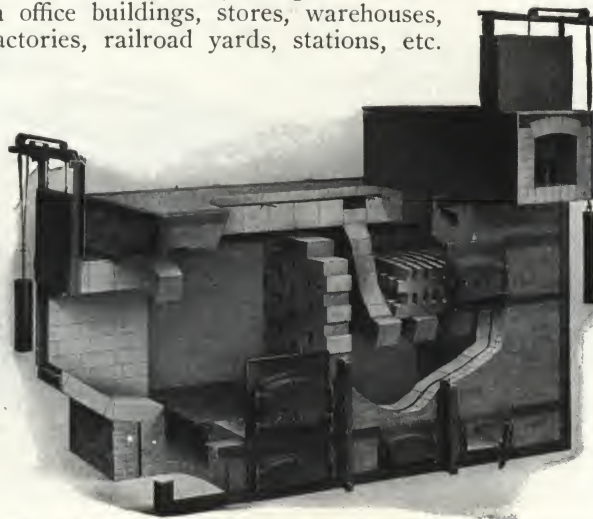
Designed for the incineration of *combustible rubbish*. All the material is burned on cast iron grates; smoke and combustible gases pass through a checker wall into a large combustion chamber where they mix with air and burn, and where dust and light ashes are settled. Checker work in the combustion chamber prevents funneling of gases into the flue before burning is complete.

The Destructor is especially designed for easy charging of materials, and the most rugged construction is used for durability.

20% of the material being burned may be ordinary garbage. No commercial fuel is required. Operation is without objectionable smoke, and no papers or cinders are discharged from the chimney.

Standard sizes 205 lb. per hour and up, as given in the table on the following page.

Uses—Especially designed for use in office buildings, stores, warehouses, factories, railroad yards, stations, etc.



Typical Morse Boulger Rubbish Destructor—Type "R"

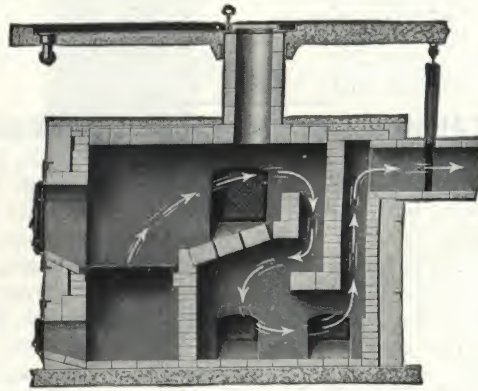
Rubbish-and-Garbage Destructors—"A" Type

Designed for work where both *garbage and combustible rubbish* must be handled in about equal quantities; also for rubbish alone. Garbage is burned on fire clay grate-arches, as in the "G" type. Rubbish is burned on cast iron grates. A large combustion and settling chamber is provided underneath the garbage grate, insuring large space for complete burning of gases and for settling of light ashes and dust. Placing this necessary chamber under garbage grate saves space and conserves heat. Garbage and rubbish are burned with no objectionable smoke or odor and with no discharge of papers or cinders from the chimney.

Under ordinary conditions, this unit operates without any commercial fuel. Garbage alone can be incinerated when necessary (up to 60% of rated capacity) using fuel in place of rubbish.

Standard sizes 125 to 600 lb. per hour, as given in table.

Uses—Especially designed for use in apartment houses, apartment hotels, schools, markets, bakeries, etc.



Typical Morse Boulger Rubbish and Garbage Destructor—Type "A"

ment for medical schools, etc., fume burners for ink plants and paint plants, bond burners and currency burners for destroying cancelled documents under lock and key, and destructors for burning the insulation off copper wire scrap without excessive scaling of the wire and with complete combustion of odors and all smoke.

Morse Boulger Engineers are particularly fitted, by breadth of experience, to deal with special problems.

Capacity Required

Incinerators should be rated in pounds per hour of a specified class of material. Volume means very little, because the unit weight varies between wide limits. Garbage cans vary in size—a can 18x24 in. being nearly twice as large as one 14x22 in.—so that capacity should not be specified in number of garbage cans. If the amount of waste material is not definitely known (as on a new project) a close estimate, based on experience with similar projects, can be made by Morse Boulger Engineers, when furnished with information regarding the size and character of the job under consideration.

Service to Architects and Engineers

Convenient and practical arrangement is just as essential as good equipment. A great number of incineration systems have been laid out and built by Morse Boulger Destructor Engineers, who can often save you time, space, and money if consulted when plans are in sketch state. Inquiries are invited; information will be gladly and promptly furnished.

Suggested Architect's Specifications

The contractor shall furnish one Model No. Type Morse Boulger Destructor in accordance with plans and specifications in the architect's office. The Destructor and related equipment shall be erected in place by THE MORSE BOULGER DESTROYER COMPANY.

Crematories

The Morse Boulger Crematory is of the brick-set, high temperature, direct fire type and consists of two main chambers—an upper chamber for primary combustion and a lower chamber for the combustion of the gases. Cremation is rapid, economical, and odorless. Oil or gas may be used for fuel.

The standard crematory for the incineration of one body is 12 ft. 7 in. long, 6 ft. 4 in. wide, 9 ft. 3 in. high. Other units are built for morgues, medical schools, laboratories, etc.

Special Destructors

Many special destructors have been designed and built for unusual applications and waste materials. Examples of these are crematory retorts for human remains, laboratory equip-

DIMENSIONS AND CAPACITIES OF STANDARD MORSE BOULGER DESTROYERS

Type "G" for Garbage					Type "R" for Combustible Rubbish					Type "A" for Rubbish and Garbage				
Model No.	Capacity, lb. per hr.	Dimensions, ft. in.			Model No.	Capacity, lb. per hr.	Dimensions, ft. in.			Model No.	Capacity, lb. per hr.	Dimensions, ft. in.		
		Length	Width	Height			Length	Width	Height			Length	Width	Height
1½-G	160	9-0	4-7	5-7	2-R	205	7-0	5-3	6-8	1½-A	125	7-4	4-0	5-3
2-G	215	10-9	4-7	5-7	3-R	288	8-0	5-3	7-6	2-A	200	8-6	4-0	5-8
3-G	340	12-9	6-0	6-7	4-R	400	11-0	5-6	7-6	3-A	300	9-4	4-7	6-1
4-G	430	14-0	6-0	6-7	5-R	480	12-3	6-0	8-0	4-A	450	10-2	5-2	7-4
5-G	520	15-6	6-0	7-0	6-R	630	13-0	6-6	8-0	6-A	600	12-5	5-6	7-9
6½-G	660	17-0	6-0	7-3	7-R	700	14-0	6-6	8-0					
8-G	815	18-0	6-6	7-7	8-R	800	14-0	7-0	8-0					

Note: Working space at least equal to width of destructor is necessary on one side and is desirable on one end.

For clearances, sizes of flues and breechings, permissible length of charging chutes, etc., send for detailed information on any particular project.

Representative Installations

Hospitals

Columbus, Great Falls, Mont.
St. Joseph's, Paterson, N. J.
St. Joseph's, Milwaukee, Wis.
Mercy, Pittsburgh, Pa.
Doctors', New York, N. Y.
St. Mary's, Knoxville, Tenn.
Olive View Sanitarium, Los Angeles, Cal.
Harper, Detroit, Mich.
Children's, Buffalo, N. Y.
Johns-Hopkins (3), Baltimore, Md.
Bellevue (3), New York, N. Y.
Columbia-Presbyterian, New York, N. Y.
St. Luke's, Cleveland, Ohio
Fifth Avenue, New York, N. Y.
Sacred Heart Sanitarium, Milwaukee, Wis.
Good Samaritan, Cincinnati, Ohio
Good Samaritan, Philadelphia, Pa.
Stark County Tuberculosis, Canton, Ohio
Sisters of Charity, Mt. St. Joseph's, Mo.
Syracuse City, Syracuse, N. Y.
Welland, Welland, Ont.

Medical and Other Schools

University of Pennsylvania (2), Philadelphia, Pa.
Rockefeller Medical Center, New York, N. Y.
Iowa State University, Ames, Iowa
University of Rochester, Rochester, N. Y.
Johns-Hopkins, Baltimore, Md.
Cornell Medical College, New York, N. Y.
Bellevue Medical College, New York, N. Y.
Jefferson Medical College, Philadelphia, Pa.
University of Michigan, Ann Arbor, Mich.
State Teachers College, Hattiesburg, Miss.

Clubs

American Women's Assn., New York, N. Y.
Brooklyn Elks, Brooklyn, N. Y.
Harvard, Boston, Mass.
Yale, New York, N. Y.
Suburban, Baltimore, Md.
Kirtland Country, Cleveland, Ohio
Chevy Chase Country, Washington, D. C.
New York Athletic, New York, N. Y.

Hotels and Apartments

John Marshall, Richmond, Va.
New Yorker, New York, N. Y.
Governor Clinton, New York, N. Y.
Lord Baltimore, Baltimore, Md.
St. George, Brooklyn, N. Y.
Alcazar, Cleveland, Ohio
Stevens, Chicago, Ill.
Palmer House (2), Chicago, Ill.
Schroeder, Milwaukee, Wis.
Bismarck, Chicago, Ill.
Taft, New Haven, Conn.
William Penn, Pittsburgh, Pa.
Copley-Plaza, Boston, Mass.
Plaza, New York, N. Y.
Savoy-Plaza, New York, N. Y.
Lee-Plaza, Detroit, Mich.
Biltmore, New York, N. Y.
Miami-Biltmore, Coral Gables, Fla.
DuPont-Biltmore, Wilmington, Del.
Bellevue-Biltmore, Bellaire, Fla.
Astor (2), New York, N. Y.
Lincoln, New York, N. Y.
Pittsburgher, Pittsburgh, Pa.

Banks and Office Buildings

Chase National Bank, New York, N. Y.
Union Trust Co., Detroit, Mich.
City National Bank, Bridgeport, Conn.
Bank of N. Y. & Trust Co., New York, N. Y.
National City Bank, Haiti
Fidelity-Philadelphia Trust Co., Philadelphia, Pa.
Chrysler Bldg., New York, N. Y.
Union Gas & Electric Bldg., Cincinnati, Ohio
Consolidated Gas Co., New York, N. Y.
Penn Power & Light Bldg., Allentown, Pa.
Guaranty Trust Co., New York, N. Y.

Miscellaneous

Detroit Union Produce Terminal, Detroit
Chicago Union Station, Chicago, Ill.
Washington Terminal, Washington, D. C.
Pennsylvania Station, New York, N. Y.
Pennsylvania R.R. Warehouse, Philadelphia, Pa.
Pennsylvania R.R. Yard, Chicago, Ill.
B. & O. R.R. Yard, Washington, D. C.
N. Y. C. R.R., 31st St. Yard, New York, N. Y.
Boston & Maine R.R., East Cambridge, Mass.
Boston & Maine R.R., Charlestown, Mass.
Goodyear Tire & Rubber Co. (2), Akron, Ohio
R. H. Macy & Co. (2), New York, N. Y.
L. Bamberger & Co., Newark, N. J.
Hecht Bros., Dept. Store, Baltimore, Md.
Sears, Roebuck & Co., Atlanta, Ga. and Los Angeles, Cal.
Great Atlantic & Pacific Tea Co., Brooklyn, N. Y.; Paterson, N. J.; Detroit, Mich.; Toledo, Ohio; Grand Rapids, Mich.; Chicago, Ill.; Maspeth, N. Y.; Atlanta, Ga.
Dugan Bros., Newark, N. J. and Brooklyn, N. Y.

PITTSBURGH INCINERATOR COMPANY

PITTSBURGH, PA.

BRANCH AGENCIES

ALTOONA, PA.—Telephone, Grant 8200
ASHLAND, KY.—Telephone, 1207
BUFFALO, N. Y.—Telephone, Crescent 8276
CHARLESTON, W. VA.—Telephone, Capitol 242
CHICAGO, ILL.—Telephone, Superior 0810
CINCINNATI, OHIO.—Telephone, Canal 3606
DALLAS, TEX.—Telephone, 7-1870

DAYTON, OHIO, J. H. NASH
DETROIT, MICH.—Telephone, Columbia 2905
EL PASO, TEX.
LOS ANGELES, CAL.—Telephone, Westmore 5879
LOUISVILLE, KY.—Telephone, City 7429
MIAMI, FLA.—Telephone, 2-1321

NEW YORK, N. Y., 103 Park Avenue—Telephone, Ashland 4859
PHILADELPHIA, PA.—Telephone, Woodland 3904-J
PITTSBURGH, PA.—Telephones, Court 4188; Everglade 0707
ROSSVILLE, GA.—Telephone, Main 2101
SHREVEPORT, LA.—Telephone 6946

PITTSBURGH BUILT-IN-THE-CHIMNEY INCINERATOR

Construction

The Pittsburgh Incinerator consists of a brick chamber built at the base of the chimney, with a receiving hopper door located in the kitchen on each floor. Heavy grates are used in this system, supported by two horizontal heavy cast iron supports. From one to five dump grates are employed, according to the size of the incinerator. All grates can be removed and replaced through the fire door in the basement.

The incinerator can be located to suit basement conditions, and consists of fire brick lining from the base to the first floor, faced with red brick. Flue lining, according to size of flue, extends upwards from the combustion chamber to top of chimney, with a straight flue to avoid obstructions. A spark screen for top of chimney is securely fastened in accordance with plans and specifications.

Gas-fired

A special gas burner, protected by a specially formed brick, insures complete disposal of all wet, soggy garbage. It is not necessary to dump unburned garbage to the ash pit

and return it to the incinerator for final cremation. The gas is used only in case of emergency, at such times as large quantities of melon rinds, grape fruit rinds or other garbage containing moisture accumulates. Will operate without gas.

Our gas burner is not a mere gas pipe, but a specially constructed burner designed to co-operate with the flue draft, thereby creating a natural air circulation throughout the contents of the chamber and causing immediate combustion. A few minutes use of the gas establishes a body of fire in the chamber, after which the waste matter will continue to burn without the use of other fuel. The waste matter generally consists of garbage, paper, cartons, sweepings, bottles, tin cans, etc. The bottles and tin cans, although not wholly consumed, serve to prevent garbage from packing in the chamber and permit of air circulation through the mass.

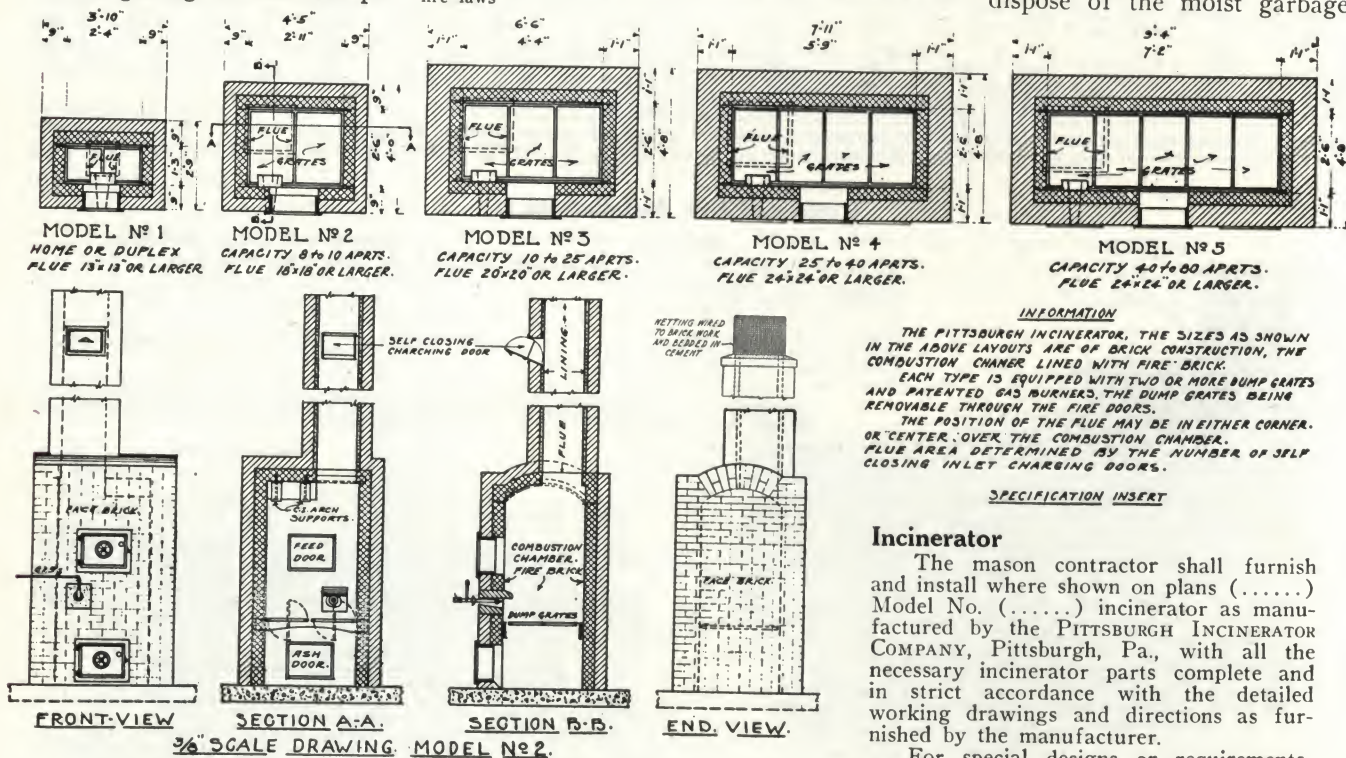
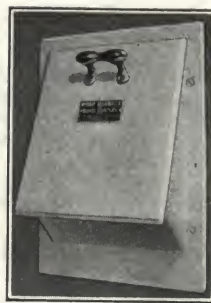
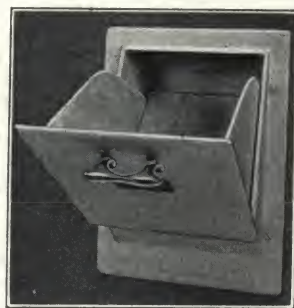
In large apartments the percentage of inflammable material is approximately 75% to 25% of moist garbage. The heat generated by the burning of the inflammable matter is ample to dispose of the moist garbage.

A Kitchen Convenience

Receiving hopper ever ready to convey waste matter to the incinerator for cremation.

Hopper No. 1 Daylight opening 8 x 9 in.
Hopper No. 2 Daylight opening 8½ x 12½ in.

Automatic self-closing receiving hopper in kitchen flue; opening to flue interior securely closed during the loading operation, preventing fire and smoke issuing through the hopper door into the kitchen. Strictly in accordance with all fire laws



Standard Incinerator Layouts for Homes, Duplex, or Apartments

Incinerator

The mason contractor shall furnish and install where shown on plans (.....) Model No. (.....) incinerator as manufactured by the PITTSBURGH INCINERATOR COMPANY, Pittsburgh, Pa., with all the necessary incinerator parts complete and in strict accordance with the detailed working drawings and directions as furnished by the manufacturer.

For special designs or requirements, address Superheater and Engineering Co., 103 Park Ave., New York City.

SAN-A-TOR PORTABLE AND WALL TYPE INCINERATORS

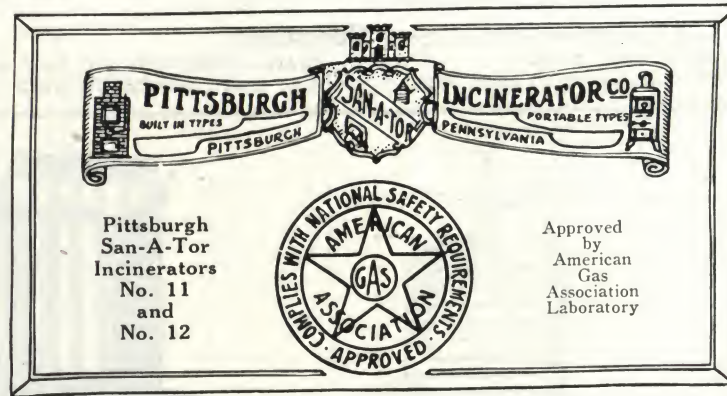
The top, front, doors and base are made of cast iron. The sides and back are made of heavy sheet steel, the interior is of 2-in. fire clay brick; each brick section interlocks one with the other and can be removed and replaced without disturbing any part of the exterior. The grates are supported on cast iron frame with a combustion cone attached to center of rocking grate. Two longitudinal burners, one on each side of grate, convey the gas over the top of the grate, through the mass to be consumed and into the perforated cone, which carries the gas up through the entire mass. This burns the garbage upward and outward from the cone to the sidewalls, thus attacking the mass from all points. Side wing degree grates, one on each side of the cone, allow unburned gases to rise and ignite from gas shooting across the top of the mass from the perforated cone, thus assuring perfect combustion. The burners are protected from the filling up of ashes. The grates are protected from direct gas, hence



San-a-tor Portable Incinerator

CAPACITIES AND DIMENSIONS

No.	Type	Height, in.	Floor space, in.	Flue cap., in.	Cap'ty, bu.	Weight, lb.
San-a-tor Incinerators						
1	Portable S. A.	37	21x21	9	1	400
1	Wall Type S. B.	31½	17x17	7	1	400
1	Wall Type S. C.	31½	17x17	12x12	1	400
1	Wall Type S. D.	31½	17x17	12x12	1	400
2	Portable S. A.	50	17x17	9	2	700
2	Wall Type S. B.	49½	17x17	7	2	700
2	Wall Type S. C.	49½	17x17	12x12	2	700
2	Wall Type S. D.	49½	17x17	12x12	2	700
4	Portable S. A.	60	31x24	9	5	1600
4	Wall Type S. B.	60	31x24	16x16	5	1600
4	Wall Type S. C.	60	31x24	16x16	5	1600
4	Wall Type S. D.	60	31x24	16x16	5	1600
Pittsburgh Coal Fired Incinerator						
5	Portable	52	18x18	7-9	1	600
Rubbish Incinerators						
R-1	Rubbish	39½	18x18	9	1	200
R-2	Rubbish	49½	18x18	9	2	250
R-3	Rubbish	48	31x24	12x12	4	900
R-4	Rubbish	60	31x24	16x16	5	1600



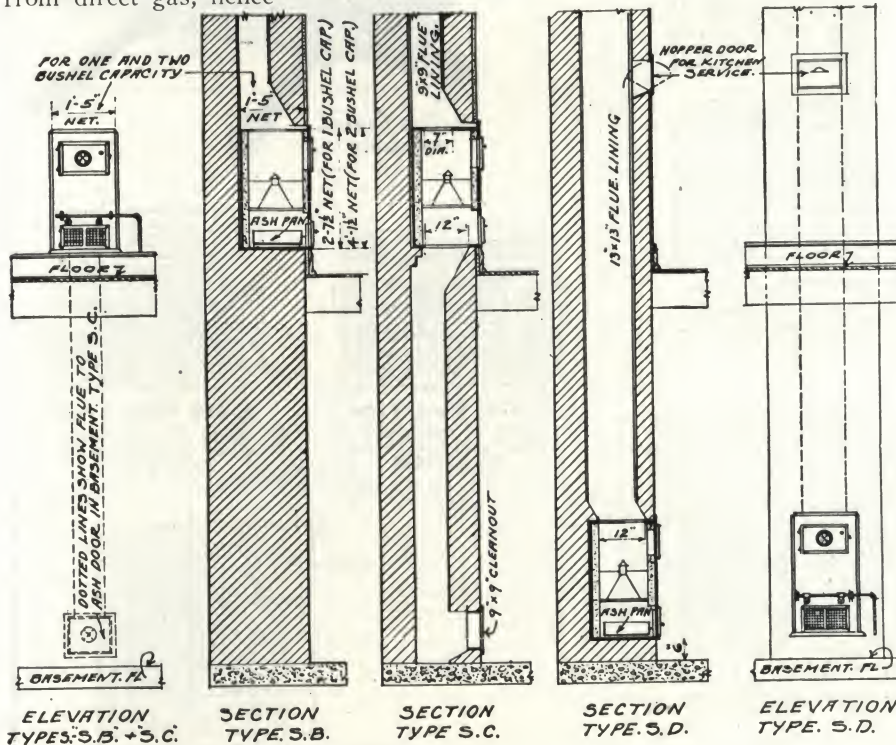
the saving of too frequent burning out of grates or any of the cast iron parts of the interior. Grates, cone and all connecting parts interlock and can be removed or replaced through the opening of the door. Gas is fed to the burners through a horizontal frontal tube provided with the main line connections. Ash door and separate ash pan for the removal of ashes are provided. In case it is desired to set

the San-a-tor flush into the wall with automatic ash fall to the basement through chimney, the ash pan is removed, and a door is provided for the cleaning out of the ashes at the bottom of the chimney in the basement.

Method of Installation—San-a-tor as shown in layout, may be installed in several positions, portable or recessed into the chimney wall, known as S. B. Wall Type, removing the ashes via ash pan. S. C. is the same as S. B., except the bottom plate is removed, allowing the ashes to drop to the basement through a flue.

S. D. is installed in the basement and a service hopper is placed in the kitchen. The opening in the top of the incinerator is arranged to accommodate a 13x13-in. flue for the passage of the refuse from the hopper to the incinerator in the basement. This type is made in three sizes, 1, 2 and 5-bushel capacity. All types are lined with 2-in. fire brick, a guarantee of long service, and equipped for the use of natural or artificial gas.

Construction of San-a-Tor No. 4—Five-bushel capacity. Cast iron top, front, base and doors; sheet steel sides and back. Interior is lined with 3-in. benzet fire brick; channel spaced by-passes; grates of the best gray iron in basket formation; two side wing and bottom grates; gas conveying manifold equipped with one burner in rear of each side and one special central burner. All grates are removed and replaced through door opening.



SANATOR.		1-BU. CAP.	2-BU. CAP.
HEIGHT OVER ALL		2'-7½"	4'-1½"
WIDTH " "		1'-5"	1'-5"
FRONT TO BACK		1'-5"	1'-5"
DIMETER SMOKE OUTLET		7"	7"
SMOKE OUTLET TYPE S.D.		12" x 12"	12" x 12"
WEIGHT		400 LBS.	700 LBS.
GAS CONNECTION.		½ INCH	½ INCH

NOTE:
DIMENSIONS FOR THE ONE AND TWO BUSHEL CAPACITY SANATORS ARE THE SAME EXCEPT IN HEIGHTS AS NOTED.

Portable incinerators can be connected to the same chimney as the furnaces, boilers, ranges and hot water heaters.

SCALE ¾"=1'-0"

Details of San-a-tor Portable Incinerator Installations

REX INCINERATOR CO., INC.

Manufacturers of Incinerators for Every Purpose

Baker Avenue and Belt Railway, EVANSVILLE, IND.

BRANCHES IN 59 PRINCIPAL CITIES

Products

REXCO CHIMNEY-FED TYPE INCINERATORS, for residences, apartments and institutions, installed at the base of chimney or flue.

REXCO DIRECT-FEED TYPE INCINERATORS, for outdoors or existing structures, using a stack of its own.

Gas burning; optional at very small additional expense.

Features

Rexco Incinerators feature the basket and wing type grate construction, the most modern in incinerator design and construction. Requires less floor space and smaller combustion chamber than the flat grate type. Easy to install, no baffle walls or pockets. Offset feature in grate construction acts as impact breaker or waste distributor, avoiding packing and clogging the grates.

Complete circulation of air on *all* sides insures quick drying and complete combustion. No smoke or odor.

All parts of cast iron or aluminum, no tin or sheet metal.

Furnace and hopper doors of ample size and all-cast. Lasts a lifetime.

Operation

No gas or fuel necessary; will burn all garbage without attention. If *gas burner* is desired, the grate core is drilled and tapped on the underside, and with the hollow gudgeon, makes a practical and simple gas burning incinerator. Simple, safe and sure.

Architects' Specifications

Furnish and install a Rexco Incinerator as shown on the drawings in accordance with the plan and details of the manufacturer, the REX INCINERATOR Co., INC., Evansville, Ind.

Guarantee

Rexco Incinerators are fully guaranteed to do the work and give entire satisfaction when properly installed.

Basket Grate Assembly

C-18 Wing Type
4 to 8 apartments
Floor space 42x46 in.
Price, \$72.00

C-220 Wing Type
20 to 30 apartments
Floor space 60x52 in.
Price, \$98.00

C-430 Wing Type
30 to 50 apartments
Floor space 66x69 in.
Price, \$145.00

C-638
Large apartments and institutions
Floor space 80x72 in. Price, \$195.00

B-14 Residence Type
Floor space 34x32 in. Price, \$65.00

B-215 Basket Type
10 to 20 apartments
Floor space 32x50 in.
Price, \$95.00

B-325 Basket Type
25 to 35 apartments
Floor space 44x50 in. Price, \$115.00

B-14, B-215 and B-325 have basket type grate. Notice offset and full dumping grates and heavy construction.
C-18, C-220, C-430 and C-638 are wing type with sloping hearth, showing full dump grates with wing side grates.
Note: Portholes or vents to insure circulation.

WASHBURN & GRANGER, INC.

Manufacturers of Dean Incinerators and Armored Flooring

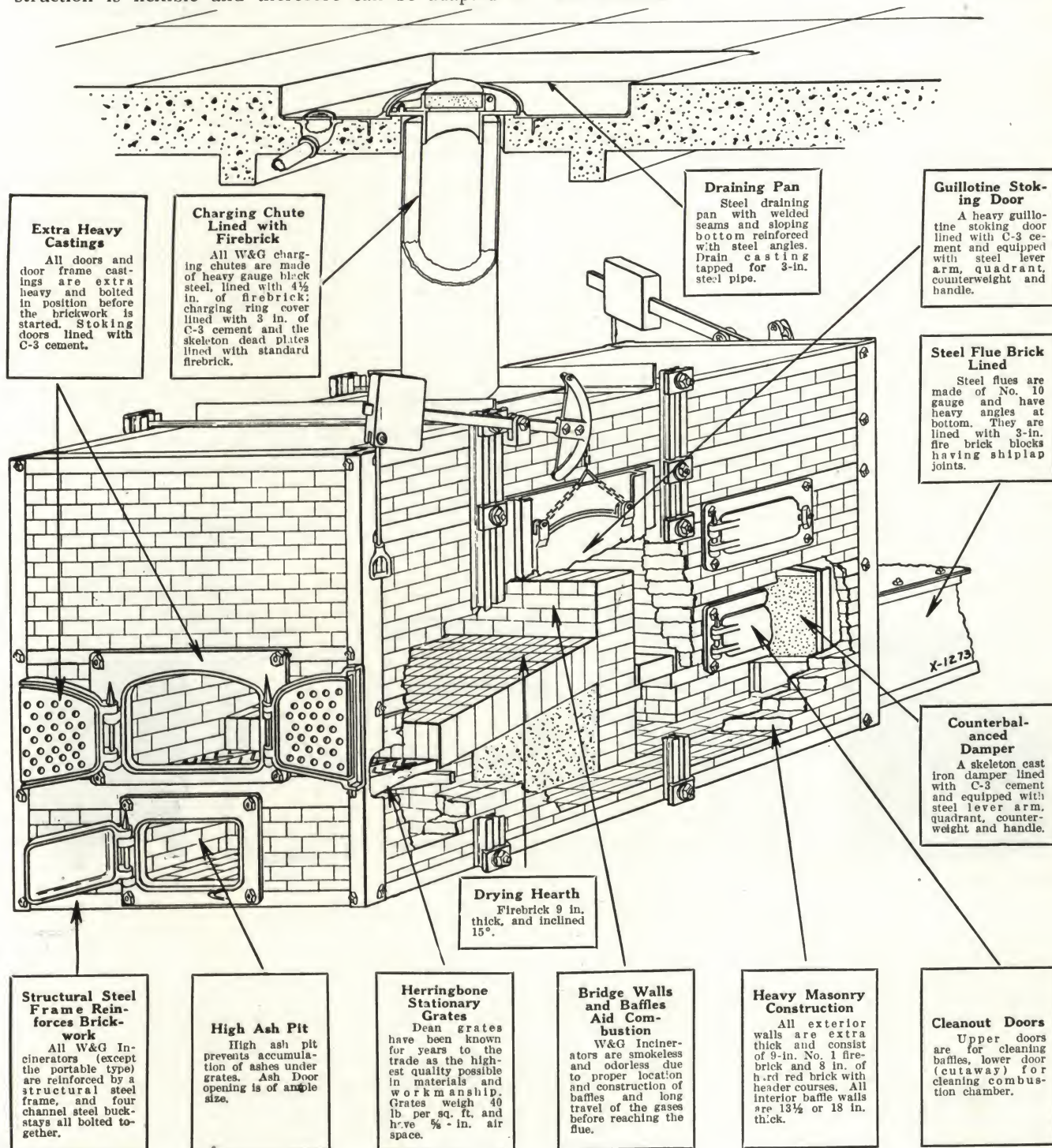
50 Church Street, NEW YORK, N. Y.

For our pages on Ash Can Hoists, see Manufacturers' Index

FEATURES OF DEAN INCINERATORS WHICH MAKE THEM PREFERRED

A few typical constructional features of Dean Incinerators are shown in the illustration below—proof of their excellent performance in commercial installations everywhere will be furnished on request. But also of importance to the architect in specifying an incinerator is the fact that our construction is flexible and therefore can be adapted to

meet the peculiar requirements of any job. Our long and varied experience covers all classes of incinerator building, and we will design and erect complete, an incinerator guaranteed to do the work required. One quotation covers everything—we assume the undivided responsibility for proper design, manufacture and erection.



DEAN TYPE A INCINERATOR FOR GARBAGE AND REFUSE

Capacities from 100 to 675 lb. per hour of mixed refuse

Designed to incinerate garbage and dry combustible material collected in hotels, hospitals, institutions, restaurants,

railroad stations, produce terminals, markets, etc. Operates with wood, coal, coke, gas or oil.

Specifications

Where space appears in these specifications, supply data and dimensions from table below

General—Furnish all material and labor necessary to complete one Dean Type A (refer to table for size) Incinerator, as manufactured by WASHBURN & GRANGER, INC., 50 Church Street, New York, N. Y.

Foundation—Do all excavation, removing surplus earth from the premises. Install concrete slab of not less than 12 in. in depth and to extend 4 in. beyond exterior walls. These foundations are to be made of one, three and five parts of best portland cement, clean sharp sand and hard durable clean broken stone, screened through 1-in. mesh. All to be mixed and poured in an acceptable manner, and finished level with the floor.

Dimensions and Capacity—The incinerator is to measure ft. in. long x ft. in. wide x ft. in. high. The capacity is to be pounds of mixed refuse per hour.

Steelwork—The incinerator setting is to be reinforced by a structural steel frame, consisting of four vertical corner angles 5x3x $\frac{3}{8}$ in. and four horizontal angles 2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{1}{4}$ in. in all four walls of the setting. The entire steel frame is to be bolted together and all door frame castings are to be bolted in position before the brickwork is started. Charging chute shall be No. 12 gauge black steel (refer to "H" in table) outside diameter and of sufficient length to connect the top arch of the incinerator with the floor above. The buckstays shall be four in number each consisting of two 4-in. x 6 $\frac{1}{4}$ -lb. channels placed back to back and held in position with 1-in. diameter tie rods top and bottom. Furnish two 5x3x $\frac{3}{8}$ -in. angles for supporting the charging chute.

Castings—Furnish charging ring with opening (refer to "G" in table) diameter complete with cast iron swing cover fitted with $\frac{1}{8}$ -in. steel plate cover to protect lining. Provide a heavy firing frame with opening (refer to "J" in table) complete with doors and perforated cast iron liners. Provide a heavy ash pit frame with opening (refer to "K" in table) complete with door. Provide a side stoking frame having an opening (refer to "I" in table) complete with guillotine door lined with C-3 cement, steel lever arm, quadrant, bracket, counterweight, and handle. Provide two baffle cleanout frames with doors and cast iron liners and one combustion chamber cleanout door and frame with liner. Furnish inclined skeleton dead plate 17 $\frac{1}{2}$ in. wide, length to suit door opening and with 5-in. pitch. Curved arch plate shall be 17 $\frac{1}{2}$ in. wide, 1 in. thick and length to suit door opening. Also furnish for the stoking door opening a flat skeleton dead plate 18 in. wide x 24 in. long and one curved arch plate 18 in. wide, 1 in. thick, 36 in. long. Furnish herringbone stationary grates in. wide x in. deep, with air space for coal, complete with bearing bars and wall plates. Furnish cast iron base plate for supporting steel charging chute and necessary cast iron tie plates for the buckstays.

Brickwork—On types A1 to A7 inclusive, the front and rear walls shall be 17 $\frac{1}{2}$ in. thick consisting of 9 in. No. 1 fire brick and 8 in. of hard red brick. The side walls shall be 18 in. thick consisting of 9 in. of No. 1 fire brick, 1 in. air space, and 8 in. of hard red brick. On types A8, 9 and 10, all four walls shall be 22 in. thick consisting of 9 in. of No. 1 fire brick, 1 in. air space and 12 in. of hard red brick. In all four walls every sixth course of fire brick shall be a stretcher course with a fire brick header tying the fire brick to the red brick. On the red brick every fourth course shall be a header course. The drying hearth shall

consist of fire brick 9 in. thick and shall have an incline of approximately 15° toward the coal grate. Furnish and set in the baffle chamber opposite the baffle door openings two baffles made of special heat resisting material. Charging chute shall be lined with 4 $\frac{1}{2}$ in. of fire brick, charging ring cover shall be lined with 3 in. of C-3 cement and the skeleton dead plates shall be lined with standard fire brick. Top arch shall be semi-circular and consist of 9-in. standard wedge fire brick, 1-in. air space, 4-in. red brick arch, cinder fill and 1-in. cement finish. All fire brick shall be laid up in high temperature cement.

Damper—Furnish counterbalanced cast iron damper filled with 3 in. of C-3 cement and hung in a 4-in. steel channel guide and provided with steel lever arm, quadrant, bracket, counterweight and handle.

Draining Pan—Furnish a steel draining pan (refer to "P" in table) wide x (refer to "O" in table) long x 4 in. deep at the low point, made of $\frac{1}{8}$ -in. plate with welded seams. Pan to have sloping bottom reinforced with steel angles, and to be fitted with drain casting tapped for 3-in. steel pipe. Furnish 2 $\frac{3}{4}$ -in. globe valve; 1 $\frac{3}{4}$ -in. faucet with hose thread; 12 ft. $\frac{3}{4}$ -in. steam hose; 1 $\frac{3}{4}$ -in. brass hose nozzle. The $\frac{3}{4}$ -in. piping for steam and water valves and the 3-in. drain pipe connection to be installed by other contractors.

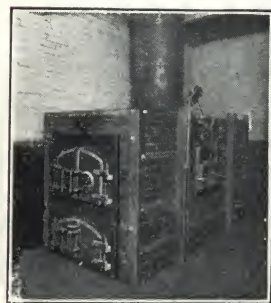
Can Washer—Furnish and install one can washer to measure 2 ft. 8 $\frac{1}{4}$ in. wide x 3 ft. 0 in. deep x 4 ft. 0 in. high, base to be of cast iron in one piece with legs to raise it 10 in. above floor line, sides of No. 11 sheet steel reinforced with angles. Door to be hinged type with rubber gasket and locking handles. Furnish brass spray nozzles for upper and lower connections, also special 8x6-in. strainer in base casting. The $\frac{1}{2}$ -in. cold water, $\frac{1}{2}$ -in. steam, $\frac{3}{4}$ -in. hot water, and 4-in. drain connections are to be installed by other contractors.

Stoking Tools—Furnish a set of 3 stoking tools consisting of the following: 1 shovel, 1 hoe, 1 slice bar. Furnish rack for the above tools and install same in a convenient location.

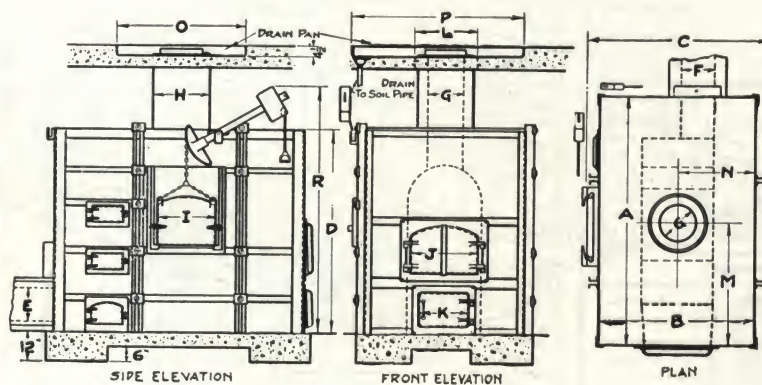
Steel Flue—Approximate length ft. in. Flue shall be rectangular and consist of No. 10 gauge steel sheets reinforced at the bottom corners with 3x3x $\frac{1}{4}$ -in. angles and at the top corners with 1 $\frac{1}{2}$ x1 $\frac{1}{2}$ x $\frac{3}{8}$ -in. angles. The flue shall be lined with 3-in. fire brick blocks having shiplap joints. Asbestos board $\frac{1}{4}$ in. thick shall be placed between the shell and the fire brick lining. Furnish cleanout doors and frames at convenient points for cleaning. Inside dimensions of flue (refer to "E" in table) in. high by (refer to "F" in table) in. wide.

Brick Flue—Approximate length ft. in. Flue shall have 4 $\frac{1}{2}$ -in. fire brick lining backed up with 8 in. of red brick in side walls, 4 in. of red brick over arch and 2 in. of red brick under floor of flue. Flue shall be reinforced with 4-in. x 6 $\frac{1}{4}$ -lb. channel buckstays spaced on 36-in. centers and tied together with $\frac{3}{4}$ -in. diameter rods top and bottom. Furnish cleanout doors and frames for access to flue for cleaning. Inside dimensions of flue (refer to "E" in table) in. high by (refer to "F" in table) in. wide.

Painting—All structural steel shapes and finished castings shall have one coat of shop paint prior to shipment and a second coat of black asphaltum paint on exposed surfaces after completion of the brickwork.



Dean Type A Incinerator



Dean Can Washer

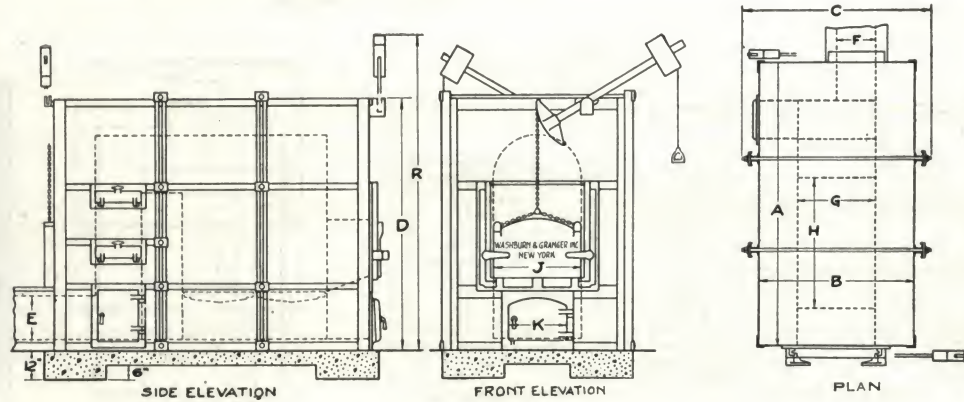
CAPACITIES AND DIMENSIONS OF DEAN TYPE A INCINERATORS

Type and size	Capacity, lb. per hour	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R
A- $\frac{1}{2}$	100	8' 0 $\frac{1}{2}$ "	4' 2"	5' 4"	7' 1 $\frac{1}{2}$ "	13 $\frac{1}{2}$ "	13'	12'	21 $\frac{1}{4}$ "	20"x24"	17"x24"	12"x15"	24"	3' 10"	25'	6' 0"	4' 0"	9' 0"
A-1	150	8' 8 $\frac{1}{2}$ "	5' 6"	6' 8"	7' 1 $\frac{1}{2}$ "	16'	13'	15'	24 $\frac{1}{4}$ "	20"x24"	19"x28"	13"x20"	27"	4' 2 $\frac{1}{2}$ "	33'	7' 0"	5' 0"	9' 0"
A-2	225	10' 1 $\frac{1}{2}$ "	6' 0"	7' 2"	7' 1 $\frac{1}{2}$ "	18 $\frac{1}{2}$ "	18'	15'	24 $\frac{1}{4}$ "	20"x24"	19"x28"	13"x20"	27"	5' 0"	36'	8' 0"	6' 0"	9' 0"
A-3	375	13' 8 $\frac{1}{2}$ "	6' 6"	7' 8"	8' 5 $\frac{1}{2}$ "	24"	18'	18'	27 $\frac{1}{4}$ "	20"x24"	19"x28"	15"x20"	30'	6' 6"	39'	9' 0"	6' 0"	10' 4"
A-4	525	15' 5 $\frac{1}{2}$ "	7' 0"	8' 2"	8' 5 $\frac{1}{2}$ "	25'	23'	18'	27 $\frac{1}{4}$ "	24"x36"	19"x28"	15"x20"	30'	7' 6"	42'	10' 0"	6' 0"	10' 4"
A-5	675	17' 0 $\frac{1}{2}$ "	7' 6"	8' 8"	8' 5 $\frac{1}{2}$ "	32'	23'	18'	27 $\frac{1}{4}$ "	24"x36"	24"x30"	15"x20"	30'	8' 6"	45'	11' 0"	6' 0"	10' 4"
A-6	825	21' 0"	8' 0"	9' 2"	9' 0"	37'	27'	18'	27 $\frac{1}{4}$ "	(2) 12"x20"	24"x30"	14"x28"	30'	9' 0"	48'	12' 0"	6' 0"	11' 0"
A-7	1000	22' 0"	8' 6"	9' 8"	9' 4"	37'	31 $\frac{1}{2}$ "	24'	33 $\frac{1}{4}$ "	(2) 17"x21"	28"x46"	(2) 17"x21"	36'	10' 0"	51'	12' 0"	7' 0"	11' 6"
A-8	1250	26' 3"	9' 8"	11' 0"	10' 0"	45'	31 $\frac{1}{2}$ "	24'	33 $\frac{1}{4}$ "	(2) 17"x24"	(2) 17"x24"	(2) 17"x24"	36'	13' 4"	58'	12' 0"	8' 0"	12' 0"
A-9	1625	27' 3"	10' 8"	12' 0"	10' 6"	56'	31 $\frac{1}{2}$ "	30'	39 $\frac{1}{2}$ "	(2) 18"x30"	(2) 24"x30"	(2) 19"x28"	42'	14' 0"	64'	12' 0"	9' 0"	12' 6"
A-10	2000	27' 3"	11' 8"	13' 0"	11' 0"	64'	31 $\frac{1}{2}$ "	30'	39 $\frac{1}{2}$ "	(2) 18"x30"	(2) 24"x30"	(2) 19"x28"	42'	14' 0"	70'	12' 0"	10' 0"	13' 0"

Data and specifications will be furnished for requirements which cannot be covered by the above standard sizes.

DEAN TYPE B INCINERATOR FOR DRY COMBUSTIBLE REFUSE*Capacities from 90 to 378 cu. ft. per hour of Dry Combustible Refuse*

Designed to incinerate dry combustible refuse collected in industrial plants, factories, loft buildings, railroad yards, etc.

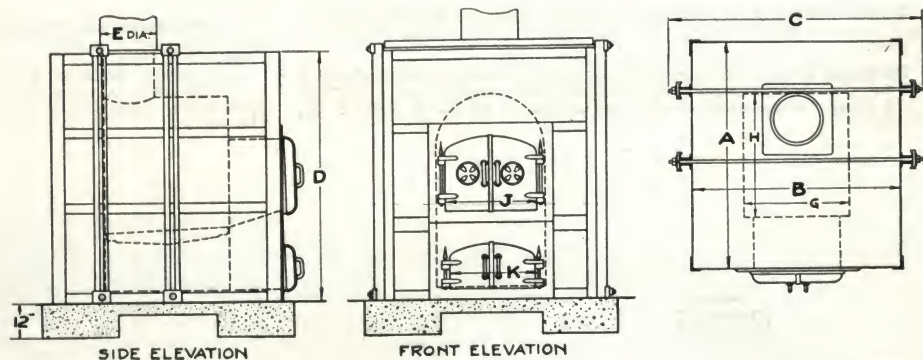
**Dean Type B Incinerator****CAPACITIES AND DIMENSIONS OF DEAN TYPE B INCINERATORS**

Type and size	Capacity in cu. ft. per hour	A	B	C	D	E	F	G	H	J	K	R
B-1	90	10'10 1/2"	6'0"	7'2"	8'8 1/2"	18 1/2"	18"	3'0"	5'0"	24"x36"	17"x24"	11'3"
B-2	114	11'4 1/2"	6'6"	7'8"	8'8 1/2"	23"	18"	3'6"	5'6"	24"x36"	17"x24"	11'3"
B-3	144	12'4"	7'0"	8'2"	8'8 1/2"	23"	23"	4'0"	6'0"	24"x36"	18"x36"	11'3"
B-4	168	13'8 1/2"	7'0"	8'2"	8'8 1/2"	25 1/2"	23"	4'0"	7'0"	24"x36"	18"x36"	11'3"
B-5	210	18'0"	8'0"	9'2"	10'3"	31 1/2"	23"	5'0"	7'0"	24"x36"	18"x36"	12'9"
B-6	288	20'8"	9'8"	10'10"	11'0"	33"	30"	6'0"	8'0"	36"x42"	18"x40"	14'3"
B-7	378	23'2"	10'8"	11'10"	12'2"	36"	36"	7'0"	9'0"	36"x42"	18"x40"	15'2"

Complete specifications in Catalog No. 17.

DEAN TYPE C INCINERATOR FOR RUBBISH AND OTHER LIGHT MATERIAL*Capacities from 66 to 108 cu. ft. per hour of dry refuse*

This type incinerator is designed to burn papers, sweepings, boxes and other light materials collected in public schools, public and commercial buildings, museums, etc.

**Dean Type C Incinerator****CAPACITIES AND DIMENSIONS OF DEAN TYPE C INCINERATORS**

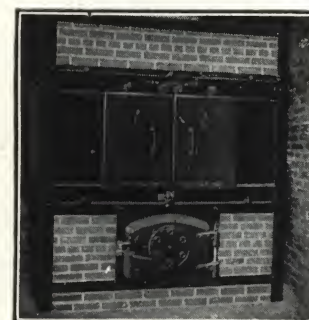
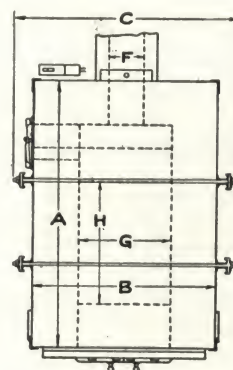
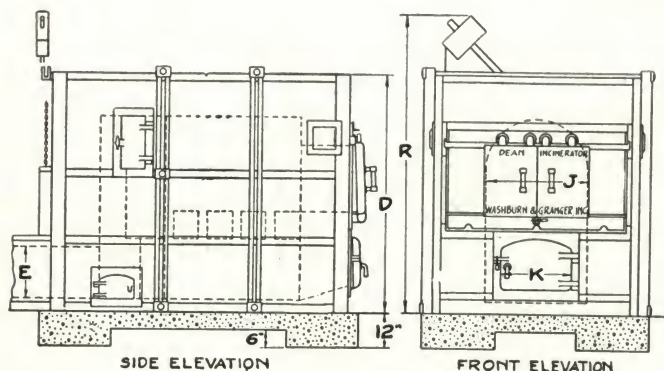
Type and size	Capacity cu. ft. per hour	A	B	C	D	E Diam.	E High	F Wide	G	H	J	K
1 1/2-in. Walls—9-in. Fire Brick, 8 1/2-in. Red Brick												
C-18	66	6'5"	5'11"	7'0"	7'0"	17 1/2"	18"	14"	3'0"	3'6"	24"x30"	14"x28"
C-28	84	6'11"	6'5"	7'6"	7'0"	20 1/2"	16"	18"	3'6"	4'0"	24"x30"	14"x28"
C-38	105	7'11"	6'5"	7'6"	7'0"	23 1/2"	21 1/2"	18"	3'6"	5'0"	24"x30"	14"x28"
C-48	108	8'11"	5'11"	7'0"	7'0"	23 1/2"	21 1/2"	18"	3'0"	6'0"	24"x30"	14"x28"
13-in. Walls—4 1/2-in. Fire Brick, 8 1/2-in. Red Brick												
C-13	66	5'8"	5'2"	6'4"	7'0"	17 1/2"	18"	14"	3'0"	3'6"	24"x30"	14"x28"
C-23	84	6'11"	5'8"	6'10"	7'0"	20 1/2"	16"	18"	3'6"	4'0"	24"x30"	14"x28"
C-33	105	7'2"	5'8"	6'10"	7'0"	23 1/2"	21 1/2"	18"	3'6"	5'0"	24"x30"	14"x28"
C-43	108	8'2"	5'2"	6'4"	7'0"	23 1/2"	21 1/2"	18"	3'0"	6'0"	24"x30"	14"x28"

Complete specifications in Catalog No. 17.

DEAN TYPE G INCINERATOR FOR DESTROYING CANCELLED SECURITIES AND SIMILAR FINANCIAL PAPERS

Capacities from 72 to 180 cu. ft. per hour of Loose Paper

Designed for very light combustible material. Downdraft type which prevents material from passing into stack in an unburned condition



Dean Type G Incinerator

CAPACITIES AND DIMENSIONS OF DEAN TYPE G INCINERATORS

Type and size	Capacity, cu. ft. per hour	A	B	C	D	E	F	G	H	J	K	R
G-1	72	8'9"	6'0"	7'2"	7'0"	18 1/2"	13"	3'0"	4'0"	24"x36"	17"x24"	9'0"
G-2	120	9'10"	7'0"	8'2"	7'0"	23 1/2"	18"	4'0"	5'0"	24"x36"	17"x24"	9'0"
G-3	144	11'2"	7'0"	8'2"	7'0"	23 1/2"	23"	4'0"	6'0"	24"x36"	17"x24"	9'6"
G-4	180	12'9"	7'0"	8'2"	7'0"	27 1/2"	23"	4'0"	7'6"	24"x36"	17"x24"	9'6"

Complete specifications in Catalog No. 17.

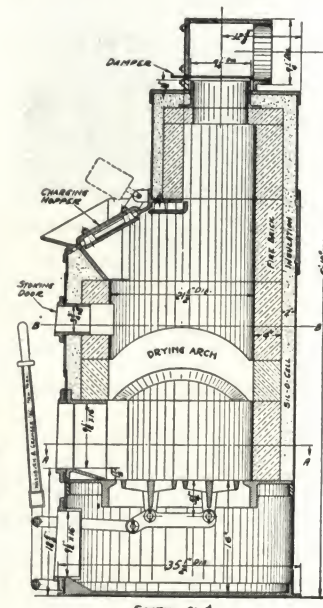
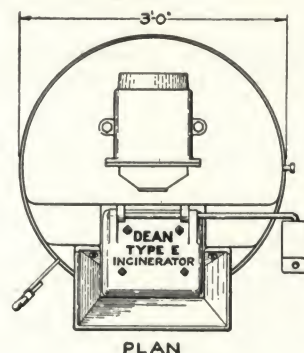
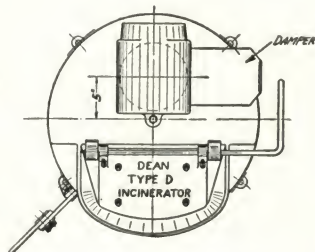
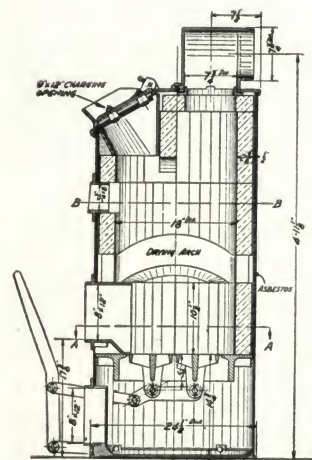
DEAN TYPE D DOMESTIC INCINERATOR FOR RESIDENCES

Specific Requirement

This type of incinerator is designed to incinerate garbage and other waste material which accumulates in private homes of from six to ten rooms.

Dimensions and Capacity—This incinerator is to measure approximately 24 in. in diameter by 5 ft. 3 in. high. Capacity 25 lb. of garbage per hour.

Shipping Data—For domestic shipment the weight is approximately 1,300 lb. For export shipment the gross weight is approximately 1,700 lb. or 772 kilos. Dimensions of case are 30 in. x 30 in. x 6 ft. 0 in., 37.5 cu. ft.



Dean Type D Domestic Incinerator

Complete specifications in Catalog No. 17.

Dean Type E Semi-Portable Incinerator

DEAN TYPE K INCINERATOR FOR SMALL HOMES

This new Dean Type K Incinerator now makes it possible, at very low cost, to eliminate a nuisance and materially increase the sale and rental value of houses in which it is installed. It is as much a sale or rental feature as electric refrigeration, oil heat or the many other conveniences and safeguards to health which the prospective purchaser or owner demands in his house today.

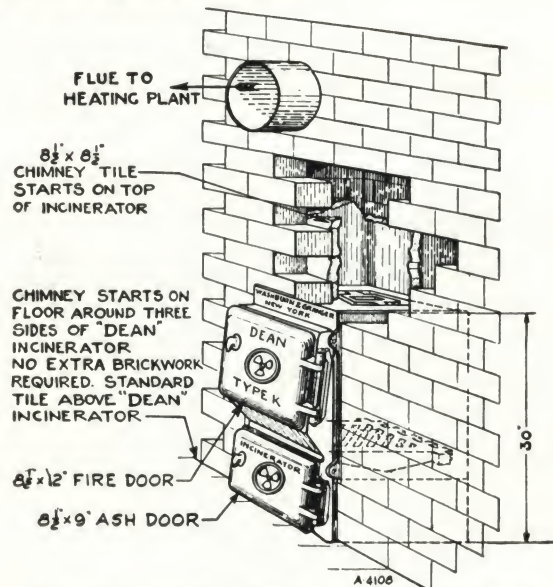
Shipped Assembled—Easily Installed at No Additional Expense

The Dean Type K Incinerator is a heavy cast iron rectangular furnace, correctly designed so that it can be set in the base of the same chimney used for the heating plant. It is shipped assembled and is simply bricked-in by the mason at the time he lays up the chimney—no extra brickwork is required. The same standard sizes of chimney flue tile are used as for the heating plant—the flue tile starts on top of the incinerator and is carried on up the chimney in the usual way. Therefore the actual initial cost of the incinerator is the only cost to be figured.

Specifications

Furnish and install in base of (chimney or chimneys), where indicated on the plans, a Type K Rubbish Incinerator as manufactured by WASHBURN & GRANGER, INC., 50 Church Street, New York, N. Y.

Incinerator shall be a complete assembled unit, built of cast iron throughout, with top arranged to take standard ($8\frac{1}{2} \times 8\frac{1}{2}$ in. or $8\frac{1}{2} \times 13$ in.) outside dimensions, flue tile, and shall



Type K Incinerator Installed in Base of Heating Plant Chimney

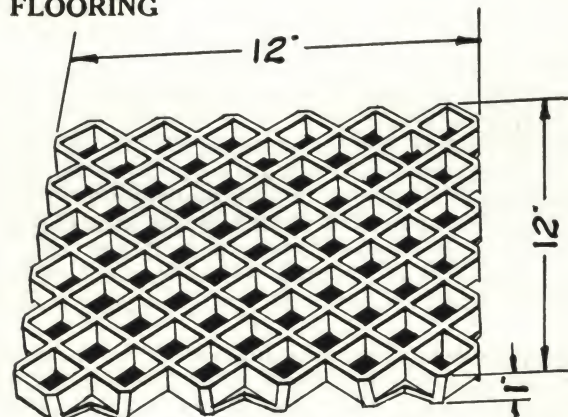
be installed as shown on the detail drawings. Chimney brickwork shall be built around three sides of the incinerator according to specifications given under "chimney."

DEAN ARMORED FLOORING

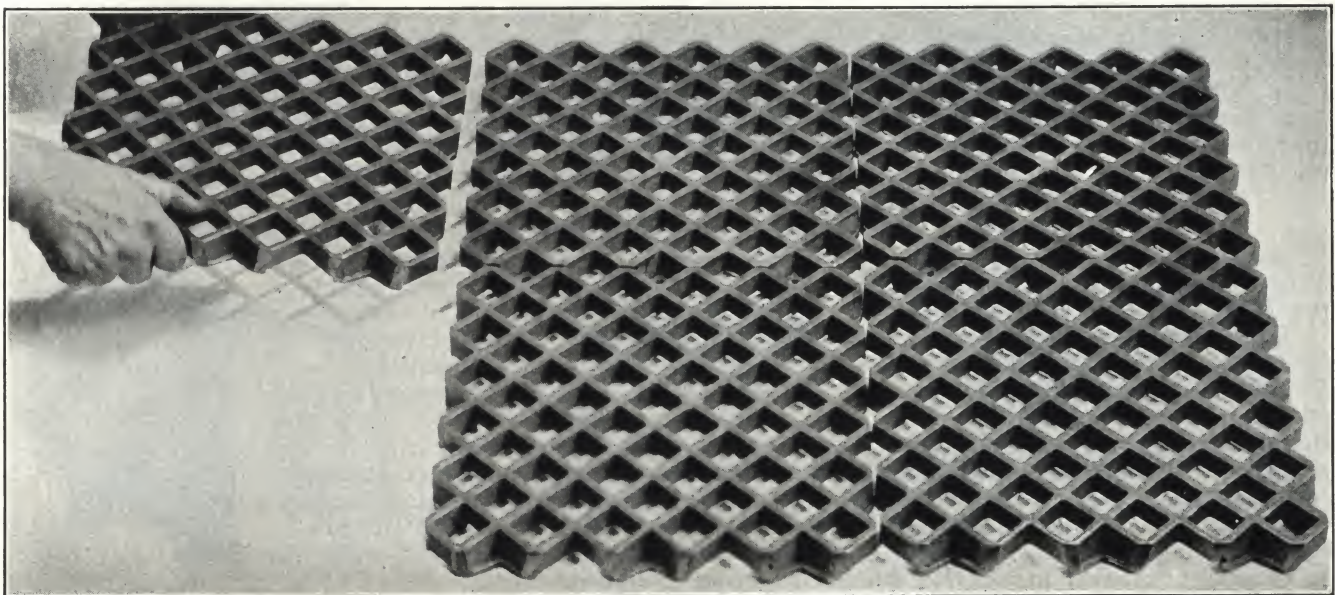
How to Specify

Furnish and set Dean Armored Flooring as made by WASHBURN & GRANGER, INC., 50 Church Street, New York, N. Y., to cover area as per specifications and drawings. Each section to occupy 1 sq. ft. and to be approximately 1 in. thick.

On the rough concrete floor lay a thin bed of 1-to-5 cement and sand mortar. Set each section in this bed so that each piece is level with all others on all sides. After this mortar has set, pour the finish mortar, including cement hardener, over the sections and level off so that cement is flush with top of grids.



Each Section Occupies 1 Sq. Ft. of Floor Space



STEARNS INCINERATOR, INC.

Manufacturers of Garbage Incinerators

SYRACUSE, N. Y.

AGENCIES IN ALL PRINCIPAL CITIES

Garbage and Waste Incinerators

The Incinerite is the pioneer refuse receptacle and destructor for domestic and other uses. All forms of garbage and refuse can be stored in its sanitary chambers, no rehandling. Connected to a flue, it is sanitary and odorless. All waste destroyed and device sterilized by each burning.

The Incinerite is manufactured in both "Portable" and "Built-in" type units that are adaptable for use in residences, apartments, hospitals, schools, stores and institutions. Capacities range from $\frac{5}{8}$ to 68 bu., or from 25 to 500 lb. per hour complete consumption.

Portable Incinerite

Portable Incinerite—This, as shown, is designed for using natural, artificial or gasoline gas, or kerosene for fuel. It is scientifically constructed of gray iron and steel, lined with asbestos and practically indestructible. The gas burner system and the formation of the grates are such that no matter how tightly the wet or dry garbage is packed in the Incinerite the gas combustion is not in the least affected, but always performs its functions perfectly. Dumping grate has interchangeable parts.

Wall Type Incinerite—Usually specified by architects for new buildings, and may be connected with kitchen range flue without decreasing efficiency of flue. Sets within chimney breast with only the face exposed taking up no floor space whatever. It can also be located beside the chimney when several "Wall Type" Incinerites are installed and are using the same flue.

Special Wall Type Incinerite—This Incinerite has a special dumping arrangement for eliminating the taking of the ashes out into the kitchen. This dumping arrangement permits the ashes to be dumped into an ash pit that has been located in the base of the chimney.

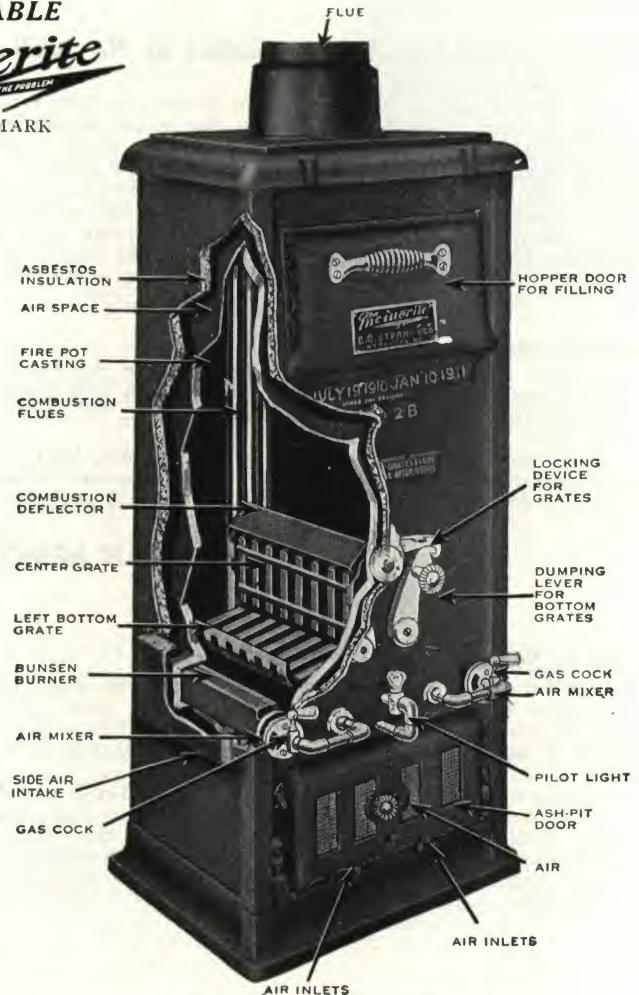
Kerosene Oil Model—All Portable Incinerites except No. 1 are furnished to burn kerosene oil instead of gas. Oil from a tank that sits on a pipe support resting on top of the Incinerite flows by gravity action through small tubes (one on each side of machine) to the oil burners.

Scientifically constructed, consists of a brick combustion chamber lined with fire brick built at the base of the chimney.

Draft Controlled—Combined in the construction is an arrangement of grates of heavy design and dumping type; individually set with multiple unit construction. A patented draft control device is constructed on one end of the chamber, with a special hollow wall which allows complete control of the draft while burning.

Duplex Air Circulation, Odorless Surface Burning—A secondary air chamber is provided to assist the primary circulation in assuring maximum drying

PORTABLE
The Incinerite
IT SOLVES THE PROBLEM
TRADE-MARK



Portable Type Incinerite

Burners—So designed that they convert the oil into a gas. There is no attending noise. Flame of gas impinges upon flame spreaders placed directly below grates on which garbage is burned. These machines are furnished at a slight additional cost over gas machines, covering expense of oil tank, tubing and oil burners. Prices furnished on application.

Built-in Type Incinerite

BUILT-IN
The Incinerite
IT SOLVES THE PROBLEM
TRADE-MARK

and complete odorless surface combustion of the garbage and waste materials accumulated.

Incinerite Hopper Doors—Are of heavy gray iron castings; made in three sizes, with edges and seats carefully fitted to make them as airtight as possible. They are installed in the flue on the different floors of the building.



Hopper Door

Especially Designed Units—We can furnish the Incinerite especially designed for use in hotels, schools, markets, bakeries, hospitals, institutions, or other miscellaneous buildings.

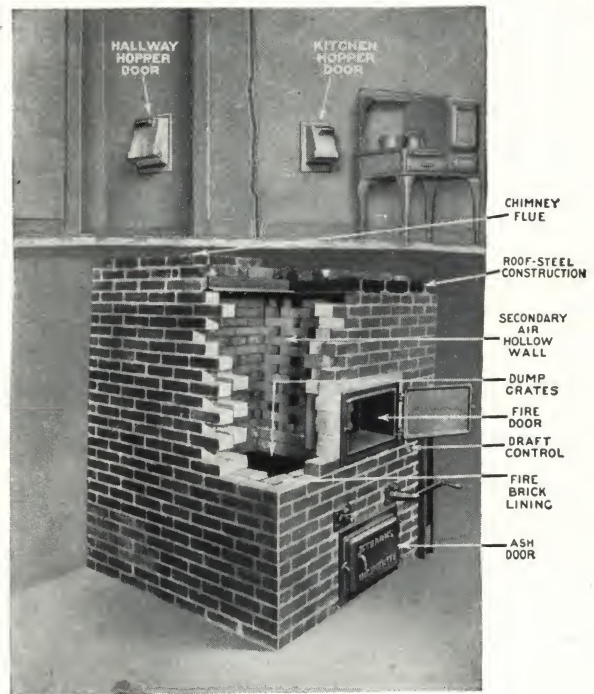
Our Engineering Department is equipped to deal with special problems.

Architects' Catalogue and Specifications

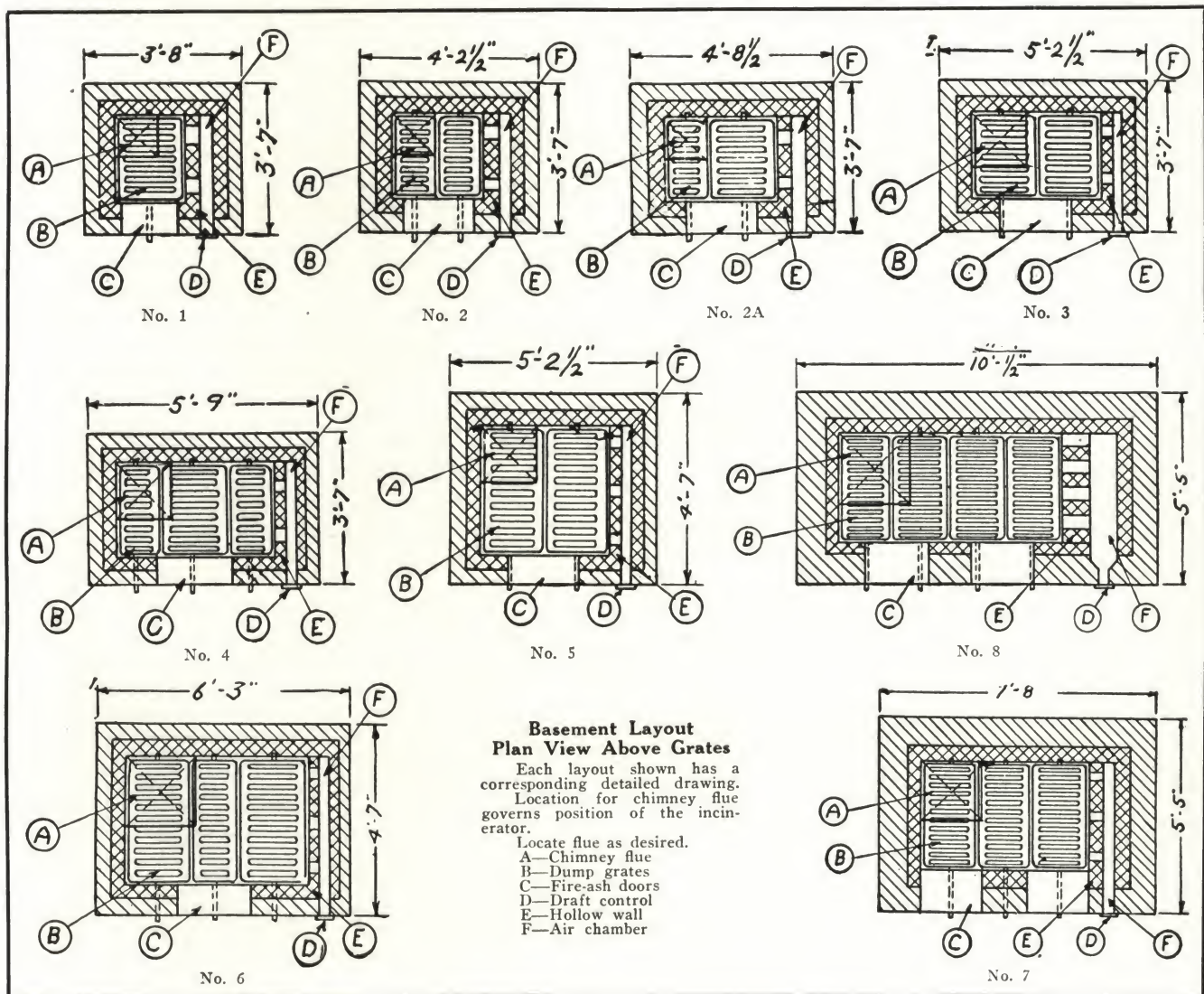
A complete condensed catalogue of information covering the Incinerite Incinerators will be furnished upon receipt of your request by the home office or local representative.

CHART OF GRATE SIZES

TYPE NO.	GRATE COMBINATION	SQ. FT. GRATE AREA	NUMBER OF ROOMS			OVERALL CHAMBER HEIGHT	FLUE SIZE	CHAMBER BUSHEL CAPACITY
			RES.	EFF. APTS.	REG. APTS.			
1	1- 16 X 24	3	10	6		6' 2"	12 X 12	12
2	2- 12 X 24	4	12	16	32	6' 2"	16 X 16	14
2-A	1- 12 X 24	5	20	24	50	6' 2"	16 X 16	17
	1- 16 X 24							
3	2- 16 X 24	6		32	75	6' 6"	16 X 16	19
4	2- 12 X 24	7		40	90	7' 6"	16 X 16	21
	1- 16 X 24							
5	2- 16 X 36	9		60	110	7' 6"	16 X 16	34
6	2- 16 X 36	12		80	170	7' 6"	20 X 20	45
	1- 12 X 36							
7	3- 16 X 36	13½		105	200	8' 2"	20 X 20	51
8	4- 16 X 36	18		200	300	8' 2"	24 X 24	68



Typical View of Chamber Installed in the Basement



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SPORT, THEATRICAL AND MUSICAL

Allen-Drew Co., Div. of Babcock-Davis Corp.....	C4586-4587
Allith-Prouty Co.	C4556
Brayman Water-Tight Drain Co.....	C4564
Brunswick-Balke-Collender Co.	C4582-4585
Clark, Peter, Inc.....	C4588-4589
Deagan, J. C., Inc.....	C4594-4595
Everson Filter Co.....	C4570-4577
Funk and Wilcox Co.....	C4552
Hasbrouck Co., Inc.....	C4559
Hill-Standard Co.	C4565
Jackson, Wm. H., Co.....	C4560
Josam Mfg. Co.....	C4566-4567
Kliegl Bros.	C4590-4591
Marsh Electro Chlorination Co., Inc.....	C4578-4579
McShane Bell Foundry Co.....	C4593
Meneely Bell Co.	C4596
Meneely & Co. (Inc.).....	C4597
National Theatre Supply Co.....	C4592
Paradon Mfg. Co.....	C4569
Porete Mfg. Co.....	C4557
Roberts Filter Mfg. Co.....	C4580
Robinson, H. A., & Co., Inc.....	C4554-4555
Swimming Pool Construction Corp.....	C4561-4563
Van Arsdale-Harris Lumber Co., Inc.....	C4568
Wagner, H., & Adler Co.....	C4553
Wallace & Tiernan Co., Inc.....	C4581
Watt Mfg. Co., Inc.....	C4558

SKATING RINK SYSTEM

GEO. C. FUNK, PATENTEE

FUNK AND WILCOX CO.

26 Pemberton Square, BOSTON, MASS.

Patents

United States: No. 1,507,592, September 9, 1924; Reissued No. 16,543, February 8, 1927; No. 1,634,938, July 5, 1927.

Canada: No. 280,096, May 15, 1928.

Great Britain: No. 279,025, October 16, 1926; No. 292,623, October 16, 1926.

Patents operated by Funk and Wilcox Co., 26 Pemberton Square, Boston, Mass.

The above-named patents cover construction features in connection with a special skating rink floor and pipe installation, also the process of operating the same, which makes it possible to install a sheet of ice sufficient for public skating or a game of hockey, in a few hours, and remove the same in a few hours. This system makes it possible to use a building for various events from night to night, putting on or taking off a sheet of ice as desired.



Hockey Game—Boston Garden, Boston, Mass.

Installations in England

Grosvenor House, London, England
Ice Dome, Hammersmith, London, England
Golders Green Ice Rink, London, England
Brighton & Hove Ice Rink, Hove Station, England



Action Picture—Boston Garden, Boston, Mass.

Installations in the United States

Atlantic City Auditorium, Atlantic City, N. J.
New Boston Arena, Boston, Mass.
Boston Madison Square Garden, Boston, Mass.
Chicago Coliseum, Chicago, Ill.
Chicago Stadium, Chicago, Ill.
Detroit Sports Arena, Detroit, Mich.
New Haven Arena, New Haven, Conn.
Eighth Avenue and 50th Street Skating Rink, New York, N. Y.
Madison Square Garden, New York, N. Y.
Philadelphia Arena, Philadelphia, Pa.
Rhode Island Auditorium, Providence, R. I.
Springfield Arena, Springfield, Mass.
Tulsa Coliseum, Tulsa, Okla.



Evangelistic Meeting—Boston Garden, Boston, Mass.

ESTABLISHED 1875

H. WAGNER & ADLER CO.

Manufacturers of Squash Courts, Billiard Tables, Bowling Alleys
Shuffle Boards, and Billiard and Bowling Supplies

EXECUTIVE OFFICES

TELEPHONE

ALGONQUIN 7070, 7071, 7072

44 East 14th Street (Union Square South)

NEW YORK, N. Y.

CABLE ADDRESS

"CUE BALL, NEW YORK"

Products

SQUASH COURTS; BILLIARD TABLES; BOWLING ALLEYS; SHUFFLE BOARDS.

Also Billiard and Bowling Supplies.

Experience

Our business life covers a period of more than half a century and our products are recognized as having no superiors.

Squash Courts

We are builders of the very finest squash racquet and squash tennis courts, and construct them according to standard regulation requirements. The speed at which these games are played require the construction to be absolutely exact and accurate dimensions must be maintained.

All materials used in the construction of our courts have been carefully selected and seasoned in our special manner.

The finished dimensions of squash racquet courts are 18 ft. 6 in. wide, 32 ft. long. Squash tennis courts measure 17 ft. wide, 32 ft. 6 in. long. The ceiling height should not be less than 16 ft. 8 in. So that the proper ground work can be arranged for, we suggest that you refer to us for plans and specifications.

Billiard Tables

The very best which can be had in billiards is the products which we build. As in fine piano making a large part of the labor on our billiard equipment is "hand work" and accounts for the quality of our tables as compared with the machine made table developed by mass production. We necessarily make fewer tables because of this care which we exercise, but our tables are the best which can be had.

We can offer most attractive designs that we regularly manufacture for the trade, or build tables specially to order to conform with any architectural scheme of the room in which the table is to be used.

These fine tables can be had as billiard, pocket billiard, combination billiard and pocket billiard or subway tables, and a complete playing outfit is supplied with each.

We are prepared to cater to the club, public room or private home.

Standard Trade Sizes—There are four standard sizes: 4 ft. x 8 ft., 4 ft. 6 in. x 9 ft., 5 ft. x 10 ft., 6 ft. x 12 ft. The over-all dimensions of these four sizes are respectively: 4 ft. 8 in. x 8 ft. 6 in., 5 ft. x 9 ft. 2 in., 5 ft. 6 in. x 10 ft. 2 in., 6 ft. 8 in. x 12 ft. 6 in.

The room in which to comfortably place a billiard table should be not less than 10 ft. wider and 10 ft. longer than the standard dimensions given above; additional space would be an advantage for seating space. A 6-ft. space between table and wall is always ideal.

Space Between Tables—The player wants plenty of room for the free use of the cue. The space most desirable between tables is 5 ft., but in some public places this has been reduced to 4 ft.

Bowling Alleys

A.B.C. Regulation—A.B.C. Regulation means that our bowling alleys are built in accordance with the standard dimensions prescribed by the American Bowling Congress which is the governing body of the bowling game. All our alleys are built of the finest comb grain pine and rock maple which is especially seasoned and kiln dried by our own method. Every improvement in the way of construction, such as bed stock being tongued and grooved throughout its entire length, three-piece round gutters, loop style ball returns, Wanda perfect pin spotters are all found in our alleys.

Regulation alleys require a space 83 ft. in length. This provides a space of 16 ft. in front of the foul line called the approach. The widths necessary for regulation alleys are as follows:

2 alley beds with gutters, etc., and one ball return—	11 ft. 6 in.
3 alley beds with gutters, etc., and two ball returns—	17 ft. 6½ in.
4 alley beds with gutters, etc., and two ball returns—	22 ft. 9¼ in.
6 alley beds with gutters, etc., and three ball returns—	34 ft. 3¼ in.

If a greater number of alleys are to be installed, we suggest submitting your proposition to us for arrangement or approval.

Pits—Proper space should be provided for the pits. This space extends the width of the alleys, depending upon the number of them to be installed and is 7 ft. 2 in. wide and 6 in. lower than the rest of the floor at the wall and 8 in. lower than the rest of the floor in the room at a point 4 ft. 2 in. from the wall, and continues for three additional feet at this lower depth on a level until a point 7 ft. 2 in. from the wall has been reached. This provision for pits is only necessary when alleys are to be installed in basements or on street floor level.

Special Improved Subfoundations—When alleys are to be placed on floors above the street floor, we furnish and install subfoundation which reduces noise to a minimum, and as this is a built-up construction, it also provides space for the pits.

Plans—We will supply plans showing the proper regulation arrangement for bowling alleys and details showing arrangement of pits on receipt of your request.

Lighting—Good lighting is a most essential feature, and the best arrangement provides for a fixture hung above the tenpins over the center of each alley bed 8 ft. 6 in. from the wall and the bottom of this fixture should be not less than 3 ft. above alley beds. A series of four additional lights should be placed over the center divisions of each pair of alleys and placed on 12-ft. 8-in. centers. The fixtures over the tenpins should be steel porcelain covered, and the four remaining fixtures above the center division should be white glass domes, 14-in. diameter preferred, and hung so that bottom of fixture will be not less than 9 ft. above alley beds. Our plans show the arrangement of the lights.

Shuffle Boards

We build the very finest shuffle boards, and of materials which have been seasoned in our special manner. These are made in three standard sizes, namely, 24, 28 and 32 ft. These sizes represent the playing surface only and the over-all sizes are 25 ft. 4 in., 29 ft. 4 in. and 33 ft. 4 in. All boards measure 2 ft. 5 in. in width. We can build shuffle boards of any special length required.

Supplies

We are prepared to supply all items of sundry merchandise incidental to the billiard and bowling games, a few of which are:

Billiard—Cloth, cues, cue tips, ivory balls, table covers, triangles, etc.

Bowling—Hard rubber bowling balls, duckpin balls, tenpins, duckpins, mats, finishing materials, etc.

H. A. ROBINSON & CO., INC.

SOLE AMERICAN AGENTS AND CONSTRUCTORS

Fast Drying Tennis Courts

400 Madison Avenue, NEW YORK, N. Y.

TELEPHONE

WICKERSHAM 7695

Products

"EN-TOUT-CAS" and "EN-TOUT-CAS BOUHANA" FAST DRYING TENNIS COURTS.

En-Tout-Cas Co., (Syston) Ltd., Syston, Leicester-

En-Tout-Cas
FAST DRYING TENNIS COURTS

shire, England, sole makers and patentees. Patents—Great Britain, No. 18734; United States, No. 1140241; Canada, No. 156256.

TENNIS FITTINGS and COURT EQUIPMENT.

"En-Tout-Cas" Courts

Description—The material for the surface of this court is made of a special type of clay found in Leicestershire, England. Many complete laboratory tests were made before this type was selected. After the clay is treated by a patent process, in the "En-Tout-Cas" kilns, it becomes the proper texture to permit rapid drying, and not to stain the clothing or tennis balls. It is passed through a fine screen and then laid over a quick draining foundation.

Advantages—Permit play thirty minutes after heavy rain.

Lengthen tennis season by one to two months.

Have red brown or dark green color which contrasts with ball and net. This contrast gives greater visibility and permits twilight play. The color prevents glare.

The color is fast, and the courts are dustless—balls and clothing remain clean.

Require only 4 in. cross fall for drainage.

Have the resiliency of the best turf courts, affording similar bound and footing.

Are equipped with non-trip marking tapes, securely fastened, and beaten flush with the surface of the court. These tapes eliminate trouble and expense of painting the lines more than once or twice a season.

Have great length of life. The original courts constructed in 1912 are still in use. *Indoor* courts are constructed exactly the same.

Construction—All details of "En-Tout-Cas" Con-

struction are managed and supervised by H. A. ROBINSON & Co., INC., after the site has been graded and consolidated.

These specifications cover one standard size court. Details regarding variations in size, and dimensions and quantities for batteries of two or more courts given on application to H. A. ROBINSON & Co., INC.

H. A. Robinson & Co. Inc., Furnishes—

"En-Tout-Cas" Surfacing Material.

Binding liquid.

Court fittings—net posts, net, tapes.

Foreman to supervise construction (includes laying of cinder foundation) and install fittings.

All materials and equipment supplied by H. A. ROBINSON & Co., INC. (when included in contract) delivered f.o.b. the cars nearest freight station.

The foreman gives detailed instruction to the superintendent, groundsman or gardener on the care of the court upon its completion. He also gives a card of instruction, which can be replaced at any time on application to the New York office.

"En-Tout-Cas" Surfacing Material supplied only with complete court installation, and to owners for reconditioning "En-Tout-Cas" Courts.

The Client Furnishes—

A site 60x120 ft. in area, placed north and south.

Turf to be removed from this area.

If present grades are to be maintained, 4½ in. of turf and (or) soil are to be removed.

If soil is of sandy texture a 2-in. layer of clay should be laid on top of foundation; excavation—before laying this clay—should be 6½ in. deep.

No underdrainage is required beneath the court area, except where soil is composed of solid clay, or site is trapped in a low or wet location.

Site must be protected from surface and storm drainage from surrounding lands.

If fill is necessary, it should be thoroughly consolidated and should extend about 2 ft. beyond court area.

The necessary cinders (about 90 tons of first grade locomotive) at, not on, site.

600 bricks for edging and the necessary cement.

Services of 4 common laborers for about 3 weeks.

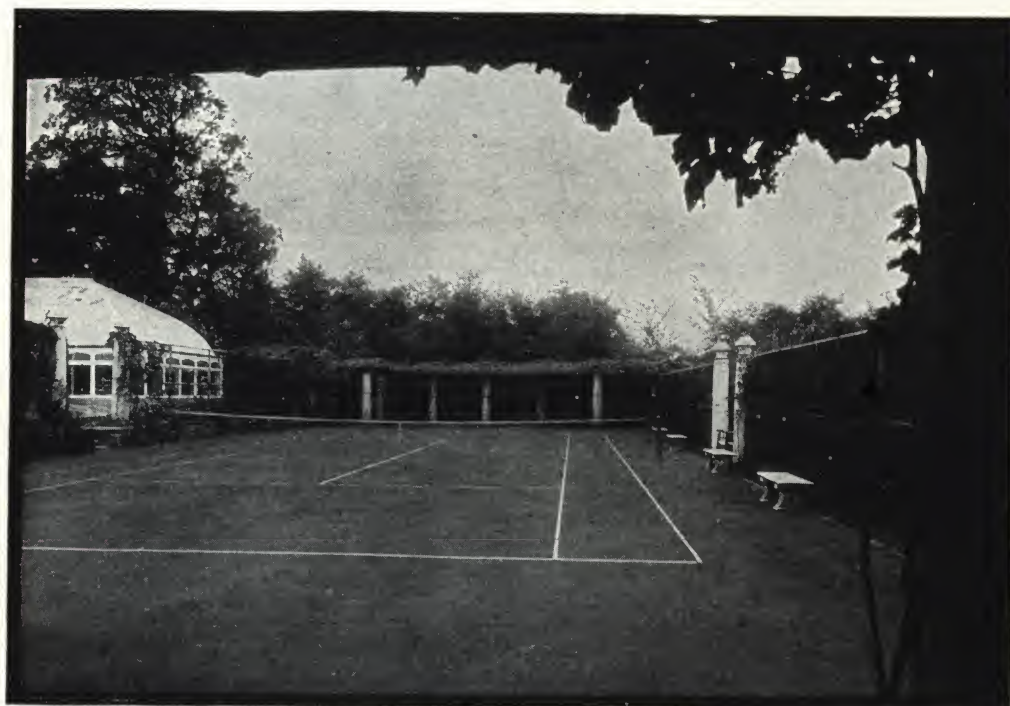
Such wheelbarrows, rakes, shovels, planking, straightedges, barrel spray pump, etc., as H. A. ROBINSON & Co., INC., foreman may require.

Roller, for construction and maintenance, to be manual, sectional, hollow type, minimum weight 600 lb.

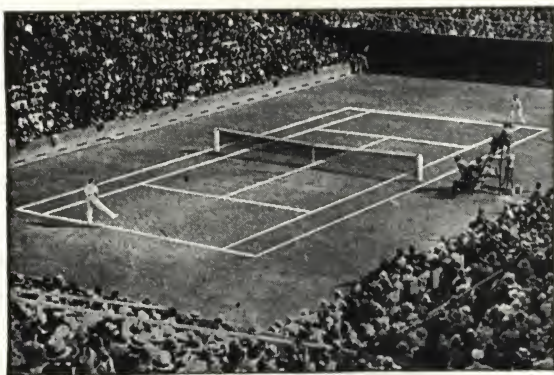
Suitable enclosure.

And installs permanent water supply, with hose connection and automatic lawn sprinkler, for construction of, and care of court. (Direct hose watering will disintegrate surface.)

Hauls all materials supplied by H. A. ROBINSON & Co., INC., from freight station to site.



"En-Tout-Cas" Court Built for William V. Kelly, Lake Forest, Ill.



Match Between Tilden and Cochet on "En-Tout-Cas Bouhana" Courts at Stade Roland Garros, Paris

"En-Tout-Cas Bouhana" Court

Description—The material for the surface of this court is made of a clay imported from France, mixed with red "En-Tout-Cas" material. Produces a fine textured surface, firm and tight, yet resilient.

Advantages—Provides the most accurate playing surface. Is ready for play two hours after heavy rain. This court was chosen for the Challenge Round of the Davis Cup Matches at Stade Roland Garros, Paris, and Hard Court Championships at Rot-Weiss Club, Berlin.

Construction—Built in the same manner as "En-Tout-Cas" except that foundation may be either broken stone or cinders.

Fittings and Equipment

Supplied and recommended after years of experience:

"En-Tout-Cas" Court Fittings—Consists of imported non-rust steel posts, plate and caps to be set in concrete; patent non-ferrous net adjuster and center guide; and compressed lead tapes, which minimize expansion and contraction, beaten flush with surface, nails inset.

Surrounds—It is advisable to have a permanent surround enclosing all hard courts, and particularly for the "En-Tout-Cas" Court, because it is available for play so soon after rain, and it is thus essential to confine the balls to the court, for should the balls reach any surrounding wet grass or soil, they would soon become useless for true and rapid bound. Backstop should be 10 to 12 ft. high.

Binding Liquid—In very dry weather it is desirable that an "En-Tout-Cas" Court be treated occasionally with Binding Liquid. This keeps the court firm, moist, and cool to the feet.

Rollers—Made especially for use on "En-Tout-Cas" Courts—manual, cast iron, machine faced (will not leave ribs), weighs 600 lb., steel bearings, can be handled by one man.

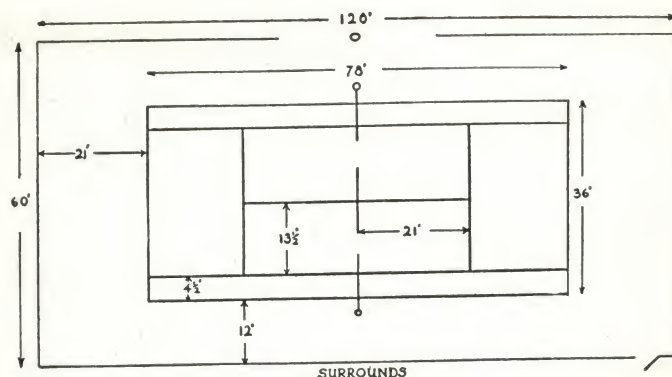
Sprinklers—Water square area 60x60 ft. under high pressure; machine oscillates to direct spray—every inch watered evenly; no waste; mounted on wheels, easy to move.

Court and Tape Brushes—For removing leaves, etc.

Expressions of Appreciation

William T. Tilden 2nd

"I have played on 'En-Tout-Cas' Courts in the United States, England and



CORRECT TENNIS COURT LAYOUT

France, and have found them uniformly satisfactory." Also, "The 'En-Tout-Cas' Court seems almost ideal." From his book "Match Play and the Spin of the Ball."

S. W. Merrihew, Editor of "American Lawn Tennis"

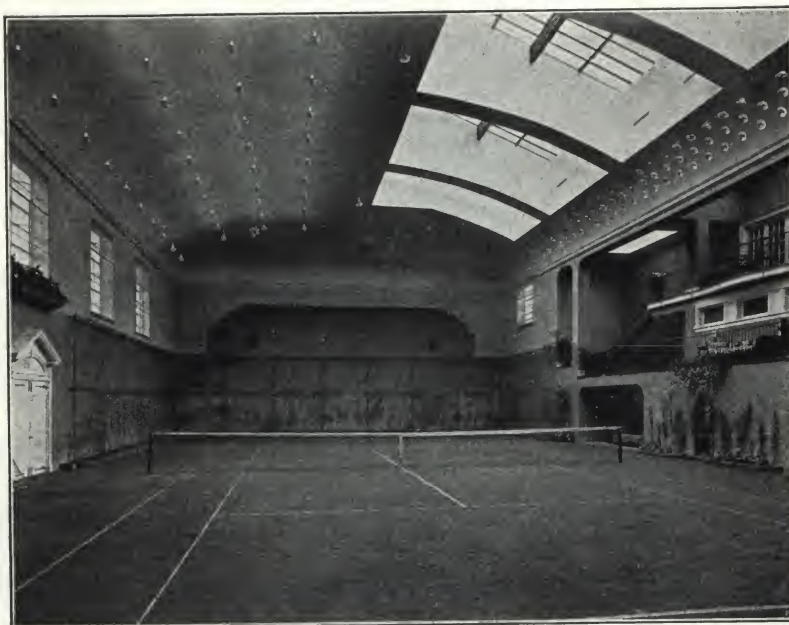
"The most used 'all-weather' courts are the 'En-Tout-Cas' and the 'Bouhana,' so familiar in Great Britain and France.

Early in the present century it was seen that some substitute for grass must be provided, and that led to the evolution of the 'En-Tout-Cas' type of court. Its basic principle was to provide a court that possessed as many of the good qualities of a grass court as possible—such as color, footing, action of the ball—without the bad qualities of the older type."

A Few Owners of "En-Tout-Cas" Courts

Estates
Philip D. Armour
W. McC. Blair
H. F. duPont
Stanley Field
Edsel Ford
Thomas Hitchcock
Clarence H. Mackay
Hotels
The Greenbrier
The Homestead

Clubs
Bridle Spur Hunt
Country Club of Detroit
Gibson Island
Lenox Golf Club
Omaha Country
Onwentsia
Short Hills
South Shore
St. Louis Country
Tuxedo Tennis & Racket



Indoor "En-Tout-Cas" Court Built at Hamilton Farms, Gladstone, N. J.
Photograph, courtesy of WALTER KIDDE CONSTRUCTORS, INC., engineers and builders of enclosure

ALLITH-PROUTY COMPANY

Manufacturers of Stadium Seat Brackets

DANVILLE, ILL.

For our pages on Garage, Airport and Fire Door Hardware, see Manufacturers' Index

Allith Stadium Seat Brackets

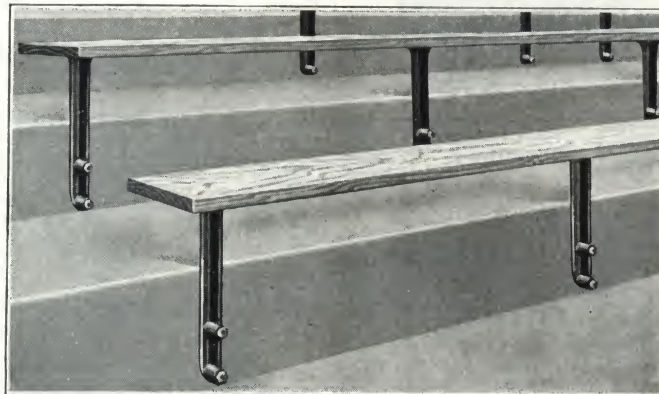
(1) Withstand all loads and shocks; (2) economical to install and maintain; (3) standard on the largest stadia; (4) meet every requirement; (5) are permanent; (6) rust resisting.

Type "A" Allith Stadium Seat Bracket—Most universally used on stadia. Top can be furnished in two lengths to accommodate either a 2x8-in. or a 2x10-in. seat plank. Strength of bracket is ample to support heaviest load, yet weight is kept at a minimum. Bracket is bolted to face of the riser leaving tread free of all obstructions, thereby simplifying expensive task of cleaning stadium. This design is much more desirable than tread fastened bracket.

Type "C" Allith Stadium Seat Bracket—Designed for use with three 2x4-in. seat planks, and is recommended when wider seat is desired. Type "C" Bracket is secured to the face of the riser giving a clear tread.

Type "D" Allith Stadium Seat Bracket—Is placed on tread of the riser and accommodates three 2x4-in. seat planks. It is very economical when a tread fastened bracket is used, permanent and satisfactory. Type "D" Bracket does not afford clear tread which is obtained with the use of Types "A" or "C" Brackets.

Type "G" Allith Stadium Seat Bracket—Is adjustable and intended to replace wooden blocks that have warped or split. In such cases original bolts are used to fasten bracket to tread of the riser. It is possible to insert a single bracket without removing entire section of seats. Type "G" Bracket may also be used on new installations of varying riser heights if a tread fastened bracket is desired.



Typical Installation

Type "H" Allith Stadium Seat Bracket—Assembly simplifies installation of brackets and stadium seats. Design is same as Type "A," except one bolt is necessary to hold bracket in place. Two small lugs placed on back of bracket engage in slot of the insert. These lugs keep bracket from rotating while being placed in position preparatory to final adjustment.

Concrete insert of certified malleable iron, giving maximum anchorage, is nailed to inside of concrete forms. Nail slots are located midway between extremities of bolt slot facilitating location of the insert. $\frac{5}{8}$ x2 $\frac{1}{2}$ -in. machine bolt used with assembly has 2-in. vertical adjustment permitting seats to be lined up perfectly in final assembly.

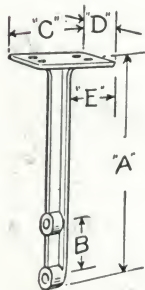
SIZES AND DIMENSIONS IN INCHES

Bracket type	Over-all height "A"	Bolt centers "B"	Length pad "C"	Width pad "D"	Overhang on riser "E"	Bolt hole location "F"	Size bolt used
A-3.....	16 $\frac{1}{4}$	5	9 $\frac{3}{8}$	3 $\frac{1}{2}$	4 $\frac{5}{8}$	1 $\frac{1}{4}$	$\frac{5}{8}$
A-5 Standard..	15 $\frac{1}{4}$	4	6	4	3	$\frac{3}{4}$	$\frac{5}{8}$
A-6.....	13 $\frac{1}{4}$	4	6	4	3	$\frac{3}{4}$	$\frac{5}{8}$
A-7.....	15 $\frac{1}{4}$	4	6	4	3	$\frac{3}{4}$	$\frac{5}{8}$
A-8.....	15 $\frac{1}{4}$	4	9 $\frac{3}{8}$	4	6	$\frac{3}{4}$	$\frac{5}{8}$
C-1 Standard..	15 $\frac{1}{4}$	2 $\frac{3}{8}$	10 $\frac{3}{4}$	3	6	4	$\frac{1}{2}$
D-2 Standard..	5 $\frac{3}{4}$	4	9	3	9	...	$\frac{1}{2}$
G-1 Adjustable	5 $\frac{1}{2}$ to 7 $\frac{3}{4}$	...	10	3	6	...	$\frac{1}{2}$
H-1 Standard..	16 $\frac{1}{4}$	...	6	4	3	4 $\frac{3}{4}$	$\frac{5}{8}$

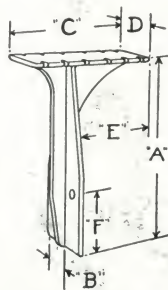
PHYSICAL PROPERTIES OF ALLITH CERTIFIED MALLEABLE IRON

Tensile strength.....54,000 lb. per sq. in.
Elastic limit.....35,000 lb. per sq. in.
Elongation.....20% in 2 in.

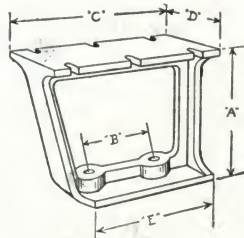
Send us your specific problem. Our Engineering Department will gladly co-operate with you.



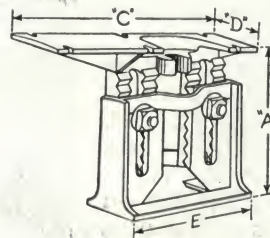
Type "A"



Type "C"



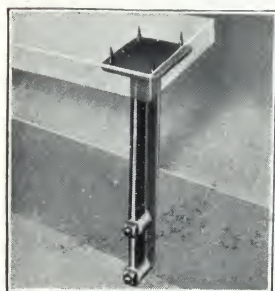
Type "D"



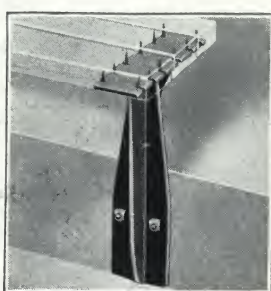
Type "G"



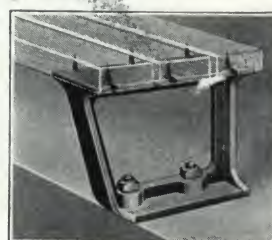
Type "H"



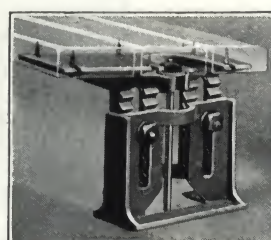
Type "A"



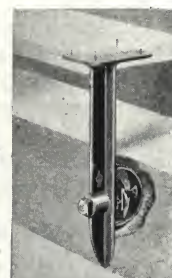
Type "C"



Type "D"



Type "G"



Type "H"

PORETE MANUFACTURING CO.

Manufacturers of Dense and Light Weight Portland Cement Products and
Contractors for Their Erection

346 Riverside Avenue, NEWARK, N. J.

Products

PARTHENON SYSTEM OF PRECAST CONCRETE DECKS for Stadiums, Grandstands and Bleachers.

For our pages on Roofs, Floors and Nailing Concrete, see Manufacturers' Index.

The Parthenon System

Construction—The Parthenon System consists of precast reinforced concrete slabs laid on structural steel beams using felt strips between the two.

Precast Slabs—The precast slabs are bonded together with a tight weatherproof and waterproof joint mastic, which will not crack and which will last as long as the concrete.

Joint Filler—The joint filler forms a solid, tough bond with the concrete and it will not crack on account of contraction. It is a tough viscous material poured hot between the joints of the individual slabs and also between the slabs and the steel beams, bonding the whole construction solidly to form practically a monolithic system.

This makes a permanent fireproof, waterproof and weatherproof slab construction.

Space Under Deck—Can be used for locker rooms, conveniences, concessions, entrances and exits.

Manufacture—These precast units are made in a manufacturing plant protected from weather, with all the details under constant supervision. All slabs are made in accurate steel forms. They are steam cured and protected until the concrete is set. Each unit is inspected before leaving the plant.

Dimensions

Riser—The best riser height for smaller stadiums is 8 in. This gives good visibility and is obtained by use of an 8-in. I-beam. The maximum span for this size I-beam is 18 ft. between the walls. To prevent vibration and sway the beams are anchored at the bearing, and they are stiffened with tie rods.

every 6 ft. Greater riser heights are obtained by using 10 or 12-in. I-beams which are good also for larger spans.

Tread—The tread width should not be less than 24 in. It is better to use a 26 or 28-in. width. Wooden seats can be bolted direct to the concrete slabs. Where chairs are used a tread width of 30 or 32 in. should be used.

Development

The Parthenon System of stadium and bleacher floor construction is the result of years of experience on the part of an expert assisted by a staff of competent men on such work. The design provides an expansion joint of uniform thickness and constant depth, a joint permanently watertight, good looking underneath and good looking on the top.

Economy and Style

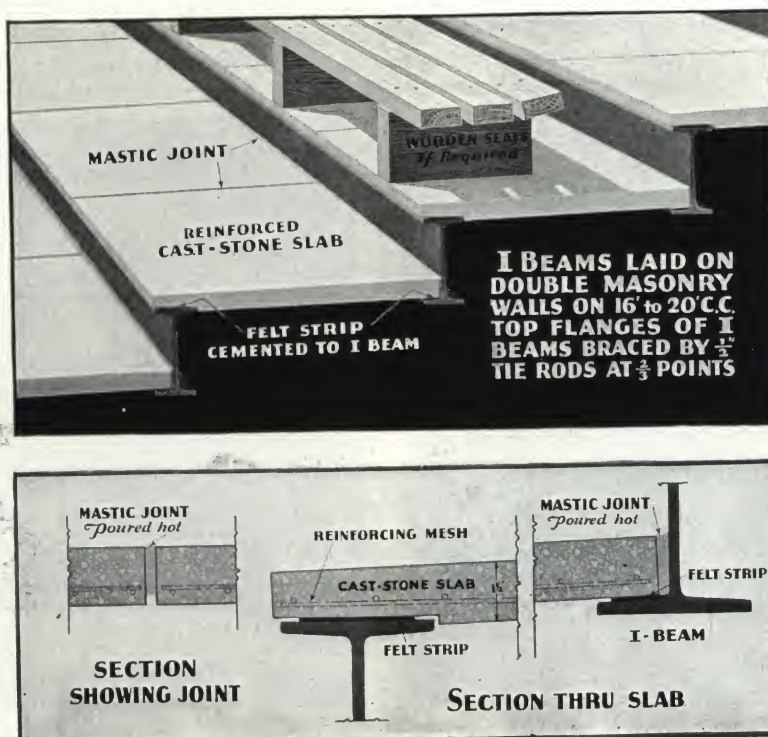
This system is lower in cost than monolithic construction, yet has all its advantages. It basically eliminates depreciation caused by frost and moisture, changes of temperature and settlement. It expresses the grace and refinement of the new American architecture.

Erection

The erection is speeded up since the placing of the slab is quickly done. Erection is practicable during the cold winter months as well as in the warmest July.

Service

The PORETE MANUFACTURING COMPANY has its own experienced force to erect the Parthenon System, and for this reason it can guarantee to architects, engineers and owners a first-class construction. Its engineering department is at the disposal of architects and engineers ready to make suggestions for the best methods to employ under ordinary and special conditions.



WATT MANUFACTURING CO., INC.

Manufacturers and Erectors of Gymnasium Bleachers

PITTSBURGH, PA.

Space-saving Gymnasium Bleachers (Patent Applied For)

The bleachers shown in the illustrations were manufactured and erected complete by the WATT MANUFACTURING CO., INC., for the new Clifford B. Connelley Trade School in Pittsburgh, E. B. Lee, architect (Pittsburgh Board of Education). They provide the solution of a problem frequently met in the design of gymnasiums—to make possible the use of the room for several different purposes and at the same time conserve space. The illustrations show the gymnasium installation.

It was desired to provide space for two basket ball courts which could be divided by a folding door and used simultaneously but this did not seem to be practical without using bleachers which would have to be taken down and then set up again when the whole floor was to be used for a game. Not only did this mean a considerable amount of work at each change but also involved the ever-present danger from improperly erected seats.

The problem was solved by constructing the bleachers as if for a permanent installation, but in sections, and then placing rollers under the front bearings and setting guides against the back wall. In this installation, which is about 50 ft. in width, the bleachers were divided into four sections, each of which is equipped with a hoist against the back wall. When lowered into position for use the bleachers extend out into the gymnasium about 16 ft., having nine rows of seats.

When it is necessary to use both basket ball courts the bleachers are raised by the hoists to a position flat against the back wall and then extend into the room only about 2 ft. In this particular installation it was not thought necessary to use counterweights or springs to reduce the weight, as the sections were small enough to be easily raised and lowered. Where conditions require, the construction can be modified or varied to suit.

In some locations it might be desirable to install motor operated equipment with push button control by

which the bleachers may be raised or lowered by pushing a button. The WATT MANUFACTURING CO., INC., offers its fullest co-operation to the architect in working out any bleacher problem.

Construction

The bleachers are sturdily constructed, not only to provide adequate support for the weight of the occupants but to allow an ample factor of safety for the sudden changes in loading and the vibration incident to any condition. The steel supports of plates and angles carry the heavy wood seats and foot rests. The rollers at the front end are roller bearing, thus making for easy handling of the sections. They are of a fibre composition which will not mar the floor.

The guides are attached to the wall as shown and so constructed that, when lowered, the weight of the bleachers and the people is carried on them and not on the hoists. The hoists which provide ample load raising power are hung on plates let into the wall.

Service

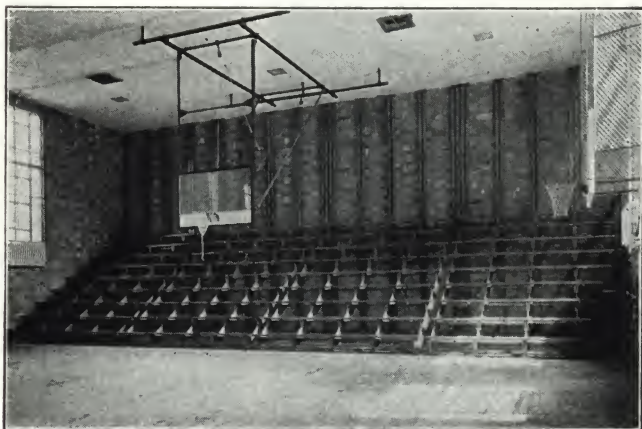
Our modern plant is fully equipped to execute any size order and our Engineering and Estimating Department is at the service of the architect and engineer at any time. Typical bleacher details, estimates and suggestions submitted on request. We are also equipped to erect our bleachers anywhere in the United States.

Other Watt Products

In addition to the space-saving bleachers described above the WATT MANUFACTURING CO., INC., has long manufactured stairs of every type and construction. Our stairs meet the requirements of all State and city building codes. Our standard stairs are attractive and can be readily modified to meet the individual requirements of the architect.

We also manufacture the "Wattertite" Sidewalk Door and other steel and cast iron products.

See Manufacturers' Index for our other pages.



Bleachers Lowered



Bleachers Raised

HASBROUCK COMPANY, INC.

Swimming Pool Engineers
Consultants, Engineers and Builders

101 Park Avenue,
NEW YORK, N. Y.

The Swimming Pool Problem

There are five major considerations in connection with a swimming pool:

- (1) *Design* (2) *Construction* (3) *Equipment*
(4) *Maximum sanitation* (5) *Minimum maintenance*

The first three must be exact in every detail in order to produce the last two which are of great importance to the health of those using the pool and to those operating the pool.

The arrangement of the showers and dressing rooms has a direct bearing upon the physical condition of the water in the pool. When we think of a pool it is most important to carefully plan for all showers and dressing rooms and locker rooms, which is part of the service rendered by us.

The A.A.U. and intercollegiate rules pertaining to swimming must be considered if the pool is to be usable for official meets, water polo or other aquatic sports.

The initial cost of a swimming pool is the first thought in the mind of the prospective owner, but relatively this is of less importance than that of sanitation and maintenance, which two latter items, after the completion of the pool, are constantly before the owners and become the major factors for the success or failure of the operation of the swimming pool. A sanitary pool means larger attendance, which in turn produces greater revenue and, if the maintenance cost is low, the net profits are naturally larger.

The above is made possible only through theory, re-

search and experience. We have been for eighteen years actively and exclusively engaged in swimming pool work and we are fully organized and equipped to serve as consultants, engineers and builders of swimming pools. We have our own specially trained men for this work. This places the responsibility under one head for the entire contract.

The swimming pool problem is not a simple one, but rather complex, with the following items to consider which must be properly correlated in order that the final result be successful and that the work may be guaranteed and bonded:

Sanitation	Reinforced concrete
Maintenance	Structural steel tanks
Filtration	Electric arc welding
Sterilization	Heating
Recirculation	Pumps
Ventilation	Motors
Condensation	Painting
Hydrostatic pressure	Special plumbing work
Waterproofing	Springboards
Tile Work	Foot tubs
Ladders	Accessories

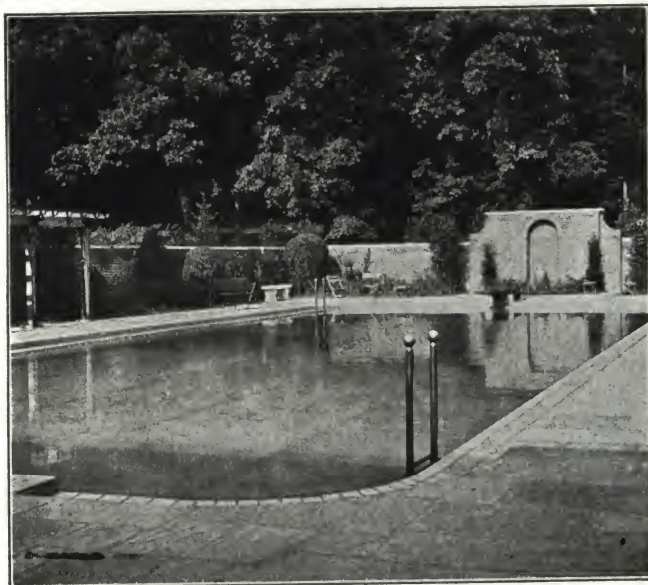
Architects are invited to consult with us relative to any type of swimming pool.

If we are awarded the contract to build a swimming pool we make no charge for services rendered. If we are not awarded the contract, we charge a fee for services rendered.

References

Recreation Centers, Washington, D. C., U. S. Government,
Lieut. Col. U. S. Grant 3rd, Director
National Board Y. W. C. A., New York, Miss Lena Farrar
Architectural Bureau Y. M. C. A., New York, N. McMillan
Jewish Welfare Y. M. H. A., New York, L. Kraft
American Red Cross, Washington, D. C., H. F. Enloss
Playground Recreation Association, New York, Geo. Butler
Board of Education, Lakewood, Ohio, G. W. Grill

McKim, Mead & White, Architects
Walker & Gillette, Architects
Waddy B. Wood, Architect
Shepard & Stearns, Architects
Bradley Delehanty, Architect
Goodwin, Thompson & Patterson, Architects
John Russell Pope, Architect
York & Sawyer, Architects



Pool, Columbia Country Club, Chevy Chase, Md.
ARTHUR B. HEATON, Architect, Washington, D. C.



Men's Pool, Penn A. C., Philadelphia, Pa.
ZANTZINGER, BORIE & MEDARY, Architects

ESTABLISHED 1827

WM. H. JACKSON COMPANY**Tile for Swimming Pools and General Decorative Purposes**2 West 47th Street
NEW YORK, N. Y.

TELEPHONE, BRYANT 8430

318 North Michigan Avenue
CHICAGO, ILL.

TELEPHONE, DEARBORN 8450

FOUNDRY AND SHOPS, 335 Carroll Street, Brooklyn, N. Y.—Telephone, Cumberland 4252

MONTREAL, QUE.: WM. H. JACKSON COMPANY OF CANADA, LTD., 167 Wellington Street

Products and Services

TILE for the Lining of Swimming Pools, Overflow Gutters, Ladders, Floors, etc.

The Furnishing and Application of the proper Waterproofing in connection with the tile application and the essential Metal Strainers, Inlets, Outlets, etc.

For our pages on Ornamental Bronze and Iron Work, Bronze Windows, and Cast Stone Cretan Mantels, see Manufacturers' Index.

Experience, Co-operative Service, and Construction

Our organization, established in 1827, is the pioneer in the development of the tile industry for swimming pools.

In addition to the general service in the study of decorative tile application this organization co-operates with architects and others in the development and study of swimming pool problems, including the correct waterproofing and, if required, will furnish drawings and specifications for the general construction together with estimates for furnishing and installing same.

Jackson Tile Lined Pools

Jackson Swimming Pools, both interior and exterior, installed by our firm, combine either a simple or highly elaborate decorative effect with perfect service-

ability. Our tile is suitable not only for the pool, but for the floor, walls and wainscotings as well, thereby obtaining a most satisfactory unity of effect.

Some of the special features of Jackson Swimming Pools are the Jackson pool life rail, the grip coping, the overflow gutters, depth and distance numerals, safety guides, etc.

We also furnish the necessary metal strainers, inlet, outlet, and floor drains, for which we have many special patterns, and diving boards if required.

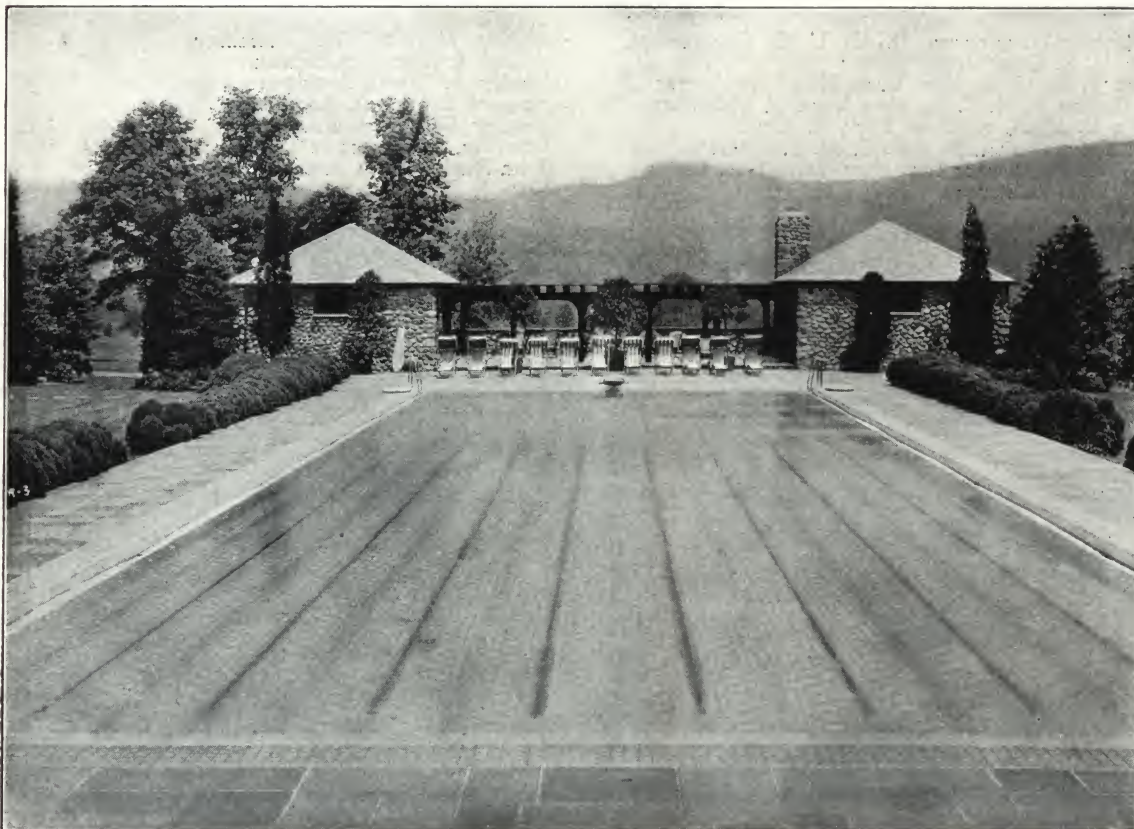
Installations

Selection from pools installed by us:

- 59 Y. M. C. A. Buildings
- 11 Y. W. C. A. Buildings
- 39 Private Estates
- 20 Club Buildings
- 18 Community Centers
- 27 Schools and Academies
- 16 Colleges
- 11 Hotels

Bronze Windows

In order to avoid corrosion from dampness, bronze windows are absolutely necessary for natatoriums. See our page on Bronze Windows for information on the "Jackson Patented Window."



**Outdoor Pool,
Mountain View
Farm,
Adolph Zukor
Estate,
New City, N. Y.**

HARRY ALLEN
JACOBS, Architect

Entire bottom of pool with sidewalls worked out in special design of ceramic blue and white. Darker tones divide the swimming lanes

SWIMMING POOL CONSTRUCTION CORPORATION

TELEPHONE
VANDERBILT 8083

Swimming Pool Engineers and Builders

New York Central Building, 230 Park Avenue
NEW YORK, N. Y.

Products and Services

Design, Construction and Equipment of INDOOR and OUTDOOR SWIMMING POOLS, WADING POOLS and ORNAMENTAL GARDEN POOLS.

In addition to complete plans and specifications, our work includes any or all of the following items:

Reinforced Concrete	Tiling
Waterproofing	Pumps
Sterilizers	Heaters
Filters	Inlets
Diving Boards	Outlets
Suction Cleaners	Floor Drains

We are a firm of swimming pool engineers and builders. As engineers, we design indoor and outdoor swimming pools and wading pools. We furnish all the necessary drawings and perform the engineering work for the reinforced concrete and waterproofing. We also lay out all plumbing and mechanical equipment and we write specifications for everything connected with the pool.

As builders, we undertake contracts for swimming pool work complete, or for any portion, such as reinforced concrete, waterproofing, tile, mechanical equipment and accessories. If the contract is awarded to us, we make no charge for our engineering work. If the contract is awarded to others, we charge a regular engineering fee for services.

Designing the Modern Swimming Pool

The rapid growth in the popularity of swimming pools during the last few years has been accompanied by a greater demand for convenience and for sanitary equipment. New systems of filtering, sterilizing, heating and recirculating the water have been developed. The problem of sanitary maintenance has produced changes in the design of the pool itself, while at the same time more attention is being paid to the decorative treatment of the surroundings. As a result of these developments, the work of planning, specifying and build-



ing an up-to-date pool has become increasingly complex.

It has been found that the best solution from the architect's point of view is to consult with an experienced firm of swimming pool engineers. In this way the architect can hold down construction costs, avoid excessive demands on his own time, and insure the construction of a satisfactory, permanent swimming pool.

Tile Is the Accepted Material

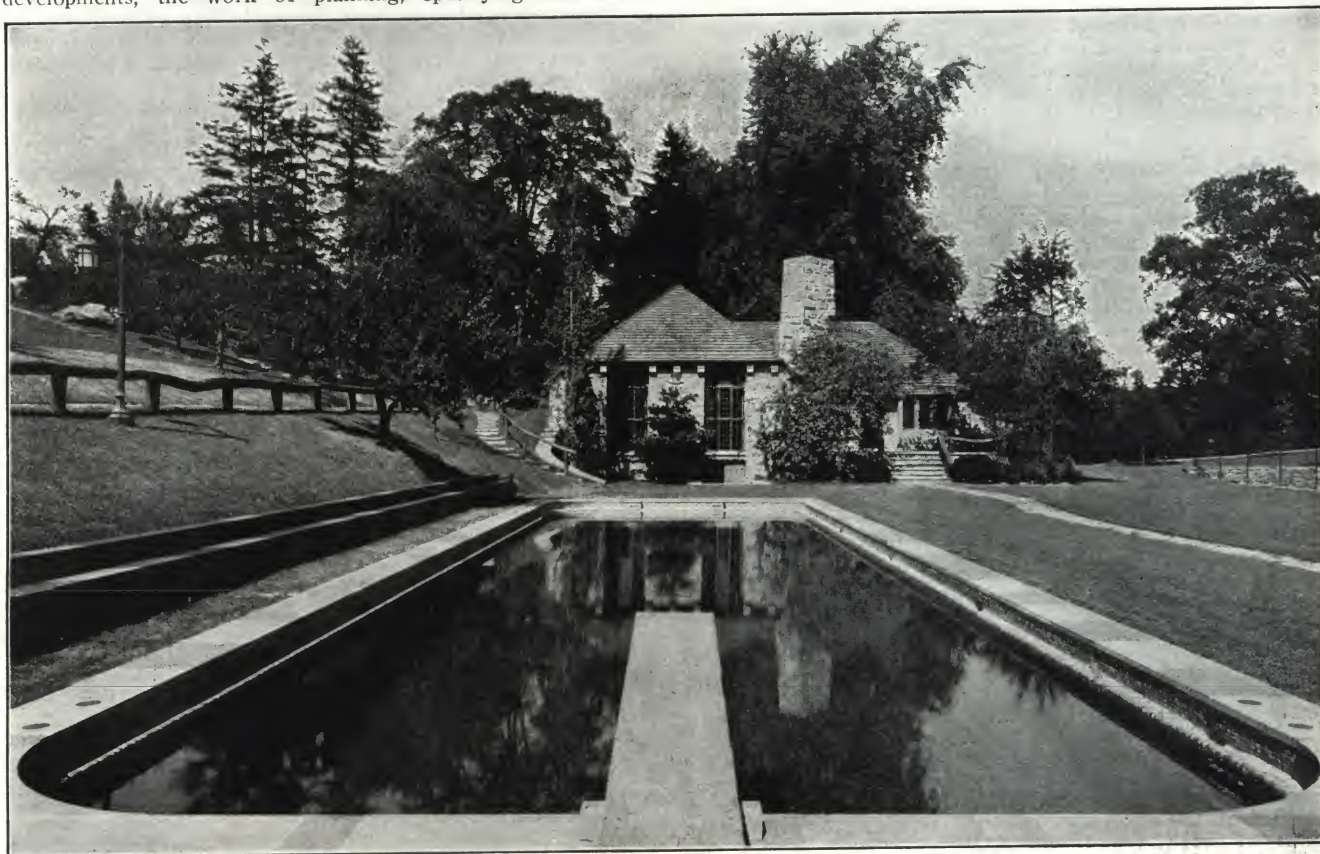
Although this Company is prepared to design and construct pools of every type—including tile, faience, cement and enameled brick—we recommend tile pools in almost every instance. Tile has the advantages of sanitation, beauty, permanence and reasonable cost. It has become the accepted material for lining the modern swimming pool.

Sanitary Value—A smooth tile lining has no cracks or crevices where dirt may lodge. Owing to the dense, non-absorbent nature of tile, impurities cannot penetrate beneath the surface, and this insures the thoroughness of the cleaning operation.

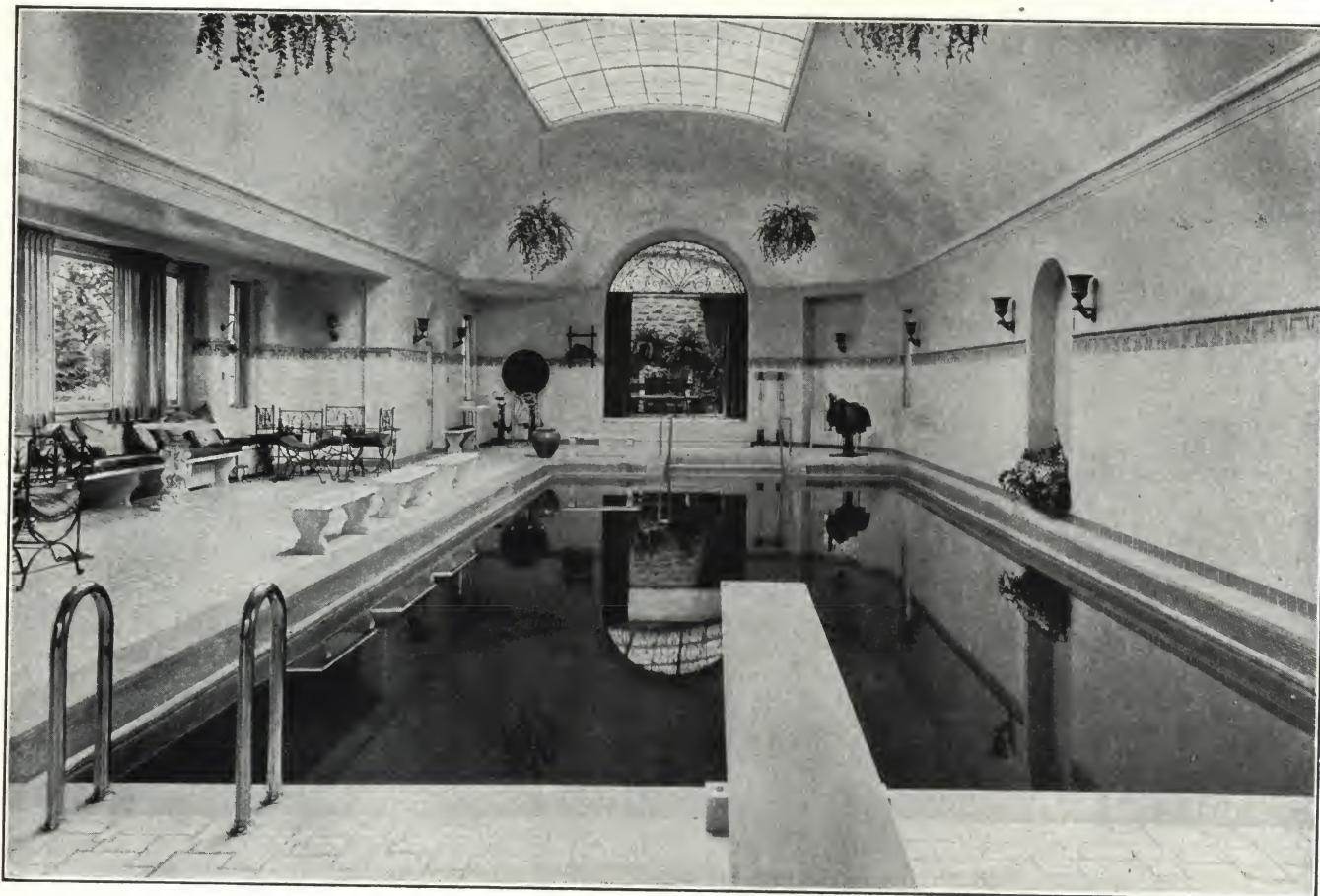
Decorative Value—Much more attention is being paid to the element of attractiveness in swimming pools, and especially to the color scheme. For the walls and floors of the pool, white or tinted tile forms the most pleasing and practical ground, but color is used for the swimming lines, depth markers, gutter and curb; also in many cases for the walk and walls surrounding the pool.

Faience panels in special designs are often built into the walls of the pool room. In general, where tile is used for the swimming pool there are unlimited possibilities of decorative treatment.

Permanence—Tile is the most durable of materials. Continuous contact with the water has no effect on its shape, texture or color.



Swimming Pool on Private Estate, Irvington-on-Hudson, N. Y.
This beautiful pool is lined throughout with variegated frostproof faience tile



Swimming Pool in Residence of Walter C. Teagle, East Port Chester, Conn.

Experienced Tile Setters Necessary—To set tile properly requires experienced artisans and superintendents. This Company is widely experienced in tiling work and can execute the most complicated shapes or patterns with complete satisfaction. We can also help the architect by suggesting staple tiles which can be used for their decorative value without adding to the cost of the pool.

Reinforced Concrete and Waterproofing

The thickness and reinforcement of concrete walls and floors in a swimming pool depend on many complicated factors. Among these are capacity of the pool, ground-water pressure, bearing capacity of the soil and when the pool is located in an upper story, vibration of the building and expansion and contraction of supports. It is necessary for best results that the reinforced concrete be designed by an engineer experienced in swimming pool work.

Concrete should be poured in a continuous operation to avoid construction joints.

As for waterproofing, the integral method is generally sufficient for pools at the ground level. Membranous waterproofing is advised for pools in an upper story, on account of its greater elasticity. Consultation with swimming pool engineers is especially recommended in the case of waterproofing work, as their intimate knowledge of the problem will prevent both unnecessary expenditures during construction and the even more expensive failures due to faulty design or execution.

Water Supply

Only a limited amount of water is required for the upkeep of a modern swimming pool. Once the tank is filled, the water is withdrawn, filtered, sterilized and returned to the pool by a continuous process of recirculation. Only enough fresh water need be added to make up for overflow losses.

The rate of recirculation is regulated so that the entire contents of the pool is renovated one or more times a day, depending on the number of bathers. At intervals of several months the pool is drained and refilled.

In some localities the water supply must be specially treated to make it clear and attractive.

Mechanical Equipment and Accessories

The mechanical equipment for an indoor swimming pool consists in general of pumps, heaters, filters, sterilizers and suction cleaners. This Company can furnish and install approved equipment of all these types.

We also furnish and install diving boards, plain or aerating inlets, outlets, and floor drains.

Outdoor Swimming Pools (for Cities, Amusement Parks, Estates and Country Clubs)

The building of outdoor swimming pools is a special branch of the work. Care must be taken with waterproofing to prevent pollution from ground water, and concrete must be designed to resist frost stresses. On the other hand, the omission of heating equipment greatly reduces the construction costs.

Pools for municipalities and amusement parks are generally much larger than indoor pools. Lengths of 150 ft. and more are not exceptional. Circular and oval pools are very popular, and for outdoor work present but little more difficulty than a rectangular pool. Plain concrete lining is the rule.

For estates and country clubs, rectangular pools are the rule. The favorite lining materials for such pools are unglazed vitreous-body tile, ceramic mosaic and faience—all of them strictly frostproof.

A happy variation of the swimming pool is the tiled wading pool for the youngsters. Wading pools should slope to a maximum depth of 1 ft. or less. They can be built at little expense, require no elaborate plumbing and are suited to the smallest grounds.

Special Uses for Swimming Pools

When placed in an elevated position—either on a hillside or in an upper story—swimming pools will serve as tanks for fire protection. This has been done in modern factories and on many country estates.

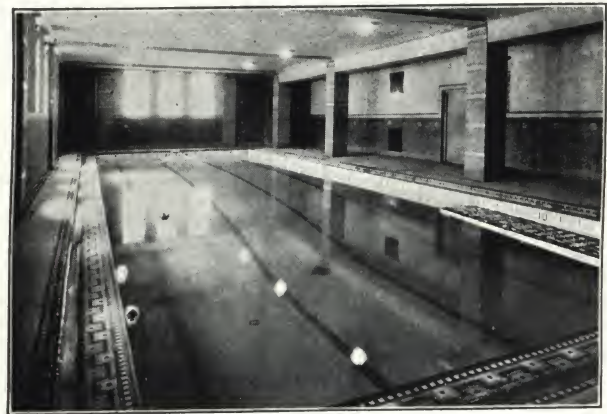
Country club swimming pools can be drained at night, and the water can be used for sprinkling the golf course and lawns.

Unit Contracts for Swimming Pools

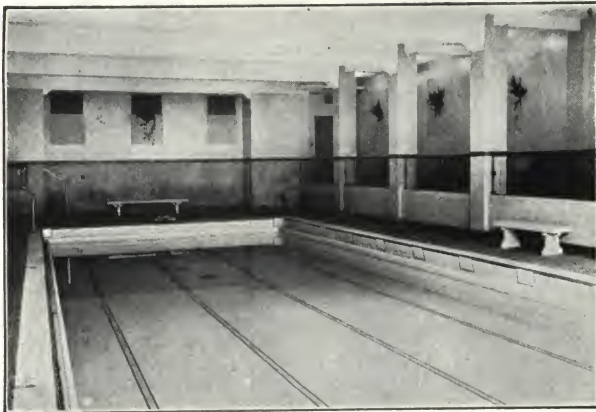
To obtain the best results, the swimming pool should be treated as a unit when apportioning contracts. That is, the entire swimming pool work, including reinforced concrete, waterproofing, tiling, mechanical equipment and accessories, should be let as a single contract. In this way, responsibility for successful results rest on one organization. Preferably the swimming pool contract should be under the direct supervision of the architect and owner.



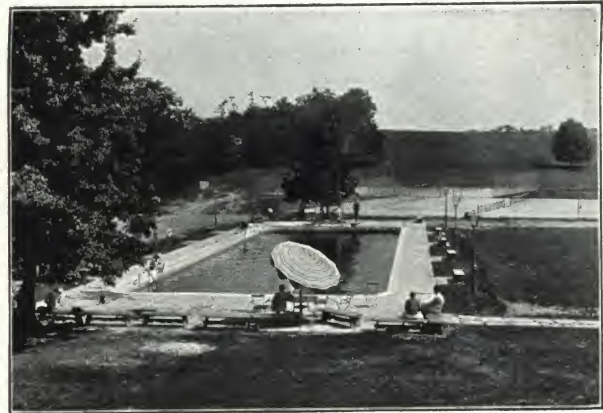
Y. W. C. A., Williamsport, Pa.



Y. M. C. A., Norwalk, Conn.



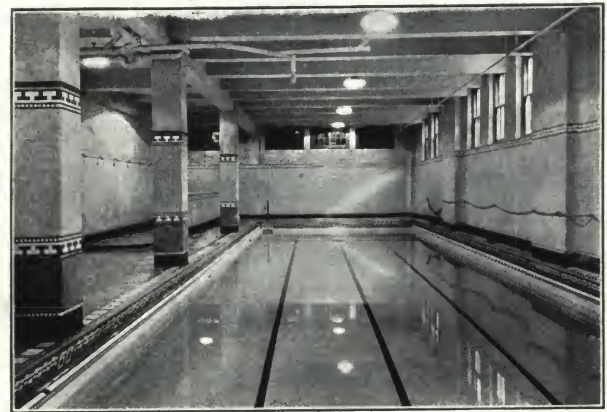
Plantations Club, Providence, R. I.



Country Club of Troy, Troy, N. Y.



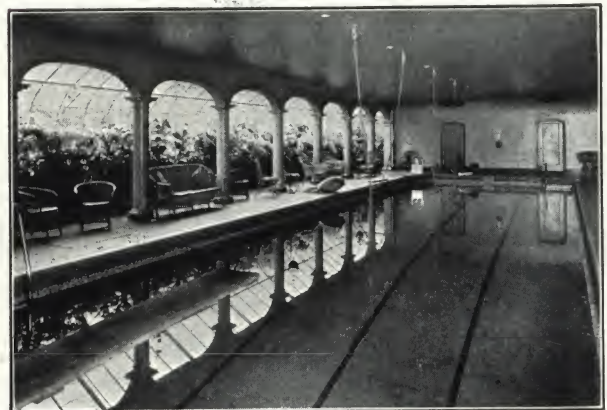
Hazelton High School, Hazelton, Pa.



St. John's College, Brooklyn, N. Y.



Park Crescent Apartment Hotel, New York, N. Y.



Castle of Dr. Charles V. Paterno, New York, N. Y.

A Few Typical Installations

BRAYMAN WATER-TIGHT DRAIN CO.

133 West 52nd Street, NEW YORK, N. Y.

Products

SWIMMING POOL EQUIPMENT: Connections for Inlets and Outlets, Scum Gutters, Spray Nozzles, Vacuum Cleaner Outlets, etc.—standard equipment for all Y. M. C. A.'s in the United States.

For Brayman Drains, see Manufacturers' Index.

Brayman Service

The engineers of the BRAYMAN WATER-TIGHT DRAIN COMPANY are equipped to submit prompt and intelligent information for drains necessary on all types of swimming pool installations. Experience ranging over a period of 23 years, enables us to quote on the most adaptable style of drain covering individual requirements, thus effecting considerable economies through avoidance of unnecessary expenditures.

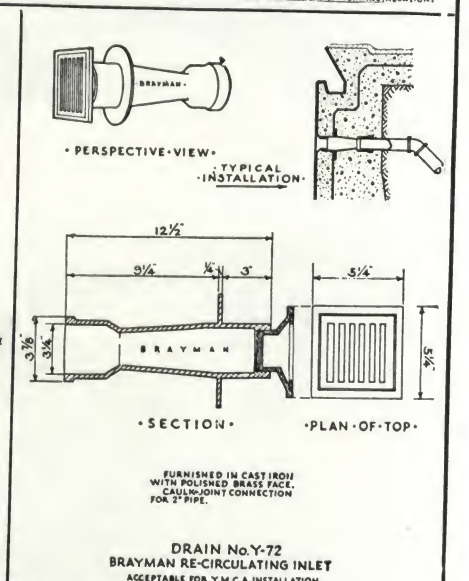
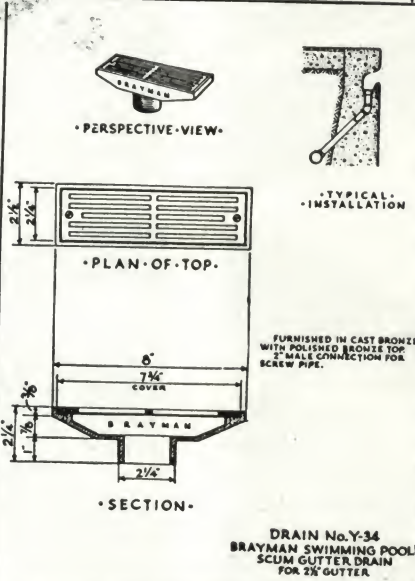
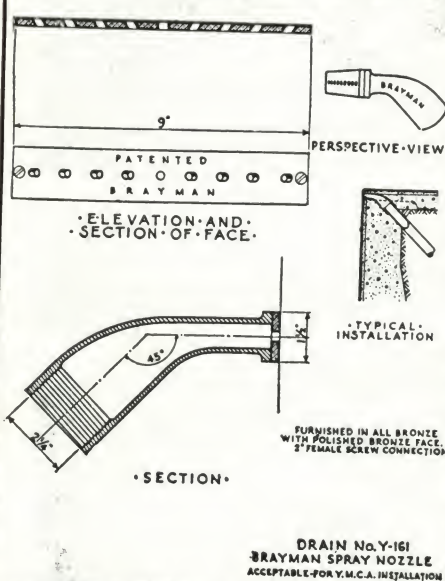
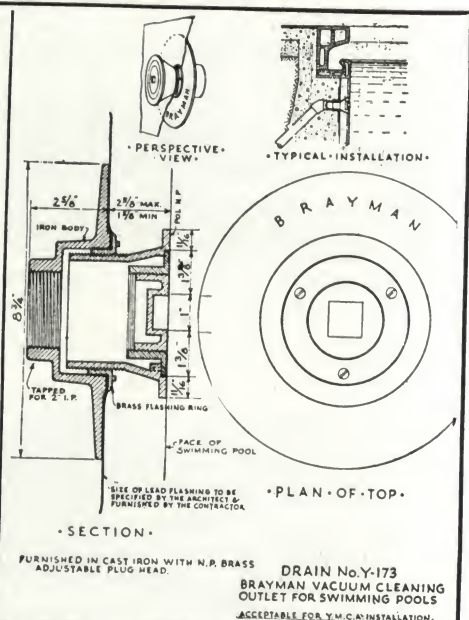
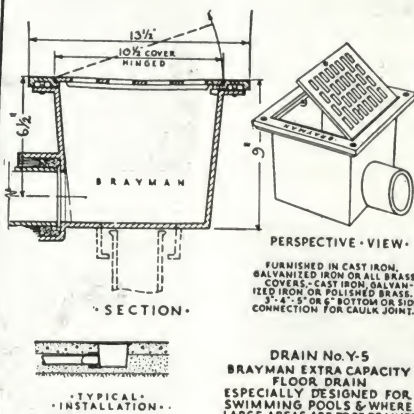
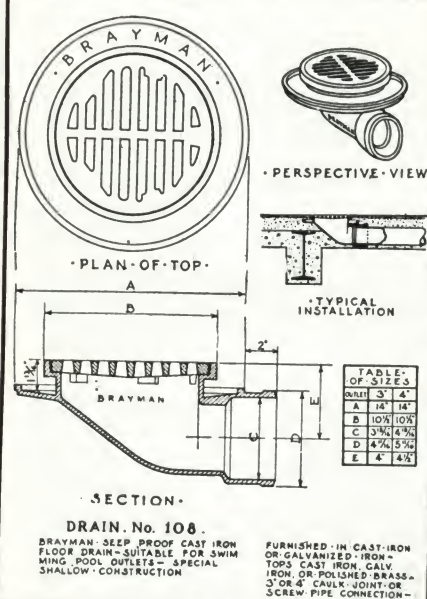
We invite inquiries covering swimming pool installations and shall be glad to go into all drain problems with you.

A Few Prominent Installations

Y. M. C. A., Montevideo, Uruguay
 Railroad Y. M. C. A., Palestine, Tex.
 Philadelphia Center Y. M. C. A., Philadelphia, Pa.
 U. S. Veterans Hospital, Augusta, Ga.
 N. Y. Military Academy, Peekskill, N. Y.
 Penn Athletic Club, Philadelphia, Pa.
 Buffalo Athletic Club, Buffalo, N. Y.
 J. D. Rockefeller Residence, New York, N. Y.
 Claus Spreckels Residence, Manhasset, L. I., N. Y.
 Marshall Field Residence, New York, N. Y.
 Biltmore Country Club, Rye, N. Y.
 Union League Club, New York, N. Y.
 Montgomery Country Club, Silver Springs, Md.
 Statler Hotel, Buffalo, N. Y.
 Ambassador Hotel, Atlantic City, N. J.
 National Biscuit Co., New York, N. Y.
 Motor Ramp Garage, Baltimore, Md.
 Borden's Plant, Paterson, N. J.
 Yale College, New Haven, Conn.
 U. S. Veterans Hospital, Bronx, N. Y.
 City Hospital, Cleveland, Ohio
 N. Y. Telephone Bldg., Bronx, N. Y.

Catalogue

Our new 100-page catalogue is ready for distribution. Full dimensions are given. Single pages are used for each individual drain. Each drawing is properly scaled. We manufacture every possible type for use in and around buildings. Our catalogue is the proper size for filing and carries the A.I.A. file number.



BRAYMAN WATER TIGHT DRAIN CO.
 133 W. 52ND ST., NEW YORK, N. Y.



ESTABLISHED 1900

HILL-STANDARD CO.

Specialists in Swimming Pool and Bathing Beach Sports Equipment
ANDERSON, IND.

Agents Throughout the United States and Several Foreign Countries

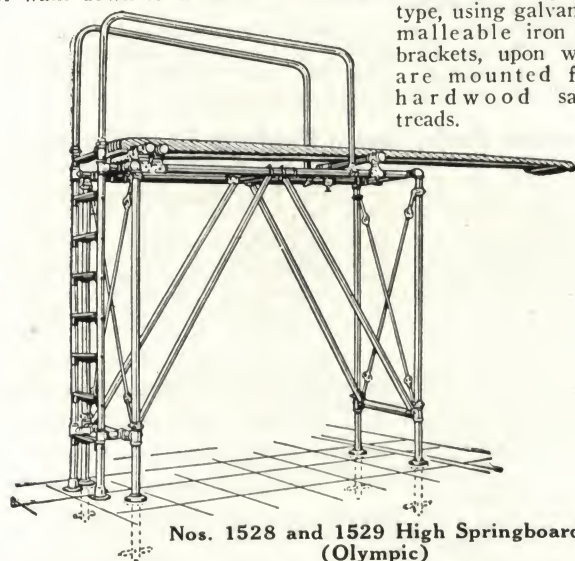
International Regulation Springboards

Built in compliance with specifications of the National Collegiate Athletic Association and Amateur Athletic Union of the United States. Boards are of carefully selected, vertical straight grain Oregon pine of one piece, thoroughly seasoned and treated. Fittings are best quality galvanized malleable iron, except lower base flanges, which are brass and set flush in walk. Boards fitted with adjustable, rubber covered fulcrum. Designed so the complete apparatus may be readily moved, as the upper flanges are attached to lower floor flanges by cap screws. For either indoor or outdoor pools.

One of the best the market affords.

National Regulation High Springboards Nos. 1528, 1529 and 1530

In order that this board may be correctly installed, the tip of board must be exactly 10 ft. from water level, and as pools are not uniformly built, we must know the distance from the pool walk down to waterline. Vertical ladder is of improved type, using galvanized malleable iron step brackets, upon which are mounted flat, hardwood safety treads.



Nos. 1528 and 1529 High Springboard
(Olympic)

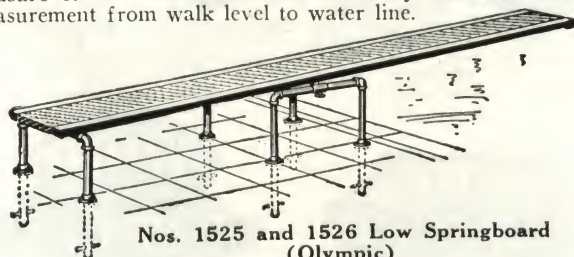
No. 1528—Springboard complete with stand, anchors and all fittings. Board entirely covered with 36-in. safety cocoa matting. Weight about 1000 lb.

No. 1529—Springboard complete with stand, anchors and all fittings. Board furnished with 18-in. strip cocoa matting. Weight about 1000 lb.

No. 1530—Board only, for replacement purpose (matting or fittings not included). Weight about 280 lb.

International Regulation Low Springboards Nos. 1525, 1526 and 1527

To be installed as ruled, tip of board to water level must measure 39 in. It is therefore necessary that we have the measurement from walk level to water line.



Nos. 1525 and 1526 Low Springboard
(Olympic)

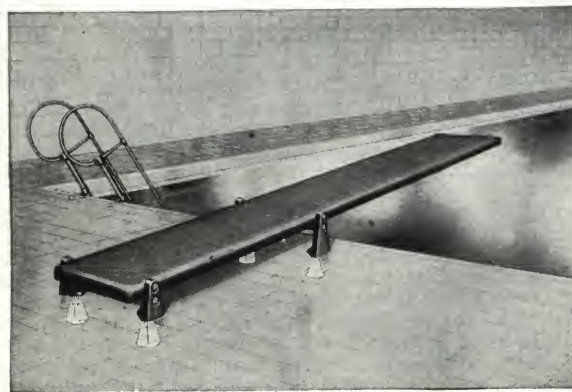
No. 1525—Springboard complete with stand, anchors and all fittings. Board entirely covered with 36-in. safety cocoa matting. Weight about 540 lb.

No. 1526—Springboard complete with stand, anchors and all fittings. Board furnished with 18-in. strip cocoa matting. Weight about 535 lb.

No. 1527—Board only for replacement purposes (matting or fittings not included). Weight about 275 lb.

Springboards Nos. 1500, 1505 and 1510

A high grade, first class Springboard; standard size, 22 in. wide, 12 ft. long. Constructed of several boards, selected stock, doweled, battened and fitted to prevent warping. These boards



No. 1500 Springboard

taper from 2 in. at rear to 1½ in. at tip; covered with woven cocoa matting to insure safe footing at all times. All metal parts heavily galvanized; brass stud bolts connect with inset anchors. It is possible to disconnect this springboard by removing these bolts without disturbing anchors as anchors do not stand above the floor surface. No holes in board at fulcrum point; this insures longer life and better action. Shown for concrete or tile installation; made also for planked flooring.

No. 1500—Shipping weight about 325 lb.

No. 1505—Same as shown except for wood plank installation (give thickness of planking when ordering). Weight about 300 lb.

No. 1510—Board only for replacement purposes for No. 1500 and No. 1505 (matting not included). Weight about 140 lb.

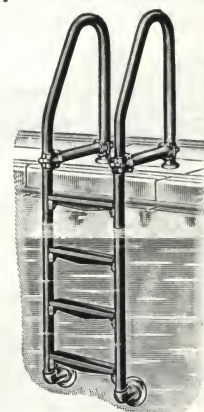
Removable Vertical Pool Ladder

Strong and substantial. Riser handrails of tubing, 2 in. inside and 2½ in. outside diameters. Numbers listed below furnished in hot galvanized steel and malleable iron. Regularly furnished with non-slip flat metal safety treads measuring 3x18 in. x ¾ in. thick. Metal treads are superior as a safety measure, present a better appearance and are more comfortable than round rungs.

Anchored only in pool walk, 18 in. from edge; enables lifting of ladders without leaving walk; eliminates breaks in pool wall. Special anchor embedded flush with walk. Ladder measures 22½ in. extreme width, and clears wall 4 ft. Handrails 37 in. high and rest 6 in. in anchor sockets. Two lengths only, for 3 and 5-ft. depths. We can also furnish ladders in polished brass or brass chromium plated and polished, and galvanized steel chromium plated. Approved by leading pool architects and engineers.

No. 1711—3 ft. hot galvanized steel and malleable iron, metal treads, weight about 163 lb.

No. 1713—5 ft. hot galvanized steel and malleable iron, metal treads, weight about 178 lb.



Catalogues and Prices

We invite you to send for catalogues and prices covering more than 200 swimming pool, playground and floodlight items.

Special Note

Send for complete information and prices on our New Pool Cleaning Equipment.

JOSAM MANUFACTURING CO.

Swimming Pool Equipment

MAIN SALES OFFICE
4900 Euclid Building
CLEVELAND, OHIO

FACTORY AND FOUNDRY
Corymbo Road
MICHIGAN CITY, IND.

DISTRICT BRANCH OFFICES

NEW YORK, N. Y., 215 East 37th Street
CLEVELAND, OHIO, 4900 Euclid Building
REPRESENTATIVES IN ALL PRINCIPAL CITIES IN UNITED STATES AND CANADA

CHICAGO, ILL., 307 North Michigan Boulevard
ATLANTA, GA., 84 Edgewood Avenue, N. E.

Products

SWIMMING POOL EQUIPMENT.

Josam Inlets for circulating systems; Bronze Lion Heads for main inlet; Josam Hair Catcher; Josam Floor Drains and Main Outlet Drains; Scum Gutter and Multiple Level Scum Gutter and Overflow Drains; Skimmer and Agitator Inlets with either round or square strainers or with fan shape or needle spray spouts, with adjustable connection; Vacuum Connections for cleaning pool.

Instant Steam Water Heaters for circulating systems, for maintaining non-varying water temperature in pool.

All Josam Swimming Pool Equipment furnished either for Durham or soil pipe installation, except Series 2200 E Scum Gutter Drain which is furnished only with threaded outlet.

For other Josam Products such as: Josam Floor, Shower, Urinal and Roof Drains; Backwater Sewer Valves; Open Seat Swing Check Valves; Shock Absorbers; Josam-Marsh Grease, Plaster Sink, Dental, Surgical, Hair and Sediment Interceptors, see Manufacturer's Index.

Materials

Bodies of iron, brass or Everdur. Strainers, spouts, and all exposed parts brass; nickelplated, Chromium plated or polished, or of white metal.

Waterproofing Provision

Josam Swimming Pool Equipment can be furnished with the Josam positive clamping device, affording absolutely watertight connection between drain and wall or floor construction. All Josam Swimming Pool Equipment used below water line of pools should be specified and ordered *without* weep holes and *with* the Josam positive clamping device to hold waterproofing membrane.

Josam Swimming Pool Equipment

Josam Drains with special feature attachments make ideal swimming pool equipment. Josam Swimming Pool Equip-



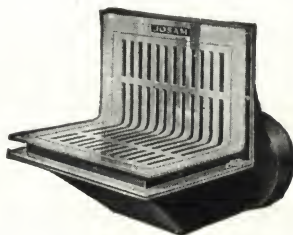
Series 2242-H
Circulating connection with 4-in. square brass adjustable strainer



Series 590-M
Pool outlet connection with 12-in. brass top



Series 2200-E
All-brass scum gutter drain. Shape conforms to narrow course of the gutter. Threaded outlet. Can be furnished with concave top. A larger size scum gutter drain, primarily for use in large outdoor pools, having a 4x12-in. strainer plate and 3-in. female threaded outlet, is a recent addition to our swimming pool scum gutter drain line. This type is indicated as Type 2253



Series 1200
Combination side and bottom pool outlet connection, with reversible outlet. Angular brass frame and clamping device. Brass removable grate



Series 300
Circulating connection with 4-in. square brass adjustable strainer and collar



Series 310-CV
With threaded brass adjustable connection for vacuum hose



Series 320-CF
With brass adjustable fan shaped inlet connection



Series 580-SB
Pool outlet connection with 8x8-in. square brass grate and 10x10-in. square brass frame, in 2, 3, or 4-in. outlet



Series 530-AB
Pool outlet connection with brass top, 10 or 14-in. diameter grate, in 2, 3, 4, 5, 6, or 8-in. outlet



ment is used in the largest and best public and private indoor and outdoor pools. Body of Josam Type 353C having 3-in. pipe connection is adapted to practically any use for circulating inlets, overflow, vacuum connection, drain of walkway or floor surrounding pool, diving board base, etc., by interchanging type of Josam Strainer or attachment. Bodies with 1½, 2 or 4-in. pipe connection to take fittings above described, can be furnished when so specified and ordered. See Manufacturers' Index for this and other Josam Drains applicable to swimming pool use.

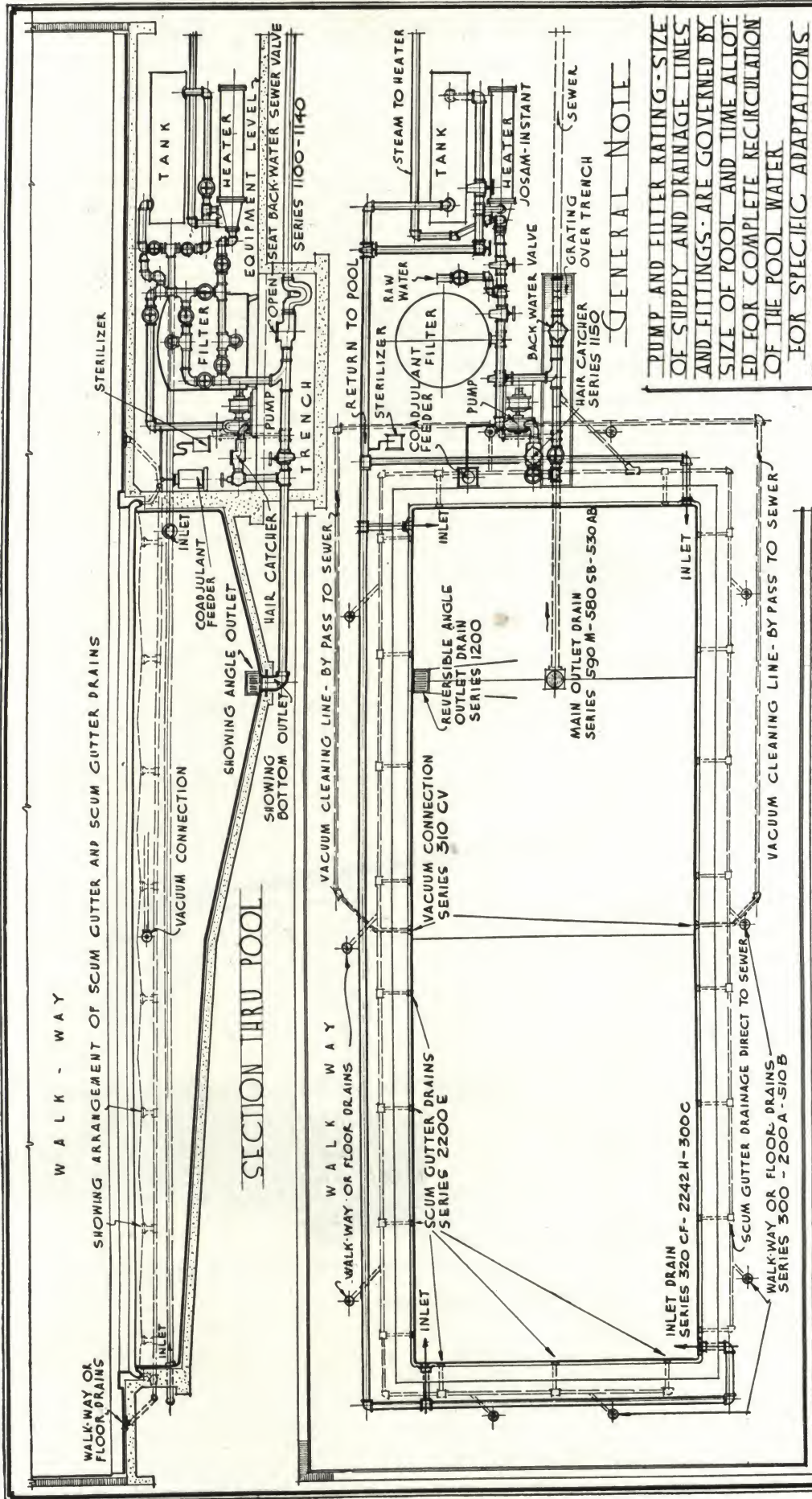
Service, Literature

When requesting information or recommendations consult our Engineering Department at Cleveland, sending sketch of condition to be met. Blue prints and literature on Swimming Pool Equipment will be sent upon request.

Swimming Pools, Josam Products Used Exclusively

CAMDEN, N. J., 3 Pools, Camden County Park Commission, Owners; Arthur B. Gill, Architect, Camden, N. J.
CLINTON, S. C., Pool for College Gymnasium, Presbyterian College, Owners; Tucker & Laxton, Inc., Charlotte, N. C., Contracting Engineers
EAST ST. LOUIS, ILL., Pool and Bathhouse (Colored), East St. Louis Park District, Owner, E. P. Griffin, Engineer, East St. Louis, Ill.
GREENVILLE, MISS., Pool for Club Building, Washington County Y. M. C. A., Owner; H. W. Lathrop, Architect, Greenville, Miss.
JERSEY CITY, N. J., Pool, "Washington Park," Hudson County Park Commission, Owner; Hath & Schumm, Architects and Engineers, Jersey City, N. J.
KEANSBURG, N. J., Outdoor Pool, New Point Comfort Beach Co., Owner; David Ach, New York, N. Y., Architect
MILWAUKEE, WIS., Pool, Walter Johnston, Owner; Van Alyea & Spinti, Architects, Milwaukee, Wis.
NEW ORLEANS, LA., Pool, L. P. Schaff, Owner; Theo. Perrier, Architect, New Orleans, La.
NOBLESVILLE, IND., Pool, City of Noblesville, Ind., Owner; A. W. Brayton, Jr., Architect, Indianapolis, Ind.
NUEVO LAREDO, MEXICO, Pool; Junto Federal DeMejoras Materiales, Engineer
READING, PA., Public Swimming Pool (for children), Reading School District, Owner; Neubling & Mast, Engineers; Alexander Smith, Architect, Reading, Pa.
RYE, N. Y., Pool and Bathhouse, Westchester County Club, Mansuring Island, N. Y., Owner; Kenneth Murchison, New York, N. Y., Architect

Josam Swimming Pool Equipment



GENERAL NOTE

PUMP AND FILTER RATING-SIZE OF SUPPLY AND DRAINAGE LINES AND FITTINGS-ARE GOVERNED BY SIZE OF POOL AND TIME ALLOTTED FOR COMPLETE RECIRCULATION OF THE POOL WATER

FOR SPECIFIC ADAPTATIONS OF JOSAM SWIMMING POOL EQUIPMENT CONSULT OUR ENGINEERING DEPT AT CLEVELAND

PLAN OF POOL

JOSAM SWIMMING POOL EQUIPMENT IS FURNISHED WITH BODIES OF CAST IRON-BRASS OR EVERDUR-STRAINERS-GRATES-INLETS-SPOUTS OR NOZZLES FURNISHED IN BRASS-WITH ALL EXPOSED PARTS NICKEL PLATED-POLISHED-CHROMIUM PLATED OR WHITE METAL-FOR COMPLETE INFORMATION ON SWIMMING POOL EQUIPMENT SEE PAGES 46-47-48-49 JOSAM CATALOGUE 'G'

TYPICAL ARRANGEMENT ~ SHOWING SWIMMING POOL RECIRCULATING SYSTEM ~ JOSAM MANUFACTURING COMPANY ~ ENGINEERING DEPARTMENT ~ CLEVELAND OHIO ~



VAN ARSDALE-HARRIS LUMBER CO., INC.

SOLE MANUFACTURERS OF

"Brandsten" International and Intercollegiate Regulation Springboard Equipment
Fifth and Brannan Streets, SAN FRANCISCO, CALIF.

Products

"BRANDSTEN" INTERNATIONAL and INTERCOLLEGIATE REGULATION SPRINGBOARDS and DIVING PLATFORMS with adjustable fulcrum equipment for high and low diving.

General Information

The "Brandsten" International and Intercollegiate Regulation Springboard was originated and designed by Ernst Brandsten—director of aquatic sports, Leland Stanford Jr. University, and coach of the American diving and swimming teams at the Olympic Games at Antwerp 1920, Paris 1924 and Amsterdam 1928—in collaboration with Van Arsdale-Harris Lumber Co., Inc.

Description

This springboard is a *one-piece board*, 3 in. thick, 20 in. wide, in 14 and 16-ft. lengths, both of which are official, from strictly clear specially selected vertical grain Douglas fir (*pseudotsuga taxifolia*). This board is not built up or laminated, but is one solid piece. It is tapered to conform to regulations, cleated, bored, oil treated and tested and will not warp, swell or shrink. ("Brandsten" International and Intercollegiate Regulation Springboards installed fifteen years ago are still in use.)

This springboard is official according to the rules of the Amateur Athletic Union of the United States and its affiliates, also the National Intercollegiate Athletic Association, the Federation International De Natation and the Amateur Diving Association of Great Britain. It is the only springboard that was used in the Olympic Games, Antwerp 1920, Paris 1924 and Amsterdam 1928.

General Specifications—Fulcrum Equipment

All fittings are malleable iron except flanges. The upper flanges shall be cast iron standard companion flanges. All lower flanges that are set in concrete shall be of brass. All pipes shall be galvanized. All angular joints shall be screwed with full threads.

Springboard to be dried out before being used and given two coats of pure boiled linseed oil. Coco matting runner to cover board with additional cross-runner at end. The springboard is to be of *selected vertical straight grain Douglas fir in one piece*. "Brandsten" International and Intercollegiate Regulation Springboard as manufactured exclusively by VAN ARSDALE-HARRIS LUMBER CO., INC., San Francisco, Calif.



Service to Architects

Complete working details of plans and specifications of springboard and fulcrum equipment for both the 1-meter height from water line, and diving platform with adjustable fulcrum for the 10-ft. height from water line, will be supplied to architects and engineers upon request without charge.

We also furnish on request, free of charge, drawings of typical contours of swimming pools showing necessary dimensions and designs to meet conditions for indoor (both upper and lower floors) outdoor, high school, athletic clubs, and three-unit systems for universities or municipalities; all designed by Albert C. White, M.E., C.E., world champion diver, Olympic Games, Paris 1924.

The efficiency and consequent popularity of this "Brandsten" Springboard has encouraged others to manufacture springboards and to market them under similar and misleading names in imitation of the name under which we have marketed this "Brandsten" Springboard for many years. We make this fact known in the interest of maintaining the high standard of achievements accomplished on the "Brandsten" International and Intercollegiate Regulation Springboard.

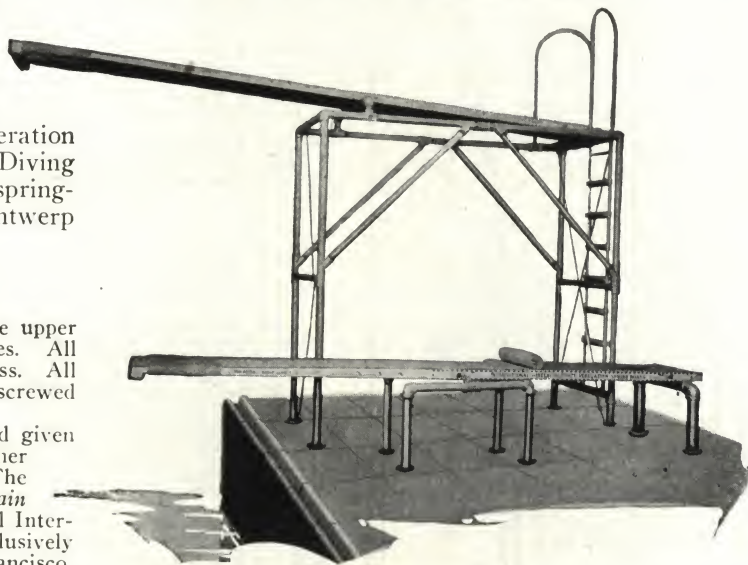
We have no agents or representatives. All units of this equipment carried in stock at our San Francisco plant for immediate shipment.

Catalogue

Write or wire for complete catalogue and detailed drawings covering all official equipment.

Additional Services and Products

VAN ARSDALE-HARRIS LUMBER CO., INC., established in 1888, are lumber technicians. Springboard manufacture is only one of many operations. High grade Pacific coast lumber of every variety and size stocked for immediate delivery.



International and Intercollegiate Regulation Springboards

A Few Prominent Installations

More than twenty-five hundred of our springboards are in use all over the world. A few prominent installations follow:

Universities

Yale
Princeton
Harvard
Pennsylvania
Columbia
U. S. Military Academy
U. S. Naval Academy
Dartmouth
Syracuse
New York

Athletic Clubs

Olympic Club, San Francisco
New York Athletic Club
Westchester-Biltmore Country, Rye, N. Y.
Buffalo Athletic Club
Palm Beach
Bath and Tennis Club
Detroit Athletic Club
Toledo Club
Hollywood Athletic Club
Omaha Athletic Club

Hotels

Hotel Del Monte, Monterey
Sovereign Hotel, Chicago
Ambassador Hotel, Los Angeles
Webster Hall Hotel, Detroit
Yosemite Park, California
Battle Creek Sanitarium
Feather River Inn
Fairmont Hotel, San Francisco
Hotel Flanders
White Sulphur Springs

Amusement Parks

Fleishhacker Pool, San Francisco
Rouge Park Swimming Pool, Detroit
Messina Transvalle Development Co., Loureance
Marques, Messina, South Africa
Kennywood Park, Pittsburgh
Castle Baths, Long Beach, N. Y.
Broad Ripple Pool, Indianapolis
Temple Terrace Casino, Tampa
Rock Point Amusement Park, New York
Capital Beach, Lincoln
Boulevard Recreation Co., Philadelphia

THE PARADON COMPANY

Chlorinators for Water, Sewage and Swimming Pools; Ammoniators, Dry Chemical Feeders, etc.

572 Elm Street, ARLINGTON, N. J.

ALBANY	PHILADELPHIA	DISTRICT OFFICES CHICAGO	PITTSBURGH	NEW YORK	ATLANTA
DENVER DETROIT TULSA	SEATTLE SAN FRANCISCO LOS ANGELES	REPRESENTATIVES AT MINNEAPOLIS OMAHA CHARLESTON	BUFFALO HOUSTON JACKSONVILLE	NEW ORLEANS ALBUQUERQUE MEMPHIS	
OTTAWA	IN CANADA: THE GENERAL SUPPLY COMPANY OF CANADA, LTD.				MONCTON
	TORONTO		MONTREAL		

Products

CHLORINATORS for the Purification of Water, Sewage and Swimming Pools, also for Slime Removal for Paper Mills, Condensers, etc., for Decolorization, Deodorization, Algae Control, Coagulation Control, Oyster Purification, Bottle Washer Purification and other Sanitary and Industrial uses.

COMPLETE SWIMMING POOL RECIRCULATING SYSTEMS.

DRY CHEMICAL FEEDERS for the Application of Alum, Soda Ash, Lime, etc.

AMMONIATORS for the Application of Ammonia in the Purification of Water, Sewage, Swimming Pools, etc.

Also Chlorinating Boats for Bathing Beaches and Reservoirs.

Swimming Pool Chlorination

Sanitation is the most important phase of swimming pool operation. Every bather introduces pollution. Efficient chlorination eliminates the dangers resulting from this pollution. The cost is trifling, only about 5 cents daily for the average swimming pool of 50,000-gal. capacity. Chlorination has been endorsed by the Swimming Pool Committee of the American Public Health Association as the most efficient method.

Chlorination is just as necessary with filtration as without filtration. Its purpose is to destroy harmful bacteria. There is no other known agent that will accomplish this result so efficiently and so inexpensively.

The amount of chlorine required for swimming pools is small. It in no way affects the physical characteristics of the water. The water tastes the same and looks the same after chlorination as before. *Over two thousand swimming pools now use chlorination.*

Water Supply and Sewage Chlorination

Chlorine is universally used in the United States for the sterilization of drinking water supplies. It is applicable not only for water supplies in large cities but also for small supplies, as for institutions, country clubs, estates, etc. A slightly smaller dosage is required than for swimming pools, but the same principles and the same apparatus are used.

Likewise the chlorination of sewage presents the same problem. The use of chlorine in the sewage field is becoming widespread. It is particularly adaptable to small sewage plants, such as those for institutions, hospitals, country estates, country clubs, etc., as the cost in this instance is very low and the chlorine can be used not only as a disinfecting agent but also as a partial oxidizing agent to remove odors and prevent subsequent nuisance.

Paradon Chlorinators

There is a Paradon Chlorinator for every type of swimming pool, water supply and sewage plant. For large water supplies, large outdoor swimming pools, and medium and large capacity sewage plants we recommend the Paradon DB Series chlorinator. For medium capacity water supplies, medium size swimming pools and small capacity sewage plants, our D Series chlorinator is applicable.

The Paradon Chlorinizer is recommended for small water supplies, swimming pools and sewage plants as those of clubs, estates, institutions.

All Paradon Chlorinators are simple and foolproof. They have anywhere from one-third to one-sixth as many parts as any comparable type machine. All parts are sturdily constructed. All parts are easily accessible. They look the part they play—equipment for promoting sanitation.

Paradon

CHLORINATORS

for
*City and Private Water and Sewage Systems,
Industrial Plants and Swimming Pools.*

Over 1400 Paradon Chlorinators in Service

Paradon Chlorinating Scale.

All of our DB and D type chlorinators may be mounted on a platform scale, giving a handsome combined chlorinator and scale in one unit; and the price of the combination is the same as the price of the individual chlorinator and the individual scale.

The Paradon Chlorinizer

The Chlorinizer applies prepared chlorine solution (not compressed chlorine gas). It is designed to meet a heretofore unsolved problem—the chlorination of very small water supplies, as those of estates, country clubs, institutions, schools, etc.

The smaller the flow to be chlorinated, the better adapted is the Chlorinizer. It is also applicable to small swimming pools and small sewage plants.

The Chlorinizer has no moving parts. It is entirely hydraulic in operation. It is ideal for automatic start and stop operation. It can be used for the application of other chemicals in small amounts, as copper sulphate, acids, etc.

The Paradon Portable Chlorinator

The Paradon Type P Portable Chlorinator is a standard Paradon Chlorinator mounted in a handsome fibre carrier. It is in every way interchangeable with a permanent chlorinator yet can be carried around like a piece of hand luggage. Its use is ideal for main sterilization, emergency use, pre-chlorination, as a standby unit for the permanent chlorinator, and any of the score of uses that chlorine is now adaptable to in the field of sanitation.

The Paradon Ammoniator

Ammonia is now being used to aid in the purification of water, especially as regards preventing phenol and other tastes. It permits much larger dosages of chlorine. Accurate control of the ammonia is essential. The Paradon Ammoniator is designed for accurately applying anhydrous ammonia. It is made in a wide range of capacities. It is especially designed for swimming pool purification.

The Paradon Type XL Dry Chemical Feeder

The XL Dry Chemical Feeder is for the application of alum, soda ash, lime, sulphate of iron and other chemicals used in water purification. It is very sturdily constructed and is simple both in design and in operation. It will apply any pulverized chemical or material with extreme accuracy. It has 16 years experience behind it in the design of equipment for the application of dry chemicals.

Specifications for a Typical Paradon Chlorinator

- (1) **Capacity**—The chlorinating apparatus shall have a capacity for chlorinating a rate of flow of (give number) gallons per 24 hours (state whether water, sewage, or what).
- (2) **Details of Construction**—The apparatus shall be mounted on an enameled pedestal. All parts shall be interchangeable. It shall be constructed of materials which will withstand the effects of chlorine gas.
- (3) **Accuracy**—The chlorinator shall be provided with an indicating meter which shall indicate at all times the flow of chlorine to an accuracy of within 4%. The chlorine meter shall be entirely hydraulic in its operation.
- (4) **Guarantee**—The chlorinating apparatus is to be constructed of high class material and first class workmanship. All exposed metal parts shall be polished. The apparatus shall be guaranteed for a period of one year from date of shipment against inherent mechanical defects and the manufacturer shall be required to replace without charge all parts that prove defective within that period.

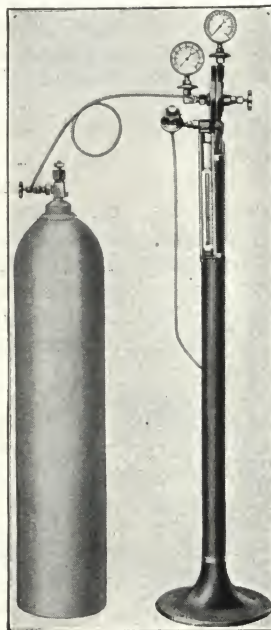
Service

Our personnel has had many years' experience in the design and construction of chlorinators.

If you have any problem involving the application of chlorine we would be glad to help you solve it, if you will send us the following data:

Maximum rate of flow per 24 hours. Advise if water, sewage or swimming pool. If a swimming pool, merely give approximate capacity of the pool in gallons.

Send for our bulletins, advising if interested in water, sewage or swimming pool chlorination, ammoniators, dry chemical feeders, etc.



Standard Paradon Type
DBM Chlorinator

EVERSON FILTER CO.

Manufacturers and Builders of Swimming Pools

LONG DISTANCE TELEPHONE
CHICAGO, HAYMARKET 7005

640 North Green Street
CHICAGO, U. S. A.

Products

WATER RECIRCULATING, FILTERING and STERILIZING SYSTEMS for swimming pools; JEWELL ELECTRIC CHLORINATORS; JEWELL ELECTRIC OZONATORS; FEROXITE (non-chemical) COAGULATORS; SWEET'S UNDERWATER LIGHTS; AUTOMATICALLY CONTROLLED WATER SOFTENERS for swimming pools; SUCTION POOL CLEANER, built-in and portable; CORAMETAL (non-tarnishing) POOL FITTINGS; COMPLETE SWIMMING POOLS, design and construction; POOL EQUIPMENT.

Also Filters for all purposes; Water Softeners; Water Coolers; Electric Display Fountains.

Swimming Pool Experience

For over 25 years, leaders in swimming pool development and construction. Creators of the Everson Recirculating System which fulfills all requirements of all National, State and municipal boards of health and assures clear water of drinking purity at all times. Our staff is made up of a co-ordinated group of experts, each a specialist in his phase of swimming pool design, construction and sanitation.

Service to Architects

Advisory and consulting service given to architects without charge or obligation. Detailed information, drawings, specifications and estimates are gladly furnished for complete pools or any part thereof. Feel free to use this service on any contemplated job. Just send us: (1) the capacity of the pool, in gallons, (2) the rate of turnover desired, and (3) space limitations; and we will promptly work out and send you: drawings, detailed specifications and cost information for a Recirculating, Filtering and Sterilizing Equipment that will fulfill the most rigid health requirements. This service is absolutely free to licensed architects and engineers. It obligates you in no way.

How to Use Information in This Catalogue

The mechanical drawing at the bottom of this page, and the typical specification given on Everson page 8, describe the equipment recommended for any 100,000-gal. pool (see plan of typical 100,000-gal. pool on page following). You can quickly figure requirements for proper filtration and sterilization of water in any pool. Units of $\frac{1}{2}$, $1\frac{1}{2}$ and 2 times the capacity of those shown and specified for the typical 100,000-gal. pool are available as standard Everson equipment. Example: for pool of approximately 50,000-gal. capacity, specify an identical system, composed of units, each of one-half the capacity of those specified for 100,000-gal.



pool; for 150,000-gal. pool, multiply capacities of all units by $1\frac{1}{2}$, etc.

Note: If you will send us size and (or) capacity of your prospective pool, we will forward specifications all filled in, with sizes and capacities of equipment to meet Local, State and Government Health Department requirements.

Everson Re-circulating System

The water of the pool is continuously being purified by this system. It is always germ-free and crystal-clear. With this system it is not necessary to shut down the pool every few days for cleaning and replenishing with heated water. This saving alone often pays the cost of the Everson System within a period of one year. The operation of this system is as follows:

Motor driven pumps draw the water from the pool through the "Outlet Fittings" and "Strainer." At this point the sterilizing solution is fed into the line. The pump then forces the sterile water through the "Filters" and "Heater" and back into the pool through the "Inlet Fittings." This method keeps the filter beds always in a sterile condition, preventing bacterial growth in the filters where the sediment is caught.

Filtering Equipment for Pools

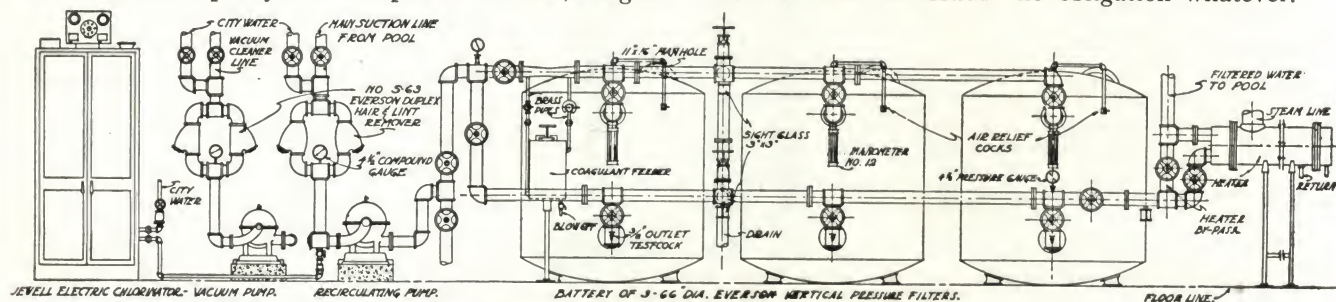
The Everson Filtering-Clarifying-Purifying System removes all sediment, keeps water germ-free, crystal-clear and pure. The Everson System is sold complete and installed (as shown at the bottom of this page) or the following units can be bought separately.

Filters	Underwater Lights
Sterilizers	Hair and Lint Catchers
Pumps and Motors	Inlet fittings
Heaters	Main drain fittings
Vacuum Cleaners	Gutter drain fittings
Ozonators	Floor drain fittings
Chlorinators	Aerating Nozzles
Coagulators	Automatic Water Softeners

New Developments and Free Bulletins

The Everson Laboratories and engineers are constantly working out new and better methods and equipment for building and operating swimming pools. At the present time, for example, final working tests are being made on a non-chemical coagulator, on a moderately priced electric ozonator and other revolutionary units and devices. The Jewell Electric Chlorinator (page following) is a typical new Everson product. For twenty-five years Everson has been a leader in the development of equipment and is farther in advance today than ever.

To acquaint architects and pool builders with this new equipment as it is perfected, numerous informative bulletins are issued from time to time. These bulletins are sent free, upon request. That you may keep up-to-the-minute on swimming pool equipment, write and have your name put on the mailing list to receive them as issued—no obligation whatever.



Standard Everson Filtering and Sterilizing System for 100,000-gal. Pool

Continued on next page

Jewell Electric Chlorinator

A new and better method of supplying chlorine to pool water, developed by Wm. M. Jewell, Chief Engineer, Development Branch, Everson Filter Co.

Chlorine is now the most widely used agent for disinfecting swimming pool water. Heretofore, it has been introduced into the system either in the form of a powder, liquid or gas. All of these forms have certain objectional features. The most common practice is the use of drums of chlorine gas, liquefied under extreme pressure, sterilization being effected by applying chlorine gas to the water as it passes from the filter to the pool.

The presence of the high pressure tanks and the activity of this gas, create a constant menace in the danger of gas escapement from drums, valves, or the line. The flow of gas cannot be readily regulated, with accuracy, to meet ever-changing requirements—with the result that pools are frequently understerilized, or are overcharged, which produces an acid condition of the water. Chlorine in drums is comparatively expensive and sources of supply are far between. The extra drum, which must be kept on hand to insure continuous operation, increases the "dead" investment while carting and shipping of drums adds to operation cost.

The Jewell Electric Chlorinator overcomes all of these objections. It consists of a series of electrolytic cells, a saturator, an absorber and a motor generator set, assembled as a single unit in a standard steel cabinet. The sterilizing solution is produced by electro-chemical action in a battery of small cells from common salt and water. The products of this action are pure chlorine gas and a soda solution. The chlorine can be drawn off and used in the usual way where preferred. However, its use with the soda solution is recommended.

Operation under this method is as follows:

The chlorine gas passes to an absorber where it unites with the inflowing water, producing a pure chlorine gas solution which, together with the soda, is continuously delivered to the recirculating system of the pool. The chlorine serves as the sterilizing agent, while the soda solution preserves the alkalinity of the water.

Advantages of This System of Chlorination

(a) *Nothing needed but ordinary salt (rock salt), water and electricity.* There are no expensive chemicals to buy from distant sources. No stock of chemicals to deteriorate.

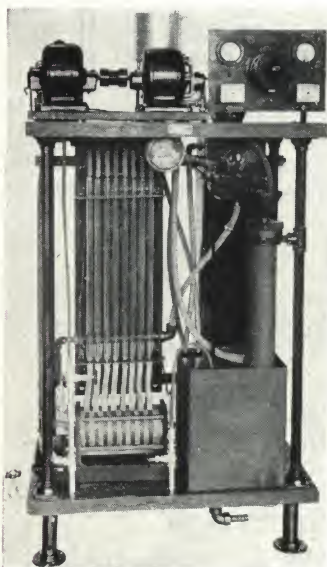
(b) *No pressure tanks.* None of the dangers that come from storing chlorine. Chlorine is made only as used.

(c) *No disagreeable chlorine tastes or odors.* Water does not become acid and cause smarting eyes and skin.

(d) *Complete sterilization in all parts of the pool.*

Chlorine introduced in this manner retains its germicidal properties in the pool. After bacteria and organic matter are destroyed by oxidation, the only substance remaining in the water is common salt.

(e) *Low operating cost.* The cost of operation, (electricity, salt and water), for the average pool is approximately \$35.00 per year.



Jewell Electric Chlorinator

Patent Applied For
For recommended hook-up see mechanical drawing at bottom of Everson page 1

(f) *Accurate and reliable control.* The amount of chlorine manufactured is definitely determined by the amount of electricity fed to the unit. This is easily and accurately controlled by a rheostat.

(g) *Upkeep cost minimized.* The diaphragms of cells are the only part of the equipment that are "used up." These can be quickly and easily replaced.

Installation Suggestions

When planning for the installation of a Jewell Electric Chlorinator, the following points should be observed in connection with the general layout:

(A) Provide floor drain near proposed location of equipment.

(B) Provide an open air vent above equipment.

(C) An electric outlet of about 5 amperes capacity near by.

(D) A valved 3/4-in. city water service line.

Desirable Location for the Chlorinator

If at all possible, the chlorinator should be located above the level of the pool so that the disinfectant will feed to the pool supply, receiving well or pump suction line by gravity. It should be located in a dry place to insure efficient operation.

For the proper functioning of electrical instruments, dry air is advisable; therefore, if it is necessary to install the chlorinator in the filter room, suitable drains and proper ventilation are prime factors.

It is considered good psychology to place this equipment behind a glass door or window so it can be seen by the patrons of the pool. They will stop and examine any such device which is in sight, and its presence will give added confidence in the sanitary condition of the pool.

If the equipment cannot be located above the level of the pool, it may be placed at any convenient place below the inlet lines. In such case, however, it is necessary to have an ejector connected with a 1/2 in. high pressure city service line.

Specification for Jewell Electric Chlorinator

The contractor shall furnish one Jewell Electric Chlorinator as manufactured by the EVERSON FILTER Co., Chicago.

Equipment to be capable of treating the pool water during circulation at a maximum rate of one part per million of chlorine gas (99 per cent pure) by weight or less as may be required.

The equipment shall include an Electrolytic Cell, gas type; AC to DC Generator Set; Chlorine Absorber; Chlorine Solution Feed Tank; Brine Saturator; Automatic Float and Feed Control.

The equipment is assembled as a complete unit on a framework for installation.

Guarantee

We guarantee the "Jewell" Electric Chlorinator:

To deliver at its outlet, water in a condition of sterility to be acceptable to all local, State and Federal boards of health for drinking (or swimming pool) water; and to maintain a chlorine residue of not less than .2 parts nor more than .5 parts per million parts of water when installed in a recirculation system.

We also guarantee the chlorinator parts for a period of three years' service, and should any parts require replacement, full credit will be allowed pro-rata for unexpired time.

REQUIREMENTS FOR POOLS OF DIFFERENT CAPACITIES

Unit size No.	Pool capacity, gal.	Circulation 8 hr. turnover, gal. per min.	Chlorine production, lb.		Salt reqd. per 8 hr turnover, lb.	A-c., wiring, amp.	D-c., watt hr.
			Per 8 hr.	Per 24 hr.			
1	40,000	85	0.34	1.0	1.5	3	60
2	60,000	125	0.50	1.5	2.0	4	85
3	80,000	170	0.68	2.0	2.5	5	120
4	100,000	210	0.84	2.5	3.5	6	150
5	150,000	312	1.26	3.8	5.0	8	230
6	200,000	416	1.68	5.0	6.8	10	300
7	300,000	625	2.52	7.5	10.0	12	450
8	500,000	1000	4.20	12.6	17.0	20	750
9	750,000	1500	6.30	18.9	25.0	30	1150
10	1,000,000	2000	8.40	25.2	34.0	40	1500
11	1,500,000	3000	12.60	37.8	50.0	60	2250
12	2,000,000	4000	16.80	50.4	67.0	100	3000

Above ratings are based on usual maximum requirements of 8.5 lb. chlorine per million gallons of water or the equivalent to 1 part per million by weight.

Sweet's Underwater Lights

Sweet's Underwater Lights, which were introduced by Everson last year, have revolutionized swimming pool lighting practice. Sweet's Lights, developed by Arthur J. Sweet, internationally known illuminating engineer, are scientifically designed units that fit into the walls of a pool below the water line, and convert the pool water into a mass of non-glaring, non-shimmering, evenly diffused radiance. In a pool so lighted, swimmers appear to be suspended in a flood of light—are always fully visible. Every detail of each swimmer's form and stroke is easily noted and studied from the pool side. Sweet's Lights materially assist swimming instruction and add much to water contests and events and to pool parties. The use of colored globes, caps or lenses adds to the innumerable modern lighting effects these units permit. In many pools they have entirely replaced old-fashioned glaring and shimmering overhead illumination.

Mechanical Features of Sweet's Lights

Sweet's Lights fit into a square, 13 $\frac{3}{4}$ in. opening in the wall at points that will bring the centers of the lights 19 in. below the water line. The frame is of non-tarnishing Cora Metal. Light enters pool through a double glass front—prismed to give even diffusion, at an angle that compensates for refraction. Units are permanently set in the wall, are held by four tie-rods, are water-tight. Adjustable reflector, behind each light, permits directing to compensate for varying depths and contours of pool bottom. Serviced at any time from the rear. Suitable for large or small indoor and outdoor pools.

Specifications Covering Sweet's Underwater Lights

Each Sweet's Unit has a lighting surface of 144 sq. in.; uses only lamps of 1000-hour rating—500, 750

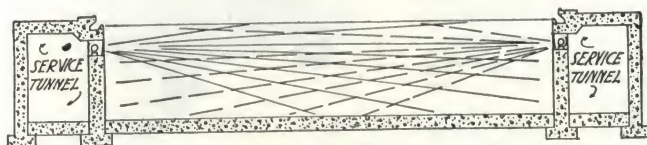
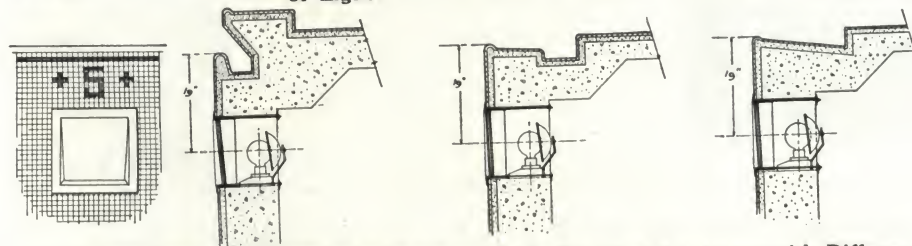
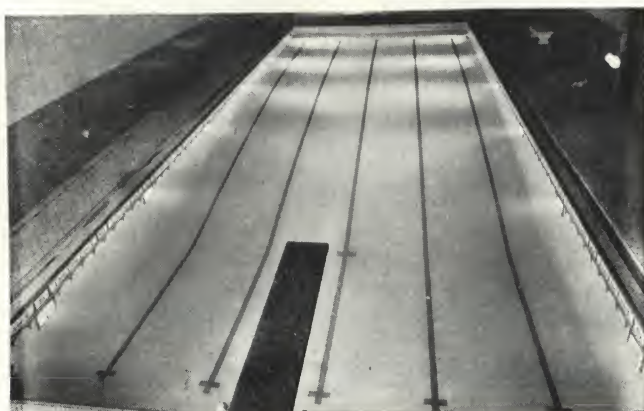


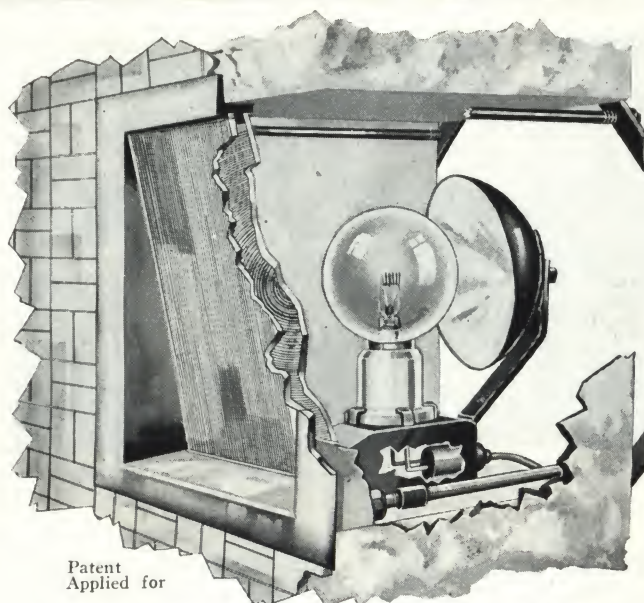
Diagram of Cross Section of Pool, Showing Even Diffusion of Light



Typical Installations of Sweet's Underwater Lights Showing Placement with Different Gutter Contours



Sub-water Illumination at North Shore School of Physical Education—Sweet's Underwater Lights—Evanston, Ill.



Phantom View of Sweet's Underwater Light, Installed

or 1000-watt capacities. The two 12-in. square lenses diffuse the light evenly, projecting a soft, glareless, fan-shaped beam which reaches out toward the other side and sideways until it fuses with the opposite and adjacent beams producing a solid blanket of light.

Sweet's Lights were chosen for the world's largest underwater lighted pool. This installation, requiring 48 units, was made by the EVERSON FILTER Co. at the St. George Hotel Pool, Brooklyn, N. Y.

Installation

Sweet's Underwater Light Units are furnished and installed according to the instructions of the EVERSON FILTER Co. The EVERSON FILTER Co. furnishes forms 13 $\frac{3}{4}$ in. square to be set in the concrete walls before the concrete is poured, in accordance with the plans.

Forms should be left in the concrete walls until tiling of the interior of the pool is completed flush and true with the form. All sides of the opening should be made smooth and true, after the removal of the forms.

Specifications

Standard Specifications for Sweet's Underwater Lights are given on Everson Page 8 of this catalogue—paragraphs 41 to 45, inclusive.

For installations in steel tanks, write for special drawings and specifications.

Note to Architect: While the Standard Specifications for Sweet's Underwater Lights call for units spaced on 5 ft. centers, good results can be obtained even though they are spaced on 10 ft. centers.



Night View of Outdoor Pool on Estate of General Roy D. Keehn, Lake Forest, Ill.—Sweet's Underwater Lights



Everson Pool at the Home of Ben Marshall, Wilmette, Ill.

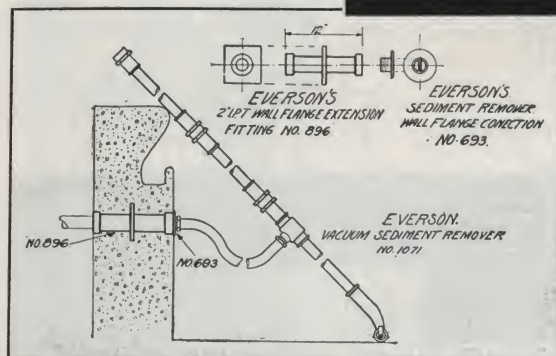
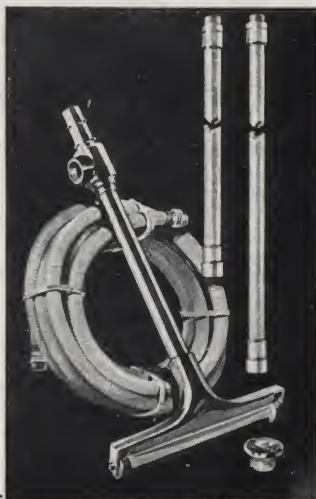


Everson Pool on Estate of A. D. Lasker, West Lake Forest, Ill.

Everson Suction Pool Cleaner Tools No. 1071

The Everson Pool Cleaners operate much like the ordinary domestic vacuum cleaners, except that the dirt carrying agent is water instead of air. They are used to remove the sediment which settles on the floor and walls of the pool overnight. The standard Everson Pool Cleaner is designed to operate in connection with a recirculating system but can be used on all types of swimming pools, provided, of course, that motor driven pump be installed. The Everson Pool Cleaner provides the final step in keeping a glistening, absolutely clean pool. It consists of a 15 in. nozzle supported by two rubber tired wheels, a connecting hose and pipe handle. Over the nozzle fits a removable bristle brush which is in contact with the floor while in use. The total length of cleaner and handle is 16 ft.

In planning a swimming pool, provision should be made for installation of cleaner fittings in the pool wall. While the pump of the recirculating system is ordinarily used, dirt drawn through this cleaner should not be piped back through the system, but should be directed to the sewer.



Specifications for Everson (Installed) Pool Cleaner

One Everson Suction Pool Cleaner, complete, No. 1071, polished brass—to include one 50-ft. length special vacuum rubber hose fitted on both ends with swivel hose couplings (No. 692) securely bound with copper wire; one 15 in. suction tool (No. 704) with 36 in. handle having a swivel-T connection to maintain renewable bristle brush (No. 687) squarely on bottom of tank during cleaning operation; one 6-ft. extension handle (No. 691-F) and one 7-ft. handle (No. 691-M) to give total length of 16 ft. to Pool Cleaner; two 2 in. rubber-tired guide wheels (No. 702) to facilitate movement of nozzle

over floor of pool; two Cora Metal wall flanges (No. 693) for 2 in. iron pipe connection.

Everson Portable Pool Cleaners and Tools No. L144 (Without Tools No. L143)

The Everson Portable Pool Cleaner is a complete, self-contained wall and floor cleaning system. It is recommended for pools which were constructed without provision for the standard (installed) Everson Suction Pool Cleaners described opposite. With an Everson Portable, all sediment can be removed from the walls and sides of a pool without draining. It consists of motor and pump, mounted on a truck, connecting hose, nozzle, brush and handle.



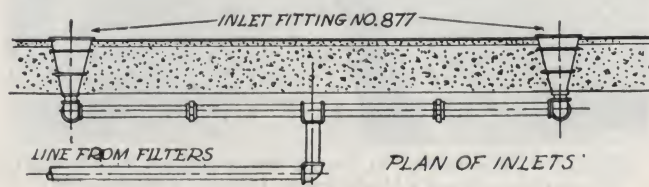
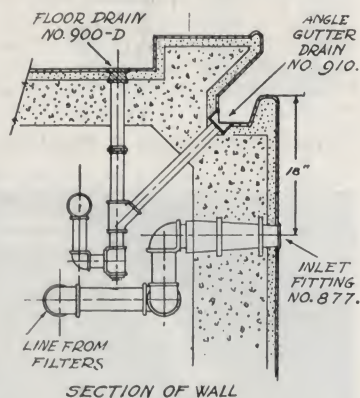
Everson Recirculating Fittings

Everson Recirculating Fittings are designed to be built into the pool. Bodies of these fittings are of one piece. Both bodies and face plates are cast of a non-rusting, non-tarnishing, silver-colored alloy—Cora Metal. (Also made of double galvanized cast iron with Cora Metal face plates.)

Designs are carefully worked out to give maximum efficiency with minimum pipe work.

Once installed, Everson Fittings are permanently installed. They are troubleproof, will last the life of the pool.

There are many types and sizes of Everson Fittings, including: inlet fittings, standard and ornamental; floor drains, main drains, gutter drains, cleaner fittings, spray and fountain fittings. Some of the most popular fittings are shown on the following page.

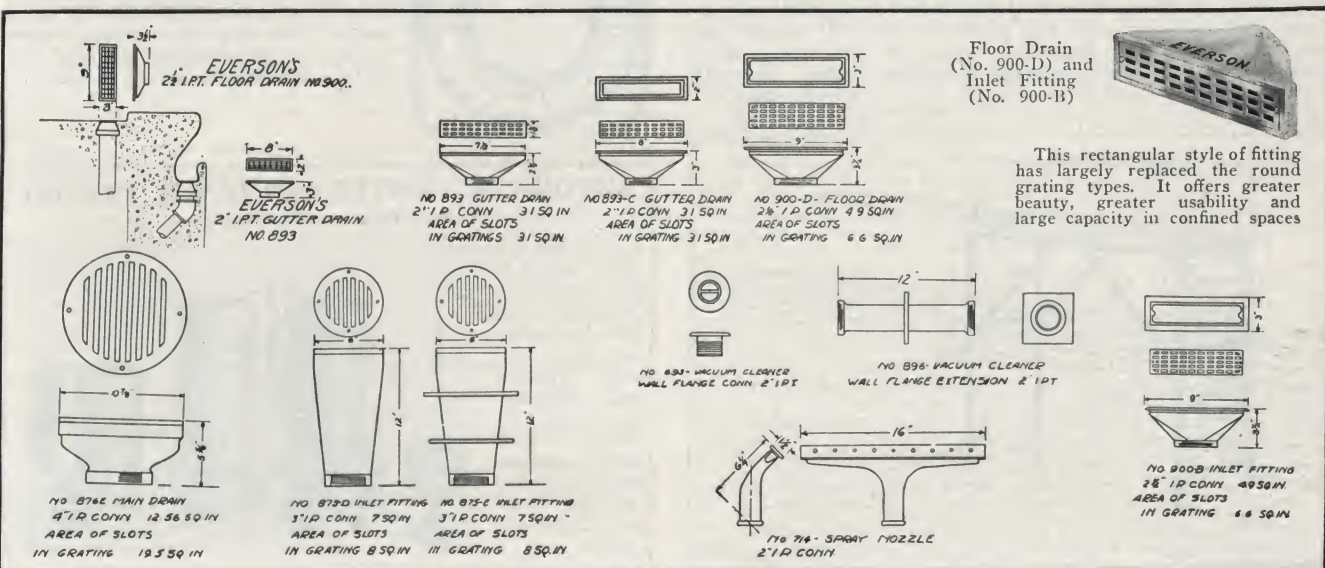
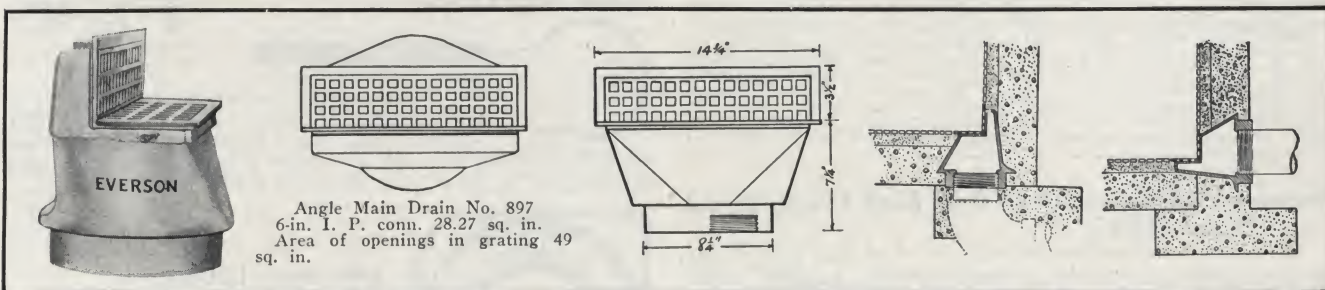
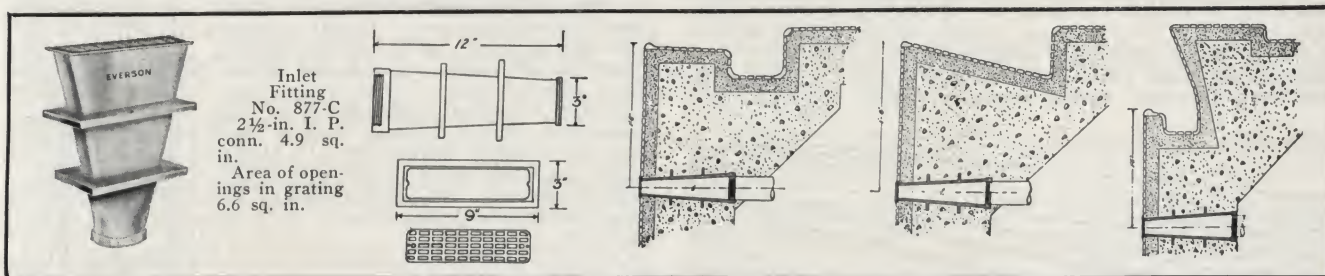
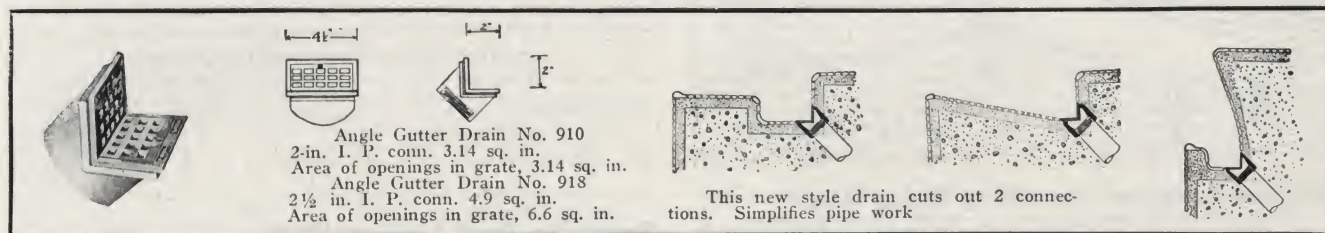
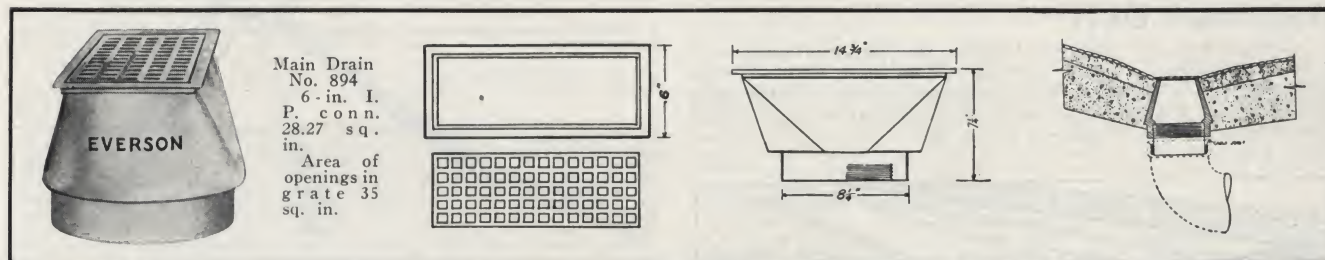


Everson Cora Metal Swimming Pool Fittings

Cora Metal is a non-rusting alloy. It has a deep silver color and takes a high permanent polish. Cora Metal fittings do not tarnish.

If under water the face plates become clouded, the

film will wipe off with a brush of the hand. Cora Metal fittings are cast in one piece with removable face plates, and are made in all practical sizes and shapes.

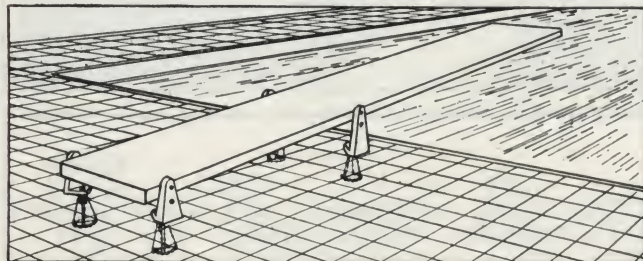


Everson Swimming Pool Equipment

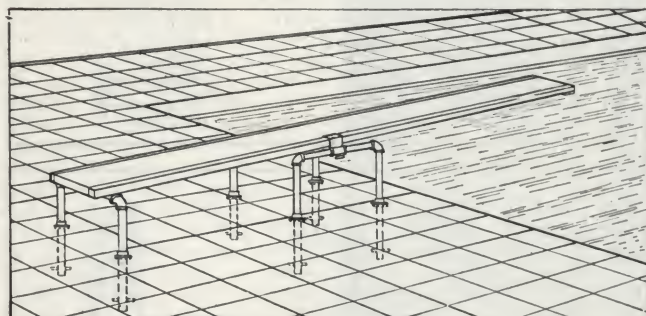
Everson Equipment adds to the popularity of any swimming pool for each piece is exactly suited to its purpose. You will find this equipment carefully designed, accurately made and of fine materials. It will give long, dependable service. Only the most essential pieces of equipment are shown here.

Diving Board EH-11

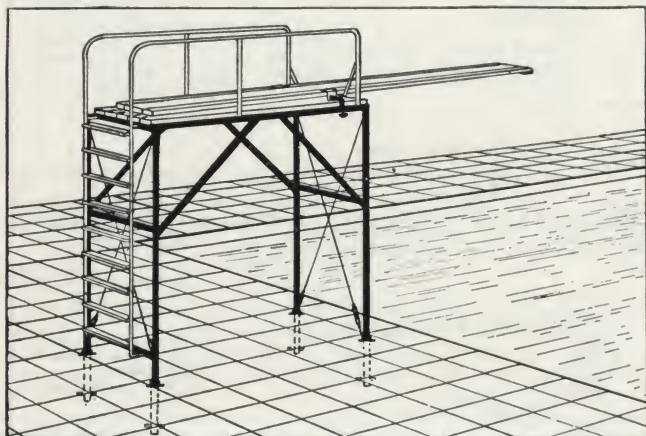
Constructed of selected boards, doweled, battened and fitted, dimensions: 12 ft. 0 in. x 22 in., thickness tapered from 2 in. rear to 1½ in. at tip, full cocoa mat covered. Removable, by taking out 4 brass stud bolts. Inset anchors do not project above floor surface. Noiseless "whip up."

**National Collegiate Regulation Diving Board**

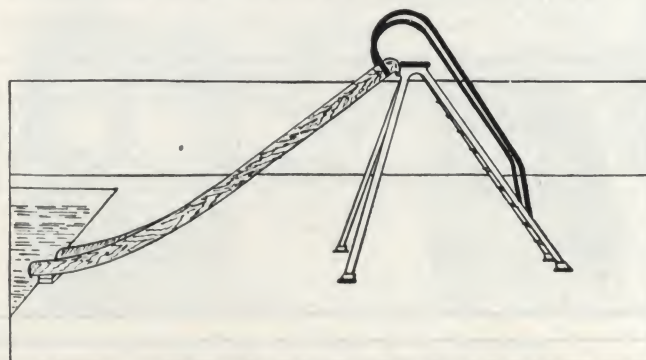
Complies with specifications of N. C. A. A. and A. A. U. of U. S. Built of selected vertical straight grained wood, one-piece, 14 ft. 0 in. x 20 in. or 14 ft. 0 in. x 18 in. with strip cocoa mat cover. Taper, from 3 in. at rear to 1½ in. at tip. Fittings, galvanized malleable iron, except lower base flanges, which are brass and set flush in floor. Fitted with adjustable fulcrum. Entire apparatus readily removed.

**Improved Regulation 10 ft. 0 in. High Diving Board Stand EH-15**

Complies with specifications of N. C. A. A. and A. A. U. of U. S. Built of selected vertical straight grained wood, one piece. Tapers from 3 in. at rear to 1½ in. at tip, 16 ft. 0 in. long, by 20 in. wide or 18 in. strip cocoa mat covered. Stand built of steel pipe and malleable iron, all heavily galvanized. Ladder of improved type with hardwood safety treads. Entire apparatus easily removed, intact. Properly installed, tip of board is exactly 10 ft. 0 in. above water.

**Natorium Slides EH-1-2-3**

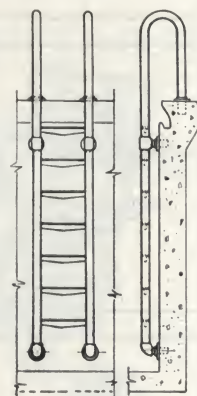
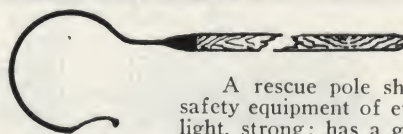
For either indoor or outdoor use. Stairs and chute sides of selected hardwood, all else of heavily galvanized steel. Provision for bolting to concrete, tile or wood flooring.

**DIMENSIONS OF NATATORIUM SLIDES**

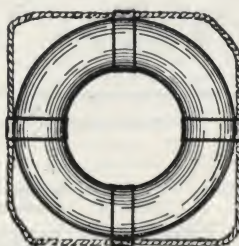
Chute length, ft.	Platform height, ft.	Outside width of chute, in.	Over-all length, ft.	Extreme width, ft.
15	7	22	18	4
24	12	22	28	6
30	15	22	35	10

Swimming Pool Ladders SP-20

Substantially built with 1½ in. pipe risers and wall anchors. Treads of cast Cora Metal, broad with rounded edges, supported full length. Guards rise 36 in. above edge of pool. Risers 4 in. from pool side. Anchors imbedded 6 in. in concrete or tile. Treads, 3x18x¾ in. Extreme width of ladder, 22 in. Metal parts, either all brass or all galvanized steel, as desired. Specified according to water depth, for depths of 4, 5, 6, 7, 8, and 9 ft.

**Rescue Pole EC-35**

A rescue pole should be included in the safety equipment of every pool. The EC-35 is light, strong; has a galvanized shepherd hook securely fastened to a 14 ft. spruce pole. For safety's sake, include one of these poles in every pool's equipment.

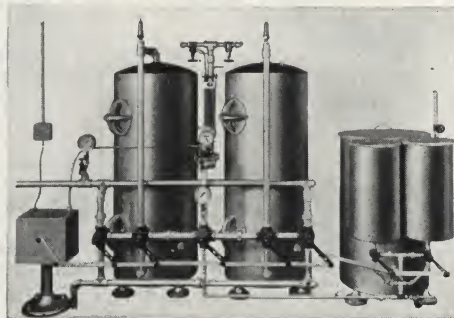
**Life Buoy EH-30**

It's sound insurance to have a few life buoys in full view in every pool. This buoy is made of sheet cork, is exceptionally strong and safe. Outside diameter, 30 in.

AUTOMATIC WATER SOFTENER HOF-107

A New Everson Development

Write for full details of this new Everson Unit that keeps water at a definite degree of "softness" automatically. A new and remarkable product of the Everson Laboratories.



Plumbing Specifications Covering All Mechanical Equipment for 30 ft. by 75 ft. Swimming Pool (100,000 Gal. Capacity, 8-Hour Turnover)

Note: If you will send size and (or) capacity of your prospective pool, we will forward specifications all filled in, with sizes and capacities of equipment to meet local, State and Government health department requirements.

General—(1) The following specifications cover the equipment and material required for properly delivering, recirculating, filtering, heating, sterilizing and draining the water supply of a 30x75-ft. pool.

(2) This Contractor shall refer to the plans and note the location of all equipment, drains, valves and various fittings, which are covered by these specifications.

(3) The architect reserves the right to make such changes in the location of equipment or material, as may improve the system without adding material cost.

Drawings, Guarantees and Supervision—(4) This Contractor hereby agrees that the various pieces of equipment comprising this swimming pool system, namely the hair and lint catcher, the recirculating pump and motor, the filters, the heater, the sterilizer, the vacuum pool cleaner and special fittings shall be furnished by one manufacturer, as EVERSON FILTER CO., 647 No. Green Street, Chicago, Ill. This manufacturer must be willing to furnishing the drawings indicating runs of pipe, location of equipment, valves and fittings and also manner of connection. Also, this manufacturing company must guarantee that all pieces of equipment furnished are of proper capacity and design to co-ordinate one with the other, and that if this equipment is installed according to its layouts, and operated according to its instructions, the water in the pool will be kept bright and clear, free from turbidity and of a degree of purity acceptable to the State Board of Health.

Filters—(5) This Contractor shall furnish and install, as indicated on plans, three 66-in. diameter vertical pressure filters, complete with supports, piping, valves and fittings, strainers, filter beds, coagulant pot, pressure gauges, sight glasses, air relief cocks, etc. The combined capacity of these filters shall be 213.6 gal. per minute when operating at the rate of filtration of 3 gal. per sq. ft. of filter area per minute. These filters shall be equal to Everson's Type "O" Filters.

(6) The filter tanks shall be built with dished heads, suitable to withstand a test pressure of 100 lb. per sq. in. Each tank shall be provided with a sufficient number of legs or supports that will be suitable for the size and weight of the filters. An 11x15-in. manhole shall be located in the top head of each tank. All pipe connections shall be fitted with steel threaded flanges.

(7) In and near the bottom of each tank a strainer manifold shall be provided over the entire diametrical area. This manifold shall consist of a pipe header and laterals, tapped to receive the proper number of strainer valves.

(8) Non-clogging strainer valves shall be furnished. Each valve shall consist of a slotted cylinder with silver alloy top and bottom plates, secured with three tie-bolts, all to be nickel plated. Each bottom plate shall have an outlet hub with ½-in. external pipe thread.

(9) The filtering material shall be white, machine-cut quartz crystals, selected and screened to uniform sizes best adapted for filtering requirements. Each grain shall have sharp irregular edges which most effectively catch all suspended matter carried by water. The total depth of the filter beds shall be no less than 36 in.

(10) The operating manifold shall be compact and located conveniently at the front of the filters and shall consist of standard gate valves and galvanized pipe and fittings. The operating manifold shall have unfiltered water inlet and filtered water outlet connections. It shall be properly valved and so connected that the flow of incoming water may be directed either downward or upward through the filter beds, and it shall also provide for discharging either filtered water or wash water to the drain.

(11) Sight glasses shall be provided for the water line, to permit observation during the back-washing period of the waste or filtered waters. A test cock for sampling filtered water shall be provided on each filter. Standard pressure gauges, indicating up to 100 lb., shall be provided to show pressure loss during filtration. One gauge shall be located on the inlet and one on the filtered water outlet of each filter. A brass air relief cock shall be located on the top of each filter to permit free exit of air.

(12) One cast iron pot with removable lid shall be provided for feeding the coagulant. It shall be provided with brass pipe lines for connecting to the inlet water pipe. These brass pipe lines shall be provided with brass valves and an adjusting cock with graduated dial, in such a manner that the coagulant solution may be fed at any desired uniform rate to the water on the way to the filters. The coagulant pot shall be provided with a brass blow-off cock and a suitable support.

Vacuum Sediment Remover—(13) This Contractor shall furnish and install an Everson No. 107 Brass Vacuum Cleaner, which shall consist of one 50-ft. length of special wire woven vacuum rubber hose, fitted on both ends with swivel hose couplings, one 15-in. suction tool, one 36-in. handle, having a swivel-T connection to maintain removable bristle brush squarely on bottom of tank during cleaning operation, one 6-ft. extension handle and one 7-ft. extension handle (to give a total length of 16 ft. to the sediment remover), two 2-in. rubber tired guide wheels to facilitate movement of nozzle over floor of pool and one wall flange for 2-in. iron pipe connection.

Hair and Lint Catcher—(14) This Contractor shall furnish and install in the suction line of the pump, a 4-in. Everson Duplex S-63 Hair and Lint Catcher complete with two strainer baskets and a compound vacuum and pressure gauge.

Recirculating Pump, Motor and Starter—(15) This Contractor shall furnish and install on concrete foundation, where indicated on plans, one manually controlled swimming pool recirculating pump, having a capacity of 213 g.p.m. when discharging against a head of 50 ft., including friction with suction pressure figured at zero. The pump shall be a double suction, single stage, horizontal split centrifugal pump, having a solid bronze shaft, enclosed brass impeller and oil lubricated removable ball bearings. It shall be mounted on a heavy cast iron sub-base, and direct connected by a flexible coupling to an electric motor.

(16) The electric motor shall be a General Electric, Westinghouse or Howell 5-hp., 40°, phase, cycle, volt, C. motor, operating at a speed of 1720 r.p.m., capable of running continuously without undue heating, sparking or sign of overload.

(17) The motor shall be complete with a push button starter providing overload phase failure and no-voltage protections.

Pool Cleaner Pump, Motor, Starter, and Hair Catcher—(17-A) This Contractor must furnish and install a pump, motor, starter and hair and lint catcher in connection with the Vacuum Pool Cleaner. Capacity of pump 100 g.p.m. against a 20-ft. head, designed for a suction lift of 10 ft. For further details, consult manufacturer of the vacuum pool cleaning equipment.

Heater—(18) This Contractor shall furnish and install one Instantaneous Type Steam Operated Swimming Pool Heater, having a capacity of 12,000 g.p.h., from 40° to 80° F., when supplied with steam at atmospheric pressure. The shell, water chamber and heads shall be close grain cast iron of the best commercial grade; the heating section of seamless drawn copper tubing securely expanded into the tube heads. The heater shall be suitable for a working pressure of 15 lb. on the shell side and 100 lb. on the tube side. The heater shall be furnished with cast iron cradle supports and the necessary flanges for steam, condensation, water and drain connections.

"Jewell" Electric Sterilizer—(19) This Contractor shall furnish one No. 3 "Jewell" Electric Sterilizer, having a capacity of 2 lb. of chlorine gas per 24 hours, applied as sodium hypochlorite solution, to the suction side of the recirculating pump, or equivalent to one part of pure chlorine gas per million parts of water. This equipment shall be furnished complete with operating panel board, including control instruments, automatic cut-out switch, automatic feed, float control, and orthotoludin water testing outfit. Electrical contractor shall run wires to starting switch as required for a ¼-hp. motor.

Chlorinator—(Alterate for "Jewell" Electric Sterilizer)—(20) This Contractor shall furnish one chlorinator for dispensing chlorine gas into the water during the period of circulation. This chlorinator shall be furnished complete with all accessories required for proper operation, including 100-lb. cylinder of chlorine gas and orthotoludin testing outfit.

(21) Such type of chlorinator or sterilizer as may be selected by the architect as most suitable for the particular installation, shall be installed in strict accordance with the manufacturer's drawings.

Main Pool Drain—For Pool Outlet—(22) This Contractor shall furnish and install at the lowest point equidistant from the center line of the pool, two 6-in. Everson No. 894 Main Drain Fittings with galvanized cast iron body and solid nickel alloy polished strainer (6x14½-in.) plate.

Recirculating Fittings—Water Inlets for Pool—(23) This Contractor shall furnish and install four 2½-in. Everson No. 877 Galvanized Cast Iron Inlet Fittings with solid nickel alloy polished strainer (3x9-in.) plates, two shall be set in the wall at the deep end of the pool 18 in. below water line, and two shall be similarly set in the shallow end.

Gutter Drain Fittings—For Pool Spill-over—(24) This Contractor shall furnish and install twenty 2-in. Everson No. 693 Gutter Drain Fittings, seven on each side and three at each end, equally spaced. These fittings shall have galvanized cast iron bodies and solid nickel alloy polished strainer (2x8-in.) plates.

Floor Drain Fittings—Around Pool Walk—(25) This Contractor shall furnish and install twenty 2½-in. Everson No. 900-D Floor Drain Fittings, seven on each side and three at each end, equally spaced. These fittings shall have galvanized cast iron bodies and solid nickel alloy polished strainer (3x9-in.) plates.

Vacuum Cleaner Connection—(26) This Contractor shall furnish and install two Everson No. 896 Vacuum Sediment Remover Wall Flange Extensions, which shall be located as indicated on plans and 8 in. below the water line.

Spray Nozzles—(27) In shallow end of pool install two No. 714 Everson Spray or Skimming Nozzles which are to be located in end wall about 2 in. above overflow line. Set face plate flush with finished wall, each nozzle to be separate valved and connected to a 2-in. supply pipe from filters.

Connecting Lines, By-passes, Etc.—(28) Run a 4-in. valved line from pump discharge to inlet of filters.

(29) From the outlet of filters, run a 4-in. valved line to heater inlet.

(30) From the outlet of heater, run a 4-in. supply line to inlet fittings in each end of the pool. This line may be reduced to 2½ in. as it branches to supply each fitting. This line must be valved so that the incoming water can be shut off as desired, from either end of the pool.

(31) Provide valved by-pass around filters and also around heater.

(32) Provide discharge connections to drain from pump and filters.

(33) Provide discharge connection from heater trap to drain or return line.

(34) From main drain of pool, run a 6-in. line to storm drain or main sewer. At a convenient place in this line, install a 6-in. valve. From a point in front of this valve, run a 4-in. valved branch line and connect to inlet of hair and lint catcher at the pump suction.

(35) From the wall flange connections of the vacuum sediment remover, run a 2½-in. valved line to inlet of hair and lint catcher at the pump suction.

(36) Connect a 4-in. valved city water line to inlet of hair and lint catcher on pump suction.

(37) Connect the floor and gutter drain into the same discharge line and connect the discharge line properly trapped into either storm drain or main sewer.

Painting—(38) All piping, valves, fittings and equipment shall be given two coats of approved paint, if not otherwise protected against corrosion.

Electrical Connections—(39) This Contractor shall make electrical connection from pump motor to the starter, from where electrical contractor will make final connections.

Steam Connections—(40) The heating contractor shall furnish and install all steam lines to and from heater, and connect same into main steam system; the lines to be properly valved and trapped.

Specifications Governing Sweet's Underwater Lights—(41) The various units of this system as manufactured by the EVERSON FILTER CO., Chicago, Ill., are to be furnished and installed as follows:

General Contractor—(42) Shall provide in the pool walls as many openings (each 13¾ in. square), as are shown on the plans, and in each of these, shall furnish and install Sweet's cast, polished, Cora Metal Frames, Type No. 612-S. These frames shall be fitted with a special non-shattering glass, and the contractor must guarantee to make both frames and glass watertight. Contractor may secure complete drawings and details of this installation from the above manufacturer.

Electrical Contractor—(43) Is to furnish a No. 613-S Portable Lighting Unit as manufactured by the EVERSON FILTER CO., Chicago, fitted with 500-watt No. G40 floodlight bulb, reflector, bracket, socket, receptacle, and 3 ft. of cord with plug on each end, this unit to be set in the opening provided by the general contractor. The plug on one end is to be connected with the portable lighting unit, and, for the purpose of reaching the service line, on the other end to a Hart & Hagemann No. 1430 receptacle with No. 1710 plate fitted into Gem B box.

(44) A separate circuit must be provided for each unit.

(45) The electrical contractor shall also furnish and install 12-in. square concentrating lens No. SMO as furnished by the EVERSON FILTER CO., Chicago, Ill.

MARSH ELECTRO CHLORINATION COMPANY, INC.

TELEPHONE
ASHLAND 5777

101 Park Avenue
NEW YORK, N. Y.

PERFECT SANITATION OF SWIMMING POOLS

Perfect sanitation of swimming pools requires not only that sterilized water be delivered to the pool, but that it be kept sterilized by adding a persistent disinfecting medium to the water. Chlorination is the universally accepted effective method for accomplishing this result, and as such is approved by all public health authorities.

However, there are other requirements, in addition to the above, which must be met before perfect sanitation can be obtained by the chlorination process.

The oxidizing agent must be neutral to assure absolutely non-irritating and pleasant sterilized water. In addition, it must be inexpensive to operate and the dosage must be accurately supplied and controlled.

Every one of these essential requirements is fully met by the Marsh System of Electro Chlorination.

Neutral Disinfection with the Marsh System of Electro Chlorination

The Marsh System provides the safest, most effective and most desirable form of chlorination. It produces a powerful yet neutral (non-irritant) oxidizing solution, sodium hypochlorite, a product similar to Dakin's solution, and delivers it to the water in accurately controlled doses.

How the System Operates—

The basis of the system is the Marsh Electrolytic Cell, similar in appearance to an ordinary dry cell, combined with special pyrex and hard



rubber manifolds for salt solution feed, chlorine outlet from cells and absorber coils.

By passing an electric current and brine through the Marsh Cell the most efficient form of chlorine, sodium hypochlorite, is produced from common salt solution uniformly and in the quantities desired.

The amount of chlorine dosage delivered is absolutely controlled by the charging current of electricity at the control panel. The chlorine is absorbed in the electrolytic soda and water solution, stabilized and then diluted automatically before it enters the swimming pool circulating system.

Important Advantages of the Marsh System

Provides complete and uniform sterilization in every part of pool.

Control is accurate, dependable and convenient because it is operated by electricity.

Operates on alternating or direct current.

No commodity to buy but salt. Simple and easy to install.

Eliminates extra cost for protection in handling and storing hazardous chemicals.

Filtration is improved.

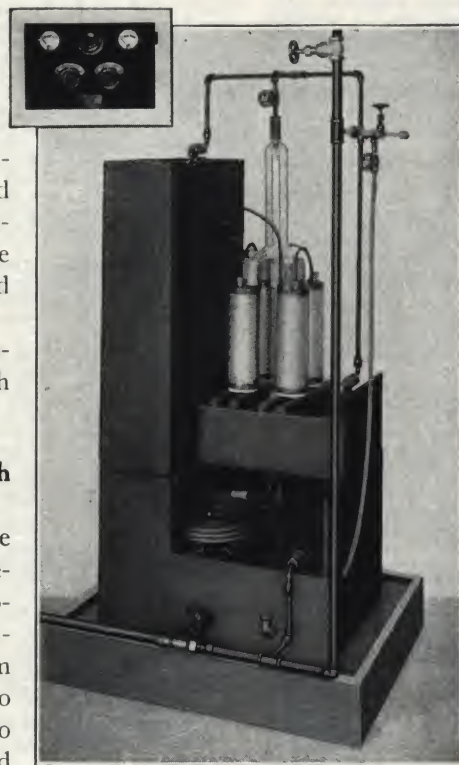
Eliminates outlay for expensive prepared solutions.

Inexpensive to operate.

No irritating and unpleasant conditions in the water.

Has long life because all parts are non-corrodible.

Apparatus is kept new and accurate by inexpensive renewals of Marsh cells.



Complete Marsh Equipment

Including a battery of Marsh Cells with pyrex manifold, chlorine outlet, electrolytic soda solution feed and absorber coils, battery charger, electrical control board, upper tank containing salt and water for brine feed to cells, middle tank containing soda solution from cells for feed to absorber coils, and lower tank receiving electrolytic sodium hypochlorite solution from the absorber coils for delivery to pool or storage for sanitary uses.

OTHER USES FOR MARSH SYSTEM

Marsh equipment provides convenient and effective means of supplying solutions for many other purposes as follows:

Hospitals: Highest quality of antiseptic and disinfectant solutions.

Laundries: Neutral electrolytic bleaching solution protects fabrics with reduction of cost in most cases.

Water supplies: Most effective and pleasant form of sterilization.

Sewage problems: Stabilized chlorine solutions produce better results.

Deodorization: For comfort stations in bathing houses, etc.

Country estates, stock farms, dairies: An incomparable disinfectant at the lowest cost.

Note: The finest and purest soda and bleaching solutions can be made for use in textile, paper and industrial plants.

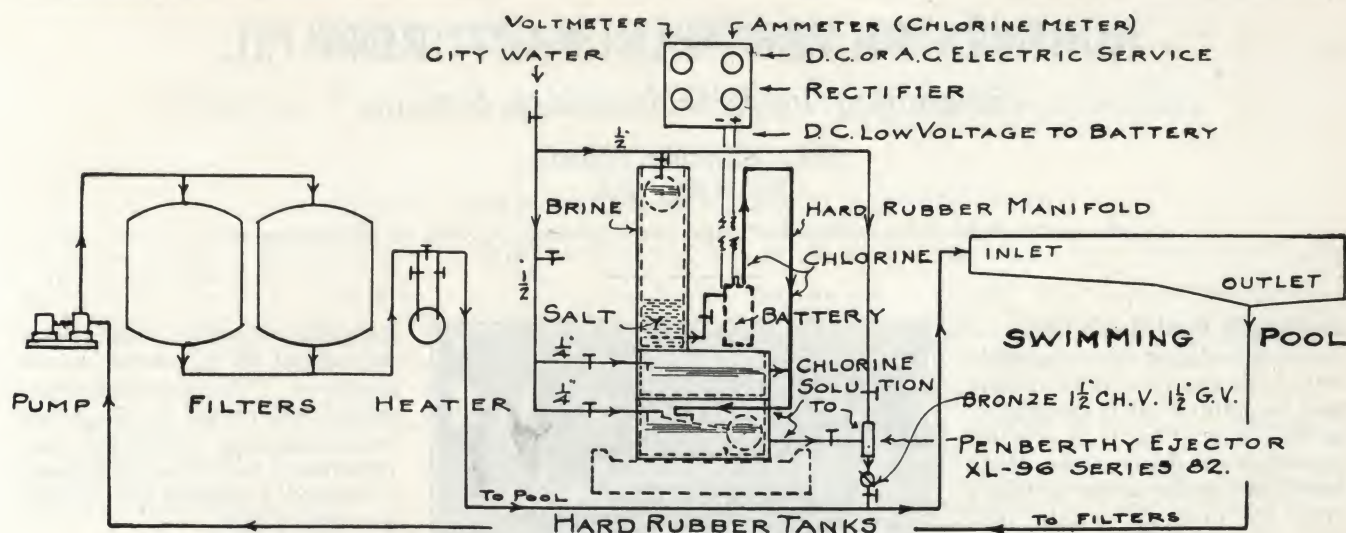


Diagram Showing Installation and Operation of Marsh Electro Chlorination System

DATA MECHANICAL EQUIPMENT
Basis 8-hour TurnoverMARSH ELECTRO CHLORINATOR
Basis Dosage of Available Oxygen or Chlorine 10 Lb. per 1,000,000 Gal.

Pool capacity, gal.	Filters			Pump, gal. per min.	Daily rate, lb.	Types, oz.	Production, lb.		Salt, lb. per 12-hr. operation	Power, kw.-hr. 12-hr. operation	
	Number	Diam.	Gal. per hr.				12-hr.	24-hr.		A-c.	D-c.
40,000	2	48 in.	4,560	100	0.4	2-5	0.30	0.60	1.3	0.90	1.3
50,000	2	54 in.	5,760	125	0.5	3-5	0.45	0.90	2.0	1.35	2.0
60,000	2	60 in.	7,200	150	0.6	3-7	0.63	1.26	2.5	1.90	2.83
80,000	2	72 in.	10,200	200	0.8	3-10	0.90	1.80	3.6	2.70	4.00
100,000	2	78 in.	12,000	225	1.0	4-10	1.20	2.40	4.8	3.60	5.30
200,000	3	90 in.	24,000	450	2.0	4-15	1.80	3.60	7.2	5.40	8.10
300,000	2	8 x 14 ft.	35,400	2-350	3.0	6-15	2.70	5.40	10.8	8.10	12.15
500,000	3	8 x 16 ft.	61,200	2-600	5.0	5-30	4.50	9.00	18.0	13.50	20.27
750,000	3	8 x 24 ft.	93,000	2-800	7.5	8-30	7.20	14.40	28.8	21.60	32.40
1,000,000	4	8 x 24 ft.	125,000	2-1000	10.0	10-30	9.0	18.00	36.0	27.00	40.50
1,500,000	6	8 x 24 ft.	186,000	3-1200	15.0	8-60	14.40	28.80	57.6	43.20	64.8
2,000,000	8	8 x 24 ft.	248,000	3-1500	20.0	12-60	21.60	43.20	86.4	64.80	97.2

Note: For outdoor pools and heavy bathing loads chlorinators of larger capacity are recommended.

Co-operative Service

We will be glad to co-operate with architects and engineers in furnishing them with suggestions as to the proper application of the Marsh System to any water purification requirement, as well as to submit quotations, specifications, and other information desired.

Short Specification for Swimming Pools

Contractors to furnish and install in accordance with manufacturer's directions, one Marsh Electro Chlorinator, manufactured by the MARSH ELECTRO CHLORINATION COMPANY, Inc., 101 Park Avenue, New York, N. Y., of sufficient capacity to provide sterilization by available chlorine dosage in the form of non-irritant (neutral) electrolytic sodium hypochlorite solution.

Installation Suggestions

The following points are of importance when planning an installation of the Marsh System.

- (1) Floor drain under the Marsh Equipment.
- (2) Air vent when a closet or small room is arranged for equipment.
- (3) Electric outlet near equipment and wiring to control board and to cells.
- (4) 1/2-in. city water connection near equipment and four 1/4-in. branch lines with valves to electro chlorinator and for wash spray and 1/2-in. valved branch to ejector.
- (5) A 1/2-in. Penberthy XL-96 Series 82 Hydraulic Ejector connected to high pressure city water service to feed solution into the pool or to recirculation line after filtration.

WIDE SCOPE OF INSTALLATIONS BUILT UP ON SUPERIOR MERIT

The Marsh Electro Chlorinator has been installed over a period of years in every type, size and kind of swimming pool for universities, hotels, hospitals and clubs, and in private pools. Each year finds a larger number installed than the year before. More and more architects and engineers recognize that here is a quality equipment offering the most desirable features of a sterilizing apparatus and yet successfully surmounting disadvantages that have become accepted simply because no one had been able to overcome them.

Architects and engineers can be assured that by specifying a Marsh Electro Chlorinator they are stressing quality and effectiveness of results, the use of modern convenience of electrical control with its ease and simplicity of operation, its dependable accuracy, and above all, pleasantness and non-irritation. They can be assured also that the owner obtains the best at reasonable initial cost, and operating, maintenance and depreciation cost which will keep his overhead at a minimum, year in and year out.

ROBERTS FILTER MANUFACTURING CO.

Swimming Pool Recirculation Systems

638 Columbia Avenue
DARBY, PA.

For our pages on Filters, Filtration Plants and Appliances, see List of Manufacturers

Swimming Pool Sanitation

Recirculation has completely solved the question of swimming pool sanitation. It is mandatory under State Board of Health regulations in many states. With recirculation the water is drawn from the deep end of the pool by a centrifugal pump and returned through filters and sterilizing equipment and in the case of indoor pools, through a heater to the shallow end of the pool.

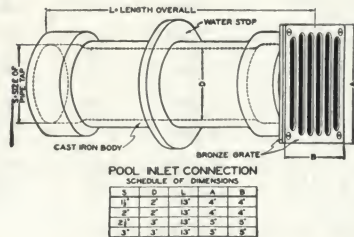
A typical recirculating plant for indoor pools is shown below, but each large outdoor pool should be given separate study so that the arrange-



ing greater capacity, a recirculating period of 12 hours can be employed. The rate of filtration should preferably be 3 gallons per square foot of filtering area per minute, but in no case should it exceed 4 gallons per minute per square foot.

Co-operation

Our Engineering Department is at the service of architects and engineers engaged in the design, construction, or maintenance of swimming pools. We welcome every opportunity of co-operation. Write for our "Swimming



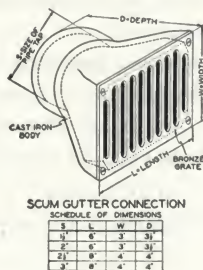
POOL INLET CONNECTION
SCHEDULE OF DIMENSIONS

S	G	L	A	B
11"	2"	12"	4"	4"
17"	3"	18"	4"	4"
21"	3"	18"	5"	5"
27"	3"	18"	5"	5"

ment of pool fittings, recirculating equipment and piping will be such as to insure greatest efficiency and economy.

Design

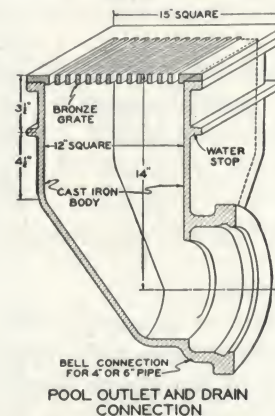
Where the bathing load is normal, the recirculating plant for pools of not more than 100,000 gallons



SCUM GUTTER CONNECTION
SCHEDULE OF DIMENSIONS

S	L	W	D
31"	6"	3"	3 1/2"
37"	6"	3"	3 1/2"
41"	6"	4"	4"
47"	6"	4"	4"

capacity should be designed to recirculate the entire capacity of the pool in 8 hours. For pools contain-



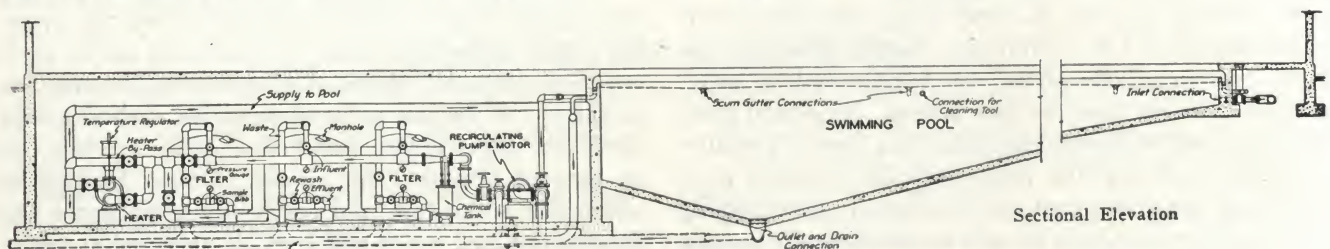
Pool" catalogue containing complete data on the sanitation of swimming pools.

Specifications

Specification data on all types of Roberts Filters is contained in our pages in the filter section of this catalogue and in SWEET'S ENGINEERING CATALOGUE. Styles "H," "G," "L" and Horizontal are recommended for swimming pool recirculation.

Accessories

We manufacture pool fittings, as shown, hair catchers and other accessories, which will be supplied separate from filters and other recirculating equipment when specified or so ordered.



Typical Arrangement of Swimming Pool Recirculating System

WALLACE & TIERNAN CO., INC.

Chlorine Control Apparatus for Swimming Pool Sterilization NEWARK, N. J.

BRANCH SALES OFFICES AND SERVICE HEADQUARTERS

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OGDEN, UTAH, Box 834
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OMAHA, NEB., 304 Union State Bank Bldg.
PHILADELPHIA, PA., 1505 Race Street
PITTSBURGH, PA., 233 Oliver Avenue
ROANOKE, VA., 318 Mountainview Terrace, Virginia Heights
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SPOKANE, WASH., 724 Realty Bldg.
SPRINGFIELD, ILL., 801 Ridgeley Bank Bldg.
SYRACUSE, N. Y., 301 State Tower Bldg.

CANADA: WALLACE & TIERNAN LTD., MONTREAL, QUE., TORONTO, ONT. and WINNIPEG, MAN.

ENGLAND: WALLACE & TIERNAN LTD., LONDON

ARGENTINE, GEO. C. ROBERTSON, Buenos Aires, Avenida de Mayo 760
CHILE, ANJEL GUARELLO GALLO, Santiago, Casilla 2809

CUBA, DANIEL, INC., 814 Edificio Metropolitana, Habana
PORTO RICO, DEL VALLE & Co., Apartado 116, San Juan

Swimming Pools

To serve the purpose for which they are intended, and to provide a means for healthful exercise and recreation—must be maintained in a satisfactory sanitary condition.

Regardless of the purity of the water supplied to the pool, contamination—often of a dangerous nature—is constantly being introduced from the body and mouth rinsings of the bathers. This contamination cannot be avoided. With chlorination, however, it can be overcome.

An essential requirement in swimming pool sterilization is a means to counteract immediately such contamination as is introduced into the pool. The residual sterilizing action, peculiar to chlorination alone, is such an effective means. Through the addition of a minute quantity of chlorine to the water supplied to the pool, the residual germicidal or disinfecting action is carried on at all points and the purity of the water in the pool assured at all times, regardless of any variations in the bathing load.



W & T
Chlorinator
Type MSV

Chlorination

Chlorination is universally recognized as the most effective and economical method of swimming pool water sterilization. It has received the unqualified endorsement of public health authorities and sanitary engineers throughout the country.

"From all available information, the addition of chlorine . . . by the use of proper apparatus, is today the most satisfactory method of swimming pool disinfection."

So states the report of the Joint Committee of the Sanitary Engineers Conference and the American Public Health Engineering Section of the A.P.H.A.

This sweeping endorsement of chlorination is based on a study of swimming pool control, extending over a period of eight years or more, by prominent authorities charged with the safeguarding of public health and is concrete evidence of chlorination's efficacy.

While economic reasons often dictate the use of a recirculation system, chlorination is essential, regardless of what means are used to replenish the pool water supply.

W & T apparatus is the product of the oldest and most experienced manufacturers of chlorine control



Swim in
Drinking
Water

equipment in the world. It is the same type of equipment as is now in daily service sterilizing drinking water on over 10,000 installations. Obviously, any process that will make water safe to drink will make it safe to swim in.

W. & T Chlorine Control Equipment

Solution feed, MSP or MSV, chlorinators are generally recognized as being the best equipment for larger pools, both indoor and outdoor. In this equipment chlorine is accurately administered as a solution of chlorine and water, with all the advantages of complete and rapid diffusion into the pool water.

For the smaller pool, the W & T chloro-clock, a device for the accurate measuring and feeding of a previously prepared sodium hypochlorite solution, is particularly adapted.

The W & T electrolytic cell is recommended for such installations as those where it is preferred to generate the actual disinfecting agent, chlorine, as needed.

All apparatus is guaranteed against inherent mechanical defects for a period of one year from date of shipment. Every piece of equipment is thoroughly tested under actual operating conditions before leaving our factory.

Outstanding features of W & T apparatus are dependability, long life, low maintenance and low operating cost.

Service

An extensive field staff of technically trained engineers is available to co-operate with architects and designing engineers in the solution of their problems and the selection of the proper type of chlorine control equipment and for consultation on any features entering into the design, construction and operation of swimming pools, without cost or obligation.

Technical publications dealing with the specific application of individual types of equipment will be gladly furnished on request.

Nearly 2500 swimming pools throughout the country are now being chlorinated with W & T equipment. The water in these pools conforms to the requirements of the local and national health authorities in all respects and continued satisfactory operation of all equipment is the direct responsibility of a nationwide service organization.



W & T
Chloro-clock



W & T
Chlorinator
Type MSP

THE BRUNSWICK-BALKE-COLLENDER CO.

Manufacturers of Billiard Tables, Bowling Alleys, Billiard and Bowling Supplies, Squash Courts and Shuffle Boards

TELEPHONE
WABASH 4020

GENERAL OFFICE
623-633 South Wabash Avenue
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Products

BILLIARD TABLES, BOWLING ALLEYS, SQUASH COURTS and SHUFFLE BOARDS.

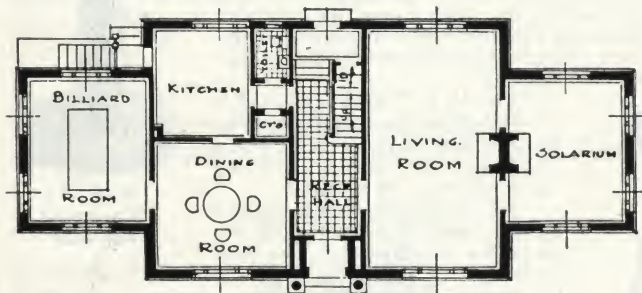
For our pages on Toilet Seats, see Manufacturers' Index.

Real Billiard Tables for the Home

Brunswick Tables are known all over the world, and are the standard wherever billiards is known. Professional championship games for many years have been played on Brunswick Tables. The same manufacturing facilities that produce these professional tables are devoted to the production of the table that we make for the home.

Every Brunswick Home Table is a real billiard table, regardless of size. The only difference between Brunswick Home Tables and Brunswick Regulation Size Tables is in the area of the playing surface. But inasmuch as the cushions, cushion angles and the size of the balls have been reduced in the same mathematical proportions as the playing surface, the scientific playing qualities of the smaller tables are identically the same as those of the larger type.

Desirable Locations in the Home—The most desirable location for a home billiard table is on the first floor and, if possible, the billiard room should join the dining room, as billiards is a splendid after-meal exercise. In many of the better English homes it is the custom to so locate billiard rooms.



First Floor Plan
Scale: $\frac{1}{8}$ in. = 3 ft.

There is much enjoyment to be derived from the game of billiards after dinner, or with neighbors or friends at a later hour, and, for this reason, it is essential that the table be located most conveniently and most accessibly.

Since the development of oil burners, many of the smaller houses are providing basement billiard rooms in space no longer needed for coal bins, large cumbersome furnaces, etc.

Brunswick "Home Club" Table

We have developed a convertible home billiard table which is ideal for dining room or living room use.

The "Home Club" Table is the latest development of the craftsmans' art in the construction of beautiful furniture. Attractively designed in American walnut, this table completely meets the requirements of the exacting housewife for the dining or living room.

The dining or living room table top is removable, which immediately converts it into a real billiard table, with all the pleasures of carom or pocket billiards available. A disappearing accessory drawer contains playing equipment and keeps it out of sight when not in use. A disappearing ball rack which can also be swung under the table is placed opposite equipment drawer.

The "Home Club" table has been created for those



"Home Club"—Dining or Living Room Table

homes and apartments where a special room is not available. The present floor space may be utilized for this table, which can be purchased at a cost but little exceeding that of a dining or living room table of attractive design.

Complete with all playing equipment.

Furnished in Two Styles and Two Sizes—The "Home Club" table is available in two styles; either as a pocket billiard table, or as a combination table for playing both carom and pocket billiards on the same table.

TABLE AND ROOM DIMENSIONS "HOME CLUB"

Table size	Room size, not less than
3 x 6 ft.	11x14 ft.
3½ x 7 ft.	12x15 ft.

Combination Table with Interchangeable Cushions—The combination feature is achieved through the use of two sets of cushions, one for carom billiards and a set for pocket billiards. They are quickly and easily interchanged by the mere opening and closing of hand levers under the rails which lock either set firmly in place. A box is furnished to hold the set of cushions not in use.

Brunswick "Junior Grand" Table

The "Junior Grand" is designed along lines especially appropriate for the home having a room or other space available for billiards, amusements, den or recreation room. It is attractively designed and made in two-tone American walnut with vein line ornamentation and hand rubbed finish.

Furnished in Two Styles and Three Sizes—Table is available in two styles similar to the "Home Club" table for pocket billiards or as a combination table for playing both carom and pocket billiards.

Equipped with disappearing accessory and ball rack drawers similar to the "Home Club" table, complete playing equipment furnished.



"Junior Grand"
Sizes: 3x6, 3½x7 or 4x8 ft.

TABLE AND ROOM DIMENSIONS "JUNIOR GRAND"

Table size	Room size, not less than
3 x 6 ft.	11x14 ft.
3½ x 7 ft.	12x15 ft.
4 x 8 ft.	13x17 ft.

Brunswick "Grand" Table

The "Grand" is especially designed for homes having a room suited to the use of a billiard table of full regulation size.

It is built of highly figured butt walnut, two-tone finish, and decorated with vein line ornamentation on frame, rails and legs. It is a true billiard table in every sense, which means the height of achievement in fine cabinet work and playing standards.

Furnished in Three Styles and One Size—Table is available in three styles: as a carom billiard table, as a pocket billiard table, or as a combination carom and pocket billiard table with convertible rails.

Equipped with disappearing accessory and ball rack drawers. When the table is not in use, all billiard playing equipment is entirely out of sight. Regulation playing equipment furnished.

TABLE AND ROOM DIMENSIONS "GRAND"

Table size	Room size, not less than
4½ x 9 ft.	14½ x 18 ft.

Modern Recreation Clubs or Centers and Commercial Establishments

As a result of our extensive and varied experience we have been able to develop and maintain a thoroughly trained organization, who have made a special study of the requirements of the modern recreation centers and will gladly, without charge, co-operate with architects who have such a problem on their boards.

For commercial establishments or recreation centers, upper floors or basements may be utilized to advantage for billiard rooms and bowling alleys.

The modern tendency is to build recreation clubs or centers consisting of two, three or more stories. The floor plans shown on Plate 2 (third page following) are simply offered as suggestions of arrangement and are sufficiently flexible to permit of such changes as may be necessary to utilize floor space available. They give a fair idea of the floor areas required to accommodate the equipment and concessions found in two of the largest recreation clubs, now operating.

Basement space can be used to good advantage for additional bowling alleys, swimming pool, baths, or other attractions, if desired. Some of the newer buildings have provided ideal bowling quarters in this space. The ceilings, of course, should be of sufficient height to give proper ventilation.

If a new building is to be constructed, consideration might well be given to the English type of basement or semibasement. This reduces the amount of excavation required and permits of windows—a feature which adds immensely to the lighting and ventilating of the space.

Trade Table Sizes and Dimensions—The following table gives the dimensions of the four sizes of tables manufactured for the trade:

TRADE TABLE SIZES AND DIMENSIONS

Trade sizes	Actual measurements between extreme outside edges of opposite rails
4 x 8 ft.	4 ft. 7½ in. x 8 ft. 5½ in.
4½ x 9 ft.	4 ft. 11½ in. x 9 ft. 1½ in.
5 x 10 ft.	5 ft. 5½ in. x 10 ft. 1½ in.
6 x 12 ft.	6 ft. 8 in. x 12 ft. 5½ in.

Space Between Tables and from Walls—Between tables, 5 ft. is best; in emergency this can be reduced to not less than 4 ft. From table edge to wall, 6 ft. is preferable, especially where wall seating is provided; in emergency this can be reduced to not less than 5 ft.

Regulation Bowling Alleys

On Plate 1 (following page) will be found floor plans of a pair and groups of three, four and six regulation bowling alleys showing dimensions, which are definite, and should be maintained to meet with the official rules and regulations. The ½-in. scale details indicate our suggested requirements for foundations to permit proper installation on solid concrete floors—this work is to be executed by other contractors.

Space for Players' and Spectators' Seats—Space (2 ft. 6 in.) for one row of players' benches should be provided for, at approach end in addition to the over-all length of alleys (83 ft.).

Spectators' seats are very essential and should be arranged for in at least one, two or three rows, according to available space, on stepped-up platforms. Where ceiling height permits, platforms can be built to a convenient height allowing space underneath for lockers, check room or storage.

Space for an aisle should be provided, if possible, without loss of units, alongside or between alleys, or in post areas, sufficiently wide to allow access to pin boys' room and storage space, which is usually located at rear of room.

Provision for Pit—Where alleys are to be installed in basement or on first floor on concrete foundation, a depression must be provided to receive the finished pit, two systems are suggested on Plate 1.

Special Improved Sub-foundations—We furnish and install improved sub-foundations for installations above first floor, which is our system of noise proofing and provides the necessary height required for pit depression.

Lighting—Lighting is a very important factor and should receive serious consideration; different size rooms and surroundings require different systems.

The most practical and economical idea is to place the ceiling lights back of beams wherever possible, one row of at least three, and preferably four, lights over center of each alley bed. This system provides an equal distribution and is most desirable, as all lights are concealed.

Another desirable system can be obtained by placing a row of lights over the center division between each pair of alleys, using ceiling fixtures, style of which is a matter of choice, but we recommend the use of either an open white shade deep enough to conceal light bulb—frosted bulb preferred—or a practical semi-indirect fixture placed at intervals most adapted to conditions. General illumination should be provided over approach, players' benches and spectators' seats as well as balance of room.

Pit or pin lights should be placed over the center of each alley bed. If overhead pin setting machines are used, pit lights should be placed 9 ft. 6 in. forward of rear of alleys or 5 ft. 6 in. forward of rear end of alley bed; if no overhead pin setters are used, place pin lights 8 ft. forward of rear of alleys or 4 ft. forward of rear end of alley bed.

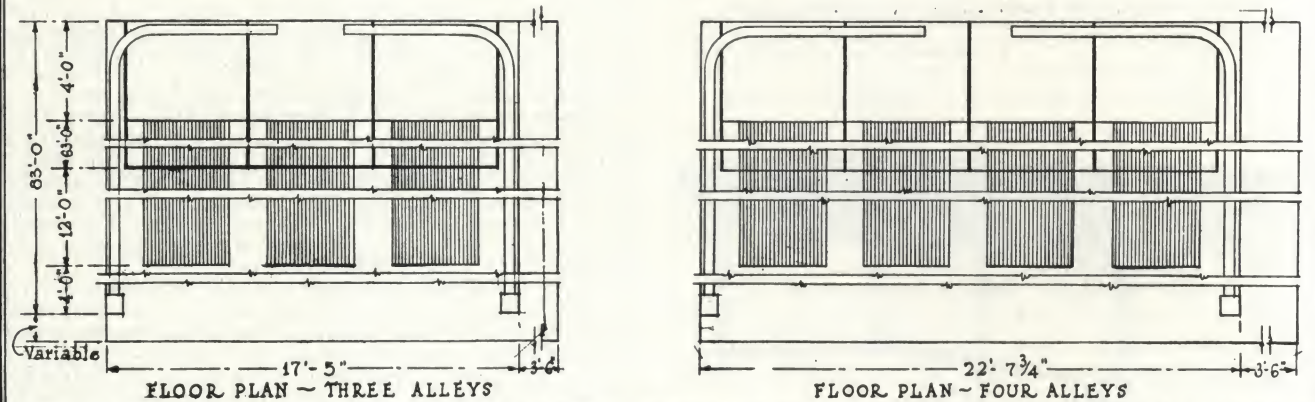
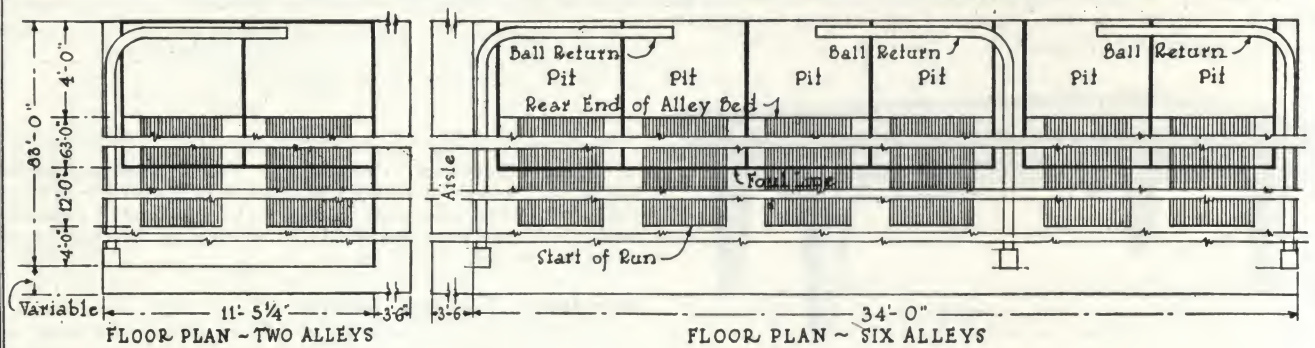
We recommend the use of the Brunswick Bowling Pit and Foul Light, which is a combination pin light and foul signal and is universally used where equipment consists of four or more alleys. We furnish instructions on wiring for these fixtures.

Ventilation—Proper ventilation should be given due consideration. Draughts should be avoided as they are detrimental to the health of both players and spectators. Properly designed artificial ventilation should be used as a protection to the health of the patrons and to conserve the heat in winter.

Experience and Co-operative Service

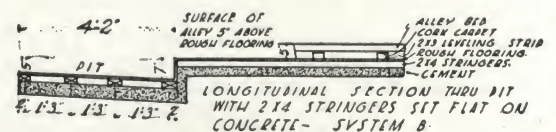
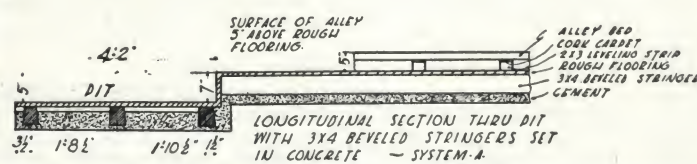
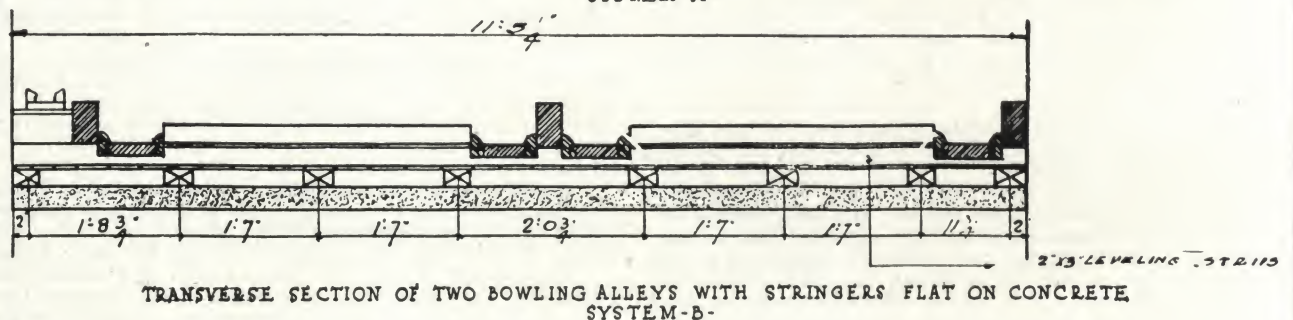
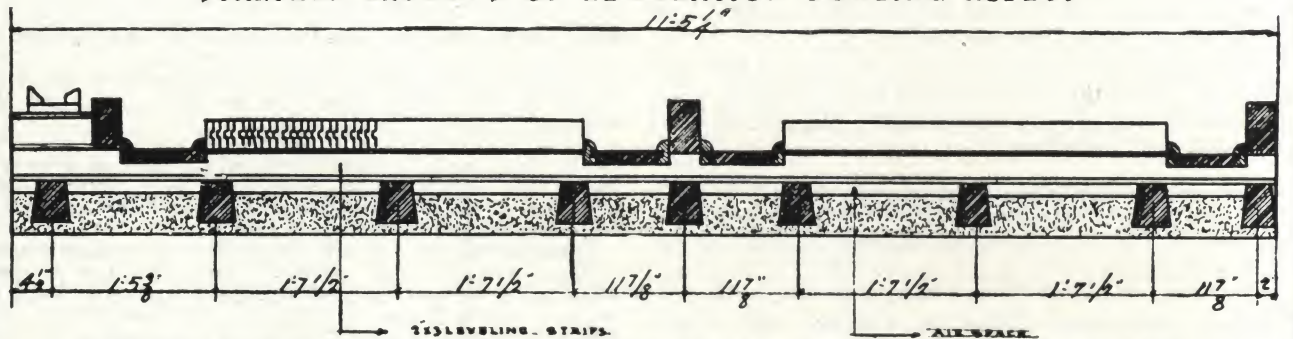
Our more than 31 years' experience has developed a technical and practical organization thoroughly equipped to handle and economically solve all problems pertaining to the design and proper installation of bowling alleys, squash courts, billiard tables, and shuffle boards.

There is a BRUNSWICK-BALKE-COLLENDER Co. branch in all principal cities in this country and Canada. Refer to telephone directory for the telephone number or address, or write main office. They will furnish without charge, blue prints, estimates and recommendations on any problem regarding Brunswick products.



NOTE~ 3'-6" Aisles on either side of the alleys are not imperative and may be reduced or eliminated if necessary

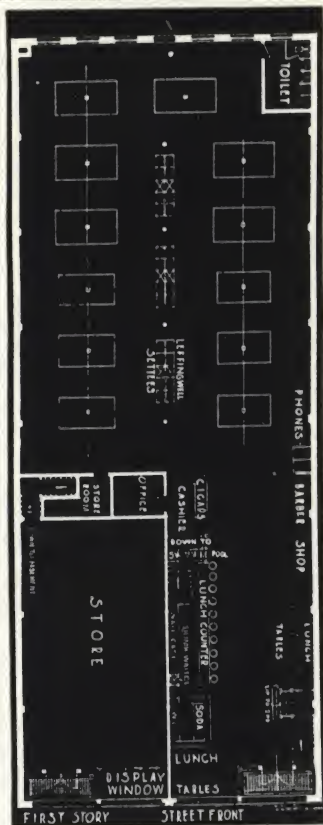
STANDARD LAYOUTS OF REGULATION BOWLING ALLEYS



**THE BRUNSWICK-
BALKE-COLLENDER
COMPANY**

PLANS AND DETAILS OF BOWLING ALLEYS

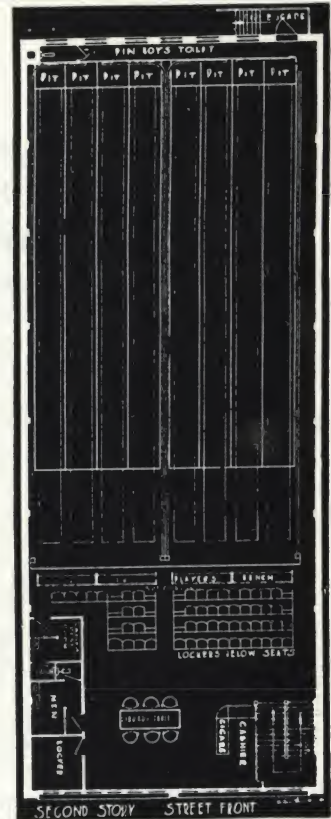
PLATE N^o 1
Scale $\frac{1}{8}$ " & $\frac{1}{2}$ " = 1 ft. 1



FIRST STORY

SUGGESTED FEATURES THAT MAY BE INCLUDED IN A MODERN RECREATION CLUB OR CENTER

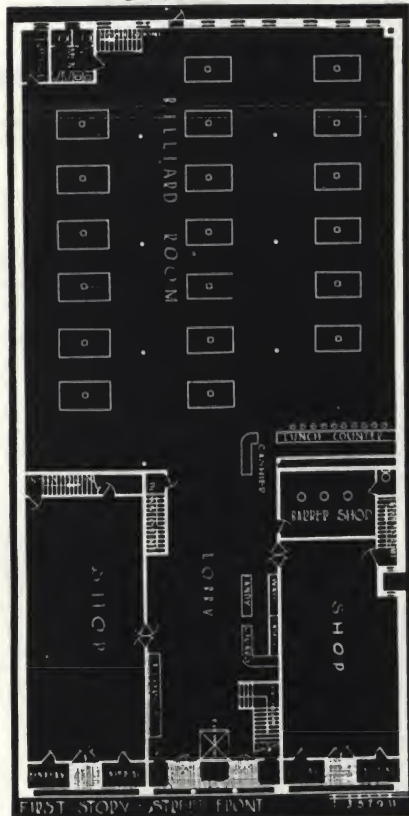
Billiard Tables
Pocket Tables
Bowling Alleys
Soda Fountain
Lunch Counter
Cigar Stand
Barber Shop
Check Room
Locker Room
Storage Room
Office
Ladies Rest Room
Gents Rest Room
Lounging Room
Swimming Pool



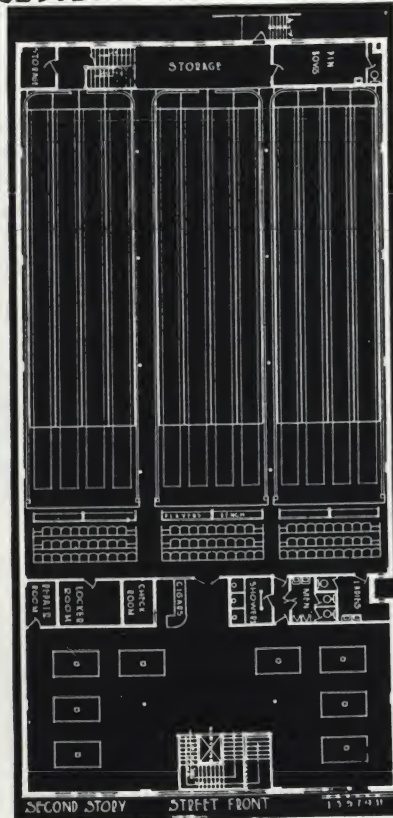
SECOND STORY

BUILDING No. 1 • SUGGESTED TWO STORY • 50' x 125'

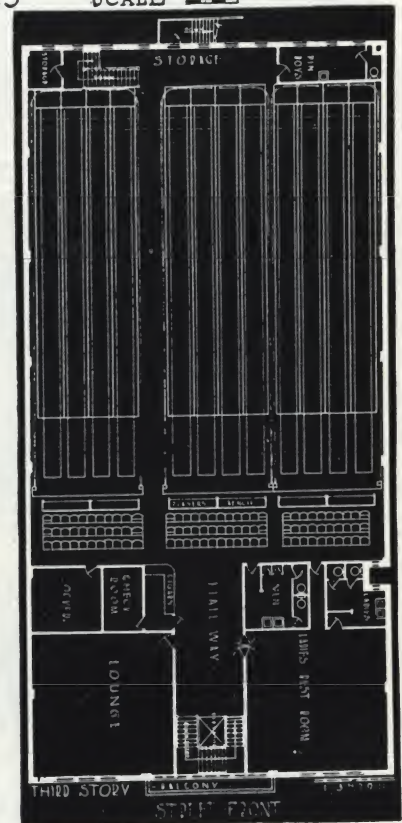
SCALE 1/8" = 1'-0"



FIRST STORY



SECOND STORY



THIRD STORY

BUILDING No. 2 • SUGGESTED THREE STORY • 75' x 150'

SCALE 1/8" = 1'-0"

THE BRUNSWICK-
BALKE-COLLENDER
COMPANY

SUGGESTED PLANS EMBODYING ESSENTIAL
FEATURES FOR A MODERN RECREATION CLUB

PLATE No 2
Scales Shown
Graphically above

ALLEN-DREW COMPANY

DIVISION OF
BABCOCK-DAVIS CORPORATION

43-45 Brookford Street
CAMBRIDGE, MASS.

For Other Pages on Our Products, see Manufacturers' Index

MOTOR OPERATION UNDER UNUSUAL CONDITIONS

Motor Operated Proscenium Walls, Curtains, Entire Stage, Stage Ceiling and Orchestra Pit

Municipal Auditorium of New Orleans, Louisiana, Favrot & Livaudais, Ltd., Architects

On this and the following page is illustrated an unusual case of motor operation in a building. It is perhaps one of the most unique large auditoriums in this country.

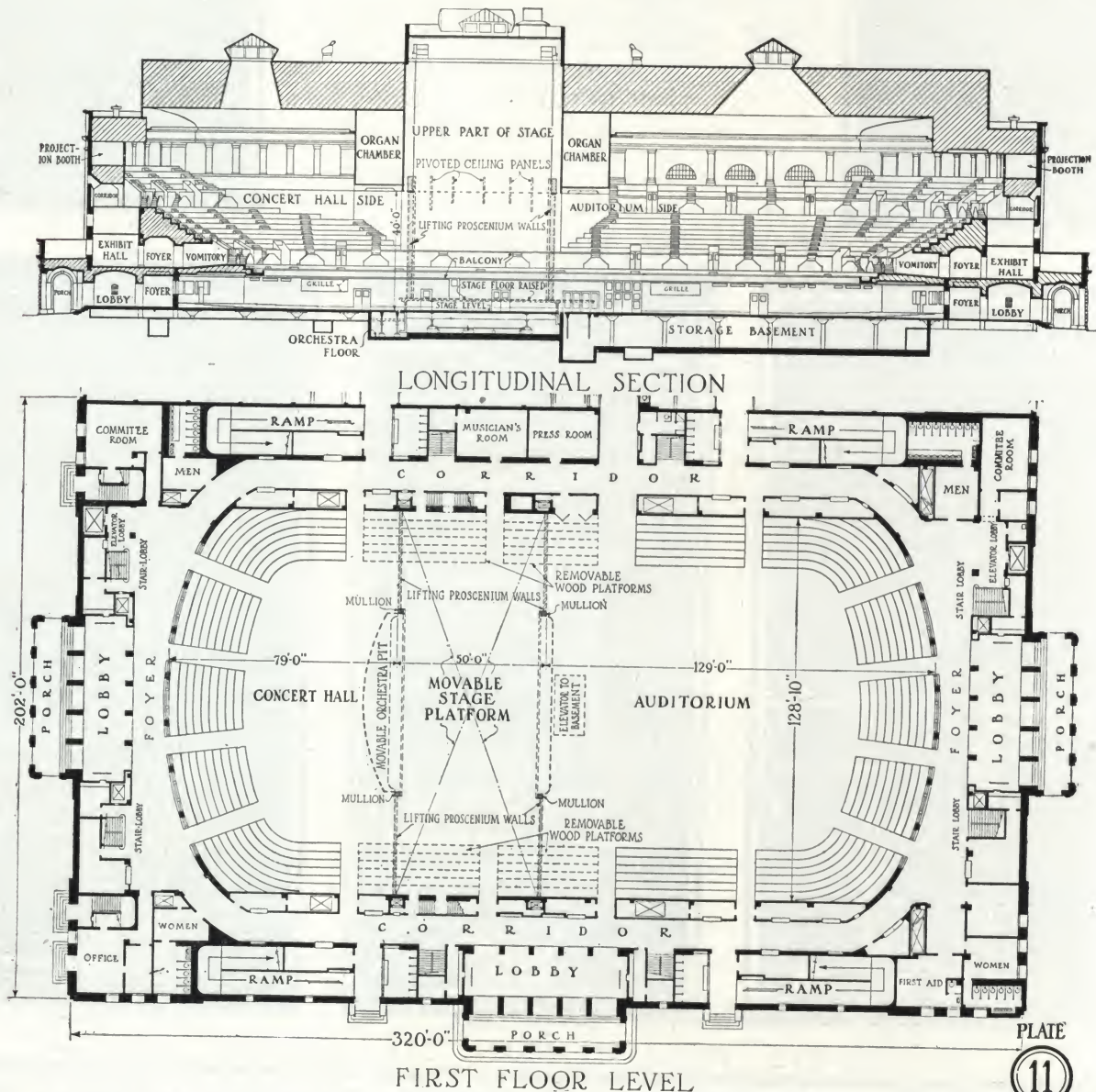
It can be used, not only for large conventions and gatherings, but the same space can also be used for an auditorium and a concert hall. This gives the hall a source of usefulness when it is not required for very large gatherings.

When used as a convention hall the large stage, platforms and orchestra pit are raised or lowered as required to make one floor level throughout the room. The proscenium curtains

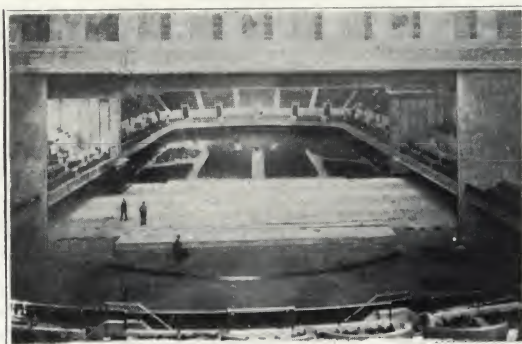
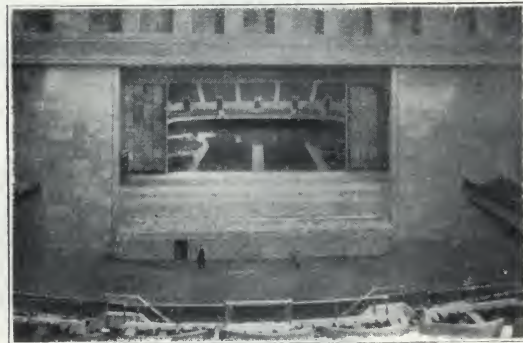
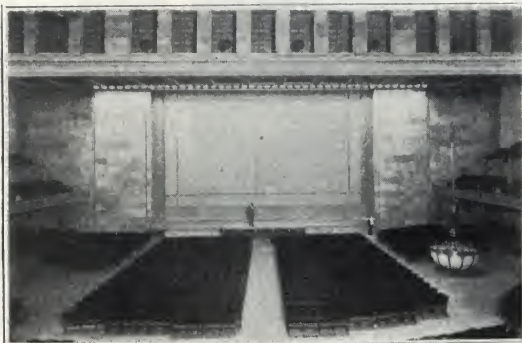
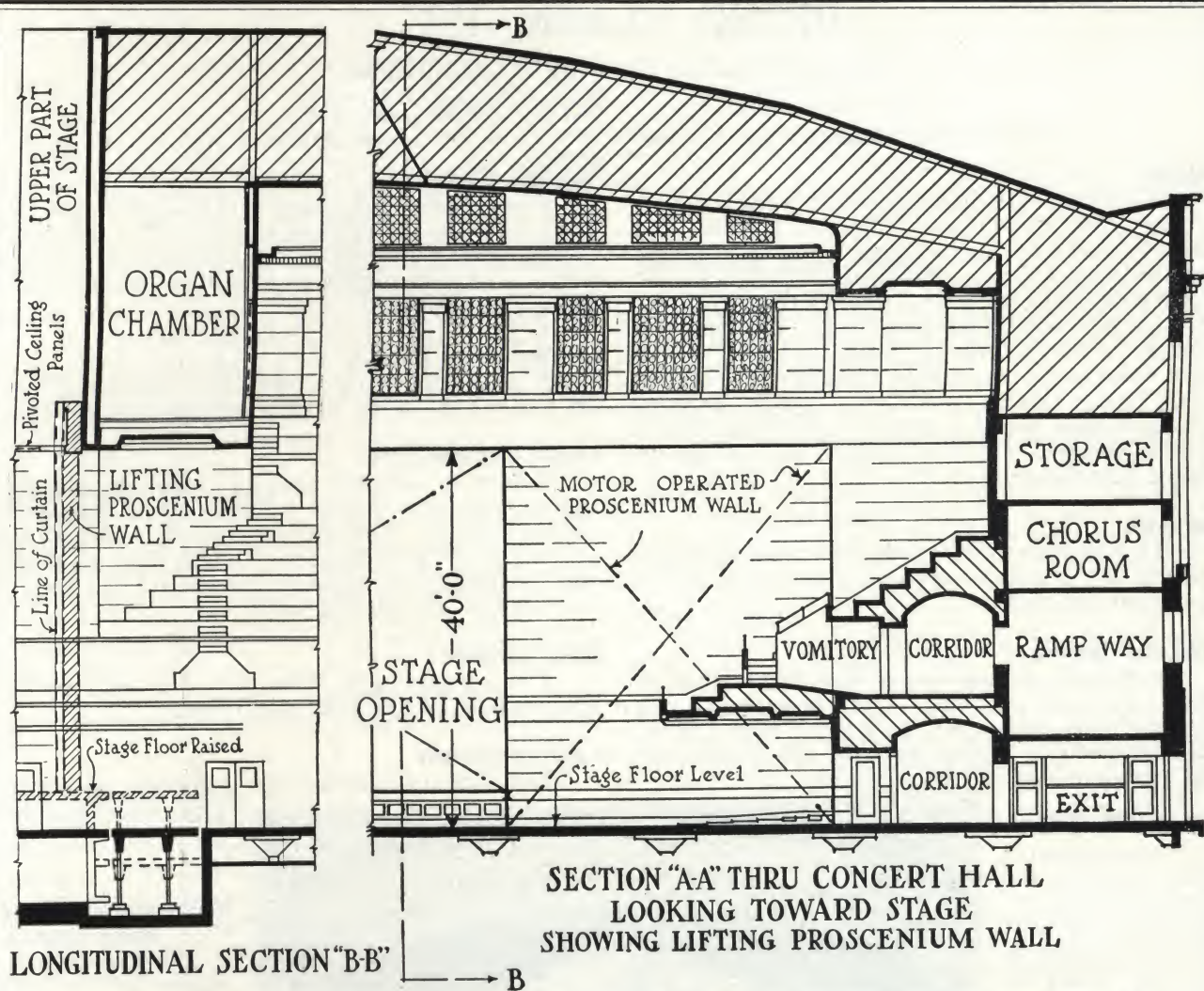
are raised and the proscenium walls at each side of the stage are also raised out of sight. The ceiling over the stage is pivoted in sections and is then closed, giving a complete ceiling over the stage.

The stage is operated in one section by means of synchronized operation of electrically driven screw jacks. The operation requires about 28 minutes.

This building is illustrated to demonstrate the range of electrically operative engineering which we are capable of handling, and in the hope that it may act as a suggestion for other problems of this nature.



MOTOR OPERATED STAGE AND PROSCENIUM WALLS
MUNICIPAL AUDITORIUM OF NEW ORLEANS, LOUISIANA



Progressive Views Showing the Transformation of the Municipal Auditorium of New Orleans from Its Use As a Concert Hall and Auditorium to an Immense Convention Hall

PETER CLARK, INC.

Manufacturers of Stage Equipment

544 West 30th Street, NEW YORK, N. Y.

WESTERN REPRESENTATIVE: FRANK R. EASTMAN, 1773 No. El Molino Avenue, PASADENA, CAL.

Products

STAGE RIGGING; COUNTERWEIGHT SYSTEMS; ASBESTOS, STEEL AND SOUNDPROOF CURTAINS; HAND AND ELECTRIC CURTAIN HOIST; DRAW CURTAIN TRACKS; ELECTRIC DRAW CURTAIN MACHINES; ORCHESTRA PIT LIFTS; ORGAN CONSOLE LIFTS; STAGE LIFTS; MOVABLE STAGE BAND CARS; MOVIE TONE HORN TOWERS; MECHANICAL STAGE EFFECTS; MAGNASCOPE PICTURE SHEET FRAMES; STEEL FRAMES FOR PICTURE SHEETS; METAL TICKET RACKS AND CASES; PIANO TRUCKS; BUS TURNABLES; PORTABLE SEATING; PLATFORM LIFTS.

Also Theatrical Iron Work, Stage Floor Traps and Portable Ballroom Floors.

Guarantee

All equipment and effects are sold with a full guarantee that any defects in material or workmanship will be promptly rectified.

Architects' Service

We maintain an engineering department organized to help with your problems. Our engineers, at your disposal without charge, will lay out the stage rigging, plans and gridiron, paying particular attention to unusual conditions that may be presented.

Orchestra Pit Lifts

For featuring orchestra numbers, the entire floor of the orchestra pit is the platform of a multiple screw lift. The platform is lowered to the basement level where musicians enter or leave through a convenient door without annoyance to the patrons. While playing, the platform is brought to stage level for the overture. The platform can be lowered to an intermediate level, out of the sight lines of the audience, for accompanying the production.

The orchestra lift is electric driven and automatically controlled by push buttons.

The leader, by pushing proper button for any of the levels, can bring platform to desired position where it will automatically stop.

The machinery is operated by one motor; it is worm gear driven and is ball bearing throughout. Operation can be arranged from two or more points.

Stage Rigging and Hardware

A complete line of stage accessories embracing every appliance needed for the modern stage. Catalogue on request.

Asbestos Curtains

Flexible asbestos fire curtain of plain or woven wire cloth. Asbestos cloth curtain with rigid steel frame, has a layer of cloth on both auditorium and stage side of curtain. Curtains rigged so that they descend under their own weight.

Counterweight Hoist

A small portable hoist used with counterweight system and for any other hoisting necessities on the stage.

Organ Console Lifts

Similar to orchestra pit lifts, except that the platform is only large enough to hold console and usually are single screw. They are automatically controlled and operated in the same manner. Console lifts can also be made to revolve so organist presents a better view to the audience when playing a solo.

Steel Curtains

Fire curtains with sheet steel face and vitrified asbestos back on structural iron frame.

Contour Curtain

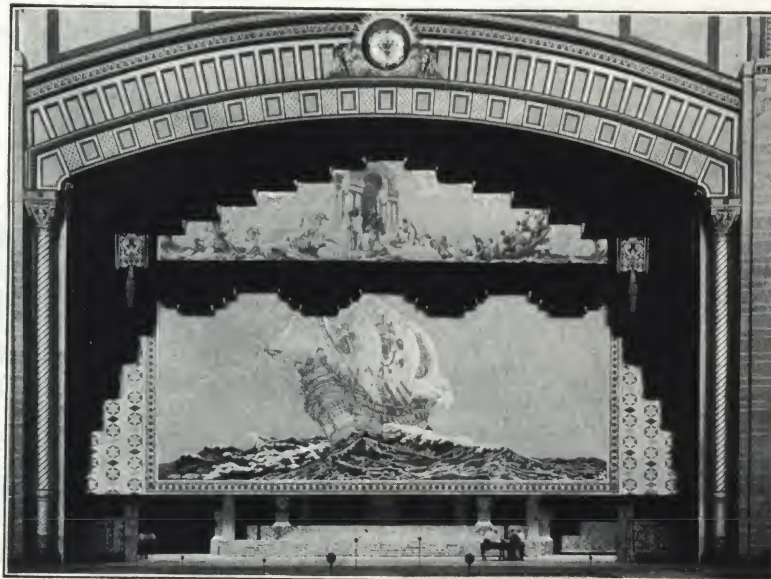
New type of automatically controlled act curtain. This curtain will give any drape effect desired.

Magnascope Picture Sheet Frames

Steel picture sheet frames with automatic maskings so that two or three sizes of picture can be shown on the same sheet. Also steel frame for picture sheets. These frames carry permanent masking.

Movietone Horn Telescoping Towers

For mounting talkie horns adjustable in height. Towers on casters so they can be moved about stage.



One of the Largest Steel and Asbestos Curtains in the World—108 Ft. Wide

LOCKWOOD, GREENE COMPANY, Boston, Mass. and COOK & BLAUNT, New York, N. Y., Architects

Designed and installed by PETER CLARK, INC. in the new Convention Hall, Atlantic City, N. J.

Counterweight System

This system does away with fly galleries and operating of scenery from the flies, as all drops are handled from the stage floor.

Each set consists of a pipe batten long enough for width of opening—batten equipped with quick acting clamps or chains with snap hooks for attaching scenery to batten. Batten is hung by steel cables which run over loft blocks which have self-lubricating bearing, to roller bearing head block, and cables are attached to counterweight frame with trimming chains.

Counterweight frame is equipped with fibre guides which run on tee-iron tracks. Tracks are placed on side

wall of stage house. Counterweight frames are open on end so weight can be easily added or taken off frame.

The set is operated by a manila rope hand line which is attached to top of counterweight frame and run over head block through locking clamp, thence over tension pulley and up to bottom of frame.

There is a loading platform at the upper travel of frame where frame is loaded or unloaded when scenery is put on or taken off of pipe batten. Across the entire front of the system, on the stage floor, is a locking rail which has rope locks and also card index for marking sets. Also across entire front of system there is an illuminated strip for lighting, with subdued light, the locking rail. On this strip the sets are numbered consecutively. During a production the system is operated from the stage floor. The ease and quickness with which scenes can be handled, make it worth while to install this system, to say nothing of the labor saved.

Ticket Racks and Cases

Made of metal to special order for requirements. Practical for both advance and daily rush sales. Compartments are built on an angle so as to show the stub of first ticket in each row with the seat number. *A rack for each performance.* All cases made to order to accommodate any number of performances and conditions of box office.

Send seating plan, exact size and thickness of tickets used; also plans of box office for cases, when requesting prices.

Draw Curtain Tracks

Two types of steel draw track—steel wood lined with lignum vitae ball slides—steel track with rubber-tired carriages. The steel casing has welded joints. Track sheaves are ball bearing in iron frames with guards to prevent rope from getting off sheave. Tracks are noiseless and dustproof, and are designed for easy hanging of curtains.

Soundproof Curtains

Used in schools to separate gymnasiums from auditoriums. Have a sheet steel center covered on both sides with sound resisting material. Have a structural iron frame covered on both sides with asbestos cloth.

Curtain Hoists

Hand operated for small curtains, placed in gridiron. Electric hoists for larger curtains. Two types, one

for installation in gridiron and the other for installation in basement under stage. All hoists, whether hand or electric, are designed so that curtains can descend under their own weight.

Electric Draw Curtain Control

Smooth running machine enabling the operation of curtain from any desired points. Variable speeds, if desired.

Mechanical Stage Effects

Our knowledge of this highly special line has been gained through 25 years of experience, backed by technical knowledge. We accomplish results that are practical and mechanically correct.

Portable Seating

Designed for your seating requirements. Made in standard sections of the tower and girder type of construction of interchangeable units. This type can also be covered with portable flooring to make a ramped floor. Easily handled and requires minimum space for storage.

Piano Trucks

Adjustable steel frame with noiseless swivel castors to fit under piano legs.

Bus Turntables

Rigid steel construction—electrically operated—remote control. Roller bearing throughout. Built for any capacity or requirements desired. The largest bus turntable in the country was built by us for the Central Union Bus Terminal in New York City.

Heavy Duty Platform Lifts

Built on jackscrew principal—similar to orchestra lifts—for industrial purposes such as: Lumber stacking, car loading, etc. All lifts built to specification.

Movable Stage Band Cars

Cars to move entire stage band up and down stage.

Movietone Lifts

Sections of stage made platform of telescoping lift. Horns hung on underside of platform. Lift located directly behind movietone screen. When raised lift brings horns to desired height. When lowered horns are stored under stage.

Some of Our Installations

Theatres

Roxy Theatre, New York, N. Y.
Paramount Theatre, New York, N. Y.
Ziegfeld Theatre, New York, N. Y.
Erlanger Theatre, New York, N. Y.
Metropolitan Opera House, New York, N. Y.
Music Box Theatre, New York, N. Y.
Winter Garden Theatre, New York, N. Y.
Capitol Theatre, New York, N. Y.
New Amsterdam Theatre, New York, N. Y.
Guild Theatre, New York, N. Y.
E. F. Albee Theatre, Brooklyn, N. Y.
Keith Theatre, Brooklyn, N. Y.
Loew's State Theatre, Syracuse, N. Y.
Mastbaum Theatre, Philadelphia, Pa.
Boyd Theatre, Philadelphia, Pa.
Uptown Theatre, Philadelphia, Pa.
Fox Theatre, Philadelphia, Pa.
Loew's Theatre, Pittsburgh, Pa.
Stanley Theatre, Pittsburgh, Pa.
Warner Bros. Theatre, Atlantic City, N. J.
Stanley Theatre, Atlantic City, N. J.
Million Dollar Pier, Atlantic City, N. J.
Loew's State Theatre, Providence, R. I.
Metropolitan Theatre, Boston, Mass.
Keith's Memorial Theatre, Boston, Mass.
Paramount Theatre, Springfield, Mass.
Olympia Theatre, New Haven, Conn.
Chicago Theatre, Chicago, Ill.
Harris Theatre, Chicago, Ill.
Oriental Theatre, Chicago, Ill.
Uptown Theatre, Chicago, Ill.

Theatres (Continued)

Granada Theatre, Chicago, Ill.
Marbro Theatre, Chicago, Ill.
Earle Theatre, Washington, D. C.
Fox Theatre, Washington, D. C.
Civic Theatre, Miami, Fla.
Miami Beach Casino, Miami, Fla.
Olympic Theatre, Miami, Fla.
Publix Theatre, St. Petersburg, Fla.
Paramount Theatre, Toledo, Ohio
Keith Palace, Cleveland, Ohio
Fox Theatre, St. Louis, Mo.
Fisher Theatre, Detroit, Mich.
Fox Theatre, Detroit, Mich.
Michigan Theatre, Detroit, Mich.
Cass Theatre, Detroit, Mich.
Lafayette Theatre, Detroit, Mich.
Orpheum Theatre, Minneapolis, Minn.
Fox Theatre, Atlanta, Ga.
Saenger Theatre, New Orleans, La.
Fox Theatre, San Francisco, Cal.
Orpheum Theatre, San Francisco, Cal.
Loew's Theatre, Indianapolis, Ind.
Metropolitan Theatre, Denver, Colo.
Orpheum Theatre, Seattle, Wash.
Palace Theatre, Dallas, Tex.

Public Assembly Halls

Atlantic City Convention Hall, N. J.
Public Auditorium, Cleveland, Ohio
Philadelphia Convention Hall, Pa.
Bushnell Memorial, Hartford, Conn.

Public Assembly Halls (Continued)

War Memorial, Louisville, Ky.
Auditorium, Minneapolis, Minn.
Severance Hall, Cleveland, Ohio
Community Center, Westchester, N. Y.
Convention Hall, Asbury Park, N. J.

Masonic Temples

Mecca Temple, New York, N. Y.
Scottish Rite Cathedral, Philadelphia, Pa.
Masonic Temple, Scranton, Pa.
Masonic Temple, Detroit, Mich.
Al Malaikah Temple, Los Angeles, Cal.
Masonic Temple, New Castle, Pa.
Syria Temple, Pittsburgh, Pa.

Educational Institutions

Yale University, New Haven, Conn.
Ohio University, Athens, Ohio
McCarter Theatre, Princeton, N. J.
Union College, Schenectady, N. Y.
Columbia University, New York, N. Y.
Emma Willard School, Troy, N. Y.
Kilbourne Hall, Rochester, N. Y.
Seward Park High School, New York, N. Y.
Washington Irving High School, New York, N. Y.
High School, Southampton, L. I., N. Y.
Armstrong High School, Washington, D. C.
Central High School, Washington, D. C.
East High School, Columbus, Ohio
South High School, Columbus, Ohio
Central High School, Columbus, Ohio

KLIEGL BROS.

UNIVERSAL ELECTRIC STAGE LIGHTING CO., INC.

Theatrical, Decorative and Spectacular Lighting

TELEPHONES

COLUMBUS 0130, 0132

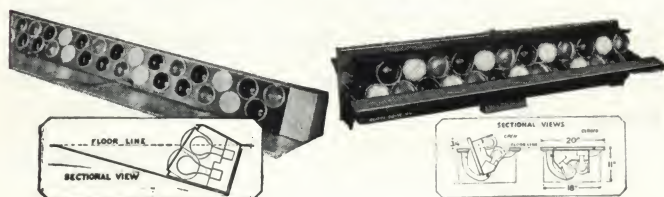
321 West 50th Street
NEW YORK, N. Y.

ESTABLISHED 1896

A Complete Line of Lighting Specialties for Theatrical, Decorative and Spectacular Lighting

Footlights—Any form desired. Standard designs for lamps from 60 to 150 watts; permanent semiflush types for frequent use; disappearing types for occasional use. Well ventilated. Proper light distribution. Approved by Underwriters. Completely wired, usually for independent control of three colors.

No. 621—Enclosed permanent semiflush type footlight, for 100-watt PS lamps; double row of receptacles, spaced 4½-in. centers; with spun aluminum reflector for each lamp, and adaptor for colored glass, diffusing roundels; completely wired for three colors, with splice box for making connections.



No. 621

No. 831

No. 831—Disappearing type footlight for 24 100-watt lamps, double row receptacles spaced 4½ in. on centers, fitted with individual reflectors and colored glass roundels; wired on 3 2-wire circuits, with splice box for making feeder connections; constructed so that when not in use they may be closed down flush with the stage floor; furnished complete in standard 5-ft. sections ready for installation.

KLIEGL FOOTLIGHTS

No.	Description
Permanent Semi-flush Type	
622	Single row open trough, for 60 or 75-watt lamps.
624	Double row open trough, for 60 or 75-watt lamps.
623	Compartment type with color frames, for 150-watt lamps.
620	Single row enclosed trough, with roundels, for 100 or 150-watt lamps.
621	Double row enclosed trough, with roundels, for 100 or 150-watt lamps.
Disappearing Type	
829	Single row open trough, for 60, 75 or 100-watt lamps.
828	Double row open trough, for 60, 75 or 100-watt lamps.
827	Compartment type, with color frames, for 60, 75 or 100-watt lamps.
830	Single row enclosed trough, with roundels, for 60, 75 or 100-watt lamps.
831	Double row enclosed trough, with roundels, for 60, 75 or 100-watt lamps.

Note: Footlights can be furnished with receptacles spaced wider apart than specified above, or with a greater number of circuits for more colors, or other changes as desired.

Blue prints for use in planning footlight installations, showing construction details and dimensions of Klieg Footlights, available on request.



No. 675

Aisle Lights and Step Lights

No. 675—Aisle spotlight, for mounting on side of end seats adjoining aisle ways or on sidewalls; equipped with lens which distributes the light downward; cast aluminum casing; ½-in. conduit connection can be made at the bottom or rear; for 100-watt lamp. Size 6x3 in. x 2½ in. deep.

No. 676—Aisle light, vertical type, for flush wall mounting, usually used in side aisles; consists of a medium screw base receptacle mounted in a heavy gauge galvanized sheet iron box, 7¼x4½ in. x 3½ in. deep, with ½-in. knockouts in sides, rear and bottom; removable cast aluminum front 8¼x4½ in.; louvered openings direct light to floor; for a 40-watt lamp.

No. 677—Step light, horizontal type, for stairways; ordinarily is set in the step flush with the riser; substantially made to withstand kicks and knocks of moving feet; louvered openings direct light to floor; constructed similar to No. 676.



No. 676



No. 677

Borderlights—Any form desired; built for lamps from 60 to 1000 watts; made of galvanized sheet iron; strong; rigid; well ventilated; comply with Underwriters' requirements; in one continuous length or in any length sections; wired, usually for independent control of three colors.

No. 603—Enclosed type borderlight, for 300 to 500-watt PS Mazda lamps; single row of receptacles, spaced 10-in. centers; with double focus reflector for each lamp and adaptor for holding 9-in. colored glass diffusing roundels; also with slide grooves for holding metal frames for gelatin color mediums or colored glass slides; furnished with splice box for making feeder connections, chains, and 1½-in. pipe batten for hanging.



No. 603

KLIEGL BORDERLIGHTS

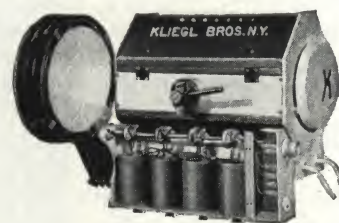
No.	Description
600	Open trough type borderlight, for 60 to 100-watt lamps.
612	Compartment type borderlight, with color frames, for 100 to 200-watt lamps.
613	Compartment type borderlight, with color frames, for 500-watt lamps.
614	Compartment type borderlight, with color frames, for 1000-watt lamps.
602	Enclosed type borderlight, with roundels, for 200-watt lamps.
603	Enclosed type borderlight, with roundels, for 300 to 500-watt lamps.
604	Enclosed type borderlight, with roundels, for 750 to 1000-watt lamps.

Note: Borderlights can be furnished with lamps spaced wider apart than specified in description, or with a greater number of circuits for more colors, or other changes that may be necessitated by particular requirements.

Spotlights—Every form, all sizes, arc and Mazda types—properly designed for flexibility, ease of adjustment, thorough ventilation, correct lighting, maximum efficiency; comply with Underwriters' requirements.



No. 70



No. 72

No. 70—Mazda spotlight for 1000-watt concentrated filament lamp; with mogul screw base receptacle; hood mounted in trunnion and swivel bearings. Equipped with 5-in. lens; slide grooves for color frames; receptacle on sliding base, with extension wing nut for focusing, 5-in. chromium plated metal reflector back of lamp.

No. 72—Mazda spotlight for 1000-watt G40 or 2000-watt G48 concentrated filament lamp, with automatically operated color frames.

General design of spotlight is same as No. 70, except fitted with 6-in. lens and equipped with 4 color frames operated by an electro-magnetic device—permitting entire service of spotlight, including white lighting, color lighting, and dimming, all to be controlled from a distant point.

Cab and Number Calls—*Cab and Carriage Calls*—Rapid and effective means of calling vehicles to doorways of theaters, hotels, department stores, and other public buildings. They obviate confusion and shouting; require no key-cards or other contrivances; are visible day and night; can be read from a distance of several blocks; and are unaffected by weather conditions.

Number Calls—Are similar devices but used for announcing price quotations, score figures, and the like.

Exit and Illuminated Signs—Made in a variety of standard designs, also to customers' specifications. They meet all safety requirements of Underwriters and local fire departments. Metal construction throughout. Attractively finished.



No. 6800



No. 697



No. 688

KLIEGL ILLUMINATED SIGNS

No.	Description	Size of surface plate and depth of box, in.	Height of letters, in.
Surface Wall Type Exit Signs			
680	Single face, rectangular; sheet metal box finished in gold with grooved front, open on one side to receive ruby glass face plate; white letters.	10 x 5 x 5	3
685		11 3/4 x 6 3/4 x 5	5
686		14 x 8 x 5	6
687		12 x 10 x 5	8
690		15 3/4 x 10 x 5	8
691		15 3/4 x 10 x 5	8
692		21 3/4 x 10 1/4 x 5	8
6800	Double faced, rectangular; sheet metal box finished in gold with ruby glass face plate on two sides; white letters; grooved sides open on ends, permitting removal of glass and access to lamps.	10 x 5 x 5	3
6850		11 3/4 x 6 3/4 x 5	5
6860		14 x 8 x 5	6
6900		15 3/4 x 10 1/4 x 5	8
6910		15 3/4 x 10 1/4 x 5	8
6920		21 3/4 x 10 1/4 x 5	8
688	Double faced, triangular; sheet metal box finished in gold with two ruby glass face plates; white letters; front end piece detachable, permitting removal of glass and access to lamp; small opening on bottom, covered with frosted glass, directs subdued light on floor.	10 x 10 x 3	6

Flush Wall Type Exit Signs

694	Ruby glass face plate; white letters; galvanized sheet metal box, removable hinged front; exposed metal parts finished in gold.	16 x 11 x 5	8
695		24 3/4 x 11 x 5	8
694B	Cathedral leaded amber-and-opal glass face with ruby glass letters; galvanized sheet metal box; removable hinged front; exposed metal parts finished in gold.	16 x 11 x 5	8
695B		24 3/4 x 11 x 5	8
694C	All-metal face; letters cut out; backed by perforated translucent metal shield; wording appears illuminated in red; galvanized sheet metal box; removable hinged front; exposed metal parts finished in gold.	16 x 11 x 5	8
695C		24 3/4 x 11 x 5	8
697	Ruby glass face plate; fancy white letters; galvanized sheet metal box; removable cast bronze frame with swinging door; dull bronze finish.	15 3/4 x 9 x 5	4
697W	Ruby glass face plate with metal guard; fancy white letters; galvanized sheet metal box; removable cast bronze frame with swinging door; dull bronze finish. For gymnasiums, basketball and handball courts, etc., where glass face, if unprotected, is likely to be broken.	15 3/4 x 9 x 5	4

Suspension Type Exit Signs

693	Single face; clear glass; white letters; lamp concealed in metal supporting member; all exposed metal parts finished in gold.	16x18	6
6930	Double faced; clear glass; white letters illuminated through edge of glass; lamp concealed in metal supporting member; all exposed metal parts finished in gold.	16x8	6

Globe Type Exit Signs

725	Round globe; 4-in. diameter; red glass with spring clamp globe holder for mounting on wall over a receptacle containing a 40-watt Mazda lamp; white lettering.		2
726	Round globe; 6-in. diameter; red glass with opening on top for attaching to 3/4-in. shade holder; white lettering.		2 1/2
728	Flat-round opal glass globe; 8-in. diameter, with opening on top for attaching to 3/4-in. shade holder; red letters.		4

Box Signs

716	Single-face	Sheet metal box signs; square corners, with black glass front plate; white letters. All exposed metal parts finished in gold. Any wording may be specified.	14x5x5	3
717			14x5x5	3
720			14x5x5	3
714	Double-face		14x5x5	3
715			14x5x5	3
721			14x5x5	3

Green or other colored glass can also be furnished with exit signs—prices on application. Exit signs with special lettering can be furnished—prices on application.



No. 1610

Outdoor Floodlights—Units of all description; various types for close or long-range floodlighting, concentrated or wide beam.

No. 1610—Floodlight for 1000-watt PS Mazda lamp, projects concentrated beam of light long distance; fitted with special heat resisting mirrored glass reflector, 13 5/8-in. diameter, mounted within housing; mogul screw base receptacle with adjustment for focusing; housing of cast aluminum and sheet metal, weatherproof and thoroughly ventilated; clear glass front lens is set in hinged frame,

permitting access to interior. Floodlight is mounted in swivel yoke on short stand permitting any desired setting.

No. 562—Floodlight for 2 1000-watt PS Mazda lamps—a gigantic reflector for floodlighting large open spaces; projects extremely wide spread of light without blinding glare. Body of reflector is cast aluminum, weatherproof, houses 2 mogul screw base receptacles; base fitted with adjustable bracket permits mounting on pole or vertical support; reflector hood made of galvanized sheet iron (or of sheet aluminum No. 562A), spreads out to an opening 30 1/2 x 28 in.



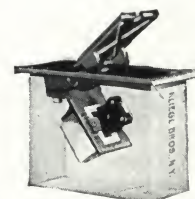
No. 562

KLIEGL OUTDOOR FLOODLIGHTS

No.	Description
1600	For 250 or 400-watt G30 lamp; with short stand.
1601	Same as No. 1600, for 500-watt G40 lamp.
1610	For 1000-watt PS lamp, with short stand (concentrated light beam).
1611	Same as No. 1610, with 3-ft. pedestal stand.
1612	For 1000-watt PS lamp; with short stand (wide spread light beam).
1613	Same as No. 1612; with 3-ft. pedestal stand.
562	For two 1000-watt PS lamps; with bracket mounting.
562A	Same as No. 562; except hood is of sheet aluminum.
568	For one 1000-watt PS lamp; with bracket mounting (of sheet aluminum similar to No. 562A except it is for one lamp).
565	Suspension type, for one 500 or 1000-watt PS lamp.
565A	Same as 565; hood of sheet aluminum.

Stage-floor Pockets and Plugs—

For connecting stage lamps and other devices to supply circuits. Pockets set in floor flush with the surface and have hinged self-closing cover notched for cable. Plugs furnished with stage pockets. Any desired combination of arc and incandescent pockets, from 1 to 4, can be furnished. Pockets and plugs approved by Underwriters.



No. 351

KLIEGL STAGE-FLOOR POCKETS AND PLUGS

No.	Number of pockets	Rating of receptacles		
		Amps.	Volts	Number of wires
351	1	1-50	250	2
352	2	1-50; 1-25	250	2
353	3	3-25	250	2
354	4	4-25	250	2
1350	1	100	250	2

Wall Pockets and Plugs—For use wherever heavy current temporary circuits are required. They are made in both surface and flush wall types, in sizes which range from 30 to 400 amperes; 2, 3 and 4-wire; for 125, 250 and 500-volt circuits; furnished complete with plugs and are approved by Underwriters.



No. 310

KLIEGL SURFACE WALL POCKETS AND PLUGS

No.	Number of pockets	Receptacle rating			Dimensions, in.		
		Wire	Amps.	Volts	Height	Width	Depth
307	1	2	50	250	6	4 3/4	2 1/4
317	2	2	50	250	7	11	4 1/2
318	3	2	50	250	7	11	4 1/2
319	4	2	50	250	7	11	4 1/2
1307	1	2	100	250	6 1/2	5 1/4	3 3/4
4307	1	2	200	125	7	11	4 1/2
2307	1	3	30	125/250	7 1/2	5 1/4	3 3/4
3307	1	3	100	125/250	7	11	4 1/2
338	1	2	100	500	7	11	4 1/2

KLIEGL FLUSH WALL POCKETS AND PLUGS

No.	Number of pockets	Dimensions, in.			Surface plate	
		Height	Width	Depth	Height	Width
*308	1	5 3/4	4 1/2	3 3/4	7 1/2	5
*310	1	5 3/4	4 1/2	3 3/4	7 1/2	6
*311	2	6	7 1/2	4	7 1/2	9
*312	3	6	8 1/2	4	7 1/2	10 1/2
*313	4	6	10 1/2	4	7 1/2	12 1/2

*With brass face plate, and with lock and key.

§With iron face plate; without lock and key.

Receptacle rating: 2-wire, 50 amps., 250 volts.

NATIONAL THEATRE SUPPLY COMPANY

Complete Theatre Equipment and Engineering Service

GENERAL OFFICES

624 South Michigan Avenue, CHICAGO, ILL.

BRANCH OFFICES RENDERING SERVICE

CHICAGO, ILL., 825 So. Wabash Avenue
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CLEVELAND, OHIO, 2112 Payne Avenue
DENVER, COLO., 2106 Broadway
PITTSBURGH, PA., 1006 Forbes Street
ST. LOUIS, MO., 3315 Olive Street
DETROIT, MICH., CASS & MONTCALM, Film Building
INDIANAPOLIS, IND., 128 W. Ohio Street
KANSAS CITY, MO., 108 W. 18th Street
MILWAUKEE, WIS., 715 Wells Street
MINNEAPOLIS, MINN., 56 Glenwood Avenue

OMAHA, NEB., 1510 Davenport Street
DALLAS, TEX., 306 So. Harwood Street
MEMPHIS, TENN., 400 So. Second Street
OKLAHOMA CITY, OKLA., 516 W. Grand Avenue
NEW YORK, N. Y., 1560 Broadway
BUFFALO, N. Y., 376 Pearl Street
NEW HAVEN, CONN., 133 Meadow Street
BALTIMORE, MD., 309 No. Gay Street
BOSTON, MASS., 211-13 Columbus Avenue
PHILADELPHIA, PA., 1315 Vine Street
WASHINGTON, D. C., 937 H Street, N. W.

ATLANTA, GA., 187 Walton Street
CHARLOTTE, N. C., 222 W. Fourth Street
NEW ORLEANS, LA., 220 So. Liberty Street
LOS ANGELES, CALIF., 1961 So. Vermont Street
PORTLAND, ORE., 460 Gilson Street
SALT LAKE CITY, UTAH., 248 E. First South Street
SAN FRANCISCO, CALIF., 121 Golden Gate Avenue
SEATTLE, WASH., First and Battery Streets

Products

National Distributors, Sales and Service Representatives of leading manufacturers of THEATRE EQUIPMENT, which includes the following products:

Moving Picture Projectors; Motor Generator Sets; Moving Picture Screens; Distributing Switchboards; Effect Projectors; Changeover Devices; Opera Chairs; Loge Chairs; Directional Signs; Lighting Fixtures; Ventilating Equipment; Carpets and House Draperies; Scenery and Stage Draperies; Automatic Curtain Controls; Stage Rigging and Hardware; Stage Lighting Equipment; Theatre Switchboards; Theatre Dimmers; Lobby Display Frames; Marquises; Electric Signs; Coin Changers; Ticket Selling Machines; Ticket Choppers; Leather Link Matting; Aisle Ropes and Railings; Ticket Booths; Equipment and Supplies of every description for moving picture and legitimate theatres, schools and public auditoriums.

Kino Booth Equipment

Moving Picture Projectors—All models.

Motor Generator Sets—All types and capacities for moving picture projection as needed, including accessories for talking pictures.

Effect Projectors—Stage effect equipment for operation from the Kino booth.

Moving Picture Screens—Built to specification for various light sources; either sound or silent pictures.

Auditorium Equipment

Opera Chairs and Loge Chairs—Beautiful designs, also special designs specified built to order. Designs submitted without cost.

Directional Signs—Produced for us by a leading manufacturer. Special period designs to order. Sketches furnished on request.

Lighting Fixtures—For all styles of architecture and all classes of theatres. Illuminated drinking fountains, exit signs and other decorative fixtures. Period designs built to order.

Ventilating Equipment—All types of ventilating apparatus, including blower and exhaust fans.

Carpets and Draperies—A highly specialized department. Particularly important where sound pictures are shown.

Stage Equipment

Scenery and Stage Draperies—Employing our own staff of stage specialists and utilizing the entire output of one of the largest, oldest and best known

scenic studios in the country, we are in a position to render the highest type of service and the finest artistry in stagecraft. Special sketches on request.

Automatic Curtain Controls—Noiseless and smooth in operation. We also supply special noiseless curtain tracks.

Stage Rigging and Hardware—A complete line of all stage accessories embracing every appliance needed for the modern stage.

Stage Lighting Devices—For regular requirements. Also special equipment for spectacular effects designed and built to order.

Theatre Switchboards—Sole distributors of the National System manually and electrically operated switchboards and panels; designed by Westinghouse engineers.

Distributing Switchboards—National System distributing panels, manually or electrically operated or entirely automatic.

Theatre Dimmers—Special dimmer banks made up to specification.

Lobby and Foyer

Lobby Display Frames—Both stock and special built-to-order frames and fixtures are available in either embossed wood or ornamental crafts.

Marquises—Built to order in any special design or decorative treatment desired.

Electric Signs—Reliable and complete sign service. Name flasher signs and changeable program boards of every description. Sketches rendered gratis.

Coin Changers—All well and favorably known devices.

Ticket Selling Machines—Ticket Choppers—Ticket Booths—Aisle Ropes and Railings—All of the best in style and materials.

Leather Link Matting—Attractive, durable, easy to stand on and noiseless.

Our Service to Architects

In close co-operation with the architect, co-ordinating the processes of construction and equipment, grouping the entire equipment into one unified contract and following it through to completion, it is possible for us to save the architect and builder much time, worry and expense and the ever-present possibility of error.

The service outlined above is available to all architects. We invite inquiries on any subject that pertains to theatre equipment and with branch offices located in all principal cities of the United States we are in readiness to serve with promptness and efficiency.

McSHANE BELL FOUNDRY CO.

ESTABLISHED 1856
BY HENRY McSHANE

MAIN OFFICE AND FOUNDRY
Harford Avenue and B. & O. R. R.
BALTIMORE, MD.

INCORPORATED 1904

Products

Founders of CHURCH BELLS, CHIMES, PEAL and CHAPEL BELLS; FIRE ALARM, COURTHOUSE and TOWER CLOCK BELLS; also WESTMINSTER CLOCK CHIMES, and SCHOOLHOUSE BELLS.

McSHANE TUBULAR TOWER CHIMES, operated electrically from a standard keyboard.

This company specializes in the building of Musical Bells of the highest standard, Chimes for churches and Tower Clocks.

McShane Electric Chiming Action

Designed to operate on 220-volt 60-cycle alternating current.

The keyboard may be placed in any desired location. It contains a row of keys, to the underside of which are attached contacts which act as the medium for completing circuits which operate the relays.

The relays in turn cause the operating units to function, thereby bringing into action hammers which strike the bells. There is a key for each bell in the chime.

The action is instantaneous.

There are no motors, generators or other complicated equipment.

The consumption of current is exceedingly small, being used only with each pressure of a key.

Suggestions for Construction of Belfries

Best results are obtained when floor of bell deck is on a level with comb of roof of the building.

Place windows, which should be 12 to 16 ft. high, on a level with belfry floor and a ceiling just above top of windows.

See that windows are as large and open as possible and if louvers are used, see that they be pitched so as not to obstruct entirely the carrying of the tone.

Make provisions for admission of bell.



Church Bell

DETAIL SPECIFICATIONS OF CHURCH BELLS AND MOUNTINGS

Tone	Bell		Mountings		
	Weight, lb.	Diameter, in.	Outside measurements of frame, ft.-in.	measurements of wheel, ft.-in.	Diameter of wheel, ft.-in.
D	300	25	3-4 x 2-8	2-10	2-10
C#	400	27	3-4 x 2-10	3-6	3-6
C	500	29	4-0 x 2-10	4-4	4-4
B	600	31	4-0 x 2-10	4-4	4-4
Eb	700	33	4-5 x 3-3	4-9	4-9
A	800	34	4-5 x 3-3	4-9	4-9
G#	1000	36	4-9 x 3-4	5-6	5-6
G	1200	38	4-9 x 3-7	5-6	5-6
F#	1500	41	5-0 x 3-10	6-3	6-3
F	1800	44	5-4 x 4-0	6-3	6-3
E	2000	46	5-8 x 4-6	7-0	7-0
Fb	2500	50	6-1 x 4-6	7-0	7-0
D	3000	54	6-8 x 5-0	7-6	7-6
C#	3400	55	6-8 x 5-0	7-6	7-6
C	4200	59	7-0 x 6-0	8-0	8-0
B	5000	62	7-6 x 6-0	8-0	8-0
Eb	6200	66	7-6 x 6-0	8-6	8-6
A	7000	72	8-0 x 7-0	8-6	8-6

McShane Tubular Tower Chimes A Most Satisfying Substitute for Bells—These tubular

tower chimes built by McShane, according to McShane's unequalled standard of attunement, produce a purity and mellowness of tone which is exceedingly sweet. The carrying power is not so great as that of bells, but the effect produced is that of a full church chime. Their clearness and volume of sound is such that every note can be easily distinguished within the radius of a mile (depending on location).

Simple Construction and Installation; No Vibration—McShane Tubular Chimes consist of a series of bronze composition metal tubes suspended from a framework of wood. Bells or tubes range from 5 to 10 ft. in length and 12 to 14 in. in circumference. Bells are struck by hardwood-tipped hammers at the upper end of the graded tubes.

The vibration is confined almost entirely to the tubes, and they can with perfect safety be placed in a tower not specially constructed to receive a set of bells.



Keyboard



Chime Bells



Westminster Clock Chimes



McShane Tubular Tower Chimes

Showing frame and tubes assembled. Standard sets: 10 to 20 tones. Over-all dimensions, 8 ft. square, 12 ft. high

J. C. DEAGAN, INC.

Manufacturers of Tower Chimes

TELEPHONE
LAKEVIEW 4364

MAIN OFFICE AND FACTORY
Deagan Building, 1770 Berteau Avenue
CHICAGO, ILL.

WEST COAST OFFICE: E. J. EXTER (Representative), 1306 Fuller Avenue, Hollywood, Calif.—Telephone, Gladstone 1002

Products

J. C. DEAGAN, INC., is the originator and the largest builder of electrically operated TUBULAR BELL TOWER CHIMES.

Also manufacturers of Scientific Tuning Devices (used in U. S. Bureau of Standards, Washington, D. C.), Percussion Musical Instruments for handplaying and organ use, Electric Door Chimes, Altar Chimes, etc.

Growing Importance of Tower Chimes

While the cultural and inspirational value of Tower Chimes has been recognized for centuries, it is only in recent years that users have begun to appreciate their importance from an investment standpoint. *Churchmen* have found the automatically played daily concerts a powerful aid in increasing and holding membership. Owners of *office buildings* have discovered in Chimes a means of quickly gaining the renown that prospective tenants like to associate with their address, while to *cemetery officials* the mellow music has become a "voice" almost magical in its effectiveness—a "voice" perfectly in keeping with the peaceful surroundings, that draws hundreds of visitors who would otherwise be unaware of the cemetery's advantages.



The Deagan Electric Player

Located at any desired distance from the Chimes, it reproduces with absolute fidelity the expertly played program of Master Chimers

Service to Architects

In view of the facts contained in the foregoing paragraph, architects planning churches, public buildings, office structures, college buildings, country estates or cemetery improvements are urged to consult the Service Bureau of J. C. DEAGAN, INC., for important information on the operation and installation of Tower Chimes. Although Deagan Chimes, immune to



the elements, may be installed in almost any structure, it is obvious that for best results certain principles should be observed. These principles, involving the design of louvers, size of openings, size of scuttles, wiring information, etc., will gladly be explained in detail on request.

Even if impossible to consider Tower Chimes as part of the original plan, it is sound economy to provide for their possible installation later.



Master Clock

By merely setting the selector the Electric Player may be made to start the Chimes automatically at any desired hour, and to shut them off automatically when the desired program has been concluded

Advantages of Tubular Bell Tower Chimes

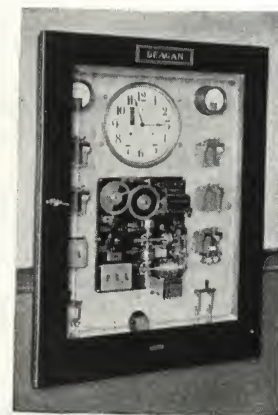
(1) A degree of tuning accuracy never before attainable; (2) uniformity of volume and tonal characteristics throughout the entire register; (3) beauty of tone; (4) carrying power equal to or exceeding that of any Chimes on which musical selections are played.

Automatically or Hand Played

As the Deagan Patented Damper (see following page) is one of the greatest of all improvements in the design of Tower Chimes, so, we claim, is the Deagan Automatic Player unquestionably the greatest of all improvements in operating methods.

Through this device the fear that the Tower Chimes will be infrequently or inexpertly played is completely removed.

The function of the Deagan Electric Player is to reproduce with absolute and unvarying fidelity the expression, technique and fine tempo shadings of expert handplaying. A library of hand-recorded reproducing rolls, containing music for all occasions, places at the "command" of



Deagan Westminster Chiming Device Mounted in Wall



Deagan Tower Chimes Played Direct from Organ Console



Through automatically played Tower Chimes the church becomes, even more intimately than before, a part of community life. The morning program, twilight concert and 9 o'clock curfew are eagerly awaited daily events

the man in charge of the Chimes, 365 days a year, the "services" of a Master Chimer.

The Electric Player may be started either by a convenient push button, located at any desired distance from the Chimes, or by a Master Clock set to play either a single piece or an entire program, automatically, at any desired hour.

The Electric Player starts the Chimes automatically, plays them exactly as a Master Chimer would play them, and automatically shuts them off when the desired program has been concluded. Thus, the donor of Tower Chimes, installing them as a memorial, may arrange, if desired, that the favorite hymn of the departed one be played automatically and unfailingly at a certain hour each day.



Deagan Electric Tower Chime Action
Length, 42 in.

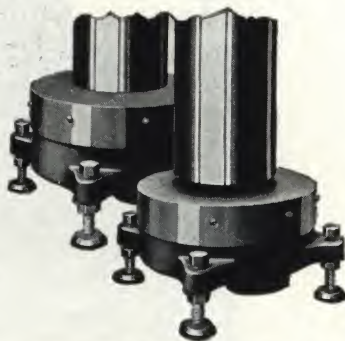
Other Playing Methods

In addition to automatic playing, Deagan Tower Chimes may be played (1) from an electric keyboard, (2) direct from organ console and (3) from Deagan time-marking devices such as Westminster or "Praise" Peal, Automatic Angelus, etc.

Time-marking Devices

The Deagan Westminster Chiming Device automatically sounds the Westminster Peal at the conclusion of each quarter hour with the correct number of hour strokes on the fourth quarter. The "Praise" Peal, designed for Catholic Churches, is a copyrighted version of "Holy God, We Praise Thy Name," especially adapted to time-marking purposes.

Because Deagan Time-marking Peals are automatically shut off when other playing methods are in use, there is no danger of conflict with the Electric Player or keyboard operation. Where it is desired to silence the Chimes during the night the device can be set to "shut off" at any hour and set to "cut in" automatically in the morning.



Deagan Patented Damper Shown Pressing Against and Silencing One Chime as Other is Sounded

Deagan Electric Damper (Patented)

This, one of the greatest inventions in Tower Chimes history, automatically silences each tone at the precise instant the next one is sounded, causing the melody to stand out clear and distinct. It is entirely different in principle from the piano damper which stops the tone when the key or pedal



The Deagan Electric Keyboard

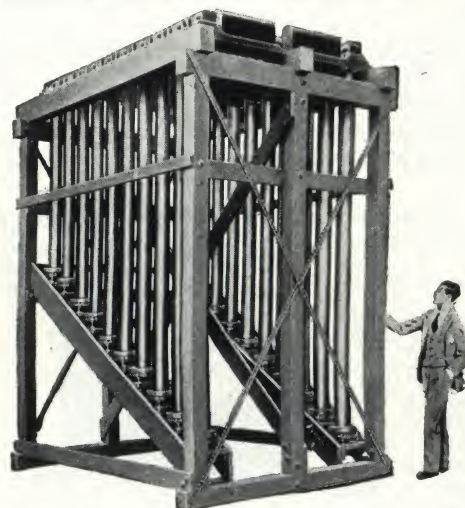
Placed wherever desired and permits the playing of the Chimes independent of organ or Electric Player

and damper which stops the tone when the key or pedal

is released. The Deagan Tower Chime Damper does not silence the chime tone until the succeeding key at the keyboard is depressed.

This ingenious and altogether unique principle of operation entirely eliminates all intermingling or "running together" of tones—a defect in Chimes which is the usual cause for the frequent popular belief that certain Chimes are "out of tune." A separate damper is placed under each chime as shown in the illustration.

Twenty-tone Set Deagan Tower Chimes Mounted on Rack



Deagan Electric Tower Chime Action (Patented)

The Deagan Patented Tower Chime Action is marvelously efficient. When any key of the keyboard is depressed, the plunger of the corresponding action is propelled forward electrically and delivers against the chime a mighty blow, far more powerful than would be possible with any hand-operated mechanism. With lightning-like rapidity the plunger is automatically returned to its original position, ready for the next stroke. Despite the great strength of the forward blow very little current is consumed.

A Weatherproof Hood makes Deagan Tower Chime Actions absolutely impervious to climatic conditions.

Weight and Space Required

Special strengthening of belfry or roof is very seldom required for Deagan Tower Chimes. Volume of tone is secured without excessive tonnage.

Each chime is suspended by a cable which allows every ounce of metal to vibrate. A complete set of 25 tones installed ready for playing weighs approximately 14,000 lbs.

Installation

Deagan Tower Chimes are installed by our own erectors, thus insuring perfect results.

Hundreds of Satisfied Users

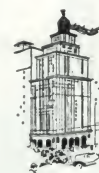
It has been the privilege of J. C. DEAGAN, INC., to serve hundreds of churches, country estates, war memorials, universities, cemeteries, office and public buildings in every part of the United States and Canada. An impressive portfolio containing the expressions of a few users will be mailed on request.



Chimes Used for Church



Voice of the Cemetery



Neils Esperson Building, Houston, Tex.



Chimes and Tower, Estate of Arthur S. Williams, Roslyn, L. I., N. Y.

MENEELY BELL CO.

220 Broadway
NEW YORK, N. Y.
TELEPHONE CORTLANDT 1749

22-28 River Street
TROY, N. Y.
TELEPHONE, TROY 525

Bells

Church, Chime, Peal, Angelus, School, Tower Clock, Westminster, Fire Alarm, Fog Signal, Ship, Farm, and other Bells.

The accompanying illustrations show a few of the principal bells manufactured by this company.

WEIGHTS, TONES AND SIZES OF CHURCH BELLS

Bell			Mountings			
Weight, lbs.	Medium tone	Diameter, in.	Size of frame outside		Diameter of wheel	
			ft.	in. ft. in.	ft. in.	
400	D	27	3	5x3	5	4 4
450	C sharp	28	3	5x3	5	4 4
500	C	29	3	5x3	5	4 4
600	B	31	3	8x3	11	4 9
700	B	33	3	11x4	2	4 9
800	B flat	34	3	11x4	2	5 6
900	A	36	4	2x4	6	5 9
1000	A	37	4	2x4	6	5 9
1200	A flat	39	4	9x4	9	6 3
1500	G	42	4	10x4	10	6 6
1800	F sharp	45	5	5x5	7	7 0
2000	F	46	5	5x5	7	7 0
2500	E	50	5	5x5	9	7 6
3000	E flat	53	6	2x6	6	8 0
3500	D	56	6	2x6	6	8 6
4000	C sharp	58	6	6x6	9	8 6
4500	C	61	6	6x6	9	9 0
5000	C	63	7	0x7	0	9 0
6000	B	67	7	0x7	0	9 6
7000	B flat	69	7	6x8	5	9 6



Peal Bells



Tower Clock Bell

Electrically Operated Chimes

Electrically equipped chimes played by church organist from small keyboard placed near organ console.



Chime Bells



Church Bell



School Bell

THE OLD MENEELY BELL FOUNDRY

MENEELY & COMPANY (INC.)

WATERVLIET, N. Y.

Products

CHURCH BELLS, CHURCH-BELL CHIMES, PEALS and CARILLONS OF BELLS.

Bells Are Scientifically and Accurately Made

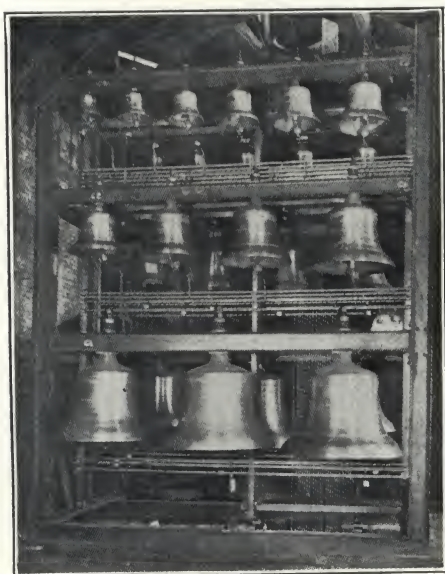
Between 1890 and 1895 we made the important discovery that the tone elements of bells could be accurately and absolutely determined with the aid of specially designed instruments, and that such bells, when intended for musical sets (chimes, peals and carillons) could be musically harmonized in themselves and with each other by mechanical processes and methods of testing, thus obtaining results never attained before.

While this is the oldest bell foundry in the country, it is the newest and most modern in its practices, mechanical equipment, and scientific and special appliances necessary for the best workmanship and the definite determination of exact musical results.

Only the highest grade of bells and fixtures are shipped from our foundry.

Carillons

A carillon consists of at least 23 bells corresponding to the full chromatic scale, all tones and semi-tones, through two or more octaves.



Carillon of Bells

Electric Chiming Device

Chimes electrically equipped are played from a small keyboard placed near the organ console. The electric equipment consists of a keyboard, a contact panel, and electric units which are connected with the clappers of the bells.

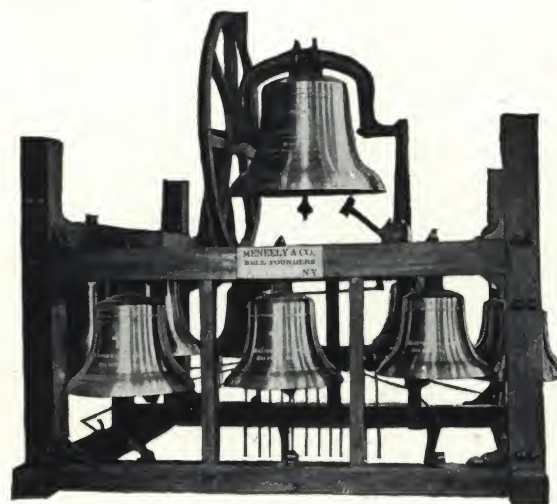


Typical Church Bell

Bell			Mountings	
Weight, lb.	Tone	Diameter, in.	Size of frame outside	Diameter of wheel
400	Eb	27	3 ft. 6 in. by 3 ft. 5 in.	4 ft.
500	D	28	3 ft. 6 in. by 3 ft. 5 in.	4 ft.
600	Db	30	3 ft. 6 in. by 3 ft. 9 in.	4 ft. 4 in.
700	C	32	3 ft. 6 in. by 3 ft. 9 in.	4 ft. 4 in.
800	B	34	4 ft. 5 in. by 4 ft. 1 in.	5 ft. 6 in.
900	Bb	36	4 ft. 5 in. by 4 ft. 5 in.	5 ft. 6 in.
1050	A	38	4 ft. 5 in. by 4 ft. 5 in.	5 ft. 6 in.
1250	Ab	40	4 ft. 10 in. by 4 ft. 9 in.	6 ft. 3 in.
1600	G	42	5 ft. 3 in. by 5 ft. 0 in.	6 ft. 3 in.
1800	F#	46	5 ft. 8 in. by 5 ft. 5 in.	7 ft.
2100	F	48	5 ft. 8 in. by 5 ft. 5 in.	7 ft.
2500	E	50	5 ft. 8 in. by 5 ft. 5 in.	7 ft.
3000	Eb	54	6 ft. 6 in. by 6 ft. 3 in.	7 ft. 6 in.
3500	D	56	6 ft. 6 in. by 6 ft. 3 in.	7 ft. 6 in.
4200	C#	60	7 ft. 8 in. by 7 ft. 4 in.	8 ft.
5000	C	64	7 ft. 8 in. by 7 ft. 4 in.	8 ft.
6000	B	68	8 ft. 0 in. by 7 ft. 8 in.	9 ft.
7200	Bb	72	8 ft. 0 in. by 7 ft. 8 in.	10 ft.

Chimes

A chime consists of from 10 to 16 bells corresponding to the eight notes of the diatonic scale with two or more semi-tones interposed and one or more bells above the octave.



Chime of Bells

THE HISTORY OF THE



VAULTS AND SAFES JAILS

Allen-Drew Co., Div. of Babcock-Davis Corp.....	C4643
American District Telegraph Co.....	C4638
Bank Vault Inspection Co.....	C4640
Clear-Vision Counters, Inc.....	C4641
Consolidated Expanded Metal Cos.....	C4600-4601
Federal Laboratories, Inc.....	C4639
Fries and Son Steel Construction and Engineering Co., Inc.	C4644
Herring-Hall-Marvin Safe Co.....	C4623-4629
Indestructo Glass Corp.....	C4642
Manly Jail Works.....	C4645
Mosler Safe Co.....	C4631-4637
Pauly Jail Building Co.....	C4646
Rivet-Grip Steel Co.....	C4602-4603
Diebold Safe & Lock Co.....	C4604-4615
Schwab Safe Co.....	C4616-4622
Southern Prison Co.....	C4647
Stewart Iron Works Co., Inc.....	C4648
Van Dorn Iron Works Co.....	C4649
York Safe and Lock Co.....	C4630

THE CONSOLIDATED EXPANDED METAL COMPANIES

Steelcrete Building, WHEELING, W. VA.

SALES OFFICES AND WAREHOUSES

BOSTON, MASS., 137 Washington Street,
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CLEVELAND, OHIO, 13107 St. Clair Avenue
DETROIT, MICH., 4015 Michigan Avenue
NEW YORK, N. Y., 103 Park Avenue

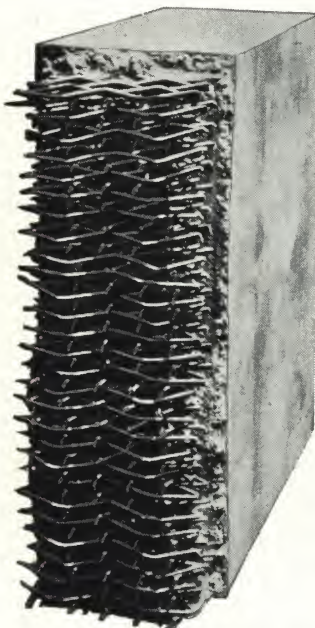
PHILADELPHIA, PA., 1075 Germantown
Avenue
PITTSBURGH, PA., 6626 Hamilton Avenue

FOREIGN SALES OFFICE, 152 West 42nd Street, NEW YORK, N. Y.

Product

THE STEELCRETE SYSTEM of BURGLAR and MOB RESISTING BANK VAULT CONSTRUCTION.

For Steelcrete Concrete Reinforcing Mesh and Industrial Mesh and Framing Accessories for open mesh partitions, window guards, etc., see Manufacturers' Index.



Section of Steelcrete Armor Mat

Placed either horizontally or vertically, Steelcrete forms a thick entanglement of steel that is proof within all practical limits against torch, drill, shock, fire and explosives. Concrete is poured through and around the steel matrix to form a wall of great structural strength.

Planning for Adequate Vault Protection

In planning a vault, maximum resistance to burglarious and mob attacks together with structural strength are the fundamental considerations. Modern methods of attack have made it necessary to incorporate these features to produce a completely protected self-contained unit of safety. The walls, roofs and floor of a vault constitute over 90% of the area of attack and it is obvious that just as serious consideration be given to the proper reinforcement of these vulnerable points as is given to the selection of the vault door.

Steelcrete 5-Point Protection

The Steelcrete Armor Mat is composed of thousands of strands of steel, thoroughly embedded in concrete producing a network that effectually resists



cutting flame, drill, explosives, fire and falling loads. In this entanglement of steel and concrete (point 1) drills fail to penetrate; (point 2) the cutting flame is helpless against concrete; (point 3) explosives lose their force in ab-

sorption by the thousands of steel strands; (point 4) stronger structurally than steel alone or concrete alone because of the reinforcing principle employed, and (point 5) neither steel nor concrete is inflammable and the thickness of the wall, ceiling and floor slabs minimizes the transmission of heat from the exterior to contents of the vault. Tests conducted under the direction of the architects of the Federal Reserve Board have shown that a steel entanglement properly embedded in concrete constitutes the strongest and the most economical protection against attack.



DRILL PROOF



TORCH PROOF



BLAST PROOF



FIRE PROOF



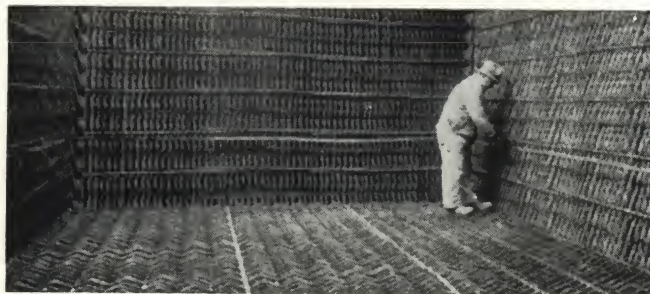
SHOCK PROOF

Great Structural Strength

The Steelcrete Armor Mat is built up of steel units, extending layer after layer through the entire vault walls, roof and floor. Constructed in this manner, it is a self-contained unit of great structural strength, which successfully withstands the impact of falling girders, heavy safes and other terrific impact loads, often the result of fire. The tremendous structural strength of a Steelcrete Vault Roof Slab was recently brought out in a test, when a slab having a total depth of 18 in. carried a load of more than 1 ton per sq. ft. on a span of 30 ft.

Most Economical Protection

Tests conducted under the direction of the Federal Reserve Board Architects have demonstrated beyond question that the Steelcrete System offers greater protection for each dollar invested than any other system of protection. As a result of these tests the Steelcrete System was installed in the largest bank in the United States—the New York Federal Reserve Bank. The Steelcrete System is adaptable to all requirements and can be used with utmost economy in both large and small bank vaults.



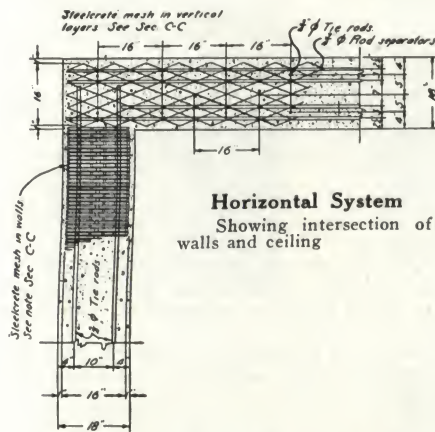
Easily Erected by Any Skilled Contractor.

The simplicity of the Steelcrete System makes it possible for any skilled contractor to successfully handle the erection. Working drawings making for rapid field erection are furnished by the manufacturers for each installation and the field engineers of the manufacturer keep in constant touch with the work, insuring an entirely satisfactory installation.

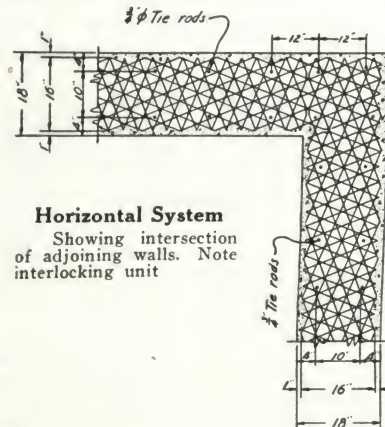
Horizontal System of Protection

The protection afforded per dollar invested in the Steelcrete Horizontal Type Vault, exceeds that of any other protective system, offering the bank the utmost security with unusual economy.

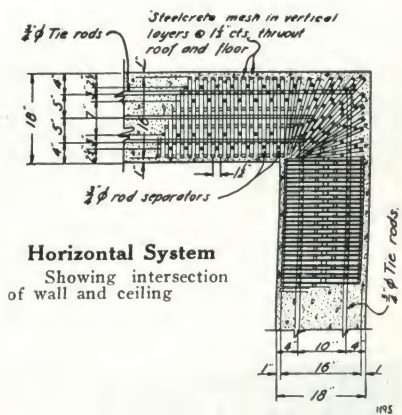
consist of Steelcrete Armor Mats ... in. in thickness composed of 3-1-100 Steelcrete and $\frac{3}{4}$ -in. diameter tool resisting bars as furnished by THE CONSOLIDATED EXPANDED METAL COMPANIES, Wheeling, W. Va. The arrangement of the Steelcrete Mat



Horizontal System
Showing intersection of walls and ceiling



Horizontal System
Showing intersection of adjoining walls. Note interlocking unit



Horizontal System
Showing intersection of wall and ceiling

Specifications for Horizontal System—(Typical detail drawings and complete specifications on request.)

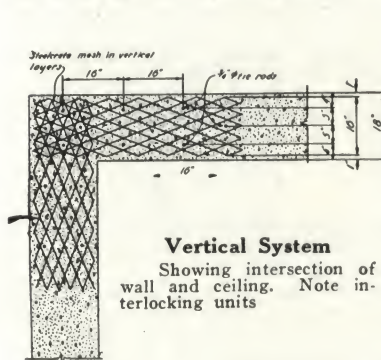
Reinforcement for Vault—The reinforcing embedded in the walls, floor and ceiling of the vault, shall

shall conform to Type H... The Steelcrete Armor Mat shall be placed in the center of the wall, and be built up in the field in strict accordance with the detailed drawings as submitted to the architect for approval.

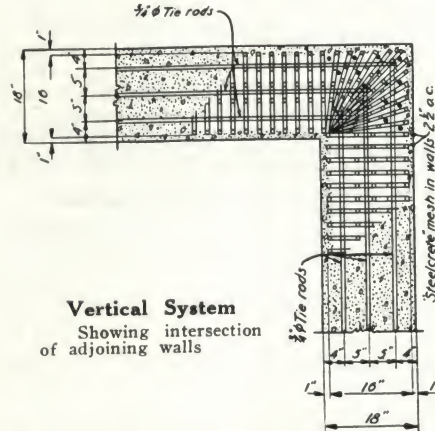
Vertical System of Protection

The Steelcrete Vertical System was developed in answer to a demand for a vault reinforcing system offering, like the horizontal system, the greatest protection per dollar of cost, but with a greater spacing between units.

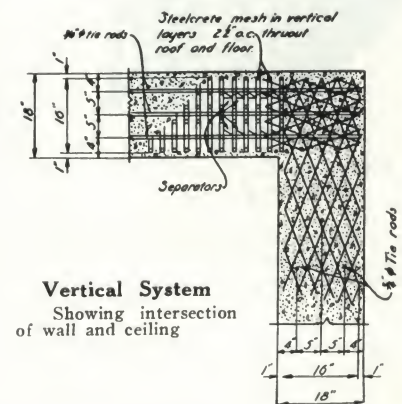
consist of Steelcrete Armor Mats ... in. in thickness built up of 3-1-100 Steelcrete and $\frac{3}{4}$ -in. diameter tool resisting bars as furnished by THE CONSOLIDATED EXPANDED METAL COMPANIES, Wheeling, W. Va. The arrangement of the Steelcrete Mat



Vertical System
Showing intersection of wall and ceiling. Note interlocking units



Vertical System
Showing intersection of adjoining walls



Vertical System
Showing intersection of wall and ceiling

Specifications for Vertical System—(Typical detail drawings and complete specifications on request.)

Reinforcement for Vault—The reinforcing embedded in the walls, floor and ceiling of the vault, shall

shall conform to Type V... The Steelcrete Armor Mat shall be placed in the center of the wall, and be built up in the field in strict accordance with the detailed drawings as submitted to the architect for approval.

Door Openings

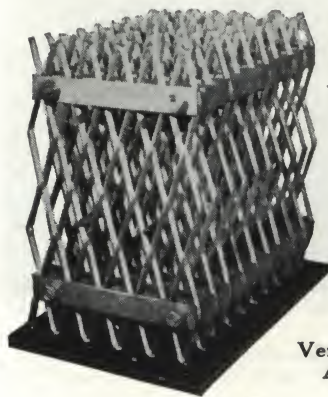
The vault door openings for both horizontal and vertical systems are governed by the manufacturer of the door.

Steelcrete Service

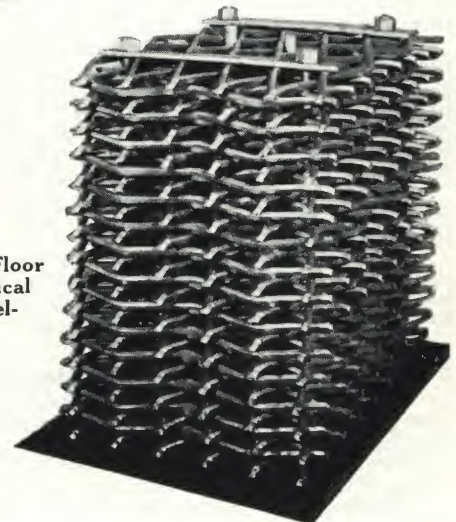
The manufacturers furnish field drawings, lump sum estimates and by arrangement will supervise the installation of the Steelcrete units. Drawings showing typical details for both horizontal and vertical armor mat construction furnished by request.

A comprehensive book on Modern Vault Construction will be furnished on request.

Sidewalls and Floor of Vault, Vertical System of Steelcrete



Vertical System Steelcrete Armor Mat Entanglement



THE RIVET-GRIP STEEL CO.

Rivet-Grip System of Bank Vault Reinforcement

2404 Prospect Avenue, CLEVELAND, OHIO

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Products

RIVET-GRIP BANK VAULT REINFORCEMENT.

Also manufacturers of Rivet-Grip Rigid, Shop-fabricated Truss Bridge Roadway Reinforcement (description on request).

For RG Steel Deck Construction and RG T-Bar Joists and RG Nailer Joists, see Manufacturers' Index.



Rivet-Grip Reinforcement—Vertical Type

Rivet-Grip Vaults

The high regard which bank architects and engineers have for Rivet-Grip vaults and the prestige which the system has attained are evidenced by the fact that the Rivet-Grip System has been installed in nearly twice as many Federal Reserve vaults as any other type of vault reinforcement offered on the market since the Federal Reserve vault tests. It is significant that in every instance where Rivet-Grip was purchased by a Federal Reserve Bank, either an official of the bank, its architect, or vault engineer represented the bank at the Federal Reserve tests, and the sale of Rivet-Grip was due to recommendations carried back by eye witnesses, after seeing the performance of Rivet-Grip in these severe tests.

Balanced Protection for Bank Vaults—The first requisite for security in a bank vault is *balanced protection*—equal protective strength throughout. In other words, the walls, floor and roof should be no less secure than the vault door. In the Rivet-Grip System, this balanced protection is obtained through a new system of steel reinforcement, which is fabricated in various sizes to give the walls and slabs a protective value equivalent to that of any particular door from 4 to 48 in. in thickness.

Design—The Rivet-Grip System consists of an interlocking network of heavy shop-fabricated frames and plain round bars, embedded and interlocked through practically the full thickness of the concrete work.

There are no weak points in a Rivet-Grip protected vault. The frames interlock at all corners. The door connections are as strong as the vault door itself. The scientific design of Rivet-Grip reinforcement insures balanced protection throughout.

The Rivet-Grip frames are composed of two parallel, heavy Rivet-Grip main sections, joined at close intervals by lighter diagonals, which form the web of the frames. The joint, or Rivet-Grip, is formed under a 30-ton pressure which forces the metal in the main sections around the knobs on the diagonals, joining these members so securely that the diagonals will break in tension before loosening at the Rivet-Grip.

The loose bars are laced through the frames perpendicular to the plane of the web members. They are held in position automatically and need not be wired.

All Rivet-Grip reinforcement is accurately fabricated and comes to the job true to detail. There are two types of installations: *vertical*, for use in walls from 12 to 30 in. thick, and *horizontal type*, for use in walls from 27 to 60 in. thick.

Structural and Economic Advantages

In addition to its protective value, many structural and economic advantages help to explain the wide choice of Rivet-Grip System.

Lowest Insurance Ratings—Rivet-Grip walls and slabs receive the lowest insurance ratings.

Flexibility of Arrangement—The spacing and general

arrangement of the frames may be varied to give the exact degree of protection desired.

Structural Strength—Rivet-Grip frames form an efficient structural reinforcing, and allow vault walls and slabs to be designed for carrying heavy building columns, or with clear spans up to 40 ft.

Ease of Installation—All material is completely shop-fabricated and ready to place before shipment. To unload the reinforcement from trucks and place it in its proper position in the vault requires only five to eight man-hours per ton.

Lower Cost—The Rivet-Grip System of vault reinforcement costs less than any other adequate and effective system and the ease with which it is installed materially lowers construction cost.

Designing and Estimating Service

The drawings on the following page will prove useful as a guide for selecting the proper type of Rivet-Grip reinforcement to use with any particular vault door. However, if the types shown do not fit your problem, our Engineering Department will gladly make a study and submit a layout and we will recommend the most economical solution of your problem without incurring any obligation on your part, if plans or dimension sketches of the vault are submitted to us. Whenever available, thickness of doors and linings should also be given.

Lump sum estimates, either for material only or including erection for any vault, gladly furnished to architects.

(Complete handbook on the design and construction of modern bank vaults will be sent on request.)

Specifications

Reinforcement—The reinforcement shall be the "Rivet-Grip System bank vault reinforcement" as produced by THE RIVET-GRIP STEEL CO., Cleveland, Ohio.

The arrangements of Rivet-Grip frames and plain round bars shall conform to that shown on page C4007 of SWEET'S ARCHITECTURAL CATALOGUES, Twenty-fourth Edition, for Type spacing of frames. The reinforcement shall be detailed for walls in., floor slab in., and roof slab in. thick.

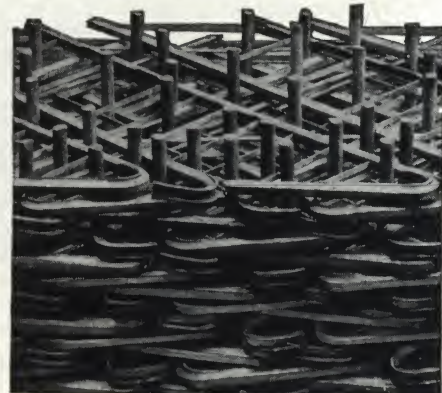
All units shall interlock at all intersections of walls, and of walls and slabs, and special provision shall be made at door openings to strengthen connections between door frames and vestibules and reinforced concrete walls.

All units shall be completely shop-fabricated and shipped ready to place. They shall be tagged with an erection mark corresponding to the marks on the drawings furnished by the manufacturer.

Note: This specification applies only to the vertical type. Specifications covering our horizontal type are especially written for each individual vault.

Drawings—THE RIVET-GRIP STEEL Co. shall furnish complete placing drawings showing the exact location of each frame and spacer bar. Two sets of prints of approved placing plans and details shall be furnished for use in placing steel.

Concrete—Shall be proportion of 1 part portland cement, 2 parts clean siliceous and $3\frac{1}{2}$ parts $\frac{3}{4}$ -in. gravel or $\frac{3}{4}$ -in. crushed stone.



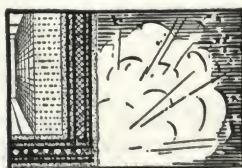
Rivet-Grip Reinforcement—Horizontal Type

**Torch Resisting**

Rivet-Grip channel sections are hard to burn as concrete adheres firmly to the steel within channel.

**Tool Resisting**

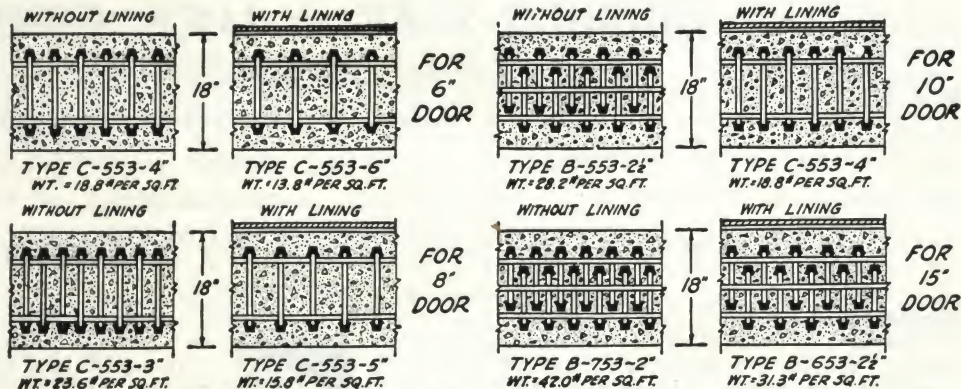
Rivet-Grip Reinforcement is torch and tool resisting. Its multiplicity of heavy members cannot be cut or pierced with cold cutting tools and drills as is possible with lighter members and fabrics.

**Resists Explosives**

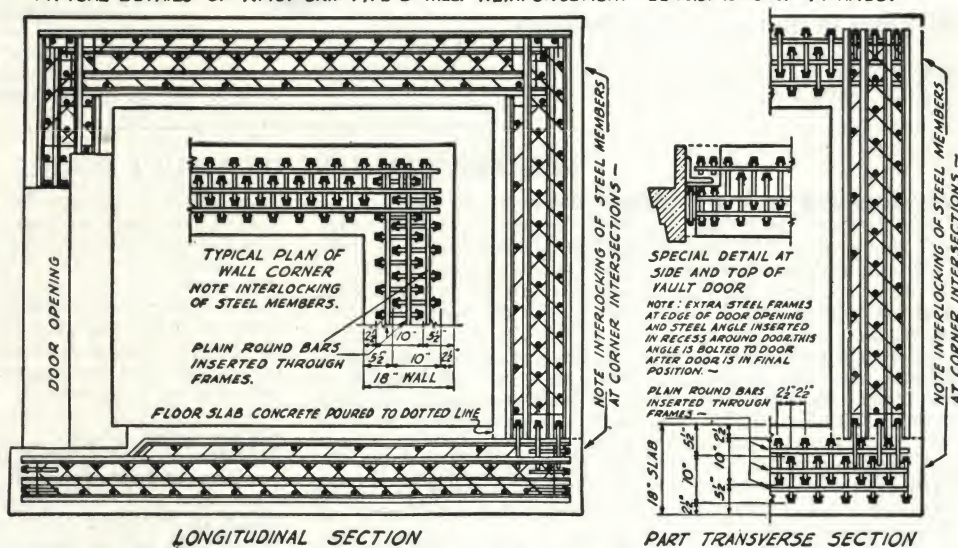
The large proportion of heavy steel members and rigid attachment of ties or stirrups to main bars keeps Rivet-Grip units intact even after severe detonations.

**Structurally Strong**

Rivet-Grip Bank Vault Reinforcement is not only impregnable to burglarious or riotous attack, but is strong enough structurally to resist breaking or crushing due to a collapse of the building from fire or other causes.



Suggested Types of Rivet-Grip System Reinforcement to Balance Various Thicknesses of Vault Doors

TYPICAL DETAILS OF RIVET-Grip TYPE "B" VAULT REINFORCEMENT—2½" OC. SPACING OF FRAMES.

Diagrams Above Show the General Method of Detailing Rivet-Grip Reinforcement When the Most Popular Type, Namely Type B-553—2½-in. Spacing of Units—Is Used

Vaults with 18-in. concrete walls and slabs with this type of reinforcement get the best, or No. 10 insurance rating without the use of steel lining in the vaults. Complete typical details and specifications for types of Rivet-Grip other than those illustrated will be furnished upon request.

Prominent Architects and Banks in Which They Have Used Rivet-Grip

CROSS & CROSS—
Guaranty Trust Co., New York, N. Y.
Central Union Trust Co. (Main Office, New York, N. Y.)
Union & New Haven Trust Co., New Haven, Conn.

DENNISON & HIRONS
Federal Trust Co., Newark, N. J.
City National Bank, Bridgeport, Conn.
Essex County Trust Co., East Orange, N. J.
Erie Trust Co., Erie, Pa.

DELANO & ALDRICH
Westfield Trust Co., Westfield, N. J.

PRESS C. DOWLER
Braddock National Bank, Braddock, Pa.
Dollar Savings & Trust Co., Pittsburgh, Pa.

FELLHEIMER & WAGNER
Corn Exchange Bank (4 Installations), New York, N. Y.

CASS GILBERT
Minneapolis Federal Reserve Bank, Minneapolis, Minn.
Broad & Market National Bank & Trust Co., Newark, N. J.
Fidelity Union Trust Co., Newark, N. J.

HUNTING, DAVIS & DUNNELS
Allegheny Trust Co., Pittsburgh, Pa.

JOHN MEAD HOWELLS
Title Guarantee & Trust Co. (Maiden Lane Ext.), New York, N. Y.

HOLMES & WINSLOW
Meriden Savings Bank, Meriden, Conn.

WM. B. ITTNER, INC.
Continental Life Insurance Co., St. Louis, Mo.

ALBERT KAHN, INC.
Security Trust Co., Detroit, Mich.
Mahoning National Bank, Youngstown, Ohio

GEO. W. KELHAM
San Francisco Federal Reserve Bank, San Francisco, Cal.
Salt Lake City Federal Reserve Bank, Salt Lake City, Utah

LOCKWOOD, GREENE & CO.
American Trust Co., Charlotte, N. C.

LUDLOW & PEARODY
Corn Exchange Bank (West 231st St. Branch), New York, N. Y.

MOWERAY & UFFINGER
Butler Savings & Trust Co., Butler, Pa.
Miners National Bank, Pottsville, Pa.

D. X. MURPHY & BRO.
Louisville Federal Reserve Bank, Louisville, Ky.

MAURAN, RUSSELL & CROWELL
St. Louis Federal Reserve Bank, St. Louis, Mo.

JOHN PARKINSON & DONALD B. PARKINSON
Los Angeles Federal Reserve Bank, Los Angeles, Cal.

RANKIN & KELLOGG
Provident Trust Co., Philadelphia, Pa.
Camden Safe Deposit & Trust Co., Camden, N. J.

H. CRAIG SEVERANCE, INC.
Bank of The Manhattan Co. (Main Office), New York, N. Y.

SCHULTZ & WEAVER
Fifth Avenue Bank, New York, N. Y.

SLOANE & ROBERTSON
Chase National Bank (Grand Central Branch), New York, N. Y.

SCHENK & WILLIAMS
Third National Bank, Dayton, Ohio

TROWBRIDGE & LIVINGSTON
Equitable Trust Co. (Main Office), New York, N. Y.
The Bank of America, New York, N. Y.
Mellon National Bank, Pittsburgh, Pa.

THOMPSON & HARDING
Little Rock Federal Reserve Bank, Little Rock, Ark.

VOORHEES, GMELIN & WALKER
Travelers Insurance Co., Hartford, Conn.

WALKER & GILLETTE
Chemical National Bank, New York, N. Y.

WALKER & WEEKS
Cleveland Federal Reserve Bank, Cleveland, Ohio
Pittsburgh Federal Reserve Bank, Pittsburgh, Pa.
Cincinnati Federal Reserve Bank, Cincinnati, Ohio
George D. Harter Bank, Canton, Ohio
Old National Bank, Lima, Ohio
Toledo Trust Co., Toledo, Ohio
First National Bank, Youngstown, Ohio

WEARY & ALFORD
Union Trust & Savings Bank, Dubuque, Iowa
Peoples State Bank, Waukegan, Ill.
Terre Haute Trust Co., Terre Haute, Ind.

YORK & SAWYER
Bowery Savings Bank (new safe deposit vaults), New York, N. Y.

DARLING & PEARSON
Canadian Bank of Commerce, Toronto, Ont., Canada

WADDY B. WOOD
Potomac Electric Power Co., Washington, D. C.

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Products

BANK and SAFE DEPOSIT VAULTS and VAULT FRONTS, including: Safe Deposit Boxes, Linings and Complete Equipment; FIRE-RESISTIVE VAULT DOORS, plate and filled; FIRE-RESISTIVE SAFES and FILING SAFES; STEEL MONEY CHESTS, rectangular and round doors.



During this period many Diebold safes and vaults have successfully withstood the severest tests, in actual service, as is attested by the many letters in our files.

Co-operative Service to Architects

Our Engineering Department, together with the entire personnel of our various branch offices, is at the disposal of the architect or contractor.

Sketches and estimates on special work, as well as stock designs will be gladly furnished, without charge.

70 Years of Successful Safe Building

The recognized quality of the Diebold Product is the result of experience as designers, engineers and manufacturers of bank vaults and safes since 1859.

THE TRIUMPH LINE OF VAULT DOORS

Development of the Triumph Line

Independent tests made by the Underwriters' Laboratories, Inc., published in their Report SP-1.669 on November 30, 1927, on an uninsulated steel plate vault door proved conclusively the need of doors affording much greater protection in this class. The door tested was typical of the old style plate door construction.

The old style plate door failed the test at the end of 27½ minutes when the temperature inside the vault reached 300°—and it was fully grouted in the opening and the inside doors closed. With the inside doors open it was found that it would have stood the test only 10 minutes.

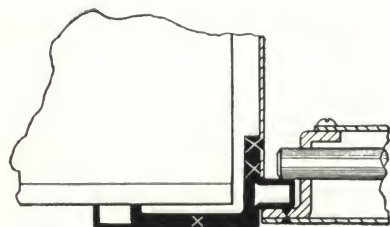
The Underwriters reported that the old style plate door offered uncertain protection because the proper grouting of the door and the closing of the inside doors could not be guaranteed in actual practice.

Quick to appreciate the need of vault doors offering reliable protection our engineers in conjunction with tests in the Underwriters' Laboratories, Inc., developed the Diebold Triumph Line of Fire-Resistive Vault Doors. The line includes doors offering a minimum of from 29 minutes to 6 hours resistance, based on Underwriters' tests. None of them require inside doors. All of them except the No. 156 (6-hour Label Door) are designed to eliminate a complete grout in installation.

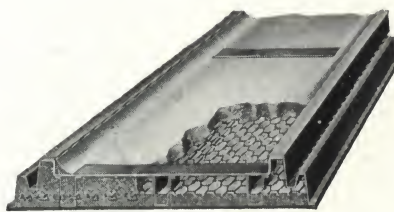
Our engineers discovered that the weakness of the old style door lay in its construction. When exposed to intense heat the buckling and warping of the exposed surfaces opened direct passages into the vault for the entrance of heat and flame. This weakness was overcome in the Triumph line. Comparatively light gauge metal is used for the outer door plate and frame—the surfaces exposed to intense heat. Heavy gauge formed "Z" bars and other members reinforce the outer door plate and frame from the inside, reducing the strains of buckling and warping of the exposed surfaces. It is this principle of construction that prevents the buckling and warping of the exposed outer surfaces of the doors from opening direct passages into the vault. Tongues and grooves on the insulated doors, and box tongues with overlapping plates on the light doors assist in preventing openings into the vault.

The Triumph Line

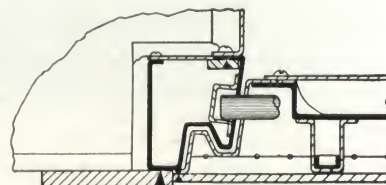
The Diebold Triumph Line Vault Doors include doors



One-piece Anti-warp Channel



Insulation Reinforcing



Off-set Jamb

both with and without the Underwriters' labels. Protection is offered for every average risk. This line of doors is shown with full particulars in the following pages.

Tests—All of the Triumph Line Doors, with the exception of the Nos. 215 and 235 Burglar-resistive Doors, have been tested in the following manner: The door is placed in a masonry wall the same as in actual practice and the heat applied for the length of time determined by the classification. A second test is made by heating the door in the furnace for one-half the endurance period. It is removed from the furnace and while in heated condition subjected to a standard fire hose stream under pressure. The door is then reheated in the furnace for the remainder of endurance period.

The Diebold Triumph Line Vault Doors have withstood these tests and have proved that they prevent the direct entrance of heat and flame into the vault. Be sure your vault is equipped with a door that offers certified protection in the degree suited to your risk.

Construction—Triumph Line Vault Doors are constructed entirely by the electric welding process. Screws are used to attach removable parts only.

Tests as conclusive as those that have proved the electric welded joint superior to rivets in skyscraper and bridge construction have proved it more suitable for vault door construction.

The Patented Off-set Jamb—The No. 152 Triumph Line Door has a patented off-set jamb construction. This is the first two-hour Underwriters' Label vault door that eliminated the usual installation difficulties. The off-set built into the masonry opening is covered with a point grout of mortar applied quickly with a trowel. The door is easily set and adjusted in the opening without further trouble.

Reinforced Insulation—The cut below shows the method of reinforcing the insulation of Diebold Triumph Line Insulated Vault Doors. Three heavy horizontal cross braces behind the insulation, and attached to the jambs, carry the vertical "U" bars in straps over which a heavy reinforcing cross wire mesh is laid. The vertical "U" bars extend the full height of the door and the reinforcing mesh covers the entire surface. The insulation is supported and reinforced entirely independently of the outer door plate. There is no possible danger of the outer door plate damaging the insulation when it warps and buckles because of exposure to intense heat—it cannot pull the insulation from the jambs.

Anti-warp Channel—The light-weight doors, "R," "S," "Tile" and "L" are constructed with the anti-warp channel illustrated at the lower left hand corner of the preceding page. This channel is formed from a solid piece of heavy gauge metal and attached to the sides of the vestibule on the front of the door back of the front frame. At all times this anti-warp channel maintains constant contact with the face of the wall, preventing the direct passage of heat and flame into the vault.

Locks—The lock used on all the Triumph Line Vault Doors is the Diebold No. 900 3-tumbler, key-changing combination lock. The lock is equipped with a patented re-locking device. It is capable of millions of changes of combination.

Installation—Triumph Line Vault Doors are built with a removable back frame attached with screws to the vestibule body. The back frame is removed, the door set in the opening and leveled, and the frame drawn to the wall with the screws.

GENERAL RECOMMENDATIONS FOR FIRE-RESISTIVE VAULT CONSTRUCTION

The following recommendations will in a general way be helpful in the construction of fire-resistive vaults. They are general in nature since the individual conditions that surround the building of every vault cannot be foreseen.

Before the vault is built, the services of a competent architect or contractor should be secured to determine the degree of protection required, to make the proper allowances for floor strength, to determine the structural strength required of the vault in relation to the whole structure and to arrange for the proper footings for the vault.

Plan of Vault

At the bottom of this page are shown vertical and horizontal sections through model fire-resistive vaults with dimension lines indicated by letters. The following paragraphs will explain them in detail:

"W" Width of Vault—The maximum width should not exceed 10 ft. When a greater width than 10 ft. is required, interior columns, girders or division walls should be used.

"D" Depth of Vault—The inside depth of the vault is optional.

"O" Masonry Opening for Vault Door—The actual dimensions are determined by the door used.

"S" Vault Wall Thickness—The wall thickness of structure supported vaults, that is vaults supported by the framework of buildings of fire-resistive construction, shall be as follows:

For vaults requiring six hours or more heat resistance—

- (1) Reinforced concrete 10 in.
- (2) Brick or plain concrete 12 in.
- (3) Protected steel or reinforced concrete frame with reinforced concrete panels 8 in. Brick or plain concrete panels 12 in.

For vaults requiring two hours heat resistance—

- (1) Reinforced concrete 6 in.
- (2) Plain brick 8 in.
- (3) Hollow clay tile or concrete block 12 in.
- (4) Protected steel or reinforced concrete frame with reinforced concrete panels 6 in. Brick or plain concrete panels 8 in. Hollow clay tile or concrete block panel 12 in.

The wall thickness for ground supported vaults, that is, vaults supported directly on the ground and independently of the building in which they are located, should be constructed in accordance with the following tables:

MINIMUM WALL THICKNESSES—GROUND SUPPORTED VAULTS

Six-hour Vaults					Two-hour Vaults				
Number of stories counting from top down	Kind of wall construction				Number of stories counting from top down	Kind of wall construction			
	Reinforced concrete, in.	Brick or plain concrete, in.	Reinforced concrete panels, in.	Protected steel or reinforced concrete frames		Reinforced concrete, in.	Brick, in.	Hollow clay tile or concrete block, in.	Protected steel or reinforced concrete frames
Top	10	12	10	12	Top	6	8	12	6
2nd	10	12	10	12	2nd	8	12	12	8
3rd	10	12	10	12	3rd	10	12	16	10
4th	12	16	10	12	4th	10	16	20	10
5th	12	16	12	16	5th	12	16	20	12
6th	12	20	12	16	6th	12	16	20	12
7th	.....	.....	12	16	7th	.....	.....	20	12
8th	.....	.....	12	16	8th	.....	.....	20	12
9th	.....	.....	12	16	9th	.....	.....	20	12
10th	.....	.....	14	16	10th	.....	.....	20	12

Structural Independence

The vault walls should be structurally independent of the building wherever possible. If connected in any manner, the connection should be so made that in the event of the collapse of the building, the building members may move or fall without affecting the stability or fire-resistive qualities of the vault. In fire-resistive vault construction, provision should be made for expansion of the interior building members since severe thrust may be exerted on the vault structure.

Where building members join those of the vault, they shall project into the vault not more than 4 in. and in no case should the wall thickness be less than 8 in. at these points. All beams or bearing members adjoining the vault should be designed to release freely in event of failure. Where the outside walls of the building are used to serve as a portion of the vault wall, the vault walls should be effectively bonded to the building wall.

"F" Thickness of Front Walls—The thickness of the front wall, at the point allowed for the opening of the vault door, is determined by the door used.

"H" Height of Vault—The inside height of the vault should not exceed 11 ft.

"R" Roof of Vault—The roof should be at least 8 in. thick of reinforced concrete or protected structural steel with reinforced concrete slab or filler of adequate strength and fire resistance. The roof should be designed for a live load of at least 350 lb. per sq. ft. to take all of impact loading. Where local conditions are especially severe, loads of from 500 to 1000 lb. per sq. ft. should be provided for.

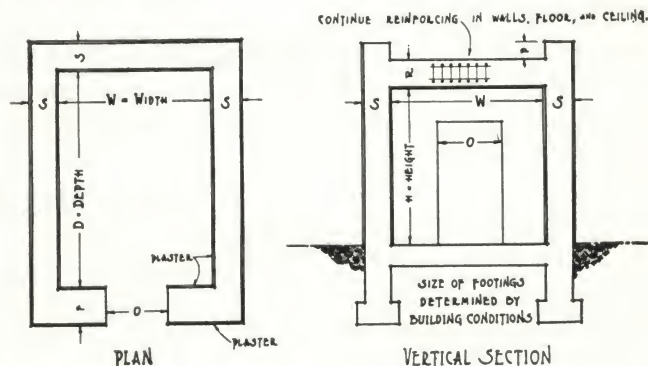
"P" Parapet—If the roof of the vault is more than 12 in. below the roof of the building, the vault walls should be parapeted at least 12 in. above the vault roof and the space thus formed filled with sand, gypsum or similar material, to act as a cushion against impact from falling materials and also to serve as further insulation against accumulation of burning debris on the vault roof. Adequate drainage shall be provided for this space above the roof.

Material for Vault

Solid wall construction is recommended for vaults where the maximum resistance to heat is required. Solid walls offer more resistance to the impact of falling bodies such as machinery, safes and fixtures.

These factors are of vital importance in considering the type of vault to be built. In case of a severe fire the vault must be structurally strong to withstand the shock of falling bodies.

Concrete, on account of its monolithic character, is admirably suited for vault construction. Brick masonry can also be laid so as to be practically monolithic in character. If it is carefully laid in this manner, it may be successfully used for vault construction. From structural considerations, steel frame work is advisable when vaults are built more than a few stories high.



RECOMMENDED RECORD ROOM CONSTRUCTION

The record room must have no other opening than the one protected by a record room door. No wood or other combustible material should be used in the construction of a record room or for its floor or trim.

In the right hand column are shown a vertical and a horizontal section of a record room illustrating how the building walls become part of the structure supported vault when built in accordance with the general recommended construction as outlined below. The recommended construction is general in character. Before the record room is built, the services of a competent architect or builder should be secured.

"W, D and H" Dimensions—The width, depth and height of the vault are optional with the exception that the height should not exceed 15 ft. and the total volume should not exceed 50,000 cu. ft.

"F" Front Wall Thickness—The thickness of the front wall of the record room is determined by the type of door used. A record room door bearing the Underwriters' fire classification one-half hour label requires a vestibule 9 in. deep. The wall at the opening must be built to take this door in order to secure the benefit of the Underwriters' Label. If other doors are considered, the thickness of the front wall at the opening will be determined by the door used.

"S" Thickness of Side and Rear Wall—Structural considerations require that the side and rear walls should offer a minimum of two hours heat resistance. The recommended minimum for the thickness of these walls is: Reinforced concrete 4 in.; plain concrete or concrete blocks 6 in.; brick 8 in.

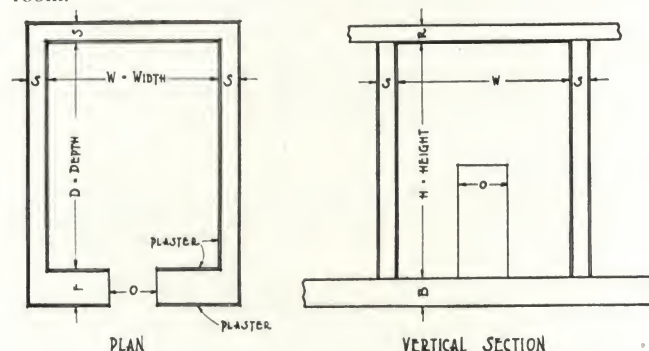
Construction

The record room may be constructed in such a manner that it uses the floor, ceiling and one or more walls of the building as its own, providing none of the walls has a fire resistance less than the walls of the record room itself.

The vertical joints should be well anchored or bonded and the joining of all walls with the building and with each other secured.

The record room must have no other opening than the one protected by a record room door.

If vertical shafts of the building, such as elevator shafts, are adjacent to the record room they should be separated by walls having a fire resistance equal to the walls of the record room.



HOW TO SELECT THE TYPE OF VAULT DOOR

No. 1 For a Fire-resistive Vault

(A)—For a ground supported vault entirely independent of the building. A ground supported vault is intended to afford full protection for its contents even in the event of complete destruction of the building.

A 2-hour vault door (Diebold style No. 152) is recommended for the vaults on all floors except the bottom floor.

A 6-hour vault door (Diebold style No. 156) is recommended for the vault on the bottom floor due to the soaking heat from the accumulation of hot and burning debris around the vault after the collapse of the building.

(B)—For a structure supported vault entirely dependent upon the frame work of the building. Structure supported vaults may be located on any floor of a modern fire-resistive building. They are designed to afford complete protection for the contents assuming that the building will not collapse in the event of a fire.

A 2-hour vault door (Diebold style No. 152) is recommended for the structure supported vault since it will be subjected only to the heat of the burning combustible materials on the one floor on which the vault is located.

A 6-hour vault door (Diebold style No. 156) is recommended where the structure supported vault is located near a concentration of combustible materials such as records (in libraries and court houses), merchandise (in warehouses and store rooms) and other severe risks.

No. 2 For a Record Room

The record room is an enclosure of fire-resistive construction intended for use where the volume of records is too large and not of sufficient importance to justify economically the provision of either vaults or safes, but still is sufficiently valuable to warrant a certain amount of special protection.

A record room should be used only in a building of modern fire-resistive construction.

A one-half hour Diebold style "L" Record Room Door is recommended for the record room. If inside doors are considered an advantage the Diebold styles "R" and "S" Vault Doors are recommended.

No. 3 for a Burglar-resistive Vault

The minimum degree of burglar protection required for the vault of a commercial institution can best be determined by the rate of burglary insurance based on the volume of insurance to be carried.

It is recommended that the minimum protection should be a Class "D" vault requiring a solid steel door 1½ in. thick (Diebold style No. 215).

Where additional burglary protection is required, see the No. 235 Class "E" Burglar-resistive Vault Door, or write for recommendations and specifications on Diebold Bank Vault Doors.

GOVERNMENT VAULT AND CLOSET DOORS

Built to Government Specifications and Drawings, M-352-F

FILM VAULTS AND SAFES

The proper storage of films is vital for the protection of human life. Because of the conflicting recommendations of experts and legislation in the various states and municipalities, at the time of going to press we felt it unsafe to catalogue equipment.

Our engineers are conducting experiments and keeping in touch with the problem constantly. We have suggested designs for both safes and vaults that will be furnished gladly on request. These suggestions will be revised and kept up to date. We invite correspondence.

FIRE-RESISTIVE VAULT DOOR—STYLE NO. 152

Recommended Use

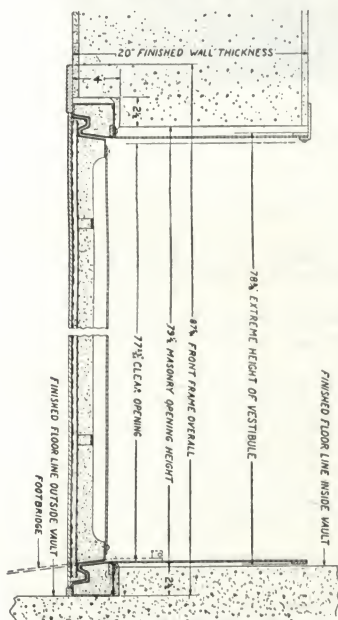
Style No. 152 Vault Door is designed for severe fire risks. It should be used for ground supported vaults on the upper stories of buildings where floors may give way during the fire, or in structure supported vaults in modern fire resistive buildings.

It is recommended as the minimum protection for vaults in any location that are used for the housing of vital and irreplaceable records such as tracings, surveys, vital statistics, etc.

Manufacturer's Specifications

- (1) **Label**—Underwriters' Laboratories Inspected Vault Door Fire Classification 2 hours.
- (2) **Clear Opening**—29 $\frac{1}{8}$ in. wide by 77 $\frac{3}{8}$ in. high.
- (3) **Over All Door Thickness**—3 $\frac{1}{8}$ in.
- (4) **Door Construction**— $\frac{1}{8}$ -in. front plate, 2 in. of Diebold fire-resistive insulation increasing to 3 in. along edges, and $\frac{1}{8}$ in. inside cover plate. Insulation reinforced as indicated on vertical and horizontal sections.
- (5) **Masonry Opening**—32 in. wide by 79 $\frac{1}{2}$ in. high with 2 $\frac{1}{2}$ -in. by 4-in. offset.
- (6) **Wall Thickness**—20 in. including finish. Minimum thickness is 8 in. for 2-hour label door.
- (7) **Extreme Swing of Door**—37 in.
- (8) **Vestibule Body Over All**—30 $\frac{3}{8}$ in. wide by 78 $\frac{3}{8}$ in. high.
- (9) **Installation**—A light mortar grout only is required. See detail masonry drawing.
- (10) **Front Frame Over All**—42 $\frac{1}{8}$ in. wide by 87 $\frac{3}{8}$ in. high.
- (11) **Back Frame**—Removable.

- (12) **Bolts**—Ten $\frac{3}{4}$ -in. bolts, five at front and five at hinge side.
- (13) **Lock**—Diebold 3-tumbler combination lock with patented re-locking device.
- (14) **Bolt Handle**—A drop handle with bronze knob and black bakelite grip.

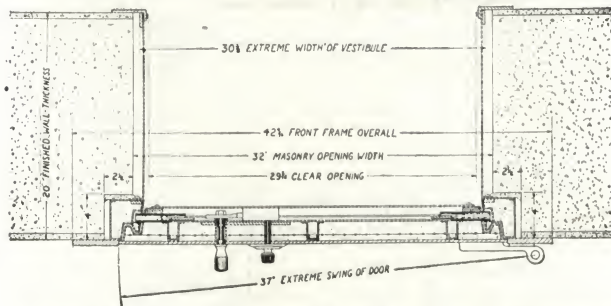


Vertical Section Through Style No. 152 Fire-resistive Vault Door

Showing masonry, clear opening dimensions and floor levels



No. 152 Fire-resistive Door—Closed



Horizontal Section Through Style No. 152 Fire-resistive Vault Door

Illustrating construction and showing masonry with clear opening dimensions

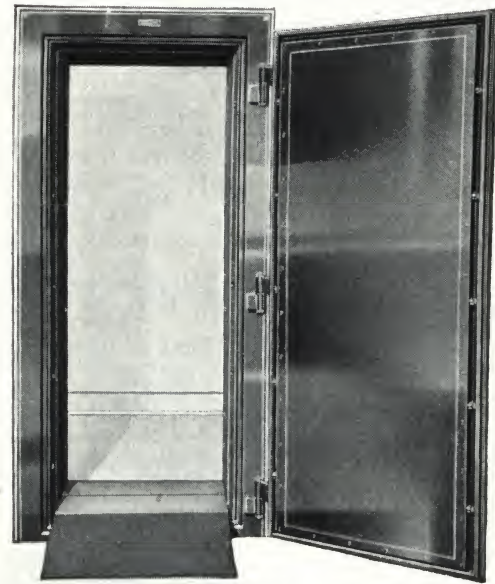


- (15) **Hinges**—Three heavy malleable iron pin hinges.
- (16) **Jambs**—On all four sides of the door and vestibule the jambs are formed with a deep tongue and groove.

- (17) **Foot Bridge**—An inclined metal foot bridge at the bottom of the door is hinged at the front to the sides of the vestibule.
- (18) **Finish**—Olive green duco with gold decorations. Hinge tips, combination dial, and ring and handle knob are brushed bronze.
- (19) **Shipping Weight**—1000 lb.

Note: This door can be furnished special to fit a wall of any thickness over 8 in., and can be finished in special colors.

To Specify This Door Write—"Diebold Standard Style No. 152 Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is right swing.



No. 152 Fire-resistive Door—Open

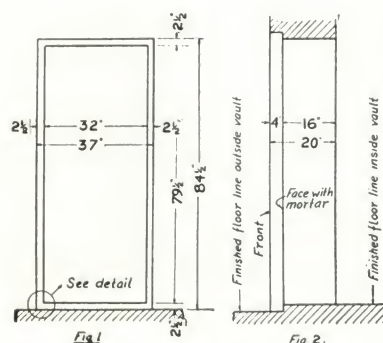
Instructions for Setting

- (1) Dimensions of wall openings should be as shown on masonry plans for this entrance.
- (2) Uncrate door and remove rear flanges.
- (3) Thoroughly soak face of rabbet and point edge with rich lime mortar as shown by Figure 3 below.

Caution: The pointing of rabbet should be thoroughly and carefully done to insure full protection of the door. The joint between wall and door must be tight.

- (4) Place door and frame in position in opening.
- (5) Replace rear flanges.
- (6) Open and close door to see that it hangs plumb and swings easily. If the door strikes on bottom, shim up under the hinge side of vestibule; if door strikes on top, shim up under the opposite corner.

- (7) If when the door is properly placed, the back flanges do not lie up flat against the inside face of the wall, fill in the space between it and the wall with filler strips.
- (8) Fill in uneven spaces between flanges and walls with cement or plaster.



FIRE-RESISTIVE VAULT DOOR—STYLE No. 156

Description

Style No. 156 Fire-resistive Insulated Vault Door is intended for severe fire risks. It affords a minimum of six hours heat resistance based on the standard vault door test.

The door must be fully grouted with cement in the opening.

The reinforcement of the insulation in the door is entirely independent of the outer door plate. Therefore the strains that may be set up in the outer frame and door plate cannot affect the insulation, which is firmly supported from the inside of the door.

The tongue and groove jamb construction is used on all four sides of the door. There is an inclined metal foot bridge with rubber tread hinged on the jambs at the bottom of the door.

Manufacturer's Specifications

(1) **Label**—Underwriters' Laboratories Inspected Vault Door Fire Classification 6 hours.

(2) **Clear Opening**—32 in. wide by 77 $\frac{3}{4}$ in. high.

(3) **Over-all Door Thickness**—6 $\frac{1}{8}$ in.

(4) **Door Construction**— $\frac{1}{8}$ in. front plate, 4 $\frac{7}{8}$ in. of Diebold fire-resistive insulation and $\frac{1}{8}$ in. inside cover plate. Insulation reinforced by two layers of steel reinforcing anchored to door cross braces.

(5) **Masonry Opening**—See drawings in next column.

(6) **Extreme Swing of Door**—39 $\frac{1}{8}$ in.

(7) **Installation**—Follow instructions in next column.

(8) **Front Frame Over All**—49 in. wide by 91 $\frac{1}{8}$ in. high.

(9) **Bolts**—Ten $\frac{3}{4}$ -in. diameter bolts, five at front and five at hinge side.

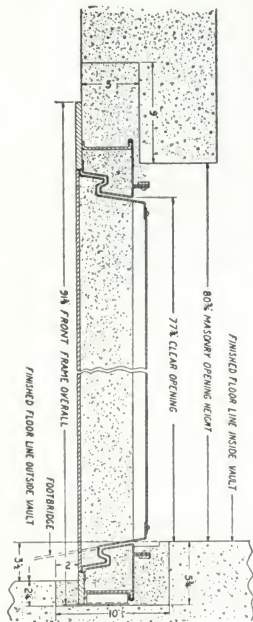
(10) **Lock**—Diebold 3-tumbler combination lock with patented re-locking device.

(11) **Bolt Handle**—A drop handle with bronze knob and black bakelite grip.

(12) **Hinges**—Three heavy malleable iron pin hinges.

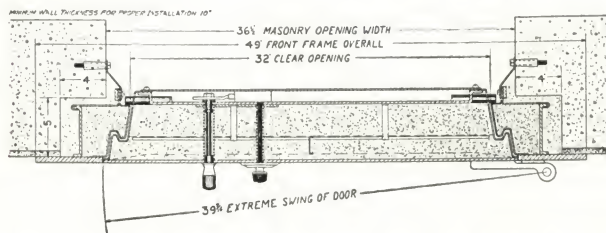
(13) **Jambs**—On all four sides of the door and vestibule the jambs are formed with a deep tongue and groove.

(14) **Foot Bridge**—An inclined metal foot bridge at the bottom of the door.



Vertical Section Through Style No. 156 Fire-resistive Vault Door

Showing masonry, clear opening dimensions and floor levels



Horizontal Section Through Style No. 156 Fire-resistive Vault Door

Illustrating construction and showing masonry with clear opening dimensions



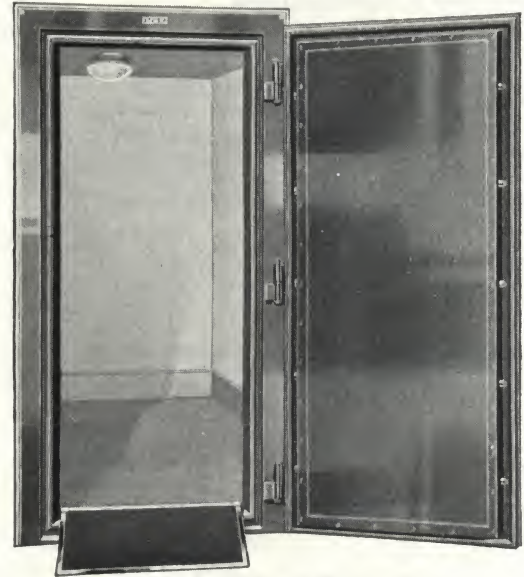
(15) **Finish**—Olive green duco with gold decorations. Hinge tips, combination dial, and ring and handle knob are brushed bronze.

The lock and bolt handle grips are black bakelite.

(16) **Shipping Weight**—1650 lb.

Note: This door will fit any wall thickness over 10 in. and can be finished in special colors.

To Specify This Door Write—"Diebold Standard Style No. 156 Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is right swing.



No. 156 Fire-resistive Door—Open

Instructions for Installing

(1) Provide wall opening of dimensions shown on masonry plans for this entrance.

Note: Make opening as closely as possible to given dimensions. Necessary allowances have been made for clearances.

(2) Make a grout of about two parts clean sand and one of portland cement and fill recess marked "A" on drawing below about $\frac{1}{2}$ full.

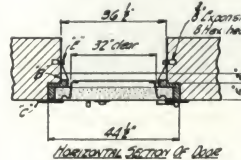
(3) Set door in opening and adjust door and frame plumb and level and wedge or prop frame in set position. Open and close door to see that it hangs plumb and swings easily; unless the frame has been properly set, the door will have a tendency to open or close of its own accord and further adjustments in leveling will be necessary until door remains in any set position.

(4) Secure door in place by attaching plates and anchor bolts "E."

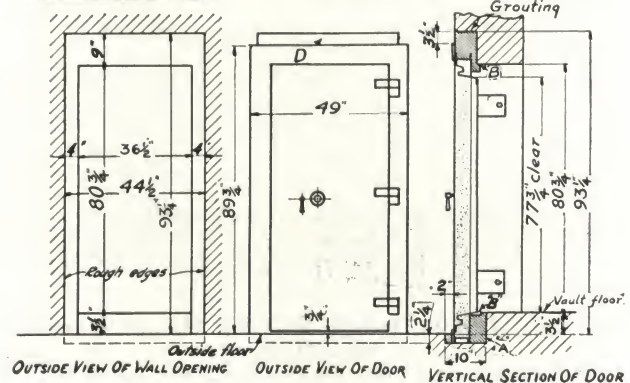
(5) Block off with wooden strips or frame gaps at points marked "B" and "C" if necessary.

(6) Make a grout of same proportions as above but thin enough to be poured through opening "D" and flow readily into all the crevices between door frame and wall. Fill to top level of flange below opening "D" and fill opening "D" with concrete, brick or heavy concrete mortar.

(7) Allow forms to remain in position for at least four days, or until grout has set firmly, before removing forms to complete finishing plaster, etc.



Horizontal Section of Door



OUTSIDE VIEW OF WALL OPENING OUTSIDE VIEW OF DOOR VERTICAL SECTION OF DOOR

RECORD ROOM DOOR—STYLE "L"

Recommended Use

The name "record room" identifies an enclosure of fire-resistive construction intended for use where the volume of records is too large and not of sufficient importance to justify economically the provision of vaults or safes, but where valuables warrant a certain amount of special protection. It should be used only in buildings of modern fire-resistive construction.

The record room is recommended for records classified as "important" by the National Fire Protection Association in its 1928 report. Included in this classification are statistical studies, derived accounting records and the great volume of operating records, particularly those of informative character, whose purpose is to maintain a check upon efficiencies.

While the records in this classification could be reproduced from the original sources it would cause considerable expense and labor. For these reasons record room protection is recommended.

Description

Style "L" Triumph Record Room Door bears the Underwriters' Laboratories Inspected Record Room Door Label, fire classification $\frac{1}{2}$ hour.

It is designed to afford a minimum of $\frac{1}{2}$ hour heat resistance without inside doors. It is unnecessary to grout the style "L" door in the opening.

The style "L" Triumph Line Record Room Door is the first improvement in a century in light fire-resistive vault doors.



$\frac{1}{8}$ -in. "Z" shaped bars forming the jambs are electrically welded, reinforced by three $\frac{1}{8}$ -in. "Z" shaped horizontal cross braces electrically welded to the door plate, and insulated cover plate on inside of door.

- (5) Masonry Opening—33 in. wide by 79 in. high.
- (6) Wall Thickness—9 in. including finish. Minimum thickness is 9 in. for $\frac{1}{2}$ -hour label.
- (7) Extreme Swing of Door—30 $\frac{1}{4}$ in.
- (8) Vestibule Body Over All—30 $\frac{1}{2}$ in. wide by 76 $\frac{1}{2}$ in. high.
- (9) Installation—No grouting required.
- (10) Front Frame Over All—38 $\frac{1}{4}$ in. wide by 80 $\frac{1}{2}$ in. high.
- (11) Back Frame—Removable.
- (12) Bolts—Five bolts of $\frac{3}{4}$ -in. dia. at front and interlocking channel at hinge side the full height of the door.
- (13) Lock—Diebold 3-tumbler combination lock with patented re-locking device.
- (14) Bolt Handle—A drop handle with bronze knob and black bakelite grip.
- (15) Hinges—Two heavy malleable iron pin hinges.
- (16) Jambs—The jambs of the vestibule are welded into a solid piece with a deep tongue striker. The frame of the door is formed from "Z" bars electrically welded.
- (17) Finish—Olive green duco with gold decoration. Hinge tips, combination dial, and ring and handle knob are brushed bronze. The combination lock and bolt handle grips are black bakelite.
- (18) Shipping Weight—375 lb.

Note: This door can be furnished special to fit a wall of any thickness over 9 in. and can be finished in special colors.

To Specify This Door Write—"Diebold Standard Style 'L' Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is right swing.

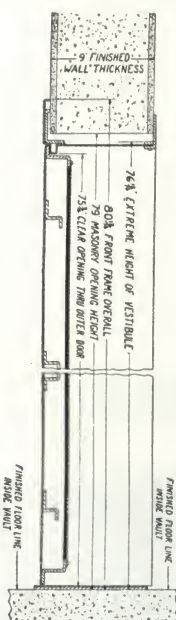
Manufacturer's Specifications

(1) Label—Underwriters' Laboratories Record Room Door fire classifications $\frac{1}{2}$ hour.

(2) Clear Opening—28 $\frac{1}{2}$ in. wide by 75 $\frac{3}{4}$ in. high. Entrance into vault is flush.

(3) Over-all Door Thickness—2 $\frac{1}{4}$ in.

(4) Door Construction— $\frac{1}{8}$ -in. outer door plate to which the four

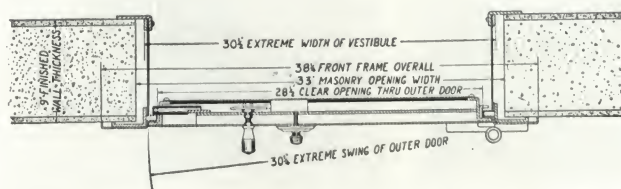


Vertical Section Through Style "L" Record Room Door

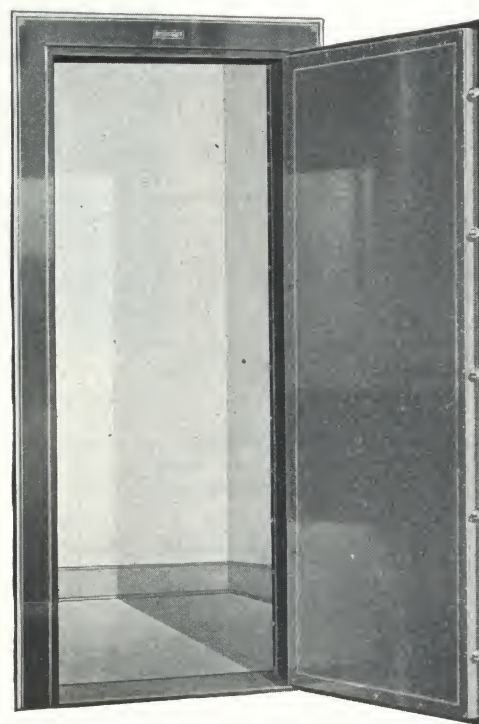
Showing masonry with clear opening dimensions and floor levels



Style "L" Record Room Door—Closed



Horizontal Section Through Style "L" Record Room Door
Illustrating construction and showing masonry with clear opening dimensions



Style "L" Record Room Door—Open

FIRE-RESISTIVE VAULT DOORS—STYLES "R" AND "S"

Recommended Use

Styles "R" and "S" Fire-resistive Vault Doors are recommended wherever inside doors are required for auxiliary protection in record rooms. The inside doors with key locks are useful for day-time operation.

The style "S" door is built with a wide opening for record rooms where busses are used.

The doors have a flush entrance from the office into the vault permitting the easy use of busses and transportable record trays.

Both of these doors are adaptable for installation in vaults where the wall openings are already built.

Description

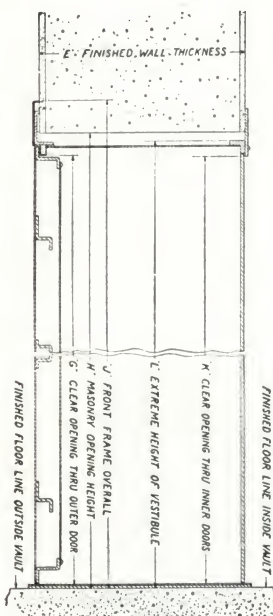
These doors with inside doors but without grouting offer forty to forty-five minutes protection.

Contrast the protection of these doors with the old style plate doors that offered twenty-seven minutes protection when fully grouted and with inside doors, based on tests by the Underwriters' Laboratories.

The anti-warp channel reinforcing the front frame and the deep box tongue of the jambs seals the doors against the direct passage of heat into the vault.

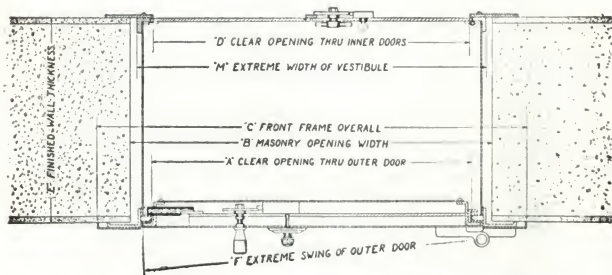
The interlocking channel on the hinge side the full height of the door effectually locks and seals these doors against the entrance of heat on this side.

Manufacturer's Specifications



Vertical Section Through Styles "R" and "S" Fire-resistive Vault Doors

Showing masonry clear opening dimensions and floor levels



Horizontal Section Through Styles "R" and "S" Doors
Illustrating construction and showing masonry with clear opening dimensions

Style "S"

- (1) Clear Opening through Inner Doors—34 in. wide by 75 $\frac{3}{4}$ in. high.
- (2) Clear Opening through Outer Door—35 $\frac{1}{2}$ in. wide by 75 $\frac{3}{4}$ in. high.
- (3) Over-all Outer Door Thickness—2 $\frac{1}{4}$ in.
- (4) Masonry Opening—40 in. wide by 79 in. high.
- (5) Wall Thickness—20 in. including finish. Wall must be 18 $\frac{1}{2}$ in. thick to allow inside doors to pocket.
- (6) Extreme Swing of Door—37 $\frac{1}{4}$ in.
- (7) Vestibule Body Over All—37 $\frac{3}{8}$ in. wide by 77 in. high.
- (8) Installation—No grouting required.
- (9) Front Frame Over All—45 $\frac{1}{4}$ in. wide by 80 $\frac{1}{8}$ in. high.
- (10) Back Frame—Removable.

Styles "R" and "S"

(11) Construction of Outer Door— $\frac{1}{8}$ -in. outer door plate to which the four $\frac{1}{8}$ -in. "Z" shaped bars forming the jambs are electrically welded reinforced by three "Z" shaped horizontal cross braces electrically welded to the door plate.

(12) Construction of Inner Doors—Each door has double inner doors $\frac{1}{8}$ in. thick locked at top, bottom and front with strap boltwork checked with a flat key lock. Boltwork is operated by a drop T handle.

(13) Bolts—Each door has five bolts of $\frac{3}{4}$ -in. dia. at front and interlocking channel at the hinge side the full height of the door.

(14) Lock—The outer doors have a Diebold 3-tumbler combination lock with patented re-locking device.

(15) Bolt Handle—Each door has a bolt handle with bronze knob and black bakelite grip.

(16) Hinges—Two heavy malleable iron pin hinges.

(17) Jambs—The jambs of the vestibule are formed and welded into a solid piece with a deep tongue striker. The frame of the door is formed from "Z" bars electrically welded.

(18) Finish—Each door is finished in olive green duco with gold decorations. Hinge tips, combination dial and ring and handle knob are brushed bronze. The combination lock and bolt handle grips are black bakelite.

(19) Shipping Weight—Style "R" 500 lb.; style "S" 650 lb.

Note: These doors can be furnished special to fit any wall thickness over 15 $\frac{1}{2}$ in. for the "R" and 18 $\frac{1}{2}$ in. for the "S" and can be finished in special colors.

To Specify These Doors Write—"Diebold Standard Style 'R' or Style 'S' Vault Door." Specify the swing of the doors as right or left as you face them. The door illustrated is right swing.



Styles "R" and "S"
Fire-resistive Doors
—Closed



Styles "R" and "S" Fire-resistive
Doors—Open

FIRE-RESISTIVE VAULT DOOR—STYLE "TILE"**Recommended Use**

The "Tile" Fire-resistive Vault Door is stocked standard to fit a wall 9 in. thick including finish. In walls of this thickness or less inside doors are impracticable. They will not pocket in the vestibule and it is objectionable to swing them into the vault or allow them to extend through the front frame.

The ½-hour Underwriters' Label Record Room Door must be built with a vestibule 9 in. deep or greater. Since the "Tile" Door affords twenty-nine minutes protection based on tests in the Underwriters' Laboratories it is especially suited for those locations where it is impractical to build a 9-in. front wall.

Description

This door offers twenty-nine minutes protection without any grouting in contrast to the old style plate vault doors that offer only ten minutes protection when fully grouted. Based on tests in the Underwriters' Laboratories.

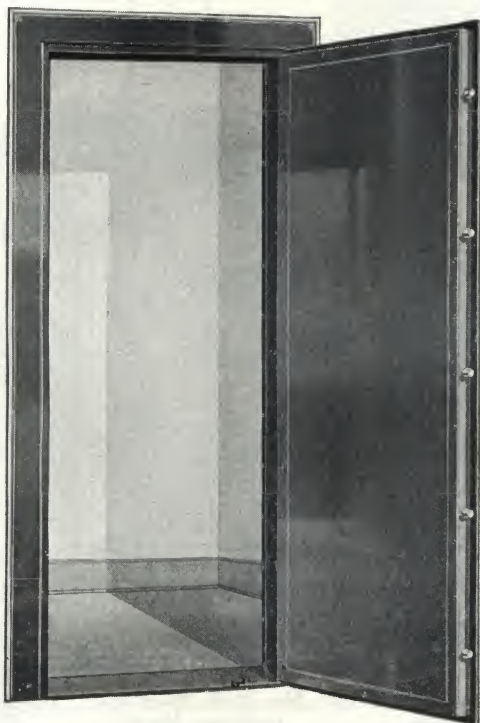
The anti-warpage channel reinforcing the front frame and the deep box tongue of the jambs seal the door against the direct passage of heat into the vault.

The cover plate over the boltwork adds to the appearance of the door and prevents the soiling of clothing on the working parts.

With the necessity of grouting eliminated there is no difficulty in installing the door.

Manufacturer's Specifications

- (1) Clear Opening—28½ in. wide by 75¾ in. high.
- (2) Over-all Door Thickness—2¼ in.
- (3) Door Construction—⅞-in. outer door plate to which the four ⅝-in. "Z" shaped bars forming the jambs are electrically welded reinforced by three "Z" shaped horizontal cross braces electrically welded to the door plate.
- (4) Masonry Opening—33 in. wide by 79 in. high.
- (5) Wall Thickness—9 in. including finish.
- (6) Extreme Swing of Door—30¼ in.
- (7) Vestibule Body Over All—30½ in. wide by 76½ in. high.
- (8) Installation—No grouting required.



Style "Tile" Fire-resistive Door—Open

(9) Front Frame Over All—38¼ in. wide by 80½ in. high.

(10) Back Frame—Removable.

(11) Bolts—Five bolts of ¾-in. dia. at front and interlocking channel at rear the full height of the door.

(12) Locks—Diebold 3-tumbler combination lock with patented re-locking device.

(13) Bolt Handle—A drop handle with bronze knob and black bakelite grip.

(14) Hinges—Two heavy malleable iron pin hinges.

(15) Jambs—The jambs of the vestibule are formed on three sides from a solid piece with a deep tongue striker. The frame of the door is formed from "Z" bars electrically welded.

(16) Finish—Olive green duco with gold decoration. Hinge tips, combination dial, and ring and handle knob are brushed bronze. The lock and bolt handle grips are black bakelite.

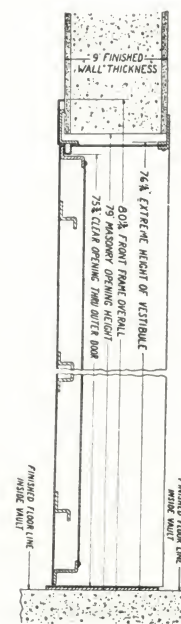
(17) Shipping Weight—375 lb.

Note: This door can be furnished special to fit any wall thickness and can be finished in special colors.

To Specify This Door Write—"Diebold Standard 'Tile' Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is right swing.

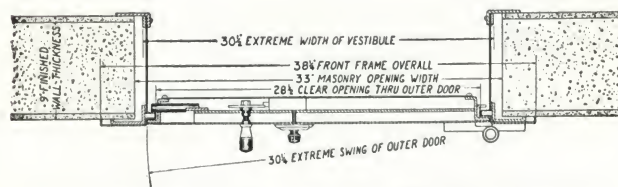


Style "Tile" Fire-resistive Door—Closed



Vertical Section Through Style "Tile" Fire-resistive Vault Door

Showing masonry, clear opening dimensions and floor levels



Horizontal Section Through Style "Tile" Fire-resistive Vault Door

Illustrating construction and showing masonry with clear opening dimensions

BURGLAR-RESISTIVE VAULT DOOR—STYLE NO. 215

Recommended Use

The style No. 215 Burglar-resistive Vault Door is designed for vaults built for protection from burglarious attack. Subject to the Class "D" Mercantile Burglary Insurance rates it reduces insurance premiums. It is recommended wherever this type of protection is required for securities or valuables.

Home owners will find it especially suited for silver and trunk storage vaults; manufacturers will find it desirable for the protection of templates, dies, chemicals and valuable parts and tools.

Where greater burglary protection is required see our No. 235 Vault Door and write for specifications of Diebold Bank Vault Doors.

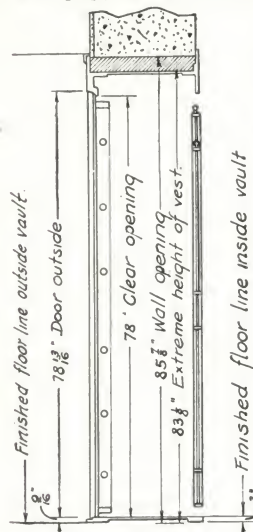
Description

This door meets the requirements for Class "D" Mercantile Burglary Insurance.

It is hung on a goose-neck crane hinge operating on ball bearings. It is seated in its jamb with a two-point compressor system operated by a hand wheel with six hexagonal bakelite grips.

The door is standard with two 3-tumbler combination locks equipped with re-locking device, for additional protection.

A plate of 5-ply hardened chrome steel protects the locks and bolt throwing handle from burglarious attack by drilling.



Vertical Section through Style No. 215 Burglar-resistive Vault Door

Showing masonry clear opening and floor level dimensions

Manufacturer's Specifications

(1) Clear Opening into Vault—32 in. wide by 78 in. high.

(2) Over-all Door Thickness—The door is $3\frac{1}{8}$ in. thick on edge and measures 12 in. over compressor system.

(3) Door Construction—The solid steel thickness of the door is $1\frac{1}{2}$ in. built up of 1-in. and $\frac{1}{2}$ -in. open hearth steel plates. A 5-ply hardened chrome steel drillproof plate protects the locks and bolt handle.

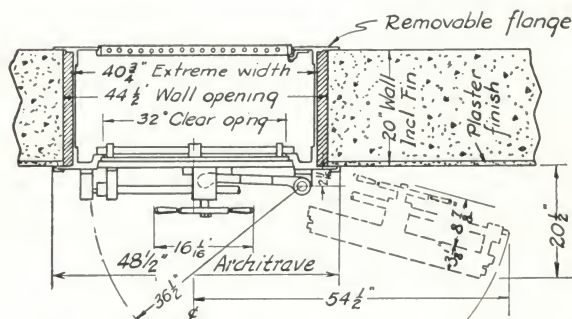
(4) Masonry Opening— $44\frac{1}{2}$ in. wide by $85\frac{1}{8}$ in. high. Notice floor levels on sectional drawings in this column.

(5) Wall Thickness—20 in. including finish. If steel lining is to be attached to door write for special masonry drawing.

(6) Extreme Swing of Door— $39\frac{3}{8}$ in.

(7) Vestibule Body Over All—Constructed of 11-gauge steel; $40\frac{3}{4}$ in. wide by $83\frac{1}{8}$ in. high.

(8) Installation—The vestibule must be braced and grouted in the opening with cement.



Horizontal Section through Style No. 215 Vault Door

Illustrating construction and showing masonry with clear opening dimensions

(9) Architraves— $48\frac{1}{2}$ in. wide by 87 in. high over all, constructed of $\frac{3}{8}$ in. by $\frac{3}{4}$ in. by $1\frac{1}{8}$ in. angles mitred at corners and beveled on inner edges.

(10) Front Frame—Steel plate 7 in. by $\frac{3}{8}$ in.

(11) Back Frame—Steel angles with removable steel bar.

(12) Bolts Outside Door—Twelve bolts of $\frac{1}{8}$ in. dia., double acting.

(13) Outer Bolt Frames—1 in. wide by $1\frac{5}{8}$ in. high.

(14) Inner Bolt Frames— $1\frac{1}{8}$ in. wide by $1\frac{5}{8}$ in. high.

(15) Locks—Two Diebold 3-tumbler combination locks with re-locking device.

(16) Bolt Throw Handle—A drop handle with steel knob and black bakelite grip.

(17) Crane Hinge—Semi-steel $5\frac{1}{2}$ in. wide by $1\frac{3}{8}$ in. thick. Hinge barrels are $2\frac{1}{4}$ in. and $2\frac{1}{2}$ in. dia.

(18) Compressor System—Single horizontal.

(19) Hand Wheel—Six spokes with black bakelite grips. Over-all diameter $16\frac{1}{4}$ in.

(20) Foot Bridge—None. Flush entrance into vault.

(21) Door Stop—A nickel plated door stop with rubber bumper is furnished for setting in the floor.

(22) Day Gate—A standard No. 7 Diebold Day Gate is furnished constructed of $\frac{1}{2}$ -in. rods set on $1\frac{3}{4}$ -in. centers through $\frac{1}{2}$ -in. by $1\frac{1}{2}$ -in. girts and provided with a self-closing hinge. The gate is furnished with a key lock operated with key from outside and thumb latch from inside. An alarm bell is attached to lock.

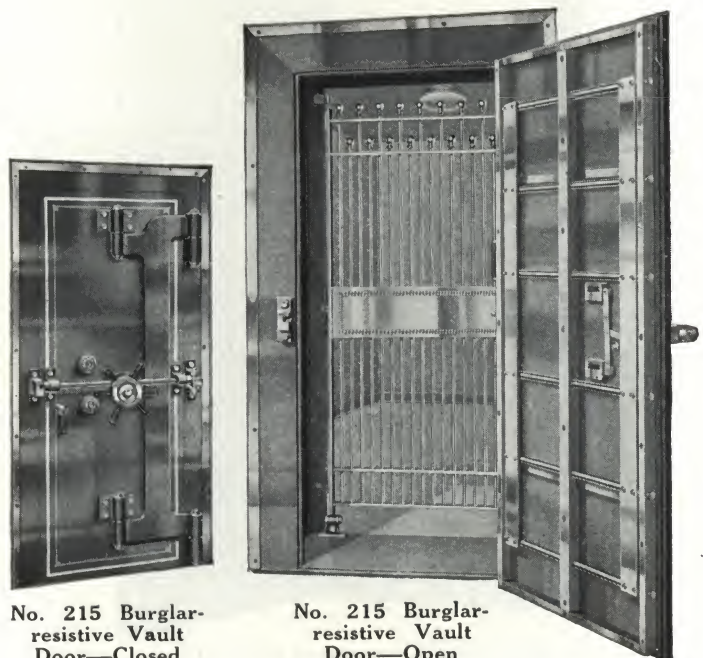
(23) Finish—Edge moulding is satin nickel; front of door and frame, jams, crane hinge and vestibule inside are olive green duco; compressor system, boltwork and day gate are buffed nickel; locks are satin bronze.

(24) Over-all Crated Size—2 ft. $11\frac{1}{2}$ in. deep by 7 ft. 4 in. high by 4 ft. 6 in. wide.

(25) Shipping Weight—3000 lb.

Note: Satin nickel finish plates can be furnished for the outside face of the door and frame, as an extra, when specified. The depth of the vestibule may be changed.

To Specify This Door Write—"Diebold Standard Style No. 215 Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is right swing.



No. 215 Burglar-resistive Vault Door—Closed

No. 215 Burglar-resistive Vault Door—Open

BURGLAR-RESISTIVE VAULT DOOR—STYLE NO. 235**Recommended Use**

Style No. 235 Burglar-resistive Vault Door is designed for vaults built for protection from burglarious attack. Burglary insurance premiums are substantially reduced since it meets the Class "E" Mercantile Burglary Insurance classification. It is recommended wherever this type of protection is required for securities or valuables.

Jewelers will find it profitable because of reduced insurance premiums; manufacturers, wholesalers, jobbers, and large retailers will find it desirable for the protection of valuable stock, formulas and payrolls.

It is ideal for banks and financial institutions needing a separate vault for the protection of accounts and records from fire and burglary. It will harmonize nicely with the main bank vault door.

Where additional burglary protection is required write for specifications of Diebold Bank Vault Doors.

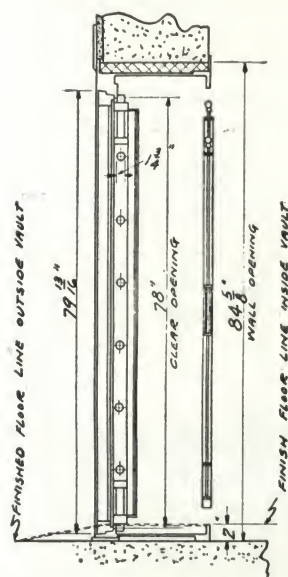
Manufacturers' Specifications

- (1) **Clear Opening Into Vault**—32 in. wide by 78 in. high.
- (2) **Over-all Door Thicknesses**—The door is $8\frac{1}{4}$ in. thick on edge and measures $14\frac{3}{8}$ in. over compressor system.
- (3) **Door Construction**—The solid steel thickness of the door is $3\frac{1}{2}$ in. built up of $\frac{1}{2}$ in. open hearth 2 in. torch resisting, $\frac{1}{2}$ in. 5-ply chrome, and $\frac{1}{2}$ in. open hearth plates.
- (4) **Masonry Opening**—40 in. wide by $84\frac{1}{2}$ in. high. Notice floor levels.

- (5) **Wall Thickness**—20 in. including finish. If steel lining is to be attached to door write for special masonry drawing.

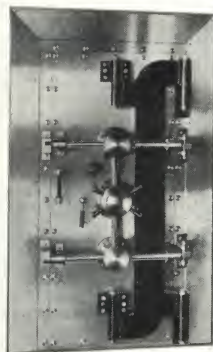
- (6) **Extreme Swing of Door**— $42\frac{1}{8}$ in.

- (7) **Vestibule Body Over All**—The vestibule body is constructed of $\frac{1}{4}$ -in. open hearth plates with 2 in. by 2 in. by $\frac{1}{4}$ in. angles at the corners. It is $37\frac{3}{4}$ in. wide by $82\frac{3}{8}$ in. high.

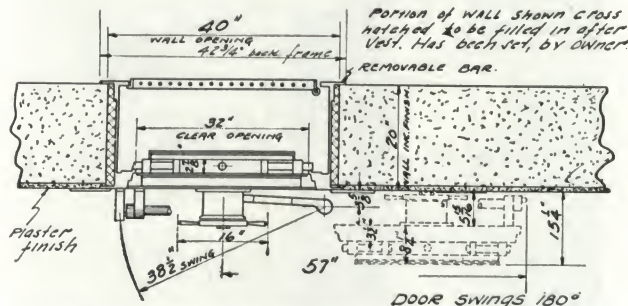


Vertical Section Through Style No. 235 Vault Door

Showing masonry, clear opening and floor level dimensions



No. 235 Burglar-resistive Vault Door—Closed



Horizontal Section Through Style No. 235 Vault Door

Illustrating construction and showing masonry with clear opening dimensions

- (8) **Installation**—The vestibule must be braced and grouted in the opening with cement.

- (9) **Architraves Over All**— $56\frac{1}{8}$ in. wide by $91\frac{1}{8}$ in. high over all constructed of $\frac{1}{4}$ in. by 8 in. plates mitered at corners and beveled on inner edges.

- (10) **Front Frame**—Steel plate 5 in. by $\frac{1}{2}$ in.

- (11) **Back Frame**— $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in. by $\frac{1}{4}$ in. steel angles with removable steel bar 5 in. by $\frac{1}{4}$ in.

- (12) **Locking Bolts**—18 bolts, $1\frac{3}{4}$ in. diameter, operated by gears.

- (13) **Outer Bolt Frames**— $1\frac{3}{4}$ in. wide by $2\frac{7}{8}$ in. high.

- (14) **Inner Bolt Frames**— $1\frac{3}{4}$ in. wide by $2\frac{7}{8}$ in. high.

- (15) **Glass Frame**—The boltwork is covered with $\frac{1}{4}$ in. plate glass in a steel angle frame, $1\frac{3}{8}$ in. by $1\frac{3}{8}$ in. by $\frac{1}{4}$ in. locked with a key lock.

- (16) **Lock**—One Diebold Peerless 4-tumbler key-changing combination lock.

- (17) **Bolt Throw Handle**—Lever handle with bronze knob and hard rubber grip.

- (18) **Crane Hinge**—Semi-steel, 8 in. wide by $1\frac{1}{4}$ in. thick. Hinge barrels are $2\frac{1}{2}$ in. and 3 in. diameter.

- (19) **Compressor System**—Double, four-point, with three drums and $1\frac{1}{2}$ in. diameter rods.

- (20) **Hand Wheel**—Six spokes with black bakelite grips. Overall diameter 16 in.

- (21) **Foot Bridge**—Inclined, covered with corrugated rubber.

- (22) **Door Stop**—A nickel plated door stop with rubber bumpers is furnished for setting in the floor.

- (23) **Day Gate**—A standard No. 7 Diebold Day Gate is furnished, constructed of $\frac{1}{2}$ -in. rods set on $1\frac{3}{4}$ in. centers through $\frac{1}{2}$ in. by $1\frac{1}{2}$ in. girts and provided with a self closing hinge. The gate is furnished with a key lock operated with key from outside and thumb latch from inside. An alarm bell is attached to lock.

- (24) **Finish**—Architraves, satin nickel.

Front of door and frame, satin nickel.

Jambs and bolt frames, polished steel.

Crane hinge, black Duco, satin finish.

Vestibule, inside, auto gray.

Compressor system, satin nickel.

Bolt work and glass frame, polished steel.

Finish plates under bolt work, satin nickel.

Day gate, buffed nickel.

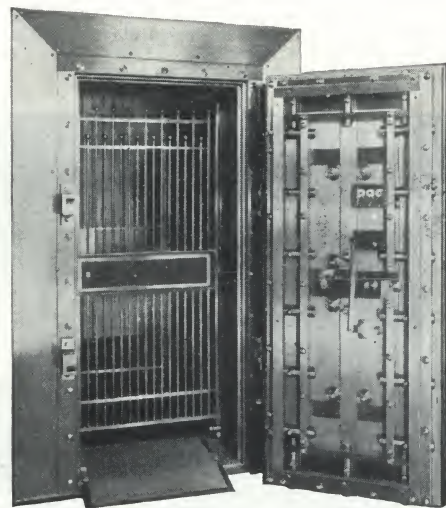
Lock, satin bronze.

- (25) **Over-all Crated Size**—3 ft. 2 in. deep by 7 ft. 3 in. high by 4 ft. 4 in. wide.

- (26) **Shipping Weight**—6100 lb.

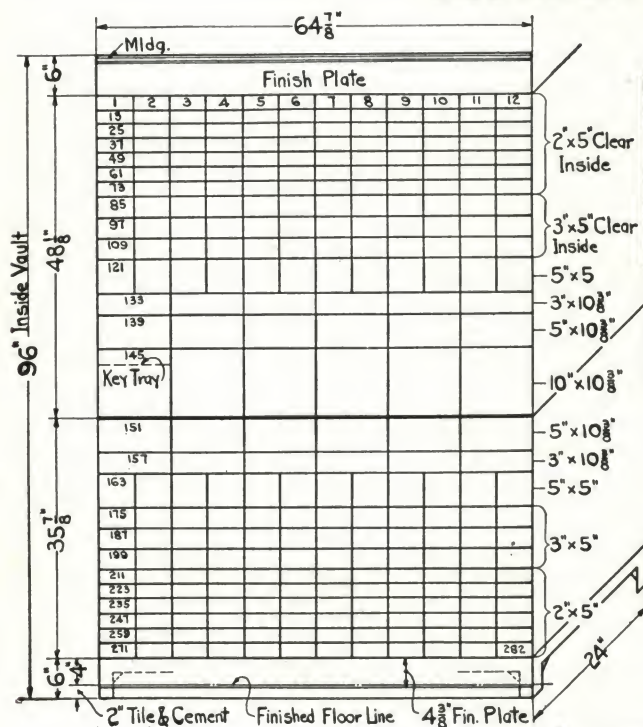
Note: This door can be furnished to fit any wall thickness.

To Specify This Door, Write—"Diebold Standard Style No. 235 Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is right swing.



No. 235 Burglar-resistive Vault Door—Open

SAFE DEPOSIT AND BOND BOXES



From the following information, together with the sketch, can be figured the number of safe deposit boxes or bond boxes, or any combination of both that will fit any given size space.

Formula for figuring the total number of boxes of average sizes in a given space: Multiply height in feet by the width in feet of the available space, and then by $6\frac{3}{4}$. This will give you the total number of boxes of average size.

Note: For computing size of sections, figure all verticals $\frac{3}{8}$ in., including the outside shell. Figure the horizontals $\frac{1}{8}$ in., except top and bottom of sections which are $\frac{1}{4}$ in.

SCHEDULE NO. 1—SAFE DEPOSIT BOXES SCHEDULE NO. 2—BOND BOXES

*Boxes	Clear inside dimensions, in.			Clear inside dimensions, in.		
	Height	Width	Depth	Height	Width	Depth
156	2	5	22 $\frac{13}{32}$	1 $\frac{25}{32}$	4 $\frac{11}{16}$	21 $\frac{1}{2}$
72	3	5	22 $\frac{13}{32}$	2 $\frac{25}{32}$	4 $\frac{11}{16}$	21 $\frac{1}{2}$
24	5	5	22 $\frac{13}{32}$	4 $\frac{25}{32}$	4 $\frac{11}{16}$	21 $\frac{1}{2}$
12	3	10 $\frac{3}{8}$	22 $\frac{13}{32}$	2 $\frac{25}{32}$	10 $\frac{1}{16}$	21 $\frac{1}{2}$
12	5	10 $\frac{3}{8}$	22 $\frac{13}{32}$	4 $\frac{25}{32}$	10	21 $\frac{1}{2}$
6	10	10 $\frac{3}{8}$	22 $\frac{13}{32}$	9 $\frac{25}{32}$	10	21 $\frac{1}{2}$

*Total, 282 boxes.

Specifications

Construction—Top and bottom $\frac{1}{4}$ in.; horizontals $\frac{1}{8}$ in.; verticals $\frac{3}{8}$ in.; doors $\frac{1}{2}$ in.

Locks—Double nose flat customer and guard key or corrugated customer and guard key, Underwriters' certified approved pickproof lock.

Bond Boxes—Heavy reinforced metal with lids hinged two-thirds way back. Lids swing 180 degrees—hasp fastener. Heavy wire drop handle each end. Finished inside and out in baked black enamel.

General Finish—Doors, satin nickel inside and out; lock cases, satin bronze; lock noses, satin brass; hinges, buffed bronze; exposed edges of all sides, top and bottom, and horizontal partitions, polished steel; interior of section painted maroon; exterior of section painted gray.

VAULTS AND VAULT DOORS

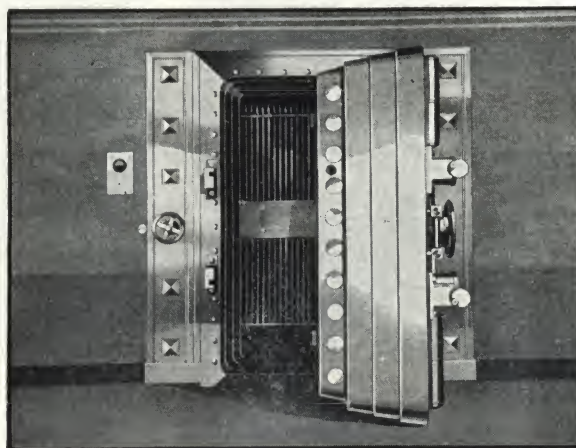
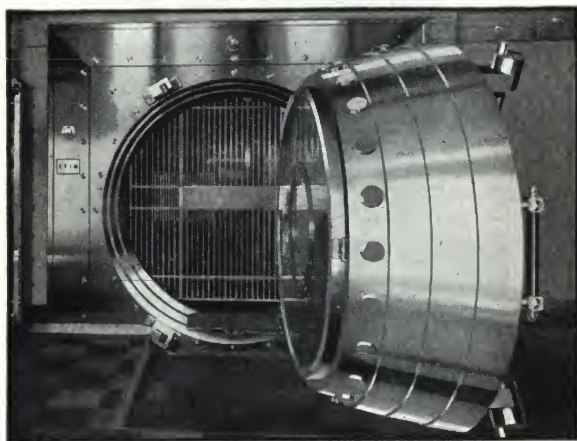
DIMENSIONS OF DIEBOLD STANDARD BURGLAR-PROOF VAULT FRONTS

Door No.	Solid steel, thickness in.	Wall opening, in.		Depth of vestibule (without lining), in.	Clear opening between jambs, in.		Outside over all, in.	
		High	Wide		High	Wide	High	Wide
Rectangular Doors								
215	1½	85¾	44½	20	78	32	87	48½
235	3½	84¾	40	20	78	32	91½ ₁₆	56½
507	7	93	49	20	78¾ ₃₂	32¾ ₁₆	95	60
610	10	93	49	20	78¾ ₃₂	32¾ ₁₆	101¾	72
612	12	95½	52½	2½	78	34	105¾	80
616	16	98	56	21	78	34	107¾	82½ ₁₆
620	20	99	60	24	80	38	109¾ ₁₆	88¾ ₃₂
625	25	111½	72¾	27½	84	40	116¾ ₃₂	97¾
Circular Doors								
1010	10	96	96½	20	80	80	102¼	119
1016	16	100	100	24	80	80	106	123¾
1020	20	106	106	27	82	82	109¼	126
1025	25	111¾	111¾	33	84	84	115	133

Comparison of Circular and Rectangular Doors

The illustrations below show two characteristic Diebold Vault Door installations. Both doors, the one circular, the other rectangular, afford the same protection to the bank's vault. Both are massive, impressive and beautiful. Our purpose in showing these two doors is to accord you an opportunity of making a fair comparison. Each harmonizes with appro-

prate types of bank design. The rectangular door occupies a minimum of space and is particularly desirable where space is at a premium. Where sufficient space is available at the proper location the circular door makes an unusually fine showing. Naturally, preference will be based on the surrounding conditions.



WALL SAFE**Purpose**

The wall safe is designed for the protection of papers and valuables from fire and theft.

The business man carries papers, documents and securities home that are religiously kept in the safe at the office. He needs a safe at home.

The lady of the house needs protection for jewelry, drugs, silverware, heirlooms and countless articles kept in the home that could not be replaced if lost.

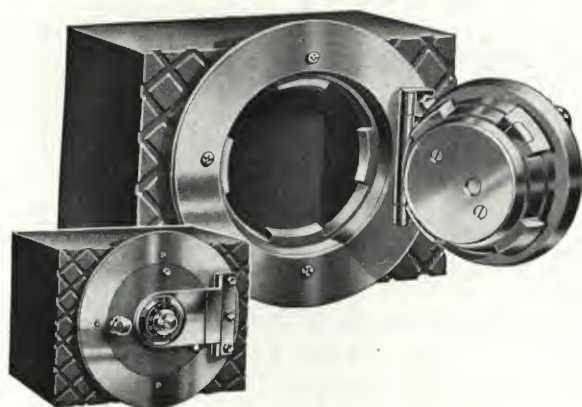
This safe is especially adapted to installation in apartments and private residences. As standard equipment in large apartment buildings, it has powerful appeal for prospective renters.

Manufacturer's Specifications

Outside Dimensions—10½ in. high by 15 in. wide by 8 in. deep.

Inside Dimensions—9½ in. high by 14 in. wide by 7 in. deep.

Shipping Weight—100 lb.

**FIRE-RESISTIVE SAFES****Dominator Line**

Underwriters' "A & T-20" label. Built in eight models.

Commander Line

Underwriters' "B & T-20" label. Built in seven models.

Guardian Line

Diebold certified one-hour label. Built in three models.

Commercial Line

Diebold certified two-hour label. Built in five models.

Record Desk Safe

Diebold certified two-hour label. Built in one model.

Finishes

The standard finish is a beautiful satin, olive green duco. Special finishes may be had on request.

Write for complete descriptive literature.



Dominator Safe



Record Desk Safe

RECORD DESK SAFE NO. 84

The convenience of a desk combined with the protection of a safe.

This record desk safe provides perfect record housing and convenient posting space. It may be installed in batteries without waste space. It is designed for easy operation, and certified to afford two-hour fire protection.

Manufacturer's Specifications

DIMENSIONS OF RECORD DESK SAFE NO. 84
(Patents pending)

	Height, in.	Width, in.	Depth, in.
Over all outside, with door open.....	66½	63	28½
Over all outside, closed.....	42	63	28½
Clear inside space for files.....	10	45	17

Shipping Weight—Approximately 1650 lb.

Finish—Stainless steel finish plate over base. Standard satin finish olive green duco.

Card Capacity—4800 to 15,000, depending upon size of card. In ordering card trays, height and width of card must be specified. 10 in. is maximum height of card, exclusive of index.

ESTABLISHED 1872

THE SCHWAB SAFE COMPANY

Manufacturers of Vault Doors, Safes and Burglarproof Chests

LAFAYETTE, IND.

Products

VAULT DOORS, SAFES, FILING SAFES, FUR SAFES, WALL SAFES and BURGLARPROOF CHESTS.

The Company

THE SCHWAB SAFE COMPANY has been building quality safes for more than 58 years. We have a very modern up-to-date plant with all modern manufacturing facilities.

Engineering Staff

We maintain a most competent staff of engineers to assist you with any problems within our scope.

Literature

Upon request we will gladly send you a copy of our latest Vault Door Catalogue which has been prepared especially for the file, indexed A.I.A. File 18g. This catalogue gives complete architects' and engineers'



TRADE-MARK

specifications as well as vault construction data.

Schwab Insulated Vault Doors (Underwriters' 2-Hour Label) See Page 2 for Specifications

Specified where *maximum fire protection is required.*

Schwab's 2-hour Vault Doors have a wide extra margin of safety—the equivalent to approximately a 3½-hour door. No greater protection will *ever* be needed. The strain on a vault door, where only one side is exposed to the fire and heat, is not nearly so great as on a safe where all four sides are exposed. And on an insulated safe, a 4-hour label at 2000° is maximum.

Both the No. 2674B (single door) and the No. 3674B (double door) are of the new type, with interlocking tongue and groove, insulated doors and jambs.

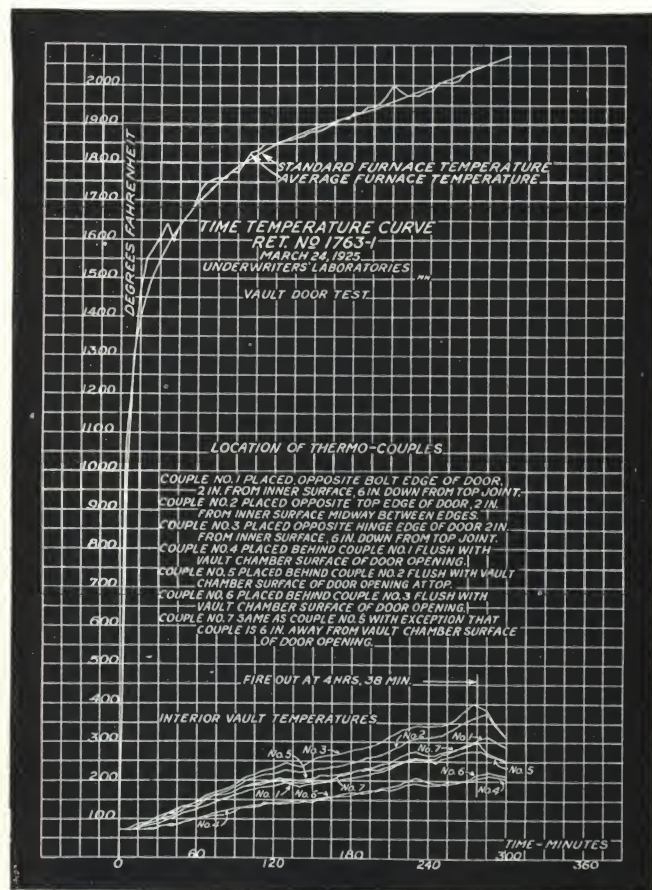
UNDERWRITERS' TEST OF SCHWAB INSULATED VAULT DOORS

Contents Preserved Intact During Furnace Test That Lasted Over Twice the Time Required

While our vault doors are classed as two-hour fire-retardant doors, they actually preserve their contents without the slightest injury during a severe fire test lasting four hours and thirty-eight minutes. This performance shows a wide margin of safety—132% over the requirements for this test.

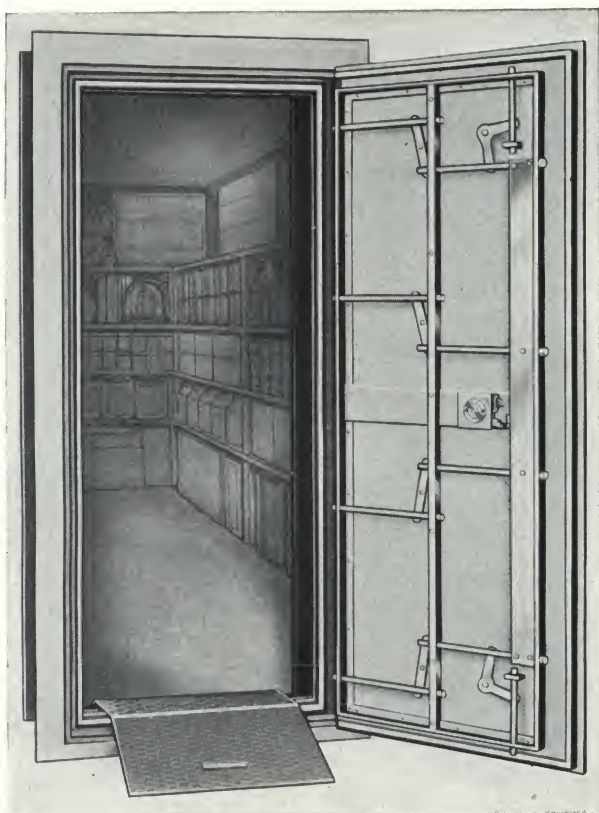
TABULATION OF TEMPERATURES SHOWN ON HEAT CHART

Time	Highest temperature, degrees F., at back of vault door vestibule	Standard temp., degrees F., applied against outside front of vault door
5 min.....	74	1000
10 min.....	75	1300
15 min.....	76	1400
20 min.....	80	1460
25 min.....	85	1510
30 min.....	95	1550
45 min.....	126	1640
60 min. (1 hr.).....	142	1700
75 min.....	160	1750
90 min.....	176	1790
105 min.....	192	1820
120 min. (2 hrs.).....	200	1850
150 min.....	209	1890
180 min. (3 hrs.).....	221	1925
210 min.....	238	1960
240 min. (4 hrs.).....	254	2000
278 min. (4 hrs. and 38 min.).....	276	2050



The Underwriters' Laboratories, in their report to us, advised as follows:

"The furnace fire was extinguished at 4 hours 38 minutes. The contents of the vault chamber and the papers on the shelves of the panel remained intact and were practically unaffected as a result of the test, no brittleness or lack of legibility being noted."



UNDERWRITERS' 2-HOUR LABEL INSULATED VAULT DOOR NO. 2674B (SINGLE) AND NO. 3674 (DOUBLE)

Details on Page 6

Specifications

Dimensions—No. 2674B: Clear opening through vestibule 74 in. high, 26½ in. wide, 18 in. deep. Vault wall opening 85½ in. high, 39 in. wide, 18 in. deep.

Dimensions—No. 3674B: Same as No. 2674B, except clear opening through vestibule 36½ in. wide and wall opening 49 in. wide.

Note: Wall opening must be at least 10 in. deep to permit Underwriters' label on door.

Materials and Construction—Sides, top and bottom No. 12 gauge bessemer, with No. 12 gauge inner lining in vestibule built on solid angle frame 1¼x1¼x¼ in. continuous around all edges. Front frame 3x1½ in. Rear 5½x1½ in. open hearth steel. Outer door plate No. 10 gauge rerolled bessemer. Inner plate of door No. 16 gauge. No. 16 gauge drawn steel door and frame jambs with interlocking tongue-and-groove flanges. Door ¼ in. on edge, 1¼x1¼x1½ in. angle bolt frame, solid welded at all corners continuous around door. Center bolt bars 1½x¾ in. cold rolled steel. Lock rail 4x¼ in. Hinged foot bridge ¼ in. Diamond Shure-Step steel. 3½ in. approved fireproof insulation in door and 5 in. in frame jambs. The back sill bars shall be removable to allow vault door to be installed after the walls are up.

Bolt Work—Outside door shall be locked by ten double acting bolts, all ¾ in. in diameter, cold rolled steel, operating four front, four back, one up and one down, and working through a solid steel angle bolt frame 1¼x1¼x1½ in. at edges of door and through 1½x¾ in. center bolt bar. Bolts shall be checked by four-tumbler brushed bronze finish combination lock and thrown by heavy brushed bronze finish drop handle with black grip. On No. 3674B, bolt work is thrown by two drop handles.

Note: Inside doors not required by Underwriters' Laboratories, Inc. Day gate complete with lock and alarm bell can be furnished at reasonable extra charge.

Finish—Olive green lacquer, neatly striped and ornamented.

Weight—No. 2674B approximately 1750 lb. No. 3674B approximately 2350 lb.



UNDERWRITERS' INSULATED VAULT DOOR NO. 2774R

Details on Page 6

Specifications

Dimensions—Clear opening through vestibule 74 in. high, 27 in. wide. Vault wall opening 77 in. high, 32 in. wide, 6 in. deep.

Note: The maximum net opening to which this door can be built if label is required is 32 in. wide, 78½ in. high, 6 in. or more in depth. Without label, door can be built any reasonable size.

Materials and Construction—Sides and top No. 16 gauge; bottom No. 12 gauge bessemer. Front frame 3½x1½ in.; rear 3½x1½ in. Bottom sill bars, open hearth steel; front 1¼x¼ in.; rear 1¼x¼ in.

Outer door plate No. 10 gauge rerolled bessemer, reinforced at edge by 1½x2x1½ in. steel angle frame solid welded at all corners (door approximately ¾ in. thick on edge). Attached to the 2 in. angle shall be an asbestos insulation sheet covered by a No. 16 gauge steel cover plate forming a 1¼ in. air space between the inner and outer door plate.

The back sill bars shall be removable to allow vault door to be installed after the vault walls are up.

Bolt Work—Outside door shall be locked by three cross-bolts, one up and one down bolt, all 1 in. diameter, cold rolled steel, operating through solid steel angle iron bolt frame 1½x2x1½ in. continuous around sides, top and bottom of door. Bolts shall be checked by four-tumbler combination lock, having black dial and white numerals, and thrown by heavy nickelplated drop handle with black grip.

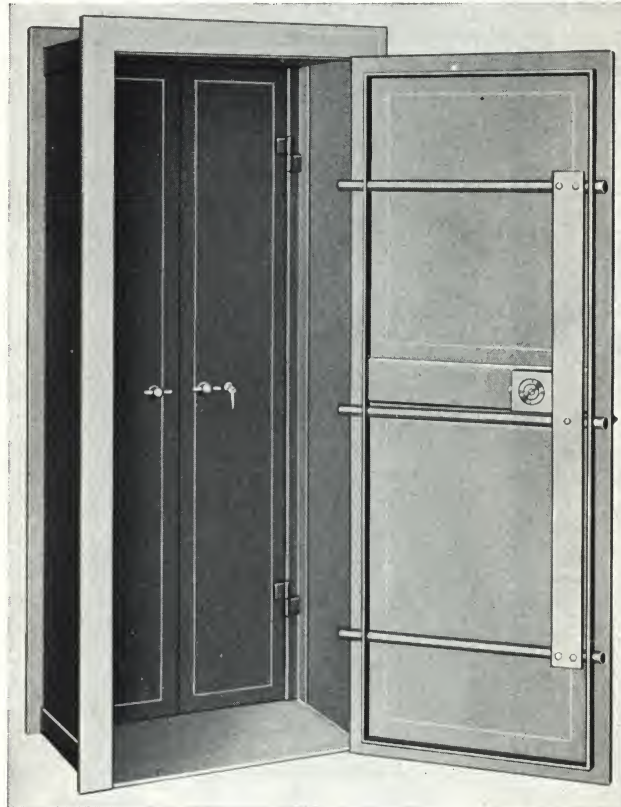
Door Swing—Door shall swing to the (right) (left).

Note: Specify swing, otherwise furnished to swing to right.

Note: No inside doors are intended for this vault door, but can be provided, at additional cost, if specified, and to pocket into vestibule if vestibule is 16 in. or more deep; if less, can be swung back into vault or out through door opening.

Finish—Olive green lacquer, neatly striped and ornamented.

Weight—Approximately 575 lb.

**SCHWAB STANDARD VAULT DOOR NO. 10***Details on Page 6***Specifications**

Dimensions—Clear openings through vestibule 74 in. high, 25 in. wide. Vault wall opening 77 in. high, 32 in. wide, 18 in. deep.

Note: Inside doors will pocket in a vestibule 16 in. or more deep.

Materials and Construction—Sides and top No. 16 gauge, bottom No. 12 gauge bessemer. Front frame $3\frac{1}{2} \times \frac{3}{8}$ in. open-hearth steel bars; rear $3\frac{1}{2} \times \frac{3}{8}$ in. open-hearth steel bars. Bottom sill bars, front $1\frac{3}{4} \times \frac{1}{4}$ in.; rear $1\frac{1}{4} \times \frac{1}{4}$ in. open-hearth steel.

Outer door plate No. 10 gauge rerolled bessemer sheet steel reinforced at edge by $1\frac{1}{2} \times 2 \times \frac{3}{8}$ in. steel angle frame solid welded at all corners. (Door approximately $\frac{3}{8}$ in. thick on edge.)

The back sill bars shall be removable, to allow vault door to be installed after the vault walls are up.

Bolt Work—Outside door shall be locked by three cross-bolts, all 1 in. diameter, cold rolled steel, operating through solid steel angle iron bolt frame $1\frac{1}{2} \times 2 \times \frac{3}{8}$ in. continuous around sides, top and bottom of door. Bolts shall be checked by four-tumbler combination lock, having black dial and white numerals and thrown by heavy nickel-plated drop handle with black grip.

Door Swing—Door shall swing to the (right) (left).

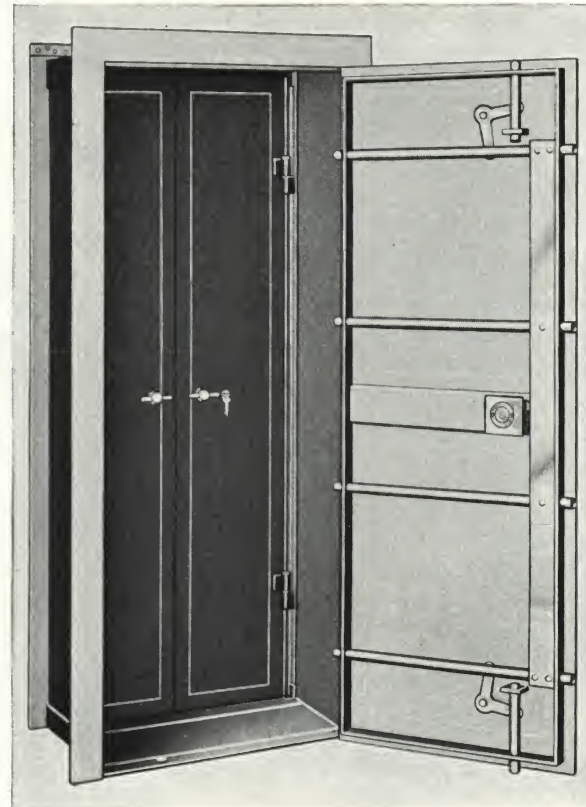
Note: Specify swing, otherwise furnished to swing to right.

Inside Doors—The inside doors shall be No. 8 gauge open-hearth steel hung on pin hinges, and open into the vestibule. They shall be locked by flat up and down bolts on right-hand door and checked by key lock.

Note: May be specified to open into the vault.

Finish—Olive green lacquer, neatly striped and ornamented.

Weight—Approximately 580 lb.

**SCHWAB STANDARD VAULT DOOR NO. 20***Details on Page 6***Specifications**

Dimensions—Clear opening through vestibule 74 in. high, 25 in. wide. Vault wall opening 77 in. high, 32 in. wide, 18 in. deep.

Note: Inside doors will pocket in a vestibule 16 in. or more deep.

Materials and Construction—Sides and top No. 16 gauge, bottom No. 12 gauge bessemer. Front frame $3\frac{1}{2} \times \frac{3}{8}$ in. open-hearth steel bars; rear $3\frac{1}{2} \times \frac{3}{8}$ in. open-hearth steel bars. Bottom sill bars, front $1\frac{3}{4} \times \frac{1}{4}$ in.; rear $1\frac{1}{4} \times \frac{1}{4}$ in. open-hearth steel.

Outer door plate No. 10 gauge rerolled bessemer sheet steel reinforced at edge by $1\frac{1}{2} \times 2 \times \frac{3}{8}$ in. steel angle frame solid welded at all corners. (Door approximately $\frac{3}{8}$ in. thick on edge.)

The back sill bars shall be removable, to allow vault door to be installed after the vault walls are up.

Bolt Work—Outside door shall be locked by four cross-bolts, one up and one down bolt, 1 in. diameter cold rolled steel, operating through solid steel angle iron bolt frame $1\frac{1}{2} \times 2 \times \frac{3}{8}$ in. continuous around sides, top and bottom of door. Bolts shall be checked by four tumbler combination lock, having black dial and white numerals and thrown by heavy nickel-plated drop handle with black grip.

Door Swing—Door shall swing to the (right) (left).

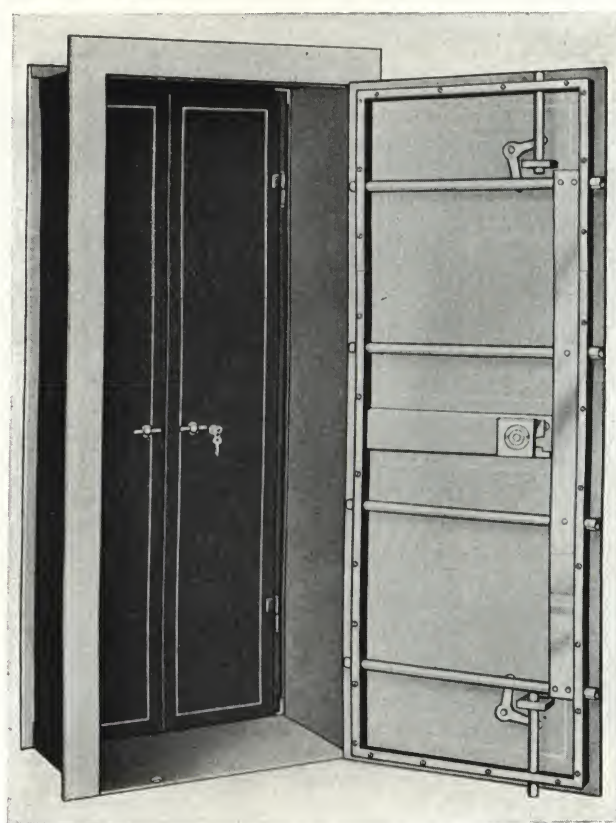
Note: Specify swing, otherwise furnished to swing to right.

Inside Doors—The inside doors shall be No. 8 gauge open-hearth steel hung on pin hinges, and open into the vestibule. They shall be locked by flat up and down bolts on right-hand door and checked by key lock.

Note: May be specified to open into the vault.

Finish—Olive green lacquer, neatly striped and ornamented.

Weight—Approximately 620 lbs.

**SCHWAB STANDARD VAULT DOOR NO. 19***Details on Page 6***Specifications**

Dimensions—Clear opening through vestibule 74 in. high, 25 in. wide. Vault wall opening 77 in. high, 32 in. wide, 18 in. deep.

Note: Inside doors will pocket in a vestibule 16 in. or more deep.

Materials and Construction—Sides and top No. 16 gauge, bottom No. 12 gauge bessemer. Front frame $3\frac{1}{2} \times \frac{3}{8}$ in. open-hearth steel bars. Rear frame $3\frac{1}{2} \times \frac{3}{8}$ in. open-hearth steel bars. Bottom sill bars open-hearth steel bars. Front $1\frac{3}{4} \times \frac{1}{4}$ in. Rear $1\frac{1}{4} \times \frac{1}{4}$ in.

Outer door plate $\frac{3}{8}$ -in. open-hearth steel, reinforced on sides, top and bottom by $2 \times \frac{1}{4}$ -in. bars solid welded at all corners. (Door $\frac{3}{8}$ in. thick on edge.)

The back sill bars shall be removable to allow the vault door to be installed after the vault walls are up.

Bolt Work—The outside door shall be locked by four cross-bolts and one up and one down bolt, 1 in. in diameter, cold rolled steel, operating through solid steel bar frame $1\frac{3}{4} \times \frac{3}{4}$ in. continuous around sides, top and bottom of door. Bolts shall be checked by four-tumbler combination lock, having black dial and white numerals and thrown by heavy nickel-plated drop handle with black grip.

Door Swing—Door shall swing to the (right) (left).

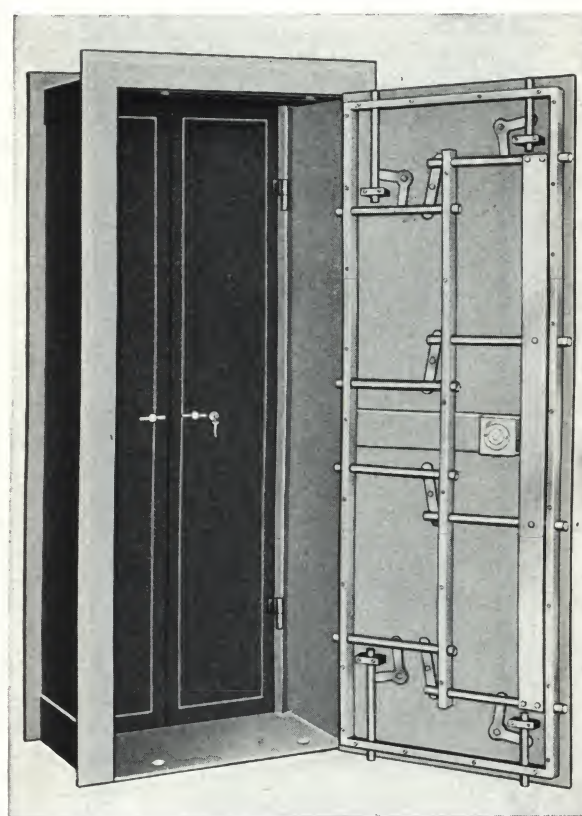
Note: Specify swing, otherwise furnished to swing to right.

Inside Doors—The inside doors shall be 8-gauge open-hearth steel hung on pin hinges, and open into the vestibule. They shall be locked by flat up and down bolts on right-hand door and checked by key lock.

Note: May be specified to open into the vault.

Finish—Olive green lacquer, neatly striped and ornamented.

Weight—Approximately 700 lb.

**SCHWAB STANDARD VAULT DOOR NO. 21***Details on Page 6***Specifications**

Dimensions—Clear opening through vestibule 74 in. high, 25 in. wide. Vault wall opening 77 in. high, 32 in. wide, 18 in. deep.

Note: Inside doors will pocket in a vestibule 16 in. or more deep.

Materials and Construction—Sides and top No. 16 gauge, bottom No. 12 gauge bessemer. Front frame $3\frac{1}{2} \times \frac{3}{8}$ in. open-hearth steel bars. Rear frame $3\frac{1}{2} \times \frac{3}{8}$ in. open-hearth steel bars. Bottom sill bars open-hearth steel bars. Front $1\frac{3}{4} \times \frac{1}{4}$ in. Rear $1\frac{1}{4} \times \frac{1}{4}$ in.

Outer door plate $\frac{3}{8}$ in. open-hearth steel, reinforced on sides, top and bottom by $2 \times \frac{1}{4}$ in. bars solid welded at all corners. (Door $\frac{3}{8}$ in. thick on edge.)

The back sill bars shall be removable to allow the vault door to be installed after the vault walls are up.

Bolt Work—The outside door shall be locked by twelve double-acting bolts, operating four front, four back, two up and two down, all 1 in. in diameter, cold rolled steel, operating through solid steel bar frame $1\frac{3}{4} \times \frac{3}{4}$ in. Bolts shall be checked by four-tumbler combination lock, having black dial and white numerals and thrown by heavy nickel-plated drop handle with black grip.

Door Swing—Door shall swing to the (right) (left).

Note: Specify swing, otherwise furnished to swing to right.

Inside Door—The inside doors shall be 8-gauge open-hearth steel hung on pin hinges, and open into the vestibule. They shall be locked by flat up and down bolts on right-hand door and checked by key lock.

Note: May be specified to open into the vault.

Finish—Olive green lacquer, neatly striped and ornamented.

Weight—Specify swing, otherwise furnished to swing to right.

**SCHWAB STANDARD VAULT DOOR NO. 12***Details on Page 6***Specifications**

Dimensions—Clear opening through vestibule 74 in. high, 27 in. wide. Vault wall opening 74 in. high, 32 in. wide, 6 in. deep.

Note: *Vestibule depth 6 in. unless otherwise specified.*

Materials and Construction—Sides and bottom No. 16 gauge, bottom No. 12 gauge bessemer. Front frame $3\frac{1}{2} \times \frac{1}{8}$ in. Rear frame $3\frac{1}{2} \times \frac{1}{8}$ in. Bottom sill bars, all open-hearth steel bars. Front $1\frac{3}{4} \times \frac{1}{4}$ in. Rear $1\frac{1}{4} \times \frac{1}{4}$ in.

Outer door plate No. 10 gauge rerolled bessemer, reinforced at edge by $2 \times 2 \times \frac{1}{8}$ in. steel angle frame solid welded at all corners. (Door approximately $\frac{3}{8}$ in. thick on edge.) Attached to the 2 in. angle is a No. 16 gauge steel cover plate forming a 2 in. air space between the inner and outer door plate.

The back sill bars shall be removable to allow the vault door to be installed after the vault walls are up.

Bolt Work—Outside door shall be locked by three cross-bolts, one up and one down bolt, 1 in. diameter, cold rolled steel, operating through solid steel angle iron bolt frame $1\frac{1}{2} \times 2 \times \frac{1}{8}$ in. continuous around sides, top and bottom of door. Bolts shall be checked by four-tumbler combination lock, having black dial and white numerals, and thrown by heavy nickel-plated drop handle with black grip.

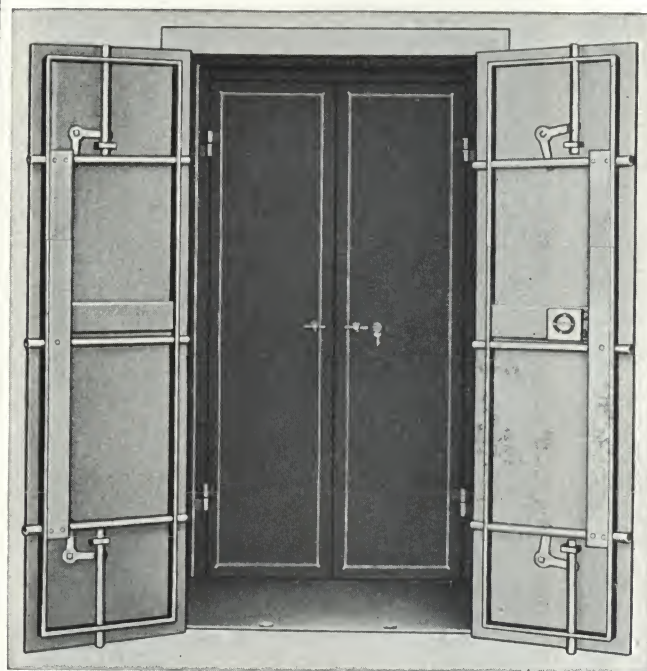
Door Swing—Door shall swing to the (right) (left).

Note: *Specify swing, otherwise furnished to swing to right.*

Note: *No inside doors are intended for this vault door, but can be provided if specified, and to pocket into vestibule if vestibule is 16 in. or more deep; if less, can be swung back into vault.*

Finish—Olive green lacquer, neatly striped and ornamented.

Weight—Approximately 575 lb.

**SCHWAB STANDARD VAULT DOOR NO. 25***Details on Page 6***Specifications**

Dimensions—Clear opening through vestibule, 77 in. high, 35 in. wide. Vault wall opening 77 in. high, 42 in. wide, 21 in. deep.

Note: *Inside doors will pocket in a vestibule 21 in. or more deep.*

Materials and Construction—Sides and top No. 16 gauge, bottom No. 12 gauge bessemer. Front frame $3\frac{1}{2} \times \frac{1}{8}$ in. Rear frame $3\frac{1}{2} \times \frac{1}{8}$ in. Bottom sill bars, front $1\frac{3}{4} \times \frac{1}{4}$ in. Rear $1\frac{1}{4} \times \frac{1}{4}$ in., all open-hearth steel bars.

Outer door plate on the folding outer doors No. 10 gauge rerolled bessemer steel, reinforced at edge by $1\frac{1}{2} \times 2 \times \frac{1}{8}$ in. steel angle frame solid welded at all corners, making doors approximately $\frac{3}{8}$ in. thick on edge.

The back sill bars shall be removable to allow the vault doors to be installed after the vault walls are up.

Bolt Work—The folding outer doors shall be locked by three cross-bolts and one up and one down bolt on each door. Bolts 1 in. in diameter, cold rolled steel, operating through solid steel angle iron bolt frame $1\frac{1}{2} \times 2 \times \frac{1}{8}$ in. continuous around sides, top and bottom of each door. Bolts shall be checked by four-tumbler combination lock, having black dial and white numerals, and thrown by two heavy nickel-plated drop handles with black grips.

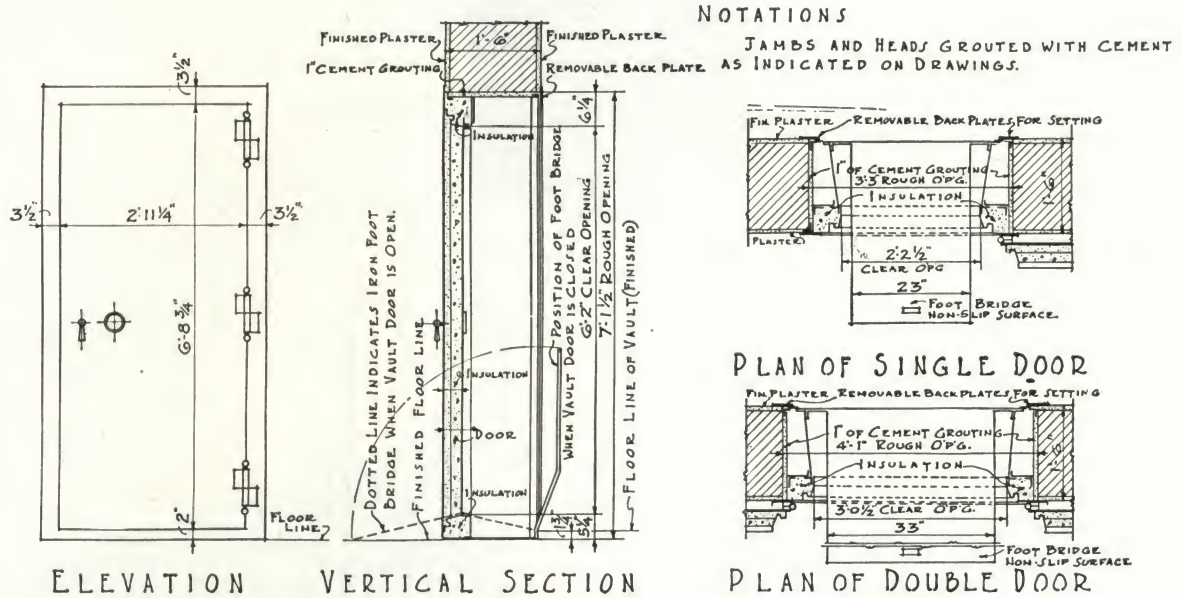
Inside Doors—The inside doors shall be No. 8 gauge open-hearth steel hung on pin hinges, and open into the vestibule. They shall be locked by flat up and down bolts on right-hand door and checked by key lock.

Note: *May be specified to open into the vault.*

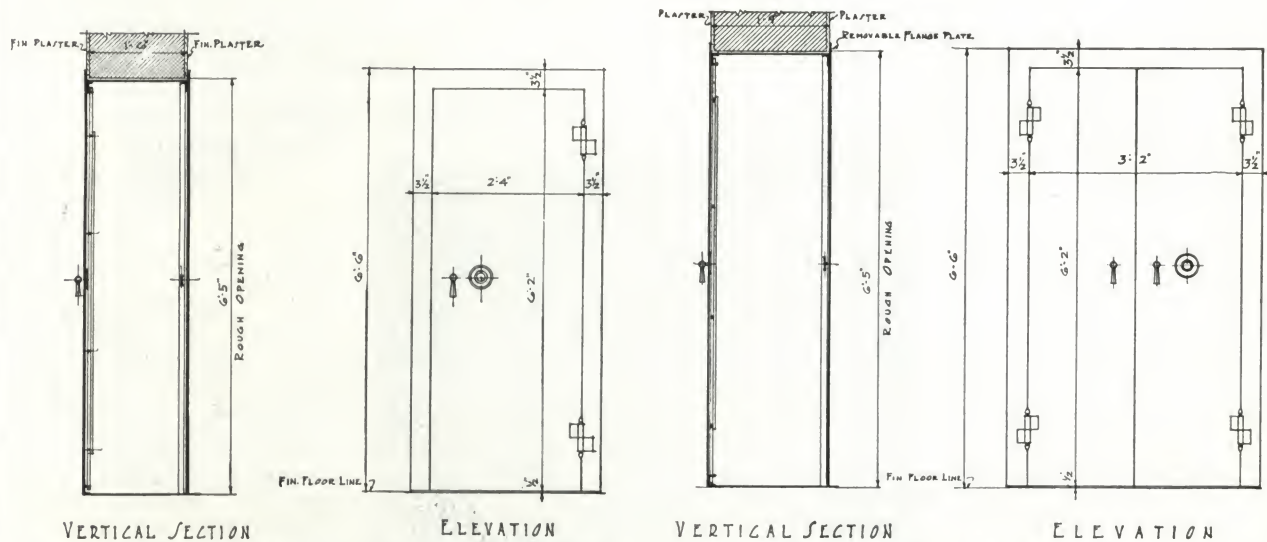
Finish—Olive green lacquer, neatly striped and ornamented.

Weight—Approximately 800 lb.

DETAILS OF SCHWAB VAULT DOORS

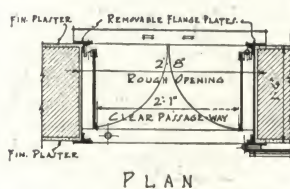


Elevation, Section and Plans of Schwab Insulated Vault Doors
No. 2674B, Single Door and 3674B, Double Door

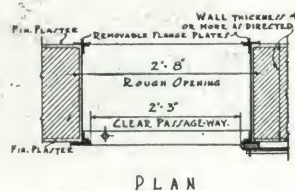


Vertical Section and Elevation, Doors No. 2774R,
10, 20, 19, 21 and 12

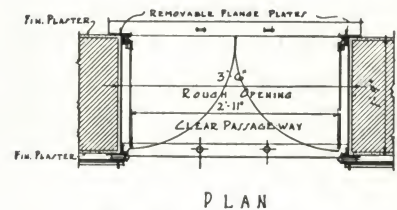
Vertical Section and Elevation,
Door No. 25



Plan of Doors No. 10, 20,
19 and 21



Plan of Doors No.
2774R and 12



Plan of Door No. 25

SCHWAB WALL SAFE NO. 10

Purpose

Security for family treasures against fire and theft.

For Homes, Apartments, etc.

Our wall safe is the ideal method of providing security for the treasures, heirlooms, valuables and money which every family has. It provides protection against fire and theft without involving the necessity of going to and from a safety deposit box in a bank every time the things it contains are needed.

Complete Fire Protection

Our No. 10 wall safe is built into the solid masonry of an outside wall or chimney, where the wall protects the sides, the rear, the top and the bottom. The door and the front of the safe are heavily insulated. Thus, no matter how severe the fire, valuables kept in one of our wall safes will be securely preserved.

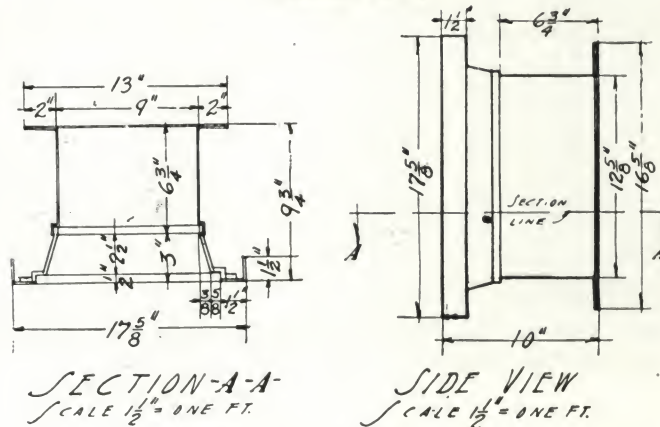
Maximum Theft Protection

A heavy, three-tumbler lock; hardened rolled steel door plate; doors closely fitted; drillproof steel plate protecting a trigger relocking device to protect contents against an attempted burglary—all these features make entrance difficult for even highly skilled cracksmen. Our wall safe is as nearly burglarproof

bedroom is an added convenience to the mistress, where she may have ready access to jewels, trinkets, etc.



Schwab No. 10 Wall Safe
(Phantom View)



Detail of No. 10 Wall Safe

as it can be made without becoming too heavy and cumbersome. Its sturdy construction makes it easy to install; its service is measured only by the life of the wall in which it is placed. Its use secures a substantial reduction in insurance against home robbery.

Installation

In apartment houses or other structures built of brick, the safe may be placed in the wall at any convenient location, preferably the bedroom. It must be borne in mind, however, that in making these installations the safe must be entirely surrounded by masonry and resting on a secure foundation that extends to the ground. The Schwab Wall Safe has been specifically designed for this wall installation.

In frame structures, the broad brick or stone fireplace is the logical location. Care must be taken, of course, to see that sufficient masonry surrounds the safe to obviate heating it, when the fireplace is in use (which, in modern homes, with a regular heating system, is seldom). The safe may be installed above the mantel and concealed by a picture, or it may be placed on one of the sides providing there is sufficient room.

In apartments, a Schwab Wall Safe placed in the

SCHWAB NO. 145 HOME FUR AND GARMENT CLOSET

For Modern Homes and Apartments

No doubt many modern structures and their accessories are materially affected and dominated by modern American women. Is it not possible that these same women are just as greatly interested in the convenience and protection afforded their coats and gowns?

Most any woman would prefer a cedar lined fur and garment closet equipped with the newest type sliding extension hanger as compared to the ordinary clothes closet.

These steel closets can be built to any reasonable size and can be installed in any wall opening of equivalent size and if desired entirely hidden from plain view by a regular closet door. Where such is desired, Schwab Fur and Garment Closets can be built to permit a drawer in the bottom and with hat storage space above the hanger.

The cost of these steel closets, equipped with high grade safe combination locks, is slightly less than to build the newest type regular clothes closet and at the same time affords far greater protection against fire and theft, and is cedar lined as a protection against moth.



Open View Fur and Garment Closet No. 145

Construction

Body—12 gauge jacket, riveted to 2x2x¼ in. angle iron. Interior of body is lined with ¾ in. cedar so placed as to give an air space between cedar and steel jacket. This air space is ¾ in. on top, ½ in. on bottom and ½ in. on back and sides. Body is carried on four solid castors so placed as to roll from front to rear, permitting easy passage through standard doors. 36 in. sliding hanger, top center.

Doors—Consists of 10 gauge plate steel securely riveted to 2x2x¼ in. angle iron which makes door ¾ in. on edge. Door is locked by two cross-bolts and one up and one down bolt. Bolts are controlled by heavily nickelplated drop handle with black grip and stopped by a four-tumbler combination lock with black dial and white numbers. Door is swung on three plain pin hinges.

Finish—The standard finish on these safes is a pleasing French gray lacquer, gold striped with neat design. Nickel hinge tips set off the front of the safe.

DIMENSIONS (INCHES)

	H	W	D
Inside	60	25¼	38¼
Outside	63¼	27	40
Over all	70½	27	42¾

Weight, approximately 700 lb.

HERRING-HALL-MARVIN SAFE CO.

GENERAL SALES OFFICE AND FACTORY
HAMILTON, OHIO

BRANCH OFFICES

NEW YORK, N. Y., 400 Broadway
CHICAGO, ILL., 223-225 West Lake Street

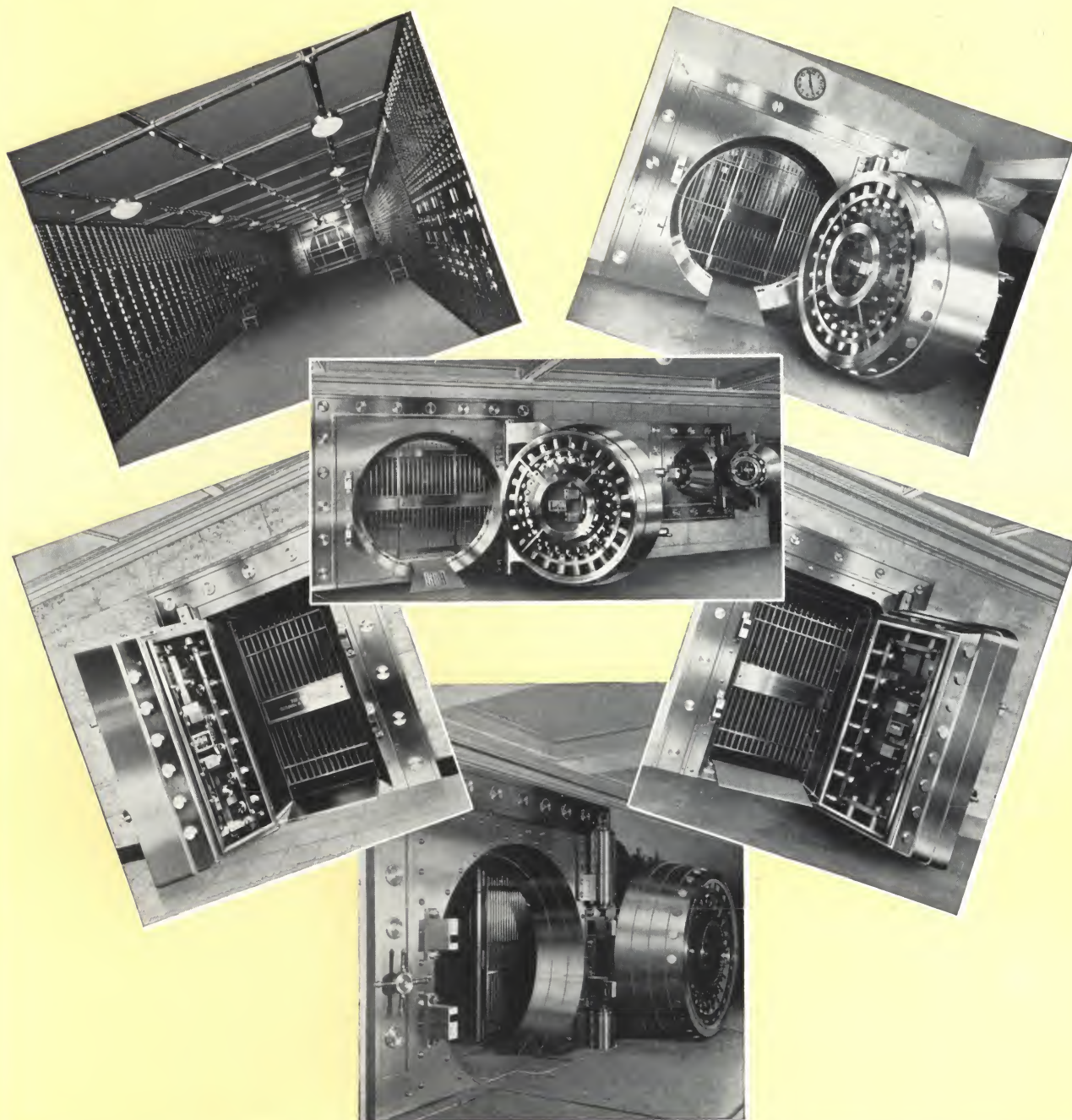
BIRMINGHAM, ALA., 1734 First Avenue North
SAN FRANCISCO, CAL., 214 California Street

THE COMPANY, ITS PRODUCTS AND SERVICE

This company manufactures a complete and comprehensive line of bank vaults, fire resistive vault doors, filing safes classes A and B, burglarproof chests, night depositories and other like equipment. Suggestive features are detailed on the following pages.

Information about design, construction and costs will be furnished to architects without entailing any obligation for such service as may be involved.

For nearly a century the HERRING-HALL-MARVIN SAFE Co. has built into its product the same undeviating quality.



FIREPROOF VAULT DOORS

No. 7830—Six Hour Label

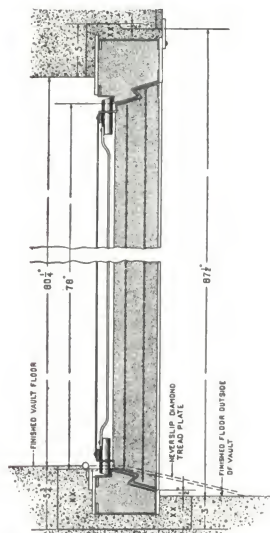
Certified six hour label vault door No. 7830 passed the test of the Underwriters' Laboratories, Inc., with application of heat for six hours up to 2140 degrees. The door was set in the wall of a small vault with a furnace compartment immediately in front. Thermocouples for recording the heat in the vault were placed two inches from the door. The highest temperature

**No. 7830**

recorded on any of these couples was 238 degrees, which is 62 below the Laboratories' requirement.

A second part of this test was performed on another door which was heated under similar conditions for three hours. The furnace was then shut off and a stream of water under high pressure was driven from the nozzle of a fire hose against the red hot door. Heat was again applied for three hours. The highest temperature behind the door during this stage of the test was 230 degrees.

This insulated vault entrance is made with steel jambs, and represents the best and newest developments in fire-resistive construction. It is built like the doors and jambs of the Herring-Hall-Marvin Class A Safe.

**Vertical Section Showing Masonry Plan**

Manufacturer's Specifications—Trim, 88½ in. high by 45½ in. wide; clear opening through vestibule, 78 in. high by 30 in. wide. Dimensions and shape of required wall opening are shown on sectional drawings.

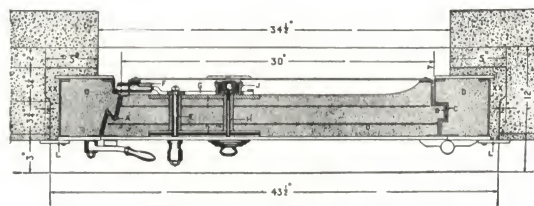
This door will be furnished in greater widths if required.

The door is locked by means of six bolts ⅞-in. diam., and by the interlocking flange at the back. The lock and its connections are protected by a drill proof plate.

The jambs are built with two flanges with tenon and groove at top, front and bottom, and interlocking flange with spring seal at rear.

A hinged never-slip foot bridge with incline is furnished. Shipping weight, approximately 1650 lb.

Printed instructions for setting are furnished with all doors, and if requested will be sent on receipt of order.

**Horizontal Section, Showing Masonry Plan**

A—tenon and groove; B—interlocking flange; C—spring seal; D—fireproof filling; E—handle arbor; F—carrying bar; G—slide bar; H—lock arbor or spindle; I—lock plate; J—combination lock; K—drill proof plate; L—moulding bars. XX—spaces to be filled with cement grout after vault entrance is in position

MINIMUM WALL THICKNESSES FOR SIX HOUR VAULTS AS SPECIFIED BY NATIONAL FIRE PROTECTION ASSOCIATION

Number of stories counting from top down	Reinforced concrete, in.	Brick or plain concrete, in.	Protected steel or reinforced concrete frames, in.	
			Reinforced concrete panels	Brick or plain concrete panels
Top	10	12	10	12
2nd	10	12	10	12
3rd	10	12	10	12
4th	12	16	10	12
5th	12	16	12	16
6th	12	20	12	16
7th			12	16
8th			12	16
9th			12	16
10th			14	16

These specifications apply to ground supported vaults whose construction is independent of the building in which they are located. Wall thicknesses of structural supported vaults that are supported by the framework of buildings of fire-resistive construction must not be less than those specified for the top stories of ground supported vaults.

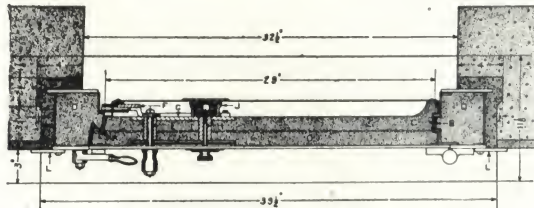
No. 7629—Two Hour Label

Certified two hour label vault door No. 7629 passed the test of the Underwriters' Laboratories, Inc., with application of heat for two hours up to 1850 degrees. The test was similar to that of vault door No. 7830.

**No. 7629**

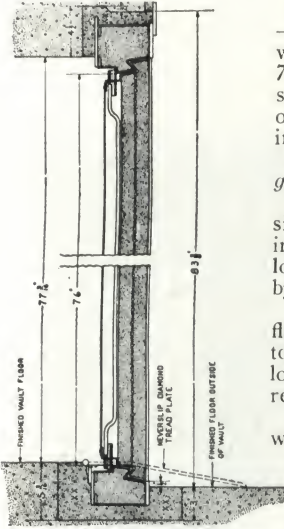
The highest temperature back of the door was 170 degrees, 130 degrees below the Laboratories' requirement.

In the second part of the test, the door was exposed for one hour to heat up to 1700 degrees. After the furnace had been shut off and a stream of water from a fire hose had been applied to the red hot door, furnace heat was again applied for one hour up to the same maximum. The highest temperature reached back of the door was 190 degrees.



Horizontal Section, Showing Masonry Plan

A—tenon and groove; B—interlocking flange; C—spring seal; D—fireproof filling; E—handle arbor; F—carrying bar; G—slide bar; H—lock arbor or spindle; I—lock plate; J—combination lock; K—drillproof plate; L—moulding bars. XX—spaces to be filled with cement grout after vault entrance is in position



Vertical Section, Showing Masonry Plan

Manufacturer's Specifications

—Trim, 84 $\frac{1}{8}$ in. high by 41 $\frac{1}{8}$ in. wide; clear opening through vestibule, 76 in. high by 29 in. wide. Dimensions and shape of required wall opening are shown on sectional drawings.

This door will be furnished in greater widths if required.

The door is locked by means of six bolts $\frac{3}{4}$ -in. diam., and by the interlocking flange at the back. The lock and its connection are protected by a drillproof plate.

The jambs are built with two flanges with tenon and groove at top, front and bottom, and interlocking flange with spring seal at rear.

A hinged never-slip foot bridge with incline is furnished.

Shipping weight, approximately 1350 lb.

Printed instructions for setting are furnished with all doors, and if requested will be sent on receipt of order.

MINIMUM WALL THICKNESSES FOR TWO HOUR VAULTS AS SPECIFIED BY NATIONAL FIRE PROTECTION ASSOCIATION

Number of stories counting from top down	Reinforced concrete	Brick	Hollow clay tile or concrete block	Protected steel or reinforced concrete frames		
				Reinforced concrete panels	Brick or plain concrete panels	Hollow Clay tile or concrete block panels
Top	6	8	12	6	8	12
2nd	8	12	12	8	12	12
3rd	10	12	16	10	12	16
4th	10	16	20	10	12	16
5th	12	16		12	16	20
6th	12	16		12	16	20
7th				12	16	20
8th				12	16	20
9th				12	16	20
10th				12	16	20

These specifications apply to all ground supported vaults whose construction is independent of the building in which they are located. Wall thicknesses of structural supported vaults that are supported by the frame work of buildings of fire resistive construction must not be less than those specified for the top stories of ground supported vaults, except that the minimum thicknesses of walls of hollow clay tile or concrete block for a two-hour vault may be 8 in.

Fireproof Doors with Vestibules

Vault doors No. 14, 17, 19, 20, 21, 22 and 25 are equipped with a special relocking device with the inspection label of the Underwriters' Laboratories, Inc. A discount of 10 per cent is allowed from all premiums on burglary insurance covering the contents of vaults where these doors are used.

Nos. 20, 21 and 22 have interlocking back flange.

Manufacturer's Specifications—No. 22—Trim, 83 $\frac{1}{4}$ in. high, 38 $\frac{1}{2}$ in. wide. Wall opening required, 81 $\frac{1}{2}$ in. high, 34 $\frac{1}{2}$ in. wide, 20 in. deep. Clear opening through vestibule 77 $\frac{3}{4}$ in. high, 29 in. wide. Inside doors pocket in vestibule 17 $\frac{3}{4}$ in. deep. Twelve bolts, 1-in. diam., locking through solid bolt frame on sides, top and bottom and through center of door, and checked by four tumbler combination lock.

No. 21—Same as No. 22 excepting bolt work. Six bolts, 1-in. diam., locking at ten points through solid bolt frame.

No. 20—Same as Nos. 22 and 21 excepting that bolt work operates through angle bolt frame.



No. 20



No. 22

No. 17—Trim, 80 $\frac{5}{8}$ in. high, 35 $\frac{5}{8}$ in. wide. Wall opening required, 79 in. high, 32 in. wide, 20 in. deep. Clear opening through vestibule, 75 $\frac{1}{2}$ in. high, 26 $\frac{1}{2}$ in. wide. Inside doors pocket in vestibule 16 $\frac{1}{4}$ in. deep. Five bolts, 1-in. diam., locking at eight points through angle bolt frame and checked by four tumbler combination lock.

No. 19—Same as No. 17 excepting bolt work. Three bolts, 1-in. diam., locking at six points through angle bolt frame.

No. 18—Trim, 80 $\frac{5}{8}$ in. high, 31 $\frac{5}{8}$ in. wide. Wall opening required, 79 in. high, 28 in. wide, 20 in. deep. Clear opening through vestibule, 75 $\frac{1}{2}$ in. high, 22 $\frac{1}{2}$ in. wide. Inside doors will pocket in vestibule 14 $\frac{1}{4}$ in. deep. Outer door locked at three points by flat up and down bolts and by short horizontal bolt at center, checked by four tumbler combination lock.

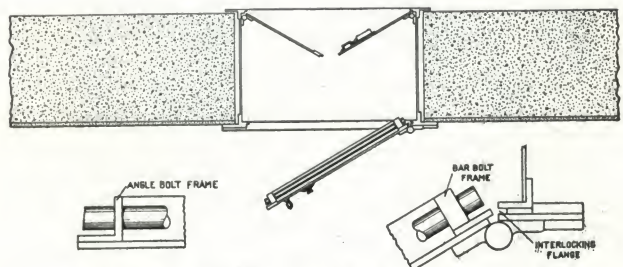
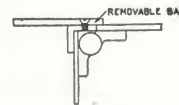
No. 14—Trim, 83 $\frac{1}{4}$ in. high, 49 in. wide. Wall opening required 81 $\frac{1}{2}$ in. high, 44 in. wide, 20 in. deep. Clear opening through vestibule, 76 $\frac{3}{4}$ in. high, 36 $\frac{1}{2}$ in. wide. Inside doors will pocket if vestibule is increased to 22 $\frac{1}{2}$ in. depth—this will increase clear width of opening through vestibule to 38 $\frac{1}{2}$ in. Bolts, 1 in. diam., locking each door through solid bolt frames.



No. 17



No. 14

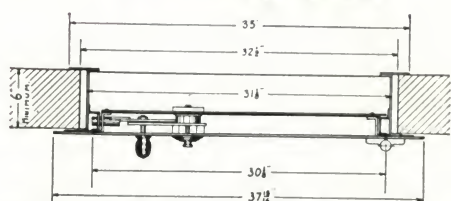


Typical Construction of Fire Resistive Vestibule Doors

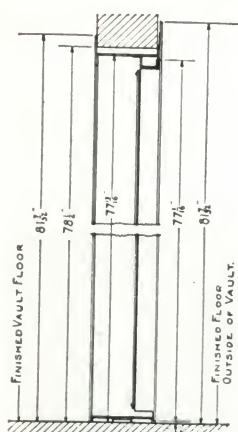
No. 63—Half Hour Label

This vault door is intended for use in record rooms and carries the $\frac{1}{2}$ hour label of the Underwriters' Laboratories, Inc. It is furnished with or without inside

No. 63



Horizontal Section, Showing Masonry Plan

Vertical Section
Showing Masonry
Plan

doors and with vestibule 6 in. or more in depth according to the thickness of the wall.

Manufacturer's Specifications—Trim $81\frac{1}{2}$ in. high, $37\frac{1}{2}$ in. wide. Wall opening required $78\frac{1}{2}$ in. high, $32\frac{1}{2}$ in. wide. Clear opening through vestibule $76\frac{1}{2}$ in. high, $28\frac{3}{4}$ in. wide.

This door will be furnished with label with clear opening up to 32 in. wide.

Four bolts $\frac{7}{8}$ in. diam. at front with interlocking flange at rear of door. Insulated steel cover plate over bolt work. Bolt work checked by four tumbler combination lock.

Inside doors, when used, pocket in vestibule 18 in. deep. Clear opening through inside doors, $27\frac{1}{2}$ in.

Horizontal and vertical sections of this door are shown without inside doors. These sections also give the dimensions of wall openings.

No. 62

This vault door is intended for use in tile, brick or light concrete walls. It is furnished with or without inside doors and is of approximately similar construction and slightly smaller than No. 63.

Planning for Vault Doors

Printed drawings showing the masonry openings for all vault doors will be furnished promptly upon request either directly by the company or through its representatives in over three hundred cities.

Height, width and depth of vestibule doors can be changed to meet special requirements. Insulated doors can be built special height and width, but otherwise in accordance with the specifications of Nos. 7830 and 7629. Insulated doors can also be built with vestibules and inside doors if required. In requesting quotations on either standard or special doors, please send full information concerning height, width and depth of wall opening available and the clear height and width required for passage through the vestibule.

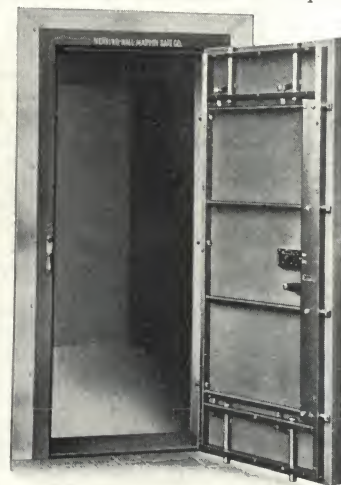
Fur Vault Doors

These doors have been specially designed to meet the burglary insurance requirements for Class E and Class D vaults respectively.

Manufacturer's Specifications—No. 697—This door is of solid steel 3 in. in thickness. Outside dimensions of vestibule, 80 in. high, 32 in. wide, $13\frac{3}{4}$ in. deep for a finished concrete wall $12\frac{3}{4}$ in. thick. Clear opening, 78 in. high, 30 in. wide. When used in reinforced concrete wall 12 in. thick or with $\frac{1}{2}$ -in. steel lining this door meets the requirements of the current insurance manual for a class E mercantile rating.

The door is locked in position by means of eight bolts, $1\frac{1}{4}$ -in. diam., and by three locking dogs at the rear. Bolts checked by one 4-tumbler combination lock with relocking device, certified by Underwriters' Laboratories, Inc.—10% deduction from burglary insurance premiums for this device. Door hung on ball bearing pin hinges with pressure handle at front. Weight, 3270 lb.

Vestibule may be fitted with polished or nickel plated moulding bars. Inside doors will be furnished if required.



Fur Vault Door for Mercantile Uses

Depth of vestibule and height and width of door may be varied as required.

No. 696—This door is like No. 697 except in the following particulars: solid thickness of steel, $1\frac{1}{2}$ in.; bolts, $1\frac{1}{8}$ -in. diam.; weight, 2200 lb. Built for 9-in. wall with class D rating.

Light Doors with Crane Hinges

These doors may be furnished without extra cost with the certified relocking device.

Manufacturer's Specifications—No. 24—Trim, $87\frac{3}{8}$ in. high, $48\frac{1}{4}$ in. wide. Wall opening required, $81\frac{3}{4}$ in. high, $37\frac{1}{4}$ in. wide, 20 in. deep. Clear opening through vestibule, $77\frac{1}{2}$ in. high, $31\frac{1}{4}$ in. wide. Inside doors will pocket in vestibule 19 in. deep. Thickness of door plate, $\frac{1}{2}$ in. Twelve bolts, $1\frac{1}{4}$ -in. diam., as shown in illustration. Removable back bars. Weight, 1730 lb. Door hung on gooseneck crane hinge with single horizontal pressure system, 6-spoke pilot wheel. Moulding bars, $4\frac{7}{8}$ in. wide.



No. 24

No. 25—Trim, 83½ in. high, 38½ in. wide. Wall opening, 81½ in. high, 34 in. wide, 20 in. deep. Clear opening through vestibule, 78½ in. high, 28½ in. wide. Inside doors will pocket in vestibule 18 in. deep. Thickness of door plate ½ in. Bolt work similar to No. 22. Weight, 1200 lb. Door hung on goose-neck crane hinge with single horizontal pressure system, rim wheel. Architrave if required.

Majestic No. 1—Trim, 87 in. high, 50¼ in. wide. Wall opening, 79 in. high, 34 in. wide, 20 in. deep. Clear opening through vestibule, 74¾ in. high, 28½ in. wide. Inside doors will pocket in vestibule 18 in. deep. Thickness of door plate

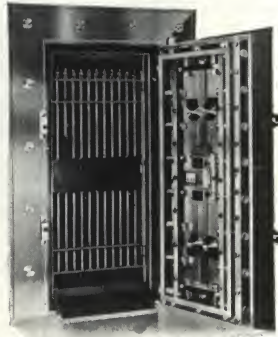
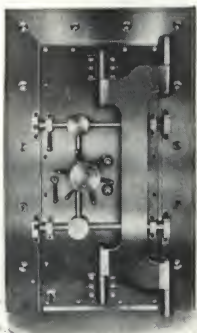
½ in. with ½-in. panel bars, making door 1 in. thick on edge. Bolt work similar to No. 24. Finish plate under bolt work; hinged glass door over same. Door hung on built up crane hinge with single horizontal pressure system, 4-spoke pilot wheel. Moulding bars, 5½ in. Weight, 1820 lb.

No. 27—This door is similar to No. 25 except that it is fitted with 5½-in. moulding bars, double horizontal pressure system, day gate, finish plate under bolt work, hinged glass door over bolt work. Weight, 2035 lb. Back bars on all doors of this type are removable.

BANK VAULTS AND EQUIPMENT

The Sales Engineering Department will furnish the fullest co-operation in the way of drawings, plans, cost data and other valuable information to architects who are planning bank work.

Vault equipment is designed to meet the individual requirements of banks, and, therefore, is not cataloged.

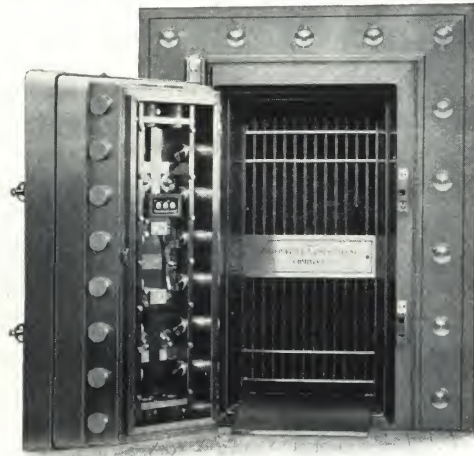


Seven Inch Door

A careful study will be made in each case and plans will be submitted showing the dimensions and layout of vaults of every description, the construction of circular or rectangular vault doors, the arrangement and layout of safe deposit boxes and steel lockers, and full details concerning partitions, grilles, paneled ceilings and walls, and other requirements of the finished vaults of a modern bank.

Vault doors are built to resist successfully every known method of attack, especially by cutting torch or high explosive. Design, materials and methods of construction are based on thorough scientific research coupled with the experience of nearly a century of successful manufacture.

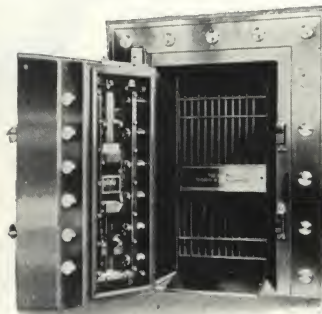
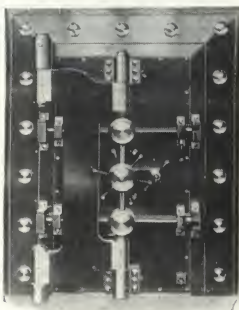
Herring-Hall-Marvin builds either doors of the single flange type, or stepped doors with more than



Another Typical Heavy Door

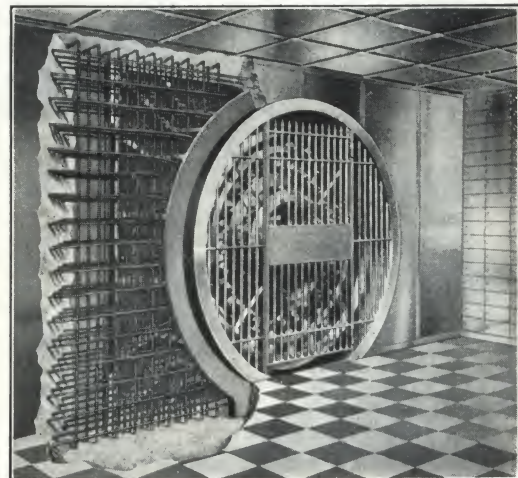
The work of the Herring-Hall-Marvin factory is characterized not only by care in fabrication and precision in fit of parts but also by outstanding excellence of finish.

The interlocking cast vestibule, developed by the HERRING-HALL-MARVIN SAFE Co., is a marked advance in engineering design over the older or box type. This vestibule is formed of a heavy channel shaped casting with wide ribs. The horizontal steel reinforcing rods of the wall are brought to within the flanges and ribs of the casting and return stirrups, passed through the casting, tie the vault entrance immovably into the concrete so that the vestibule becomes an integral part of the wall construction itself thus gaining great strength and rigidity, and reducing the width and height of the necessary opening through the concrete defense of the vault. The complete bond between the vestibule and the walls of the vault is illustrated below.



Interlocking Type

one flange. The relative appearance of these is indicated in the reproductions of actual installations shown on this page and on the first page of this section.



NIGHT DEPOSITORIES

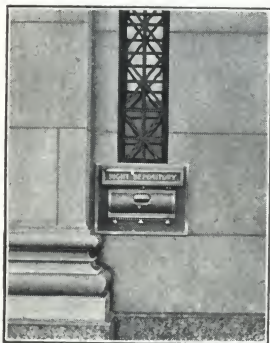
The Rotary Night Depository consists of the following:

(1) A cast manganese bronze cylinder and housing which may be set either in the outside wall of the bank, or in the entrance lobby, or at any other convenient point.

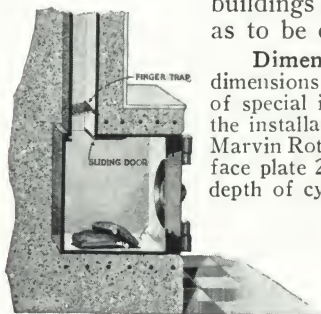
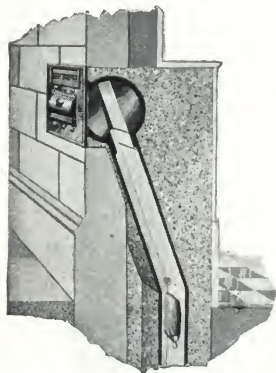
(2) A heavy steel chute of ample size through which the bag is dropped from the cylinder entrance to the night safe inside the building. The inside of this chute contains a series of serrated baffles which will effectually prevent the withdrawal of any object. A hinged baffle door is located at the bottom of the chute.

(3) The night safe, which will be made of any size to meet the needs of the user.

The entrance cylinder and housing are of torch-proof manganese bronze. The cylinder is rotated by the opening of a bronze door on the face plate, and both cylinder and door are checked by a drillproof paracentric key lock.



Citizens Trust, Schenectady, N. Y.



The safe is made 1 in. in thickness to comply with the requirements for a class B insurance rating, and both safe and chute are required to be incased in reinforced concrete. The cast steel front of the safe and the circular cast steel door are drillproof, and are $3\frac{1}{2}$ in. in net thickness.

Insurance Rating

This safe is constructed throughout to take the Class B insurance rating, which is the best accorded to devices of this kind. The following paragraph is quoted from the Current Insurance Manual:

"Safe and chute are incased on all sides with at least 6 in. of concrete, reinforced with steel rods at least $\frac{5}{8}$ in. thick and spaced not more than 4 in. on centers. Reinforcing rods along chute are held in place by angle irons properly spaced."

By varying the length and direction of the chute it can be adapted to existing buildings and can be so placed as to be easy of access.

Dimensions—The following dimensions of head and chute are of special interest in planning for the installation of a Herring-Hall-Marvin Rotary Depository: Bronze face plate 21 in. wide, 16 in. high; depth of cylinder housing back of face plate $11\frac{1}{2}$ in.; total diameter of cylinder housing 14 in.; width of cylinder housing including studs 16



in.; outside width of chute 13 in.; outside thickness of chute from front to back $6\frac{1}{2}$ in. The chute should be set at an angle of not more than 30 degrees from the perpendicular. The safe should be so placed as to secure the greatest possible length of chute. The door may be located as required on the safe so that a portion of the safe may be set into the banking room floor in order to secure the desired length of chute.

Accessories

Canvas bags with zipper tops and Yale paracentric key padlocks are supplied in quality as desired.

Bronze electric light housing with glass front may be substituted for name plate.

Auxiliary door, as shown on illustration, will be supplied if required. This door insures against the possibility of bags being deposited and left in the cylinder, as the cylinder must be clear and the door closed before key can be withdrawn.

Electric protection for connection with the bank's burglar alarm system.

Simplex Depository

The Simplex Night Depository is designed to meet the demand for a low priced device. It consists of a bronze casting with a door of the same material, hinged at its lower edge and opening outward. To this door is attached a receptacle which rotates in such manner that the chute beneath it is

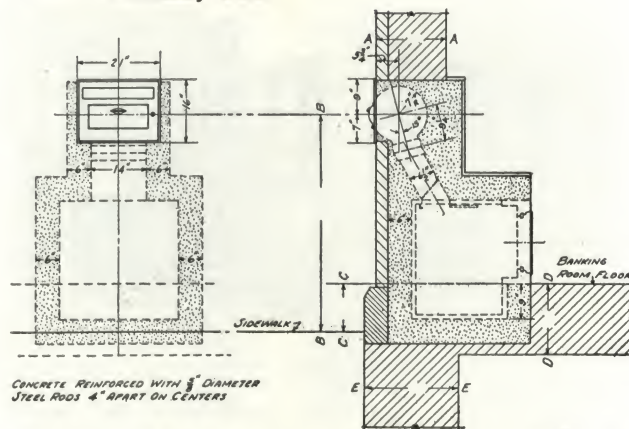


National City Bank, New York, N. Y.



Auxiliary Door

always closed to access from without. The chute connects with a burglarproof safe inside the bank in the same manner as that described for the Rotary Depository. The face of the door is illuminated at night.



Projection of Street Level Installation of Rotary Showing Dimensions Required

CERTIFIED FIREPROOF FILING SAFES

In the heat endurance test of the Underwriters' Laboratories, Inc., the Herring-Hall-Marvin Class A Safe was exposed to a continuous increasing furnace temperature which reached 2100 degrees at the end of 5¼ hours. The exposure period in this test was 75 minutes longer than the time required in the test for the A label, and the temperature reached was 100 degrees higher, indicating a demonstrated superiority of over 37% in resistance to heat beyond the extreme requirement for the label. The inside temperature of



Filing Safe—Class A and T-20 Labels

the safe tested in this case reached 300 degrees only at the expiration of the 5¼ hour period.

Fifteen sizes carry the A label, of which eleven are built with double doors and four with single doors.

Twelve sizes carry the B label; five with double doors and seven with single doors.

A group of portable vaults and small safes for commercial and residence use is also listed.

Herring-Hall - Marvin



Filing Safe—Class B and T-20 Labels

Filing Equipment is fully adjustable and interchangeable. Files are made in all standard sizes.

Herring - Hall - Marvin Label Safes all carry the T-20 label of the Underwriters' Laboratories, Inc., which secures a reduction of 20% from burglary insurance premiums on the contents of the safe in each case.



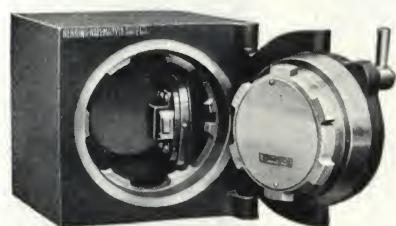
Safe with Chest

HARVEYZIZED BURGLARPROOF CHESTS

All Herring-Hall-Marvin Harveyized Round Door Cast Steel Chests are hardened drillproof and meet the specifications for the class H rate in Bank Burglary Insurance and the class E rating in Mercantile Insurance. These chests, furthermore, carry the label of the Underwriters' Laboratories, Inc., for an inspected relocking device which entitles the owner to a reduction of 10% from insurance premiums on their contents.



Harveyized Chest



Chest with Inner Door
forcing rods are passed in setting.

They may be anchored in Herring-Hall-Marvin Safes or in concrete walls or blocks. When intended for use in concrete they are built with welded exterior angles through which rein-

Insurance on the contents of these chests may be figured in all Class 1 risks under Mercantile Insurance at the bank burglary rate and when so figured they are subject to the discounts of the Bank Burglary Section.

Harveyized Chests are furnished if required with inner compartments. Partitions are slotted to receive money and inner compartment doors have either key locks arranged for single or double access, or combination locks.



Chest in Concrete

CHEST SIZES

Size No.	Weight, lb.	Contents in cu. in.
123	275	825
124	300	825
143	400	1512
144	430	1467
145	600	1293
202	700	3726
203	850	6399
204	1000	3564
232	1085	6284
233	1200	8710
283	1800	12844

Prices will be furnished on chests complete in concrete blocks and boxed for shipment.

Nos. 103 and 103 I.D. are designed to meet the demand for a high quality chest at a very low price. They secure the same insurance rates on their contents as the Harveyized chests listed here. Weights 225 lb. and 260 lb. respectively; No. 103 contains 480 cu. in.

WALL SAFES

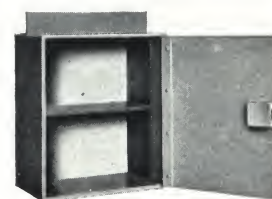
Wall safes Nos. 1 and 2 have solid cast bodies with inside measurements as follows:

No. 1—6¾ in. high x 10¾ in. wide x 7⅛ in. deep;
No. 2—9¾ in. high x 14¼ in. wide x 7⅛ in. deep;
both with doors with turning lugs and combination locks.

No. 42—13½ in. high x 11 in. wide x 7 in. deep inside with ½-in. steel door locked with either key or combination locks as required.



Wall Safe No. 2



Wall Safe No. 42

YORK SAFE AND LOCK COMPANY

FACTORY AND HOME OFFICE
YORK, PA.

NEW YORK, N. Y., 55 Maiden Lane
BALTIMORE, MD., 7 W. Redwood Street
BOSTON, MASS., 98 Sudbury Street
PHILADELPHIA, PA., 711 Chestnut Street
SEATTLE, WASH., 112 Third Avenue, So.
HONOLULU, HAWAII

ST. LOUIS, MO., 408 North 4th Street
SAN FRANCISCO, CAL., 200-218 Howard Street
NEW HAVEN, CONN., 273 State Street
HOUSTON, TEX., 1120 Main Street
CHICAGO, ILL., 217 W. Monroe Street
PARIS, FRANCE

CLEVELAND, OHIO, 109 E. St. Clair Avenue
WASHINGTON, D. C., 410 Bond Building
LOS ANGELES, CAL., 914 Towne Avenue
INDIANAPOLIS, IND., 44 E. Washington Street
MONTREAL, QUE., 830 St. James Street, West
TOKYO, JAPAN

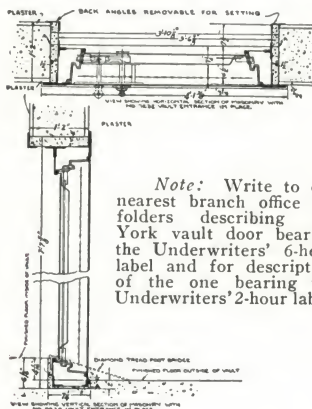
Products

BANK VAULT EQUIPMENT, SAFE DEPOSIT BOXES, BOOK and STORAGE VAULT DOORS, BURGLARY CHESTS, SAFES of all kinds.

We have complete catalogues on the different products we manufacture. Write for your copy.

Specifications York No. 7832-4 Vault Door

The contractor shall furnish and set in position York No. 7832-4 Vault Door to fit wall opening 91½ in. high, 46½ in. wide. This door is to bear the Underwriters' Laboratories 4-hour label.



Note: Write to our nearest branch office for folders describing the York vault door bearing the Underwriters' 6-hour label and for description of the one bearing the Underwriters' 2-hour label.



Door—To be built to a total thickness of 5½ in. with ⅝-in. outer and ⅝-in. inner plates riveted on edges to pressed steel moulding. Hung on three heavy malleable hinges with ornamental tips.

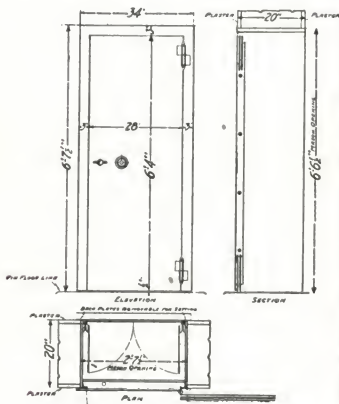
Frame—Surrounding door at front to be of 4½x⅝-in. steel bars at sides and top and 2x⅝-in. at bottom. These bars to be welded at all corners, forming a solid frame and securely fastened to ½-in. vestibule plates by 2½x2x⅝-in. steel angles. Back frame to be made of 3x2x⅝-in. steel angles fastened to vestibule and made removable so that vault door may be set in position after walls are completed.

Boltwork—Bolts of cold drawn steel each ¾-in. diameter of double action type, 4 front, 3 back, 1 up and 1 down, operated with drop handle and checked by one 4-tumbler combination lock approved by Underwriters' Laboratories, Inc.

Finish—A rich olive green lacquer inside and outside.

Specifications York No. 402 Vault Door

The contractor shall furnish and set in position York No. 402 Vault Door to fit wall opening 78½ in. high, 31½ in. wide.



Doors—Outer—Of ⅝-in. steel plate, reinforced inside on all edges by 2x2x⅝-in. steel angles. Inner—Of ⅝-in. annealed steel plates, opening into vestibule and checked by boltwork and key lock.

Boltwork—Frame formed by angles which strengthen door on all edges. Bolts of cold drawn steel, each 1-in. diameter, 4 across, 1 up and 1 down, operated with T-handle and checked by one 3-tumbler combination lock.

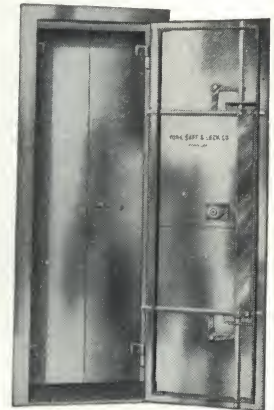
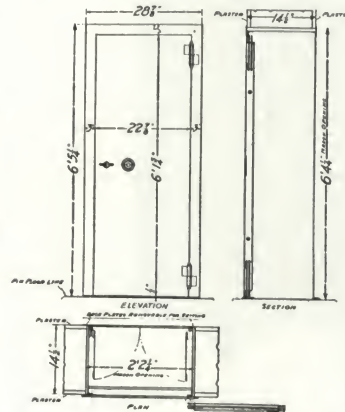
Frame—Surrounding outer door of 3x¼-in. flat steel bars welded at upper corners and securely fastened to vestibule by 1½x1½x¼-in. steel angles. Frame surrounding inside door to be made of 3x⅝-in. steel bars and shall be removable so door may be set after walls are completed.

Vestibule—Of No. 16 annealed steel plates fastened at corners by 1½x1½x¼-in. steel angles.

Finish—Doors rich olive green color. Handles, hinge tips, locking bolts, etc., polished and heavily nickelplated.

Specifications York No. 400 Vault Door

The contractor shall furnish and set in position York No. 400 Vault Door to fit wall opening 76¼ in. high, 26¼ in. wide.



Doors—Outer—Of ⅝-in. steel plate, reinforced inside on all edges by 2x2x⅝-in. steel angles and across center by panel bar of 6x⅝-in. plate. Inner—Of ⅝-in. annealed steel plates, opening into the vestibule and checked by bolt work and key lock.

Boltwork—Frame formed by angles which strengthen door on all edges. Bolts of cold drawn steel, each 1-in. diameter, 2 across, 1 up and 1 down, operated with T-handle and checked by one 4-tumbler combination lock.

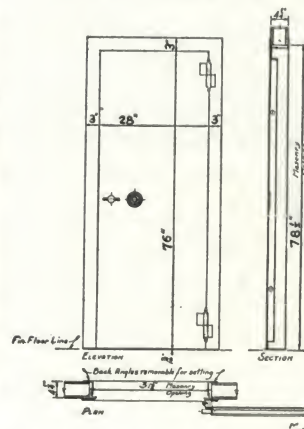
Frame—For outer door 3x⅝-in. flat steel bars welded at upper corners and securely fastened to vestibule by 1½x1½x¼-in. steel angles. For inner door 3x⅝-in. steel bars, removable so door may be set after walls are completed.

Vestibule—Of No. 16 annealed steel plates fastened at corners by 1½x1½x¼-in. steel angles.

Finish—Doors a rich olive green color. Handles, hinge tops, locking bolts, carrying bar, etc., polished and heavily nickelplated.

Specifications York No. 4 Vault Door

The contractor shall furnish and set in position York No. 4 Vault Door to fit wall opening 78½ in. high, 31½ in. wide.



Door—Of ⅝-in. steel plate, reinforced inside on all edges by 1¾x1¾-in. steel angles.

Boltwork—Frame formed by angles which strengthen the door on all edges. Bolts of cold drawn steel, each 1-in. diameter, 2 across operated by T-handle and checked by one 3-tumbler combination lock.

Frame—Surrounding door of 3½x⅝-in. flat steel bars welded at upper corners and securely fastened to vestibule by 1½x1½x¼-in. steel angles.

Vestibule—Of 2½x3½x⅝-in. steel angles reinforced and fastened at corners by 1½x1½x¼-in. steel angles.

Finish—Door a rich olive green color. Handle, dial, dial ring, hinge tips, locking bolts, etc., to be polished and heavily nickelplated. Carrying bar satin nickel.

THE MOSLER SAFE CO.

GENERAL SALES OFFICE AND FACTORIES

HAMILTON, OHIO

BRANCH OFFICES

ATLANTA, GA., 231 Peachtree Arcade
BOSTON, MASS., 84 Sudbury Street
CHICAGO, ILL., 58-60 Lake Street
DALLAS, TEX., 1606 Magnolia Building
HAMILTON, OHIO, Grand Boulevard
KANSAS CITY, MO., 430 Dwight Building, 1004 Baltimore Avenue
LOS ANGELES, CAL., 727 Citizens National Bank Building

NEW ORLEANS, LA., 1026 Hibernia Bank Building
NEW YORK, N. Y., 373 Broadway
OKLAHOMA CITY, OKLA., 1608 W. 19th Street
PITTSBURGH, PA., 296 Union Trust Building
PORTLAND, ORE., 205 Railway Exchange
SAN FRANCISCO, CAL., Sharon Building, Montgomery Street
SEATTLE, WASH., 1217 Alaska Building

Products

INSULATED STEEL VAULT DOORS; BOOK and STORAGE VAULT DOORS; SAFE DEPOSIT BOXES; NIGHT DEPOSIT SAFES; HOTEL and CLUB SAFES; COUNTER

HEIGHT SAFES; ARMORED STEEL CHESTS; WALL SAFES.

Also Silver and Fur Storage Vaults, Safes for Steel Files, General Office Safes, Steel Filing Units and Security Lockers.

MOSLER BANK AND SAFE DEPOSIT VAULT EQUIPMENT

For a period of over 75 years, THE MOSLER SAFE CO. has specialized in the construction of fireproof type and burglarproof type safes and vaults. These installations are in some of the largest banks and safe deposit companies throughout the world, as well as in warehouses, chain stores, manufacturing plants and commercial offices, etc. Each installation is made to meet special conditions.

We show on this and the following pages some vault fronts and safes which illustrate the most modern forms of construction, having all of the most advanced types of burglarproof and fireproof features.

Our staff is at the command of architects, banks, chain stores, purchasing agents, manufacturers, merchants and others, for consultation and advice as to plans, specifications, estimates and suggestions. Write, wire or telephone the nearest MOSLER SAFE CO.'s office and requests for information will be promptly complied with.

Shown on this page and on the following page are a few examples of burglarproof type vault doors and vault equipment.

The Manual of Burglary, Theft and Robbery Insurance demand certain minimum re-

ments for obtaining basic rates of bank burglary insurance, and discounts from these basic rates for certain types of equipment.

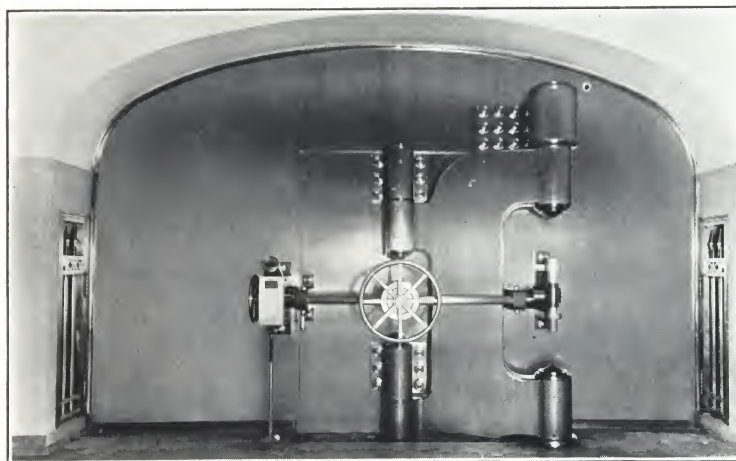
Each problem must be worked out in itself. The thickness of a vault wall with one thickness of lining, is equivalent, for example, to another thickness of wall with a different thickness of vault lining. There is also a proportionate relationship between the thickness of a vault door and thickness of a wall and a lining.

The illustrations show different types of claddings. Details can be worked out to suit the architectural treatment of the space directly adjacent to the vault.

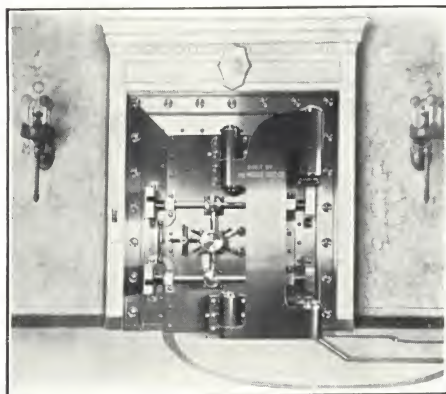
The interior of a vault is so far as the size of various safe deposit boxes is concerned, or the number and size of teller's chests, trust lockers or special chests, is an individual problem for each community.

Suggestions and further information will be given promptly and cheerfully upon request.

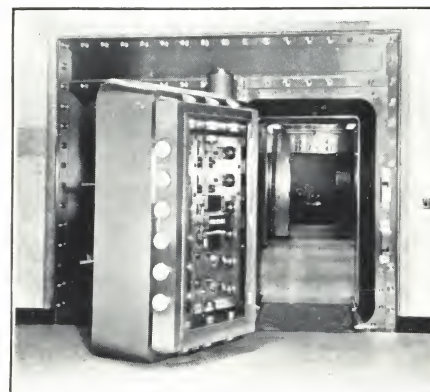
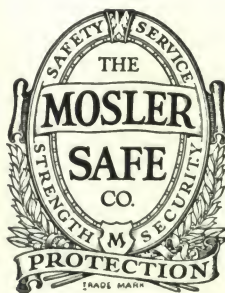
Wire, write or telephone the nearest MOSLER SAFE CO.'s office for conferences, suggestions, plans, specifications and estimates.



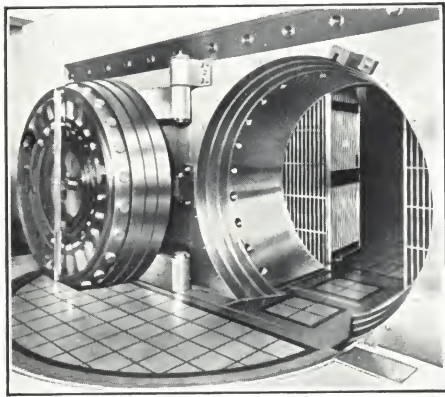
First National Bank, Boston, Mass.



Federal Reserve Bank,
San Francisco, Cal.



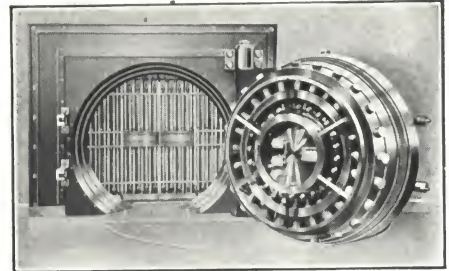
Fidelity-Philadelphia Trust Co.,
Philadelphia, Pa.



Dexter-Horton National Bank, Seattle, Wash.

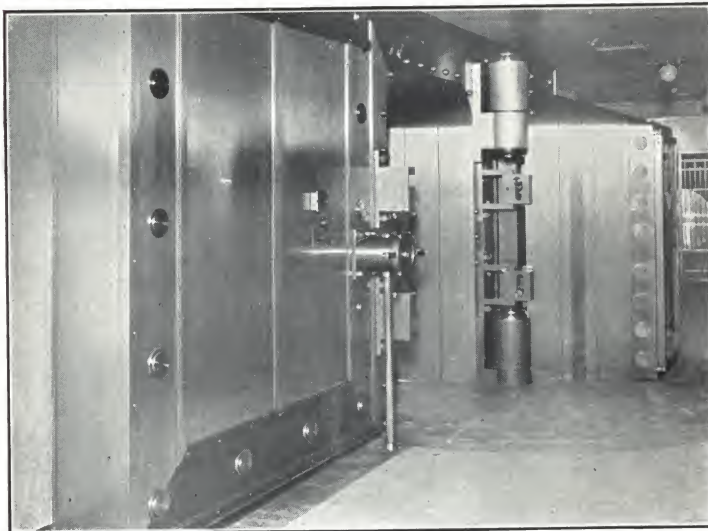
Suggestions

Suggestions and further information will be given promptly and cheerfully upon request.



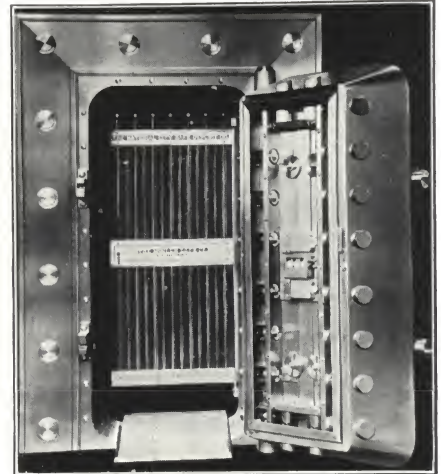
Mitsui Bank, Japan

A circular shaped door with special raising and lowering platform so that there is a level walkway into the vault from the outside



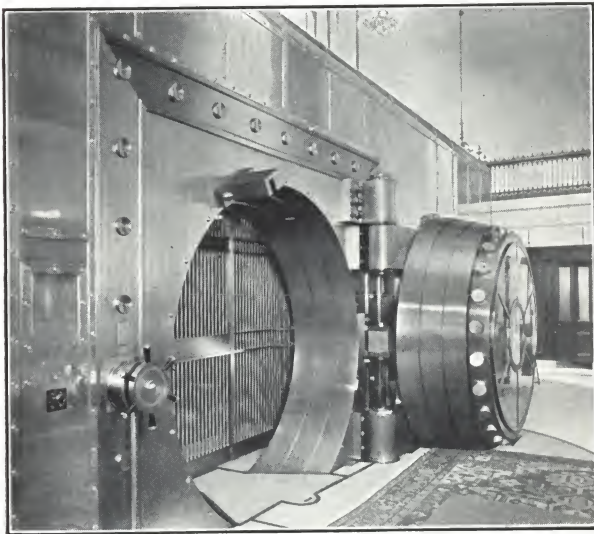
Left Vault Door at the Canal Bank & Trust Co., New Orleans, La.

Rectangular in shape, 24 in. thick through its body, contains a plate of pure copper for torch resistance, specially treated for drill resistance, known as "Don-steel." THE MOSLER SAFE CO. has the exclusive right to use "Don-steel"

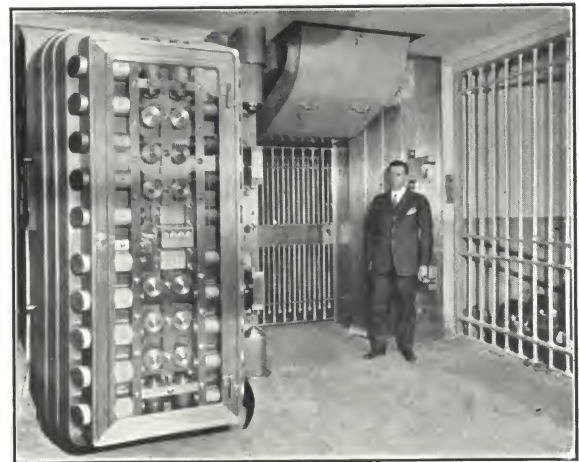


Plug Straight Step Type Door

This type of door is used in many of the National City Banks of New York, N. Y.



Mellon National Bank, Pittsburgh, Pa.



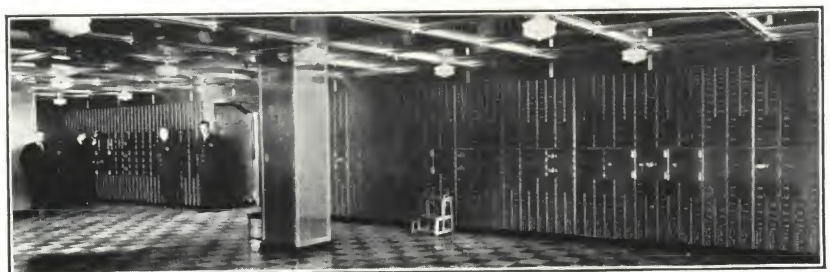
One of the Vault Doors of the National City Company, New York

One method of bringing fresh air from a centralized ventilating system into the vault by means of a swinging duct

Right

Interior of Vault of the State Bank, Chicago, Ill.

All exposed walls and ceiling are finished in polished steel plates, paneled. This represents a good general safe deposit box layout for a large city bank



Time Locks

In addition to locking a burglarproof type door with two combination locks, it is customary to have these locks further checked by a time lock. These time locks are so constructed that they can be set at the time the door is closed so that it is not possible to open the door until the time lock is run down to the hour that has been set for opening. These time locks are built with two, three and four movements, although the locks will operate on any one. The additional movements are added as a precaution in case one movement fails or is overwound.

Safe Deposit Locks

There are various types of safe deposit locks. One group is the regulation double nose or single nose safe

deposit lock, controlled by Bank's guard key and rentor's key. Another group is a similar lock but one with tumblers so constructed that locks bear the certification of the Underwriters' Laboratories as being "pick proof." The third group is the same as the second group except that the lock can be used over and over again set to a different key, without removing the lock from the door. This latter group is known as the changeable key lock.

Either one of the first two groups can be made with the rentor's keys sealed; the latter group always has the rentor's keys sealed.

A special catalogue on locks will be gladly sent to any architect or bank on application, and recommendations made to suit the particular requirements will cheerfully be given.

MOSLER INSULATED STEEL VAULT DOOR No. 3278

Equipped with Thermostatic Valve Door

Awarded Underwriters' Laboratories Six-hour Label for Fire Resistance

This insulated vault door is constructed entirely of steel. Equipped with a thermostatically controlled insulated valve door which automatically seals the interior of vault against heat penetration. Maintaining a lower temperature inside the vault than the maximum allowed by the Underwriters' Laboratories, Inc. Also practically eliminates water from fire hose reaching the vault interior.

The monolithic fire-resisting insulation is of great structural strength. It will not produce gases under fire exposure that might result in explosion. The hinges, boltwork and similar parts are of unusually rugged construction. The door swings back full 180° against vault wall. Made to swing right hand unless otherwise ordered.

Designed to fit masonry walls of any thickness exceeding 9 in., but, to afford protection equal to the door, the masonry should be 12 in. thick.

Specifications

The Contractor shall furnish and install a Mosler Insulated Steel Vault Door No. 3278 (Patented) for a in. wall. Masonry opening, 95¼ in. high by 45 in. wide (outside) and 79¾ in. high by 35 in. wide (inside). Clear door opening 78 in. high by 32 in. wide, the over all of front including architrave 91¾ in. high by 50 in. wide.

Frame—Consisting of jambs, head and sill, shall be entirely of steel with interlocking tongue and grooves.

Door—Shall be 6¾ in. thick, entirely of steel with interlocking tongue and groove edges containing fire-resisting insulation. Main door shall be equipped with a supplementary insulated valve door, thermostatically controlled.

Underwriters' Label—The door and frame shall be complete in all respects and bear the Underwriters' Laboratories, Inc., label for six-hour fire resistance at high temperature.

Bolts—Door shall be equipped with seven 1-in. diam. locking bolts, three to the lock jamb, one each to head and sill, with interlocking tongue and groove and two bolts to the hinge jamb. Operated by octagonal grip lever handle.

Lock—Shall be a Mosler four-tumbler combination lock capable of many thousand changes. Equipped with shouldered spindle, and protected by a hardened 5-ply steel plate and hardened steel guard plate.

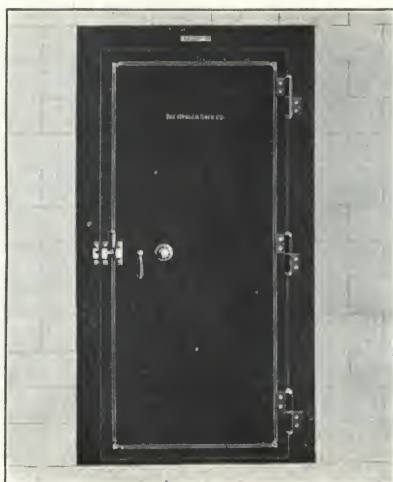
Pressure Bar—Door shall be seated to surrounding frame by pressure bar device at front edge of door, operated by lever handle covered with octagonal grip.

Foot Bridge—Provide a folding inclined non-slip foot bridge, to protect sill.

Finish—All exposed surfaces of door and frame shall be in Mosler standard olive green, ornamented with gold striping. Pressure bar device, metal surface of handles, lock and hinge tips shall be heavily nickelplated rubbed to a satin finish.

Swing of Door—Door shall swing to the [right] [left].

Drawings and Instructions—Contractor shall obtain from the manufacturer necessary drawings and instructions for the proper installation of the vault door, and shall install the door and surrounding walls in strict accordance therewith.



No. 3278 Mosler (Patented) Insulated Steel Vault Door

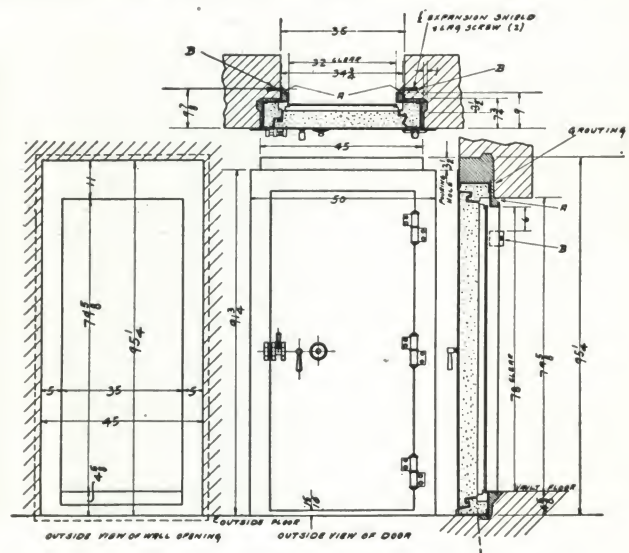


Diagram for Installing No. 3278 Mosler Vault Door

MOSLER INSULATED STEEL VAULT DOOR No. 7832-4**Designed for Walls 6-in. Thick and Over***Awarded Underwriters' Laboratories Two-hour Label for Fire Resistance*

This insulated vault door is constructed entirely of steel and may be set in a wall of any thickness exceeding 6 in. When installing this door, a wooden form should be placed inside the vault against the vault door frame, to retain the grout while being poured.

Specifications

The Contractor shall furnish and install a Mosler Insulated Steel Vault Door No. 7832-4 (Patented) for a in. wall. Masonry opening 91 $\frac{3}{4}$ in. high by 41 $\frac{1}{2}$ in. wide (outside) and 88 $\frac{1}{8}$ in. high by 41 $\frac{1}{2}$ in. wide (inside). Clear door opening 78 in. high by 32 in. wide, and over all of front including architrave 88 $\frac{1}{4}$ in. high by 45 in. wide.

Frame—Consisting of jambs, head and sill, shall be entirely of steel with interlocking tongue and grooves.

Door—Shall be 4 in. thick, entirely of steel with interlocking tongue and groove containing fire-resisting insulation.

Bolts—Door shall be equipped with five round locking bolts, $\frac{3}{4}$ -in. diam., three to the lock jamb, one each to head and sill, with interlocking tongue and groove to the hinge jamb. Operated by a lever handle covered with octagonal grip.

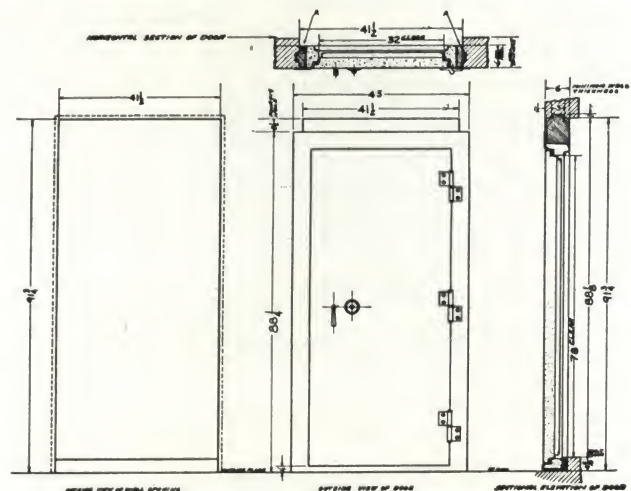
Lock—Shall be a Mosler three-tumbler combination lock capable of many thousand changes. Equipped with shouldered spindle, and protected by a hardened 5-ply steel plate and hardened steel guard plate.

Foot Bridge—Provide a folding inclined non-slip steel foot bridge, to protect sill.

Finish—All exposed surfaces of door and frame shall be finished in Mosler standard olive green, ornamented with gold striping. Metal surface of handles, lock and hinge tips shall be heavily nickelplated and rubbed to a satin finish.

Swing of Door—Door shall swing to the [right] [left].

Drawings and Instructions—Contractor shall obtain from the manufacturer necessary drawings and instructions for the proper installation of the vault door, and shall install the door and surrounding walls in strict accordance therewith.

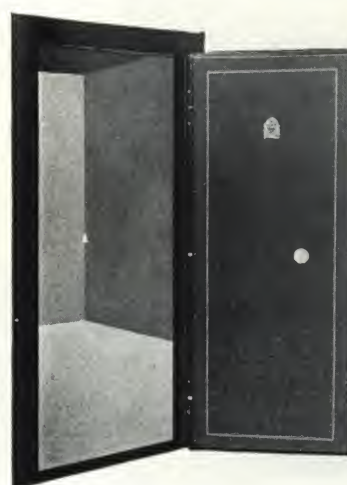
**No. 7832-4 Mosler Insulated Steel Vault Door****Diagram for Installing No. 7832-4 Mosler Vault Door****MOSLER STANDARD BOOK AND STORAGE VAULT DOORS****Nos. 30, 50 and 60 Series**

Mosler Standard Book and Storage Vault Doors are made in several styles and sizes, a few of the most important of which follow. All single door types are shown mounted to swing right but may be made to swing left when so ordered.

Mosler Vault Door No. 30 Specifications

The Contractor shall furnish and install a Mosler Steel Vault Door No. 30 for a 5 $\frac{1}{2}$ in. finished wall. Masonry opening 77 $\frac{1}{2}$ in. high by 32 $\frac{3}{4}$ in. wide in front, recessed in back to 79 $\frac{1}{2}$ in. high by 36 $\frac{3}{4}$ in. wide for walls over 4 in. thick. (Recess and opening flush at bottom.) Clear door opening 76 in. high by 30 in. wide, and over all of front frame 80 $\frac{3}{4}$ in. high by 39 $\frac{1}{4}$ in. wide. Back frame removable. Vestibule body over all 76 $\frac{3}{4}$ in. high by 31 $\frac{1}{4}$ in. wide.

Door—Shall be 1 $\frac{3}{8}$ in. thick. The $\frac{1}{8}$ -in. outer door plate, and the $\frac{1}{8}$ -in. Z-angles and U-shaped sections at the bottom shall be electrically welded, forming the jambs.

**Closed****Open****No. 30 Mosler Vault Door**

Bolts—Door shall be equipped with three live bolts at front and three live bolts at rear, all $\frac{3}{4}$ -in. diam. Operated by drop handle with satin nickel finished head and octagonal grip.

Lock—Shall be Mosler three-tumbler combination lock capable of many thousand changes. Entire lock guarded by $\frac{3}{4}$ -in. open hearth steel plate and $\frac{1}{4}$ -in. hardened drill-resisting plate.

Hinges—Two heavy solid rolled steel hinges shall be electrically welded to door and frame.

Jambs—The jambs of the vestibule are formed on three sides with a deep recess to receive the door.

Finish—All exposed surfaces of door and frame shall be finished in Mosler olive green lacquer finish with gold striping. Hinge tips, handle head and combination lock shall be finished in satin nickel. Combination dial shall be black enameled with white numbers.

Swing of Door—Door shall swing to the [right] [left] 31 $\frac{1}{8}$ in.

Note: Can be furnished to clasp walls of greater thickness than 5 $\frac{1}{2}$ in., but if possible wall opening should be formed with recess in back.

Weight—260 lb. net.

Mosler Vault Door No. 52

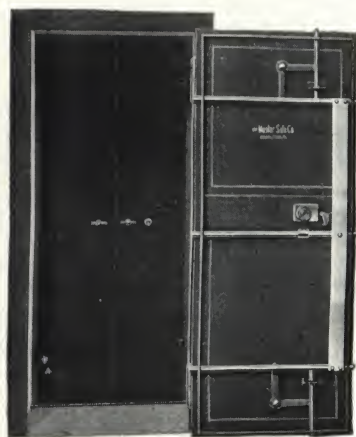
Outer Door— $\frac{7}{8}$ in. thick on all edges and across center for additional lock protection. Five single-acting bolts, 1-in. diam., operating through angle type bolt frames, controlled by Mosler combination lock and equipped with Mosler special relocking device.

Inner Doors— $\frac{3}{8}$ in. thick. Right-hand door equipped with flat vertical boltwork, interlocking at center with left-hand door, controlled by patent key lock.

Wall Opening—77 in. high by 32 in. wide by 20 in. deep.

Opening through Outer Doorway—74 in. high by 28 in. wide.

Finish—Outer and inner doors finished in black. Outer door striped in gold. Inside of vestibule finished in gray. Boltwork, hinge tips, handles and trimmings of door are highly polished and heavily nickel-plated.



Open
No. 52 Mosler Vault Door

Mosler Vault Door No. 53-D

With double outer and inner doors.



Closed

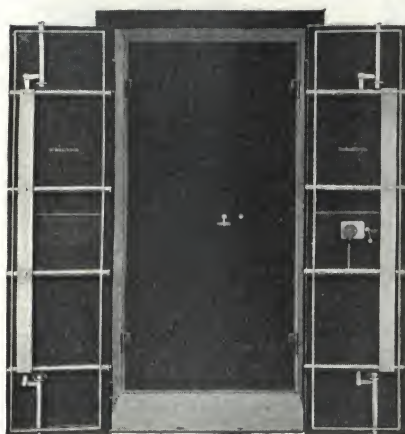
Outer Doors— $\frac{7}{8}$ in. thick on all edges and across center for additional lock protection. Six single-acting bolts, 1-in. diam. on each door, operating through angle type bolt frames, controlled by Mosler combination lock and equipped with Mosler special relocking device.

Inner Doors— $\frac{3}{8}$ in. thick. Right-hand door equipped with flat vertical boltwork, interlocking at center with left-hand door, controlled by a patent key lock.

Wall Opening—81 in. high by 42 in. wide by 22 in. deep.

Opening through Outer Doorway—78 in. high by 38 in. wide.

Finish—Outer and inner doors finished in black. Outer doors striped in gold. Inside of vestibule finished in gray. Boltwork, hinge tips, handles and trimmings of door are highly polished and heavily nickel-plated.



Open
No. 53-D Mosler Vault Door

Special Chests for Retail and Chain Stores, Oil Stations, Etc.

The Mosler armored steel money chest, particularly adapted for use in retail stores, chain stores, oil stations, etc., takes the lowest burglary insurance rate and in addition to this lowest rate an additional special discount is given by the insurance companies for the Mosler re-locking device which is found on every Mosler armored steel money chest.

Illustrations—The illustrations shown below are as follows:

Fig. A—An exterior view of the complete unit, consisting of the Mosler armored steel chest encased in a reinforced concrete block, the outside having a

granolithic cement finish, the finish of the chest.

Fig. B—Shows still another type of Mosler armored steel money chest encased in a concrete block, the outside of the block being finished in metal, painted the same color as the chest.

Fig. C—Shows the inside view when the door of either chest is open. Note that there is a space between the back of the chest door and the face of the compartment, which is used for the purpose of placing a box containing a nominal amount of cash for the chain store manager's use on opening his store in the morning. All other monies are deposited through an

Fig. B



Fig. C

inside slot above the inside compartment by the manager, this compartment being locked by a certified pickproof fourteen (14) tumbler two (2) key lock, one key held by the chain store collector and the other by the individual store manager, it requiring both keys to open the compartment. This lock is certified pickproof by the Underwriters' Laboratories, Inc., and the entire equipment takes the lowest burglary insurance rate and a special discount in addition for the Mosler re-locking device.

Service—Our nearest representative will gladly make a survey of your requirements, giving sizes and suggestions as to the type of chest required.

MOSLER NIGHT DEPOSIT SAFE

THE MOSLER SAFE CO. announces a new night depository for banks desirous of rendering full day and night service to their depositors. By day this new bronze night depository and seal is a distinctive advertisement of a bank's ability to offer complete service every hour of the day. By night it is a convenience for depositors.

Details of Construction

Outer Deposit Entrance—The outer deposit entrance or chute door is circular in form and constructed of a one-piece integral bronze casting containing burn-resisting properties. Edges or jambs of door are 2 in. thick.

The face of the door is ornamented with an appropriate bronze seal incorporating the name of the bank in raised letters. Should the bank have its own seal, this can be reproduced and placed on the face of the door for a reasonable additional sum.

The door construction comprises a series of drillproof and openhearth steel plates with a finely finished bronze plate of suitable thickness covering entire inside face of door to give a handsome finished appearance.

The door is hung on a heavy bronze hinge with concealed fastenings and secured with a high class corrugated key lock so arranged as to prevent withdrawal of key until the door has been closed and locked.

The exposed cylinder of lock is surrounded by a handle designed especially for this type door to permit greatest ease of opening and closing.

Hopper—The hopper located at head of chute directly in back of exterior door revolves on an axis and is pulled down to receive bags and when pushed back deposits the bags into the chute leading to the receiving safe. This hopper and axis are designed to receive electric alarm system by electric protection companies when desired.

Door Frame—The door frame measures 20 in. at the front in outside diameter and is constructed of an ornamental bronze casting containing burn-resisting properties. A separate bronze box contains the words "night deposits" in white translucent letters. Electric lamps are provided back of hinged front of box for the purpose of permanently illuminating these letters at night.

Metal Chute—The metal chute connecting the outer entrance door to receiving safe is constructed at such angle as may be required to permit installation of receiving safe on bank room floor or basement. Outside dimensions of this chute are approximately 13½ in. wide, 9½ in. deep, and constructed 1 in. thick when receiving safe is located on bank room floor. If receiving safe is located in basement, this chute

will then be constructed 12½ in. wide, 8½ in. deep outside, and will be ½ in. thick, these thicknesses conforming to requirements specified in burglary insurance manual.

Receiving Safe—The receiving safe is provided with door, circular in form, measuring outside approximately 30 in. high, 28 in. wide and 27 in. deep. Body of safe is 1 in. thick and the door thereto, constructed of a one-piece integral steel casting, is 3 in. thick. This door is equipped with lugs on body of safe, thus forming a metal-to-metal contact when door is closed and in position ready for locking. Painted steel finish plate is provided to cover inside face of circular door.

This door is hung on heavy, crane-type, steel hinge and is operated by means of a massive rim handle of octagonal design, heavily nickelplated and rubbed to satin finish.

The bolting mechanism of receiving safe door is controlled by high-class Mosler bronze-case combination lock, the dial of which is in black enamel with white numbers.

A Mosler re-locking device, approved by Underwriters' Laboratories, Inc., and bearing their label, is incorporated in the combination lock mechanism to protect the lock against the use of explosives or external violence.

The safe and locking mechanism are so designed that a timelock can be attached if desired, but the timelock is not a part of the regular equipment.

Deposit Bags, Locks, Keys, etc.

There are provided heavy canvas customers' deposit bags, each equipped with padlock and two keys, each bag numbered and lettered with the bank's name. An equal number of keys are furnished for the outer deposit entrance or chute door.

Concrete and Masonry Work

In order that a night deposit safe be accorded the burglary insurance rate and special discount provided for it in the burglary insurance manual, the top, bottom, back and sides of receiving safe, as well as the metal chute, must be covered with a minimum of 6 in. of concrete reinforced with steel rods spaced approximately 4 in. apart on centers both ways.

Insurance Rate

The receiving safe is designed to take the lowest burglary insurance rate, as provided by the burglary insurance manual, the approved re-locking device, as above mentioned, entitling the safe to a special discount from regular published burglary insurance rates.



Explanation of Underwriters' Laboratories Tests for Mosler Fireproof Filing Safes Bearing the "A" and "B" and "T-20" Labels

For "A" and "B" Labels—To bear these labels, a safe must successfully withstand fire exposure, drop or impact, and explosion tests. The "A" labeled safe must withstand a 4-hour exposure to heat reaching 2000° F. and the "B" labeled a 2-hour exposure to heat reaching 1850° F. During these times, the inside temperature of the safe must not exceed a limit of 300° F.

Both "A" and "B" safes receive the same drop or impact test and explosion test. They are heated for one hour reaching 1700° F. and while red-hot are dropped 30 ft. on a bed of broken rock, etc. Regardless of condition, safe is placed back in furnace in an inverted position and reheated for one hour at high temperature. In the explosion test a very intense flame is applied in such a manner as to subject insulation of safe to severe reaction. If any dangerous gases are present they will ignite and explode.

For "T-20" Labels—A safe must withstand a concentrated attack by drills, sledge-hammers, mechanical tools, etc. Safes so labeled are subject to a reduction of 20% in burglar insurance premiums.

Standard Rectangular Door Steel Chests

These standard rectangular door chests are constructed of the highest grade open-hearth and drill-proof steel. The plates are carefully and securely joined forming a one-piece construction of great strength.

The doors are hung on heavy, solid bronze hinges and are equipped with a vertical pressure bar system, with operating handle for closing the door securely in position.

The boltwork consists of round, polished steel bolts controlled by high-class bronze-case combination lock.

The combination dials are black enameled with white numbers and exposed metal parts are polished and heavily plated.

Outside and inside of all chests finished in Mosler standard olive green. A polished steel plate covers the inside face of the door.

All plated fittings are in satin nickel finish.

DIMENSIONS AND WEIGHTS OF RECTANGULAR DOOR STEEL CHESTS

No.	Outside dimensions, in.				Inside dimensions, in.			Approx. weight, lb.
	Height	Width	Depth		Height	Width	Depth (clear)	
			Body	Overall				
10	12	11 $\frac{3}{8}$	10 $\frac{1}{4}$	11 $\frac{3}{4}$	10	9 $\frac{7}{8}$	6 $\frac{1}{4}$	275
11	12	13 $\frac{1}{8}$	12	14	10	11 $\frac{7}{8}$	7 $\frac{1}{2}$	330
12	12	17 $\frac{1}{2}$	15 $\frac{1}{2}$	17 $\frac{1}{2}$	10	15 $\frac{1}{2}$	11	500
13	15	27	15 $\frac{1}{2}$	17 $\frac{1}{2}$	13	25	11	780



Rectangular Door Steel Chests

Circular Door Steel Chests

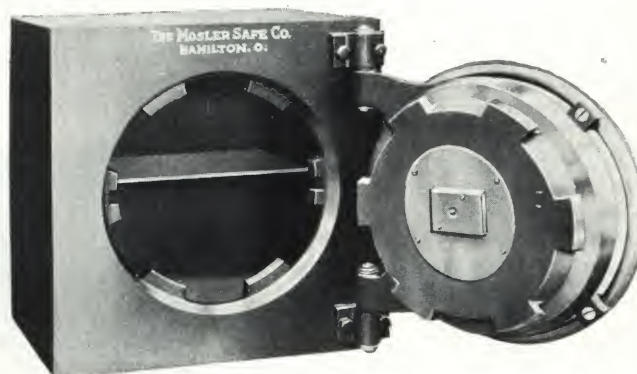
Made of the highest grade steel castings. Body consists of single castings, doors are one-piece open hearth steel and jambs are ground to provide metal-to-metal contact when doors are closed. A Mosler anti-dynamite or relocking device is incorporated in the combination lock mechanism. Bolting mechanism consists of interlocking lugs. Doors are hung on crane type hinges.

These chests carry the "H" bank insurance rate which is the best classification obtainable.

Awarded Underwriters' Laboratories, Inc. relocking device label accomplishing a further discount in insurance rates of 10%.

DIMENSIONS AND WEIGHTS OF CIRCULAR DOOR STEEL CHESTS

No.	Outside dimensions, in.				Inside dimensions, in.			Approx. weight, lb.
	Height	Width	Depth		Height	Width	Depth	
			Body	Overall				
0-RC	12	12	13	15½	10	10	8¾	295
1-RC	14	14½	12	14½	12	12½	7¾	320
2-RC	14	14½	15	17½	12	12½	10¾	355
3-RC	20	20	15½	18	17	17	10⅞	845
4-RC	20	24	15	17½	17	21	10⅞	875
5-RC	20	24	24	26½	17	21	19⅜	1210
6½-RC	24	24	24	29⅛	21	21	19⅜	1725
7-RC	30	30	24	29¼	27	27	19⅜	2200



3-RC Circular Door Armored Steel Chest

Wall Safes for Residences, etc.

Wall safe has outside measurements of 10 in. high by 15 in. wide. Door of safe, 1/2-in. steel; body of 1/8-in. steel with angle reinforcements at top, bottom, sides and back. Sides of safe are provided with angles to securely anchor safe and prevent its removal from wall. Finish of door and interior arrangement as desired.



Mosler Wall Safe

AMERICAN DISTRICT TELEGRAPH COMPANY

(INCLUDING THE BANKERS ELECTRIC PROTECTIVE ASSOCIATION OF BOSTON, MASS.)

Central Station Protection Services and Electric Signaling Systems

155 Sixth Avenue, NEW YORK, N. Y.

For other A.D.T. Central Station and Proprietary Systems and list of Central Stations, see Manufacturers' Index

PHONETALARM—A.D.T. BANK VAULT PROTECTION SYSTEMS (APPROVED GRADE A)

The Phonetalarm provides a system of bank vault protection operating on the sound detection principle. Protection is provided by means of microphones or detectors installed on the ceiling of the vault. Any attempt to force an entrance into the vault necessarily results in certain noise. This causes the diaphragms of the detectors to vibrate with a resulting effect upon certain instruments which cause the alarm to operate.

The system is effective against attack by means of hammering, drilling, burning or explosion. A sharp blow on the vault wall or any part of the vault structure will cause the alarm to sound; it will not operate from sounds originating elsewhere on the premises. Vault door and bolts are provided with protection contacts so that an alarm will be given upon any attempt to open the vault prior to the prescribed opening time.

The simplicity of Phonetalarm construction makes it possible to install a system without inconvenience in a vault already erected as well as in vaults under construction. The devices are always accessible, so that repairs and adjustments can be made at any time without difficulty. The Phonetalarm is less expensive to install than any other type of system, yet it has an unusual value from a protection standpoint.

The A.D.T. Phonetalarm is the original sound detection system, the first system having been installed by A.D.T. engineers in 1914. Since that date, scores of banks throughout the country have installed the Phonetalarm, including many Federal Reserve Banks and other large banking institutions. This system has the approval of the Underwriters' Laboratories, Inc., and is listed as Grade "A," thus securing the maximum discount on burglary insurance premiums.

A.D.T. Central Station Phonetalarm

Under Central Station operation the

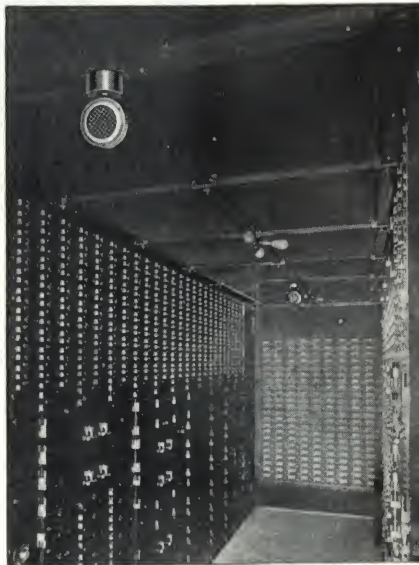
Phonetalarm System is given continuous supervision. All alarms are responded to immediately by men especially trained for this service. A careful check is maintained on the opening and closing of the vault and it cannot be left open or be reopened after the usual closing hour without causing an investigation.

Each Phonetalarm System is connected to the Central Station by means of an individual wire. This is under constant supervision and cannot be opened, shorted or grounded without detection by Central Station operators.

The Phonetalarm detectors are tested periodically during the closed period by means of a sounding device within the vault which is operated from the Central Station. This simulates an alarm condition and the signal received in the Central Station is identical with one originating from an attack on the vault.

Service is an important item in Central Station operation and all systems are carefully inspected and tested periodically in order to assure perfect operation. Skilled repair men are constantly on duty to render service in the event repairs are necessary.

Central Station Phonetalarm may be secured in all cities where A.D.T. Central Stations are maintained. For complete list, see our other pages as listed in Manufacturers' Index.



Typical Phonetalarm Bank Vault Installation

Local Bank Vault Phonetalarm

Designed for installation anywhere without restriction as to location. Consists of Phonetalarm detectors and control equipment together with apparatus for providing an alarm locally. The alarm device is an 18-in. loud ringing bell installed in a protected steel housing. The protection is under the control of a time clock within the vault. A visual signaling device installed on the outside of the vault indicates condition of the alarm at all times. Means are provided for making sound tests after vault is closed.

Control equipment includes the A.D.T. sound accumulator adjustable as to number and intensity of shocks which eliminates unnecessary alarms due to momentary disturbances. An automatic cutout and reset silences the bell and restores system to normal after a period of ringing. Energized from dry cells or storage battery as desired.

Serviced from A.D.T. offices located in all large cities in the United States. Periodic inspections provided; prompt service may be obtained in event repairs or replacements are required.

Bankers Electric Protective Association Systems

Vault protection systems of the Bankers Electric Protective Association of Boston can now be secured through the A.D.T. organization. The nation-wide facilities of the A.D.T. are also available to provide prompt and efficient inspection and maintenance service.

For complete information and descriptive booklet regarding the Bankers Electric systems, write The Bankers Electric Protective Association, 60 State Street, Boston, Mass.

Holdup Alarm Systems

A.D.T. systems for protection against daylight holdups may be installed in conjunction with all types of vault protection equipment or may be installed independently. These systems can be arranged to give an audible signal or may be of the silent type to signal a remote station.

Write for descriptive literature on the new "Model OBA" system which permits an alarm to be transmitted by simply obeying the commands of the bandit. This is the only system which can be operated without detection.

FEDERAL LABORATORIES, INC.

Manufacturers of Federal Gas Protective Equipment

185-41st Street, PITTSBURGH, PA.

AGENCIES IN TWENTY PRINCIPAL CITIES

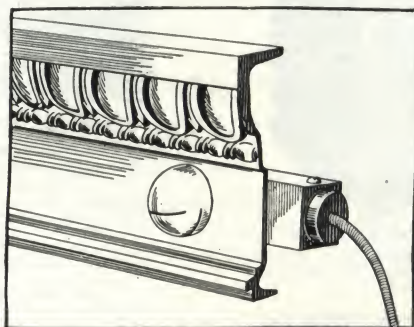
Products

FEDERAL TEAR GAS DAYLIGHT PROTECTIVE SYSTEMS for banks, stores, pay offices, prisons, etc.

FEDERAL TEAR GAS NIGHT BURGLARY PROTECTIVE EQUIPMENT for safes and vaults.

A Modern Protection Against Banditry

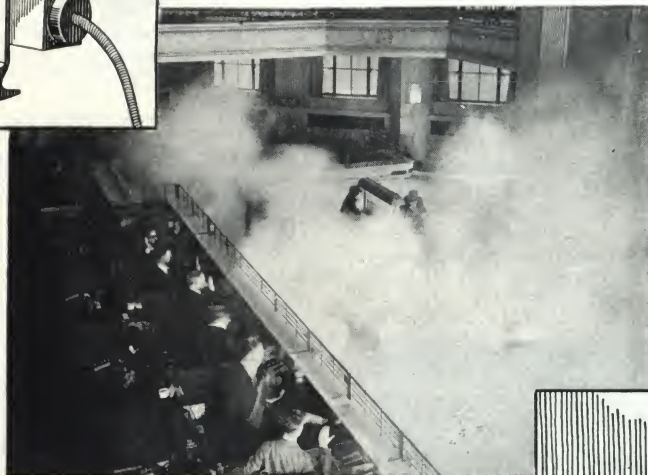
The daring and speed of modern bandits have rendered



Federal Model K Gun

Concealed in bank partition cornice — electrically operated and invisible.

ineffective old-fashioned methods of protection against daylight holdup of banks, pay offices, etc. Eight years ago our chemists and engineers developed a tear gas protective system which has enjoyed the approval of the Underwriters' Laboratories, Inc., for the past five years. This equipment is installed in a manner that will permit the entire public lobby of a bank to be flooded in a fraction of a second with a concentration of Federal Tear Gas. The attacking bandits are rendered helpless and temporarily blind by the gas and may be easily captured by employees of the bank or by officers. The Federal Gas system is operated without being noticed by the bandits, while their commands are being obeyed. The gas is propelled into the lobby away from the cages and counters, and employees behind the cages have several minutes in which to lock up money and securities before the effects of the gas reach them.



A Bank Hold-up Frustrated by Federal Gas

Equipment and Installation

The equipment consists of a number of discharge units built into the counters or cages at strategic points, all interconnected and concealed from view. Foot controls are placed at each teller's window, in the officers' quarters and at other essential locations in the working space. The entire system is connected to a central control cabinet by means of which the system is periodically tested.

Discharge units are concealed behind the wood, marble, or metal facing of the cages or counters. The small ornamental nozzles of the discharge units are the only exposed parts of the system. These are decorated to match perfectly the surface on which they are placed.

Installation is made in accordance with the code of the Underwriters' Laboratories, Inc., and is subject to the inspection of the engineers of that organization. All wiring is carefully insulated and protected by conduit. No alteration of fixtures is necessary to accommodate any part of our equipment. No ugly or unsightly equipment is exposed to the view of the public. Installations are made in connection with both new type friendly counters and the standard tellers' cages.

Method of Control

The foot controls used to actuate our Federal Gas systems are expertly designed to guard against unintentional discharge. They can be operated only by a voluntary pressure with the toe

of the shoe made while the heel is lifted from the floor. These controls cannot be operated by accidental contact with brooms, mops, etc.

Hand controls are used only in rare cases and are of the approved counter-sunk two-button type. Each control may be tested separately at the control cabinet.

Federal Gas—Its Properties and Action

Federal Gas is a patented crystalline form of tear gas packed in solid cartridges for stability. It is not contained under pressure of any kind and is not subject to leakage. The Federal Tear Gas vapor which so effectively blinds the attacking bandits is developed instantly when the cartridges are discharged. Nine parts in one million of Federal Gas vapor are sufficient to cause profuse lachrymation and as the concentration produced by our system is hundreds of times that proportion, the eyes of victims are irritated to a point of temporary blindness. Federal Tear Gas is the only such product that is put up in solid form.

The most attractive feature of protection by means of Federal Gas is that this vapor is absolutely non-toxic and harmless. Our equipment has had the approval of the Underwriters' Laboratories, Inc., for five years and entails no additional liability on the part of the institution using it.

All standard liability insurance policies will include our equipment without extra premium charge.

Users of our modern daylight protective systems



Federal Foot Control

Cannot be accidentally operated

receive a substantial reduction in holdup insurance premiums.

Prominent Users

Federal Gas installations and protective devices are used in thousands of the leading financial institutions of the country including banks, industrials and public institutions. A list of the more prominent users follows:

Bureau of Printing and Engraving, U. S. Treasury
 Pennsylvania State Treasury
 Ohio State Treasury
 Chicago City Treasury
 Detroit City Treasury
 Corn Exchange National Bank, Philadelphia, Pa. (seven branches)
 United States Savings Bank, Newark, N. J.
 Syracuse Trust Company, Syracuse, N. Y.
 Schenectady Savings Bank, Schenectady, N. Y.
 Rhode Island Hospital Trust Company, Providence, R. I.
 First National Bank, Pittsburgh, Pa.
 Grand Rapids National Bank, Grand Rapids, Mich. (eight branches)
 First National Bank, Wichita, Kan.
 Monongahela National Bank, Pittsburgh, Pa.
 Citizens National Bank, Peru, Ind.
 Ford Motor Company, Detroit, Mich.
 Carnegie Steel Company (all pay offices)
 William Penn Hotel, Pittsburgh, Pa.

Several thousand other users supplement this list.

Architects, bankers and other financial executives may secure full information regarding Federal Gas equipment by communicating with the home office.

THE BANK VAULT INSPECTION CO.

SAMUEL P. YEO, PRESIDENT

Day and Night Depositories for Banking Institutions

(Systems Patented and Copyrighted)

MAIN OFFICE

5 South 18th Street, PHILADELPHIA, PA.

NEW YORK OFFICE, 175 Fifth Avenue

CHICAGO OFFICE, 6 North Michigan Avenue

SALES ENGINEERS IN ALL OF THE PRINCIPAL CITIES

"Yeo—The Original Rotary" Night Depository

The "Yeo Rotary" Night Depository is now in continuous service in over 1200 United States and foreign banks.

Adopted and used by largest chain banks in America.

General Details—Types to meet all requirements. Simple in operation.

Strong and safe because of "Rotary" design (patented).

Massive in construction.

Beauty and refinement in design.

No sensitive or auxiliary devices used.

No upkeep cost. Nothing to get out of order.

Electrical protection (optional).

Low Insurance Rates

Entire "Yeo" equipment carries the lowest insurance rates. Approved by Underwriters' Laboratories, Inc.

Service

In addition to our one-year guarantee, our expert service men are available to render immediate service.

You are under no obligation when requesting our A. I. A. folder, or a personal call from one of our engineering staff.



Victory Model—Very Large Bag Capacity—Wall Installation

Inserting Yale key in control lock of rotary. A slight pull on cylinder will rotate it to open position



Window Installation—Rotary Cylinder in Open Position

Depositor placing sealed bag in cylinder



Curb Installation—Making Deposit from Car



DeLuxe Model Entrance

Standard
(With full protection for average banks)

Weight—750 lb.
Face plate—statuary bronze or stainless steel, 18½ in. high, 21¾ in. wide

Letters—1¼ in. raised cast or Tiffany illuminated
Cylinder—cast bronze or stainless steel

Housing—cast steel
Insurance—lowest rate "B" classification

Electric protection—provision for electric protection when specified

Right:

Victory Model Entrance

The Super Model

(For large banks who buy heavy equipment)

Weight—1000 lb.
Face plate—statuary bronze, 21½ in. high, 21½ in. wide
Letters—1¼ in. raised cast or Tiffany illuminated

Cylinder—cast bronze. Extra heavy walls, 3 in. minimum thickness
Housing—cast steel

Insurance—very lowest rate; "B" classification

Electric protection—provision for electric protection



Receiving Chest No. 72 (Burglarproof)

Dimensions—30 in. high, 28 in. wide, 27 in. deep

Body—1 in. thick

Door and chest—3 in. thick

Control—double combination

Door—face of door drillproof

Insurance—antidynamite device on door procures 10% additional discount



Universal Model

Entrance

(For banks with limited budget)

Weight—400 lb.

Face plate—statuary bronze, 18½ in. high, 21½ in. wide

Letters—1¼ in. raised cast bronze or Tiffany illuminated

Cylinder—cast bronze

Housing—cast steel



Fig. 1

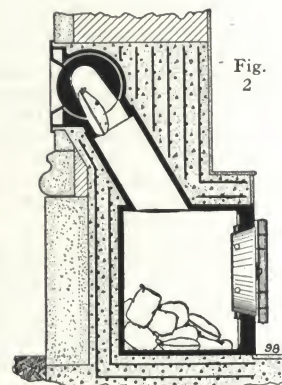


Fig. 2

When It Is Opened It Is Sealed

Rotating deposit entrance is always sealed against attack. (Fig. 1). Cylinder, in locked position, seals wall opening (Fig. 2)

CLEAR-VISION COUNTERS, INC.

Operating Under Domestic and Foreign Patents

FORMERLY JOHN POOLE

619 Fourteenth Street, N. W.
WASHINGTON, D. C.

License

We do not manufacture. We merely license the use of this system, and shall quote a license fee to any one interested, the fee being based upon the number of feet of counter used.

John Poole "Clear-Vision" or "Friendly" Counter

The drawing below clearly indicates both the form and construction of this unique counter for banks, brokers' offices, building and loan association offices and, in fact, for all types of offices in which a cage or partition was formerly considered necessary for the protection of the person in charge and the cash he was handling.

Advantages of the "Clear-Vision" Counter

Light and vision are greatly improved.

Ventilation is much better because of the absence of high partitions and glass.

Greater protection is assured due to the visibility of the working quarters.

The absence of high partitions gives the effect of a larger room.

The counter forms a continuous window and every foot is available for service if needed, thus allowing the maximum flexibility and elasticity.

It is cheaper to build because less material and labor are required.

Fifty per cent greater utility of floor space is obtained.

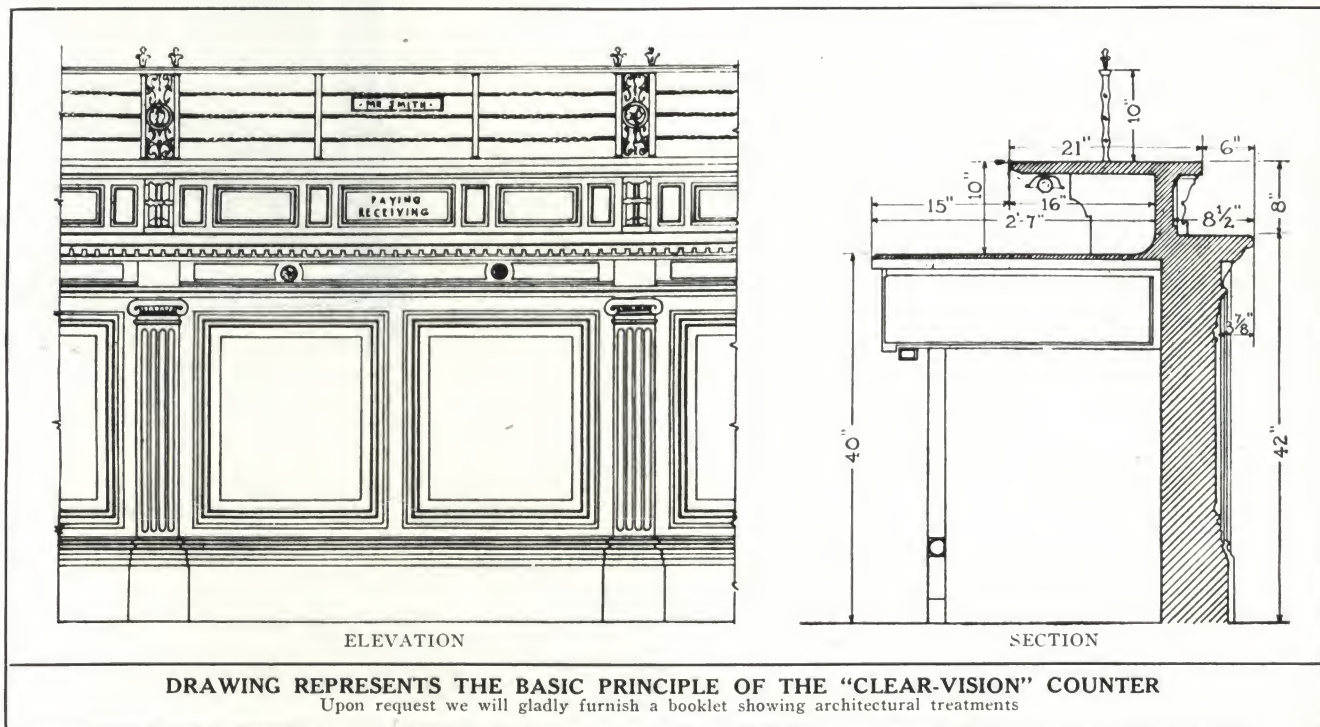
More intimate relations between customer and teller are established.

Special Construction

Each counter is constructed in accordance with the architect's own details and specifications, which naturally will reflect the architect's and prospective user's own individual ideas and tastes.

Some Installations of the John Poole "Clear-Vision" Counter

Federal-American National Bank, Washington, D. C.
Chase National Bank, New York, N. Y.
City National Bank & Trust Co., Bridgeport, Conn.
Hartford National Bank & Trust Co., Hartford, Conn.
Indiana Trust & Savings Bank, Evansville, Ind.
National Shawmut Bank, Boston, Mass. (Branch)
Framingham Trust Company, Framingham, Mass.
Farmers & Mechanics Bank, Ann Arbor, Mich.
State Bank & Trust Company, New York, N. Y. (Branch)
Savings Bank of Utica, Utica, N. Y.
First National Bank, Grand Forks, N. D.
Barclay-Westmoreland Trust Co., Greensburg, Pa.
Atlanta and Lowry National Bank, Atlanta, Ga. (Branch)



INDESTRUCTO GLASS CORPORATION

Manufacturers of Bulletproof and Scatterproof Glass

527 Fifth Avenue, NEW YORK, N. Y.
FACTORY: FARMINGDALE, LONG ISLAND, N. Y.

Indestructo Bullet Resistant Glass

Designed to provide great strength and resistance to penetration, especially of bullets from firearms. It is a clear vision, laminated product, made of alternate layers of plate glass and a flexible, transparent binding material, firmly united in one solid sheet under a patented process, which not only provides bullet resistance *but also insures against separation, discoloration or reduced transparency.*

The degree of resistance of laminated glass is in direct ratio to the strength of the bond uniting the glass with the transparent, flexible material. The Indestructo bond is accomplished without gelatins or other adhesives which frequently dry out or suffer natural chemical reaction causing loosening of the bond, total separation or objectionable yellow discoloration, rendering the glass unfit for the uses primarily intended.

Revolver Resistant Glass—This standard material can not be penetrated by any revolver, regardless of caliber or ammunition. The windshield in the accompanying photograph withstood 11 shots from a .38 caliber long barrel police special revolver in a small area and a final shot from a .45 automatic in the center of the already weakened area. There was no penetration, no displacement of glass from the back and no dangerous mass action.



Indestructo Glass in Windshield
Twelve shots without penetration

Special Bulletproof Glass—Glass, which will resist penetration from any weapon, may be produced by varying the combination of thicknesses and number of layers. Data on heavy side arm and shot gun resistant glass is given in table below. In most cases the standard revolver resistant material provides adequate protection at minimum cost.

Indestructo Scatterproof Glass

Developed primarily for protection against injury from flying glass in windows of buildings or vehicles. It is made in two grades, plate quality and sheet quality.

Sizes

The binding material used is procurable in sheets 30x60 in. only, so that this size should be considered in laying out a bank counter or other structure to be made banditproof. Larger lights can be procured by splicing the binding material which, however, results in a fine hair line being visible in the finished light at the point of splice. Splicing can be in one direction only for a given piece. Due to other conditions the maximum sizes obtainable by splicing are 36x60 in. or 30x66 in.

THICKNESS AND WEIGHTS OF INDESTRUCTO GLASS

Description	Thickness, in.	Tolerance, in.	Wt., lb. per sq. ft.		Number glass layers
			Net	Crated	
Bullet Resistant:					
Revolver	1	1/16	11	15 to 16	3
Heavy side arms	1 1/8 to 1 1/4	1/16	13	18	3
Shot gun	1 1/2 to 1 3/4	1/32	14 to 16	17 to 20	4
Scatterproof:					
Grade A	3/16 to 5/8		3 to 6	4 to 8	2
Grade B	1/4 to 1/2		2 to 4	3 to 6	2



Public National Bank, New York, N. Y.
EUGENE SCHOEN, Architect
Bronze speak fixtures and sunken deal trays

Installation and Fixtures

Indestructo bullet resistant glass requires no special methods of setting or framework, other than that the frame should be large and strong enough to receive and carry the heavier and thicker glass. Aside from this, standard practices in setting glass apply.

There are various types of fixtures for passing of money and for communication between teller and customer, any of which are well adapted for use with this glass. One type has bronze speak fixtures and sunken deal trays while another has sunken deal tray with an offset wicket giving a space of 1 in. around the glass for passage of the voice thus eliminating the use of speak fixtures.

Indestructo glass can not be cut to size after manufacture, so it is necessary that exact sizes be furnished with orders if shapes are rectangular or circular. If irregular shapes are required templates or patterns should be furnished. This glass can be drilled, ground, polished and otherwise worked the same as ordinary glass, but this work must be done by the manufacturer. It also can be etched, chipped or sandblasted to produce ornamental surface patterns.



Peninsular State Bank, Detroit, Mich.
V. POTTLE, Architect
Offset wicket with 1-in. space on sides for voice passage and sunken deal trays

Guarantee

Indestructo glass is furnished under a guarantee against deterioration unfitting it for use due to faulty manufacture.

Partial List of Users

Banks

American State Bank, Detroit, Mich.
Bank of Commerce, Fordson, Mich.
Commonwealth Federal Savings Bank, Detroit, Mich.
Commercial State Savings Bank, Detroit, Mich.
Hancock Bank, Hancock, Md.
Lincoln Park State Bank, Lincoln Park, Mich.
National Building & Loan Association, Detroit, Mich.
Northport Trust Co., Northport, N. Y.
Northwestern State Bank, Detroit, Mich.
Public National Bank of New York, New York, N. Y.
Wayne County & Home Savings Bank, Detroit, Mich.
Yonkers Savings Bank, Yonkers, N. Y.

Commercial Users

Brooklyn Edison Co., Brooklyn, N. Y.
Connecticut General Life Insurance Co., Hartford, Conn.
Equitable Life Assurance Society of United States, New York, N. Y.
Earl Carroll Theater, New York, N. Y.
Ford Motor Co., Detroit, Mich.
J. M. Horton Ice Cream Co., New York, N. Y.
Hornblower & Weeks, New York, N. Y.
Hudson Department Store, Detroit, Mich.
New York Times, New York, N. Y.
Standard Oil Co. of New Jersey, Tampico, Mexico
Sun Life Assurance Co., Ltd., Montreal, Can.
Wayne County Treasurer's Office, Detroit, Mich.

ALLEN-DREW COMPANY

DIVISION OF
BABCOCK-DAVIS CORPORATION

43-45 Brookford Street
CAMBRIDGE, MASS.

For Other Pages on Our Products, see Manufacturers' Index

MOTOR OPERATED GATES FOR JAILS

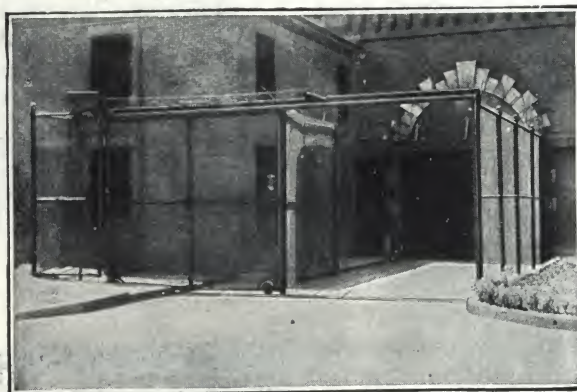
Gates for Jails

Electrically operated gates are a necessity in jails. Sometimes it is desirable to operate only one set of gates to keep out intruders and to admit those having proper credentials. This is often the case in industrial plants and on private estates.

In some cases where valuable property is easily removed or in detention cases, it is necessary to have two sets of gates, one directly behind the other to form an enclosed cage. Here it is possible to thoroughly investigate the person or vehicle entering or leaving by operating one set of gates at a time.

We have installed a number of our motor units for the operation of gates of jails in different parts of the country. As illustrated in detail on page 20, the gate in the outer wall is operated on the outside of

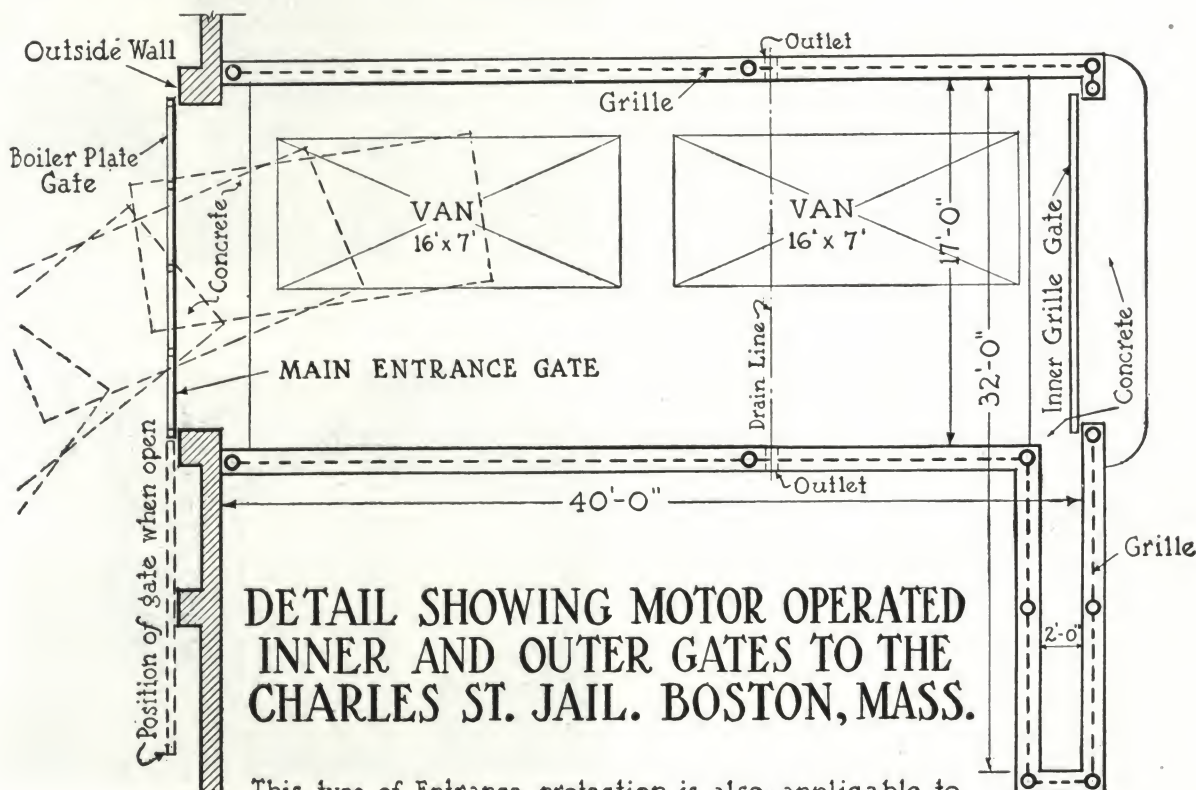
the enclosure wall. The inside gate is at the end of an enclosure which is generally large enough to accommodate two large vans. When the outer door is open, the inner gate is shut and is not opened until a thorough examination is made of driver, trucks and contents.



Two Electrically Operated Sliding Gates at Suffolk County Jail, Massachusetts

This being completed, the inner gate is opened. The process is reversed when going out. This also prevents a rush of convicts for the gate when it is opened.

Control—These gates are operated by remote control. They also have limit switches and brakes similar to those for garage doors. The operating mechanism is overhead, and protected from the weather by hoods, etc. The gates are supported on rollers running on industrial track which is also protected from the weather by hoods.



DETAIL SHOWING MOTOR OPERATED INNER AND OUTER GATES TO THE CHARLES ST. JAIL. BOSTON, MASS.

This type of Entrance protection is also applicable to Industrial Plants and others needing protection

THE FRIES AND SON STEEL CONSTRUCTION AND ENGINEERING CO., INC.

Expert Jail and Prison Builders

TELEPHONE
COVINGTON 1635

Second and Madison Avenues
COVINGTON, KY.

Products

Builders of CELLS for Jails, Prisons, Police Stations and Lockups, equipped with Automatic Sliding Door and Hand Pull, and Hydraulic Locking Devices; Prison Plumbing Fixtures; Round, Hexagon, Rib and Flat Interlocking Bar Grating for window guards, corridor gratings.

Experience

THE FRIES AND SON STEEL CONSTRUCTION AND ENGINEERING CO., INC., are backed by an organization made up of men whose experience ranges from twenty to fifty years, and who have built some of the largest jails and prisons in the United States.

Tool Resisting Steel

We use nine-ply tool resisting steel for all grated work made according to standard specification, in place of regular five-ply steel referred to in specification as tool resisting, consisting of alternate layers of low carbon and high carbon steel, all layers thoroughly welded and the high carbon steel layers hardened, to resist action of cutting tools.

Where absolute security is desired, we advise using our "Fries Special" Heat and Tool Resisting Steel for all exterior sides of cell blocks, also for the window gratings.

Cell Door Locking Device

Our manually operated fully selective, keyless locking device is used in connection with sliding doors and is designed on lines of durability and simplicity as well as neatness. The device has no springs, adjusting nuts or collars that might come loose and cause trouble. Our device permits operator to open or close each door individually or all doors collectively, or close or open all doors *collectively*, although some doors may be in open position while others are in closed position, or open or close any combination of doors desired.

Our locking device is entirely and securely encased by steel plate rendering it *tamperproof*.

Automatic Corridor Lock

Our corridor doors are provided with a simple locking bar, operated from within the lever box. The corridor door locks automatically on lightly closing same, and is deadlocked. This lock is tamperproof.

Special Equipment

We furnish everything necessary for the completed jail or prison installation, such as, one-piece, sanitary, combination lavatory and toilet niche seat; electric light boxes; latest improved jail plumbing fixtures; speaking panels; plate and glass partitions; steel entrance doors; bunks; padded cells; steel stairs and window guards.

Engineering Department

Our Engineering Department will gladly assist architects, engineers and officials who are contemplating any jail or prison construction. We will furnish up-to-

date layouts, detail drawings, specifications and estimates, for jail equipment, without charge.



Police Headquarters Building, St. Louis, Mo.



Center of Men's Cells, Showing Turnkey's Station
Inset—Section of East Wing of Men's Cells



Men's Isolation Cells
Inset—Visitors' Side of Conversation Booth

MANLY JAIL WORKS

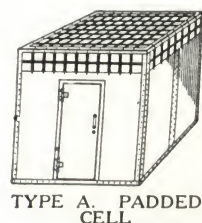
DALTON, GA.

Products and Service

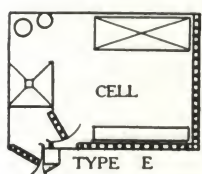
Complete modern CELL EQUIPMENT for County and City Jails, both in toolproof and Bessemer steel; IRON DOORS, WINDOW GUARDS, WALL LININGS and general JAIL BUILDING ACCESSORIES.

It is our policy to confine our operations, as far as practicable, to the Southeastern States within six or eight hundred miles of our plant, and to render an especially prompt and efficient service within that territory.

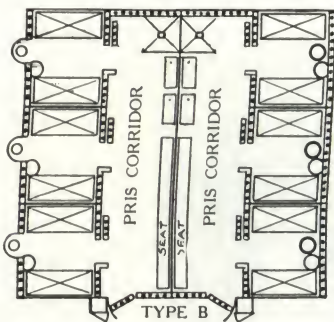
Blue prints, 1/4 in. scale, and details on application.



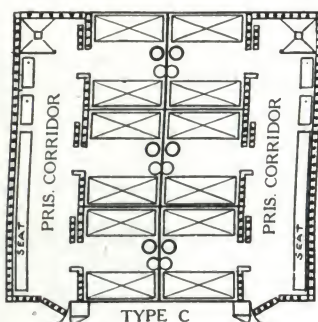
TYPE A. PADDED CELL



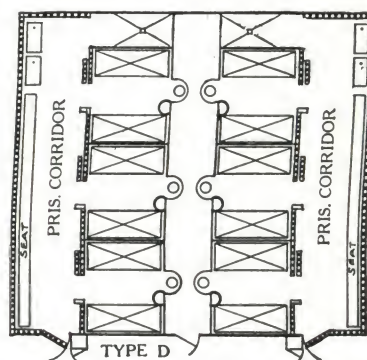
TYPE E



TYPE B

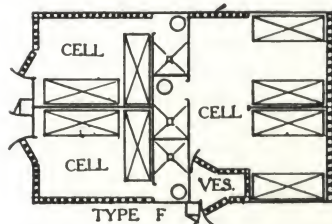


TYPE C

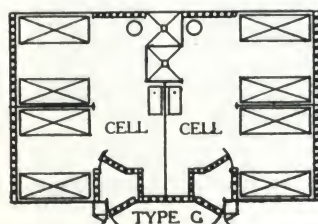


TYPE D

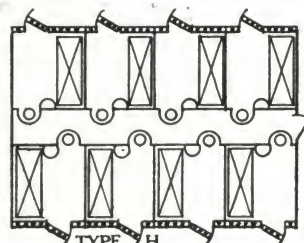
TYPES A, B, C, D, E, F, G, FOR COUNTY JAILS—OF TOOLPROOF STEEL
TYPES H, J, FOR CITY POLICE STATIONS—OF BESSEMER STEEL



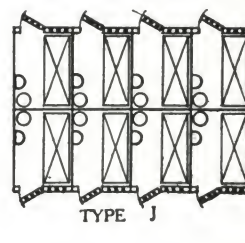
TYPE F



TYPE G



TYPE H



TYPE J

Selected Typical Cell Floor Plans 1/16-in. Scale for County and City Jails



Toilet Niche
Enamelled Seat,
Push Button
Flush Valve
and Lavatory



Roll Rim Toilet and
Lavatory

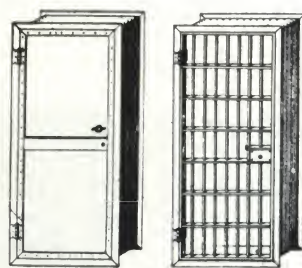
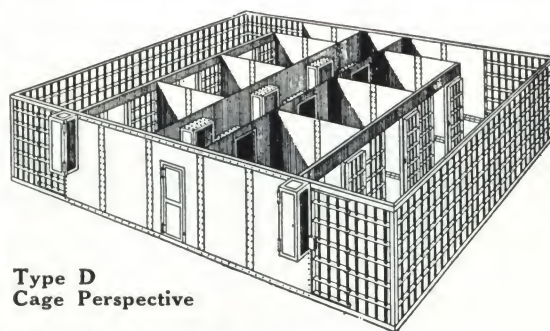
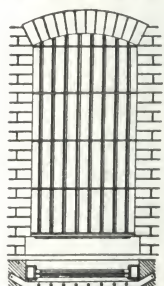


Plate and Grated Doors



Type D
Cage Perspective



Window Guard

ened so as to resist the action of saws, files and drills, and to be roll straightened after tempering.

Condensed Specifications

Dimensions, etc.—County jail cells for 4 prisoners 7x8 ft. x 7 or 8 ft. high (8 ft. preferable). Prisoners corridor 6 ft. Shower enclosures 3 ft. square. All exterior wall and ceiling plates 1/4 in. toolproof. All exterior gratings toolproof steel, not less than 20 lb. to sq. ft. Inside plate partitions 1/4 in. Bessemer steel. Inside gratings and doors 10 lb. to sq. ft. Bessemer steel. Cells in H and J for city jails 6x7 ft. and 5x7 ft.; 2 prisoners to cell; plate work 1/4 in.; gratings and doors same as specified below for window guards, all Bessemer steel.

Cell Door Locking Device—Cell doors 2x6 ft. hung on ball or roller bearings, to be easily opened, closed and locked entirely from lever box on front of cage, and to be operated in either direction without affecting any other door in series. Main cage door same construction as grating, securely hinged and locked with automatic jump lock and heavy slide bars operated and locked inside lever box.

Toolproof Steel—Bars and plates specified as "toolproof" to be laminated 5-ply steel, composed of alternate layers of high carbon crucible or manganese steel, thoroughly welded to layers of low carbon steel; the crucible layers being highly tempered and hard-

Utility Corridor—4 ft. wide as in D or 2 ft. 6 in. wide if staggered, as in H.

Toilet Niche—22x16 in. x 4 ft. 6 in.; seat 17 in. above floor, circular back, toilet hopper underneath.

Bunks—2 ft. 6 in. x 6 ft. 6 in.; 2-in. angle frame; slats 1 1/4 in. x No. 16 interwoven and riveted 3-in. sq. mesh, or No. 16 solid plate perforated and riveted.

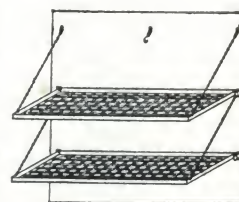
Floors—No steel floors. Vertical bars and gratings bedded in 2 1/2 in. of concrete, cement finish. Reinforcing under felony cells, 1/2 in. high carbon bars 5 in. apart both ways.

Guards Corridor—Cells 3 ft. 6 in. from walls to allow for radiators and guards walkway. 5 ft. on front end.

Window Guards—Verticals 3/8 in. round, 4 in. on centers, shouldered and mortised. Horizontals 2 1/4 x 3/8 in., 12 to 16 in. apart; ends of horizontals bent back for building in. Bessemer steel, or toolproof if prisoners have access.

Iron Doors—1/4-in. plate, stiffened with 2-in. angle and paneled. Grated doors 3/4-in. round verticals, 4 in. on centers. Horizontals 2 1/4 x 3/8 in. mortised, 16 in. apart. Heavy forged hinges; 5 tumbler flat jail dead locks. 2 1/2-in. angle frame, No. 11 steel jambs; 1/4-in. diamond threshold plate. All Bessemer steel.

Hospital and Female Cells—1/4-in. plates, grating and doors same as for window guards. Usually against outside walls. Bessemer steel.



Folding Bunks

PAULY JAIL BUILDING COMPANY

GENERAL OFFICES AND FACTORY

2215 DeKalb Street
ST. LOUIS, MO.

EASTERN OFFICE: Wilson Building, 1270 Broadway, NEW YORK, N. Y.

MANUFACTURERS OF JAIL EQUIPMENT FOR 75 YEARS

The Company

The Pauly Company was established in 1856 for the express purpose of improving the construction of jails throughout the country, and have this year completed seventy-five years of successful manufacture of equipment for county jails, city jails, State prisons, reformatories, and police stations.



St. Louis County Jail, Duluth, Minn.
HOLSTEAD & SULLIVAN, Architects

Service

The Service Department is composed of men with years of experience. Our special representatives throughout the country are available at all times to render whatever assistance architects may require in designing modern equipment.



Hudson County Jail, Jersey City, N. J.
JOHN T. ROWLAND, JR., Architect



Shelby County Courthouse and Jail, Memphis, Tenn.
JONES & FURBRINGER, Architects

SOUTHERN PRISON COMPANY

MAIN OFFICE AND WORKS
SAN ANTONIO, TEXAS

BRANCHES
BIRMINGHAM, ALA. COLUMBUS, OHIO KANSAS CITY, MO. SAN FRANCISCO, CAL.

Products

Manufacturers and builders of JAILS and PRISONS: Steel Cells, Sliding Door Locking Systems, Modern Plumbing, etc., for State, county and municipal purposes, police stations, and hold-overs.

Also various kinds of Jail and Prison Equipment, Steel Grating, Cell Room Lining, Doors, Window Guards, Bunks, Hammocks, etc.

Experience

For about forty years the management of this company has been actively engaged in designing layouts; building and equipping jails and prisons, giving special attention to the proper classification of prisoners; perfection of interlocking tool and heat resisting steel cells; selective type, sliding door locking systems; and ventilated niche back, odorless sanitary plumbing fixtures—the most vital features in jail and prison construction.

Material

In the highest class cell work, we use our own special steel for the grating, having vertical and horizontal bars securely interlocked at each intersection without reducing the body of the bars at such intersections.

We also use for certain classes of work standard compound, or "five-ply" tool resisting material. Ordinary bessemer, or open hearth steel is used for minor work, such as partitions, hold-overs, etc.

Ventilation and Plumbing

Ventilation—Owing to the frequently crowded condition of jails we advocate that grating in cell walls be so arranged as to allow free circulation of air throughout, and in offering layouts, due consideration is given to climatic conditions in various sections of the country, as sufficient ventilation in one section might be entirely insufficient in another.

Plumbing—Cells are equipped with our special prison fixtures, with either the niche-seated receptacles, or the shielded odorless and ventilated installations.

Sliding Door Locking Systems

Our sliding door locking system operates all doors in the same row by means of one main lever or wheel drive, which is enclosed in a steel control box secured on outside of cage, making contact with the prisoners unnecessary.

By means of this control and the pressure of their respective indexes in the control box, not only may one door, or all doors in a row, be operated at the same time, but any number of them in any desired combination may be operated without disturbing any other door. Indexes in control box indicate by number at all times which doors are open and which are closed.

In addition, cell doors are securely locked in open position exactly the same as they are locked in closed position, thus making it impossible for prisoners to tamper with cell doors while open during daytime to allow prisoners to use exercise corridors, day rooms, etc.

Corridor Entrance Door, Locks, etc.

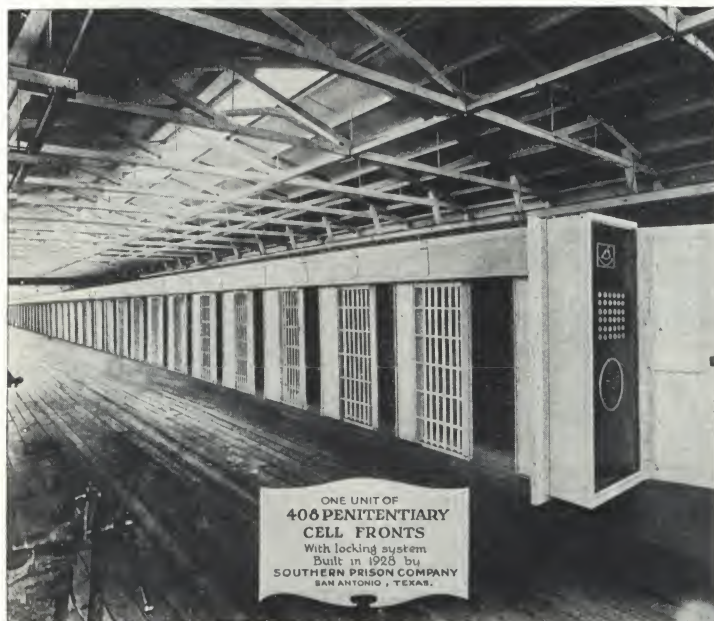
Entrance doors to prisoners' corridors are secured with tongue and groove at both vertical edges, from top to bottom, the tongue in the front edge being operated by a lever in the control box. In addition, the doors are provided with automatic locks. All door hinges are protected from the inside of cage.

Visaphone

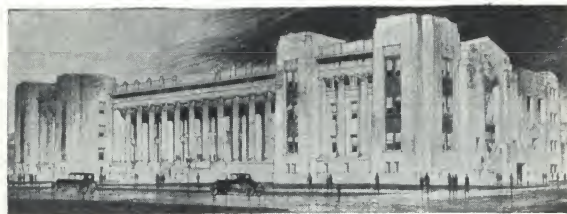
Visaphones are provided for visitors and prisoners to see and converse with each other, but at the same time preventing passage of articles of any sort from one to the other.

Service

We have representatives in various parts of the country, experienced in this special line of work, who will be glad at any time to call in person and submit, free of charge and without obligation on the part of architects, engineers and municipalities, designs and estimates on any requirements, and will cheerfully co-operate with interested parties in the preparation of specifications and layouts. Communicate with us.



Typical Cell Fronts, Straight Line Drive



Criminal Courts and Jail Building, New Orleans, La.
DIBOLL & OWEN, Architects



Wayne County Jail, Detroit, Mich.
AARON H. GOULD & SON, Architects

THE STEWART IRON WORKS COMPANY, INCORPORATED

Jail and Prison Builders

CINCINNATI, OHIO

Products

STEEL CELLS for penitentiaries, county jails, city jails, village lock-ups.

Hinge and Sliding Type Doors; Locking Devices; Gratings in toolproof, heatproof and Bessemer steels; Bunks, Iron Stairways and all other modern jail equipment.

For our pages on Iron and Chain Link Fences and Gates, see Manufacturers' Index.

Experience

Established in 1886, we have specialized in prison work for nearly fifty years, always keeping abreast of the latest methods and employing experts in every department, from the designing to the finished product.

Many exclusive features are embodied in the construction of Stewart-built prison work.



Factory, Covington, Ky.
(Opposite Cincinnati, Ohio)

Facilities

The plant covers a large ground area and contains over 350,000 sq. ft. of floor space.

Our equipment



Steel Cells in the Virginia State Penitentiary at Richmond, Va.
Manufactured and erected by THE STEWART IRON WORKS COMPANY, INCORPORATED

consists of the most modern machinery, jigs and tools of the most approved type for manufacturing jail and prison work of superior construction.

Our products have been approved by architects, city, county and State officials all over the country.

Materials

All steel utilized in our equipment or construction work is most carefully selected and is purchased in large tonnage from the best known producers of the various kinds of steel used in the different processes of high grade prison construction.

Service

While we do not compete with architects in making plans for prisons, we are always ready to extend to them our complete facilities and experience in designing work, when invited to do so. We solicit correspondence from architects, engineers, and municipalities and will gladly furnish designs, estimates, specifications and layouts to those interested.

Other Features

Many new and important features are included in the manufacture of Stewart Jails and Prisons. Let us present them to you.

A Partial List of Stewart Installations

United States Penitentiary, Atlanta, Ga.
United States Penitentiary, Ft. Leavenworth, Kan.
Virginia State Penitentiary, Richmond, Va.
Kentucky State Penitentiary, Eddyville, Ky.
Colorado State Penitentiary, Canon City, Colo.
Onondaga Penitentiary, Syracuse, N. Y.
Kansas State Reformatory, Hutchinson, Kan.
United States Reformatory, Chillicothe, Ohio
Allen County Jail, Fort Wayne, Ind.
St. Lawrence County Jail, Canton, N. Y.
O'Brien County Jail, Primghar, Iowa
Lyon County Jail, Rock Rapids, Iowa
Swain County Jail, Bryson, N. C.
Jefferson County Jail, Louisville, Ky.
Lawrence County Jail, Bedford, Ind.

Woodford County Jail, Versailles, Ky.
Greenup County Jail, Greenup, Ky.
Knox County Jail, Vincennes, Ind.
Albemarle County Jail, Charlottesville, Va.
Bertie County Jail, Windsor, N. C.
Wise County Jail, Wise, Va.
Russell County Jail, Lebanon, Va.
Tazewell County Jail, Tazewell, Va.
Mobile County Jail, Mobile, Ala.
Richmond County Jail, Richmond, Va.
Birmingham City Jail, Birmingham, Ala.
Hamilton County Jail, Cincinnati, Ohio
Dade County Jail, Miami, Fla.
Lake County Jail, Crown Point, Ind.
Multnomah County Jail, Portland, Ore.

FOUNDED 1872

THE VAN DORN IRON WORKS COMPANYTELEPHONE
RANDOLPH 6630Jail and Prison Builders
2685 East 79th Street, CLEVELAND, OHIO**Products**

STEEL JAIL AND PRISON CELLS
 WHITE DIAMOND TOOL-PROOF STEEL
 FULLY SELECTIVE KEYLESS LOCKING DEVICE
 INTERLOCKING AND COUNTERLOCKING GRATING
 AUDIBLE WINDOWS
 PRISON PLUMBING FIXTURES
 WINDOW GUARDS
 STEEL ENTRANCE DOORS, etc.

Experience

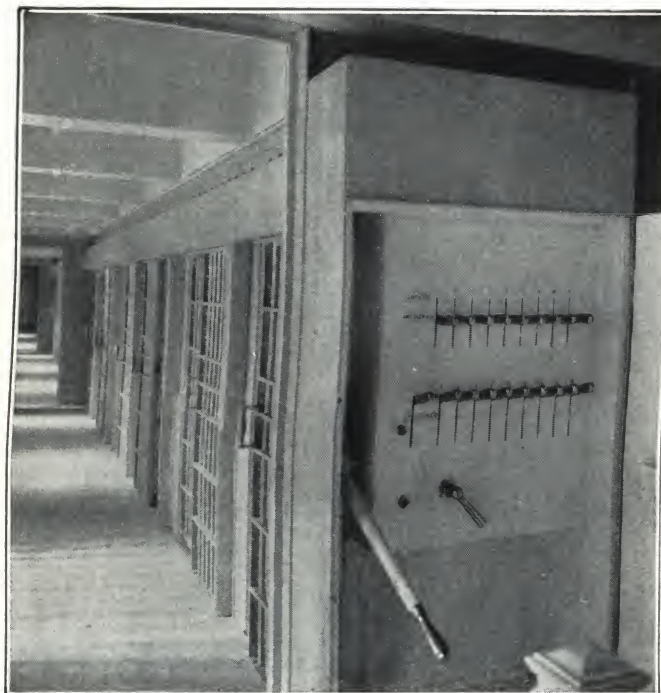
Manufacturers of steel jail and prison cell work for more than fifty years. Many of the largest and most important penal institutions in the world have either been built or are being built by this company.

A Few Van Dorn County Jail and Penitentiary Installations

Cook County Jail, Chicago, Ill.—1436 Cells
 Los Angeles County Jail, Los Angeles, Cal.—721 Cells
 Erie County Penitentiary, Wende, N. Y.—1170 Cells
 Maryland State Penitentiary and House of Correction—1746 Cells

Police Stations

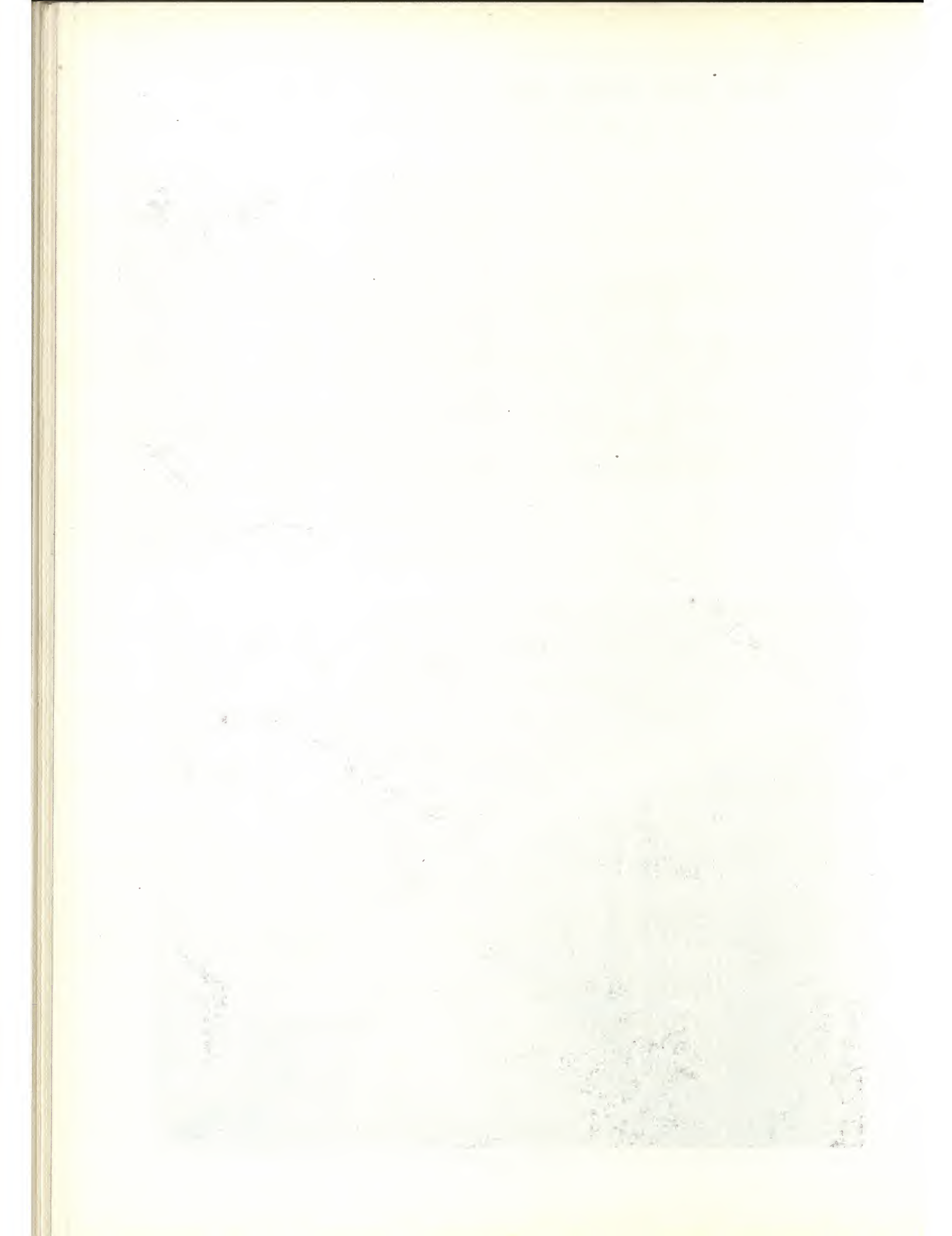
Baltimore, Md.—326 Cells
 Central Police Station, Chicago, Ill.—96 Cells
 Central Police Station, Cleveland, Ohio—105 Cells
 Borough of Queens, New York, N. Y.—224 Cells



Keyless Locking Device in Prisoners' Corridor



Typical Corridor View



PIPE AND FITTINGS DRAINAGE

American Brass Co.	C4654	Jones & Laughlin Steel Corp.	C4672-4673
American Foundry & Mfg. Co.	C4712-4715	Josam Mfg. Co.	C4744-4751
American Sewage Disposal Co., Inc.	C4699	Kaustine Co., Inc.	C4702
American Tube Works	C4655	Knight, Maurice A.	C4692-4693
Aten Sewage Disposal Co., Inc.	C4700-4701	Little Giant Mfg. Co.	C4698
Barrett Co.	C4733	Mahon, R. C., Co.	C4743
Boosey, Norman, Mfg. Co.	C4716-4732	Mueller Brass Co.	C4664-4669
Brayman Water-Tight Drain Co.	C4734	National Sanitary Engineering Co.	C4703
Bridgeport Brass Co.	C4656	New York Sewage Disposal Co.	C4706
Central Foundry Co.	C4682	Nustone Products Corp.	C4704-4705
Chase Brass & Copper Co., Inc.—		Pacific Foundry Co., Ltd.	C4694
Brass Pipe	C4659	Portland Iron Works.	C4752-4753
Copper Tubing	C4657-4658	Reading Iron Co.	C4674-4675
Cohoes Rolling Mill Co.	C4670	Republic Steel Corp.	C4676-4677
Compound Injector & Specialty Co.	C4736-4737	Revere Copper and Brass Inc.	C4663
Conklin, T. E., Brass & Copper Co., Inc.	C4660	Rile Co., Inc.	C4754-4755
Copper and Brass Research Assn.	C4652-4653	San-Equip Inc.	C4708-4709
Covert, H. W., Co.	C4735	Simpson, R. D., Co.	C4707
Crampton-Farley Brass Co.	C4738-4739	Spang, Chalfant & Co., Inc.	C4678-4679
Donovan, John J.	C4740-4741	Standard Cement Construction Co.	C4710
Duriron Co., Inc.	C4684-4691	Stroudsburg Septic-Tank Co.	C4711
Foster Wheeler Corp.	C4661	Superior Skylight Co., Inc.	C4756-4757
General Ceramics Co.	C4683	U. S. Stoneware Co.	C4695
Harty, R. V., Co.	C4742	Wade Iron Sanitary Mfg. Co.	C4758
Hays Mfg. Co.	C4662	Wheeling Steel Corp.	C4671
Jenkins Bros.	C4696-4697	Youngstown Sheet & Tube Co.	C4680-4681

PLUMBING

COPPER AND BRASS RESEARCH ASSOCIATION

25 Broadway, NEW YORK, N. Y.

MIDWESTERN OFFICE

Builders' Building
CHICAGO, ILL.

CANADIAN OFFICE

67 Yonge Street
TORONTO, ONT.

SOUTHERN OFFICE

Shoreham Building
WASHINGTON, D. C.

PACIFIC COAST OFFICE

Architects Building
LOS ANGELES, CAL.

Brass and Copper Pipe

Brass and copper pipe and tube are made in many sizes, weights and mixtures for all purposes. They cost more than corrodible pipe, but are in general superior. Instances of exceptional service imposed on brass and copper under severe conditions are their use in condenser tubes, heating coils, boiler tubes and salt water lines.

Brass pipe gives a clean, pure, wholesome, full flow of water—gives it for generations—because for durability in water supply service it is unequalled.

Copper Water Services

Copper is used for service pipes from water mains to buildings, because it is easy to install and eliminates rust troubles and replacement.

The scientific knowledge and the practical experience of our Research and Building Service Departments are at your disposal. We will be glad to consult with you on all problems pertaining to the uses and applications of Copper, Brass and Bronze.

I. P. S. Brass Pipe

Brass (and copper) pipe used for water supply in buildings is of standard pipe size (iron pipe size). It is made in 12-ft. lengths, unthreaded, and is tested to 1000 lb. per sq. in. at the factory. It is sold by weight.

Most fittings are sold by the piece; some are sold by the pound. Weights of brass and copper pipe are given in the table below.

Specifications for Brass (or Copper) Pipe

All water-supply piping shall be of seamless-drawn, semi-annealed brass [copper] of approved manufacture. Each length shall be marked with the manufacturer's name and trade-mark. All fittings shall be of cast brass, malleable pattern, the product of an approved manufacturer.

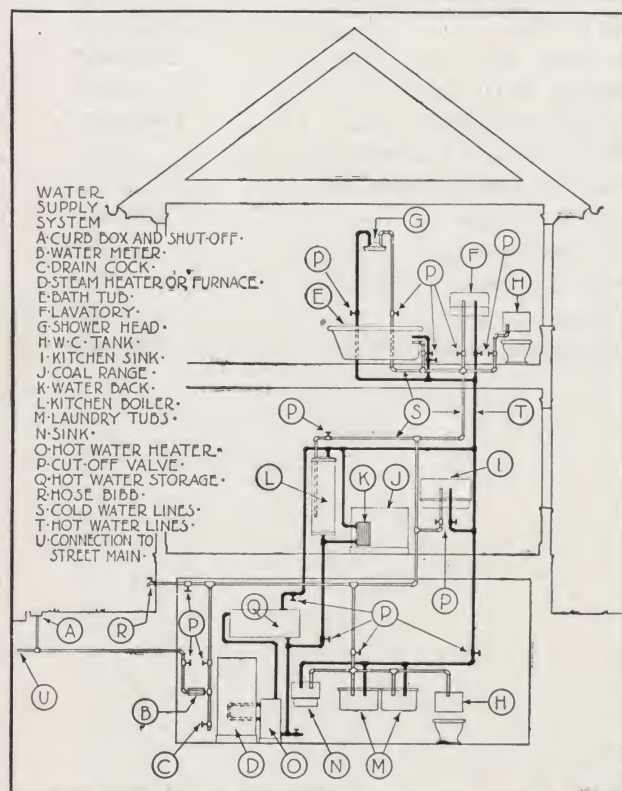
Special Conditions

Where salt water is to be piped or other severe or unusual conditions prevail, architects, building contractors and plumbers are invited to consult the technical staff of the Association.

WEIGHT OF STANDARD SEAMLESS BRASS AND COPPER PIPE
(REGULAR) (IRON PIPE SIZE)

Standard size	Diameter, in.		Pounds per foot*	
	Outside	Inside	Brass	Copper
1/8	.405	.281	.246	.259
1/4	.540	.375	.437	.459
3/8	.675	.494	.612	.644
1/2	.840	.625	.911	.958
3/4	1.050	.822	1.235	1.298
1	1.315	1.062	1.740	1.829
1 1/4	1.660	1.368	2.557	2.689
1 1/2	1.900	1.600	3.037	3.193
2	2.375	2.062	4.017	4.224
2 1/2	2.875	2.500	5.830	6.130
3	3.500	3.062	8.314	8.741
3 1/2	4.000	3.500	10.85	11.41
4	4.500	4.000	12.29	12.93
4 1/2	5.000	4.500	13.74	14.44
5	5.563	5.062	15.40	16.19
6	6.625	6.125	18.44	19.39
7	7.625	7.062	23.92	25.15
8	8.625	8.000	30.05	31.60
9	9.625	8.937	36.94	38.84
10	10.750	10.019	43.91	46.17

*These weights vary somewhat in practice.



The Water Supply Unit

Plumbing Literature

"Practical Brass Pipe Plumbing"—A complete handbook, 5½x8½ in., covering the methods of installing brass pipe, the tools to use and other technical information concerning the work and the materials. It is fully illustrated.

"Brass Pipe and Health"—Relates the adaptability and healthful service qualities of brass pipe for water supply in buildings of every character.

These books will be forwarded upon request.

SOME USES OF COPPER AND BRASS FOR PLUMBING

- | | |
|------------------|-------------------------|
| 1. RANGE BOILERS | 5. TUBES |
| 2. WATER HEATERS | 6. PIPE FITTINGS |
| 3. STORAGE TANKS | 7. PLUMBING FIXTURES |
| 4. PIPES | 8. PLUMBING ACCESSORIES |



New York Telephone Company Building
McKENZIE, VOORHEES & GMELIN, Architects

Copper, Brass and Bronze Plumbing in a Modern Skyscraper

In the magnificent new building of the New York Telephone Company at 140 West Street, New York, N. Y., brass pipe is used not only in all hot and cold water lines 3 in. and smaller, but also for the main supplies of the drinking water system. In fact, the major part of all the water pipe used is brass.

To avoid excess pressures the water supply of the building is divided into three sections. The basements



**Interior of Brass Pipe—Note the Absence of
Rust Scale After 30 Years' Service**

Taken from the old building of the Continental Insurance Co., New York, after 30 years of service without repairs



**After 30 Years' Service, Outside of Brass Pipe
at Connection—Note the Perfect
Condition of the Thread**

Taken from the old building of the Continental Insurance Co., New York, after 30 years of service without repairs

and first floor receive water direct from the city mains. To supply the upper stories there are tanks located on the seventeenth and thirty-second floors. All piping used in these tanks is made of brass. The floats which control the automatic switches are made of copper and are fastened to woven bronze cables. The switches themselves are enclosed in brass cases for protection against dampness.

Hot water to the 140 West Street building is supplied by five automatic heaters equipped with copper and brass tubing. And for the water supply to the steam boilers brass pipe is used up to 3½ in.

THE AMERICAN BRASS COMPANY

Manufacturers of Anaconda Brass, Copper and Nickel Silver Pipe
WATERBURY, CONNECTICUT

For Mills, Factories, Offices and Agencies, see our page on Sheet Copper

Products

ANACONDA "67" BRASS PIPE; ANACONDA "85" RED-BRASS PIPE; ANACONDA NICKEL SILVER PIPE; ANACONDA DEOXIDIZED COPPER TUBES.

"BROWN & BROTHERS" SEAMLESS DRAWN COPPER RANGE BOILERS.

Also Nickel or Chromium Plated Brass Pipe.

For pages on ANACONDA Architectural Extruded and Drawn Shapes, Sheet, Roll and Strip Copper, and Everdur Metal, see Manufacturers' Index.



Different Water Conditions Require Different Brass Pipe Alloys

The need of going farther afield for water supplies following the growth of urban population, and the growing tendency to treat waters for purity as well as taste, often changes the *character* of the water, which has a direct effect on the durability of pipe materials.

Recognizing that the corrosiveness of water varies greatly, depending on the source and treatment of the supply, THE AMERICAN BRASS COMPANY determined by a series of exhaustive tests and experiments the exact alloys of copper and zinc which most effectively resist various degrees of water corrosion. Many different alloys of pipe, containing from 60% copper and 40% zinc to pure copper, were exposed to the action of highly corrosive water, at a temperature of 70° F. For ten years these pipes remained under the observation of trained metallurgists, and, at the conclusion of the tests, samples were examined and analyzed.

Six years more were spent in checking results by practical tests, and as a result of this 16 years' investigation, THE AMERICAN BRASS COMPANY recommends the use of ANACONDA "85" Red-Brass Pipe for highly corrosive waters and ANACONDA "67" Brass Pipe for normally corrosive waters.

These two grades of brass pipe meet the requirements of U. S. Government Specifications for grades A and B respectively.

Anaconda "67" Brass Pipe

This brass pipe alloy is recommended for distribution lines in the many localities where normal water conditions prevail; that is, when waters are not drawn from peaty sources, shallow wells, tubular wells or filter galleries in lowlands along river beds, and where filtered waters are not of high permanent hardness. ANACONDA "67" Brass Pipe offers permanent immunity to rust-clogged lines which retard the flow of water. Its use for hot and cold water systems effects important economies for the building owner through reduced repair and maintenance expenses.

ANACONDA "67" Brass Pipe meets U. S. Government Specifications for grade B pipe. It contains 67% copper, is semi-annealed, seamless and guaranteed structurally sound and physically perfect.

"Brown & Brothers" Seamless Drawn Copper Range Boilers

THE AMERICAN BRASS COMPANY, having acquired the business formerly conducted by The Randolph-Clowes Company, is continuing the production of the well-known "Brown & Brothers" Seamless Drawn Copper Range boilers.

Anaconda "85" Red-Brass Pipe

The perfect condition of all installations of ANACONDA "85" Red-Brass Pipe substantiates laboratory results, indicating that this is the highest quality corrosion-resisting pipe commercially obtainable.

This pipe is unqualifiedly recommended for distribution lines carrying ground waters and colored surface waters, particularly when drawn from sources of peaty origin, and mechanically filtered waters which may be high in carbonic acid content and low in alkalinity. Also for underground service lines with threaded fittings.

ANACONDA "85" Red-Brass Pipe meets every requirement of the U. S. Government Specifications for grade A pipe. It contains 85% copper, is semi-annealed, seamless and guaranteed structurally sound and physically perfect.

Anaconda Nickel Silver Pipe

ANACONDA Nickel Silver is a white metal composed of copper, nickel and zinc. It is furnished in a wide range of alloys, including Benedict Nickel and Ambrac. ANACONDA Nickel Silver is used in preference to plated metal for exposed piping because it is white clear through, rustless, and has no coating to chip, peel or wear off.

Anaconda Deoxidized Copper Tubes

Deoxidized Copper Tubes for use with threadless fittings are available in straight lengths of 20 ft. and in coils of 45 and 60 ft.

ANACONDA Copper Tubes are made from specially deoxidized copper which improves the physical qualities and corrosion-resistance. Because of their flexibility and the ease with which they are installed, these tubes are advantageously used for service and other underground lines, sprinkler systems, oil burner installations and industrial piping.

Service to Architects

The Technical Department of THE AMERICAN BRASS COMPANY has on hand reliable data on water conditions in many sections of the country, which is available to interested architects. If specific information on water conditions in any locality is not available, THE AMERICAN BRASS COMPANY is prepared to assist in determining the character of the water and recommend the proper grade of pipe to use.

Permanent Identification

The name "ANACONDA" and the numerals "67" and "85" designating the kind of pipe are rolled in the metal every 12 in. This method of marking affords permanent identification and protection for the architect and owner. In addition, a label (reproduced above) is applied to every length. The trademarks "67" and "85" are registered in the United States Patent Office.

Sizes and Deliveries

ANACONDA "67" Brass, "85" Red-Brass and Copper Pipe are made in standard pipe sizes, both regular and extra heavy. Special commercial sizes and gauges can be made to specifications.

ANACONDA Pipe is manufactured and stocked at the mills of THE AMERICAN BRASS COMPANY in Waterbury and Torrington, Conn.; Buffalo, N. Y.; Detroit, Mich.; Kenosha, Wis.; New Toronto, Ontario, and is sold through leading plumbing material distributors everywhere.

This boiler is constructed of two seamless cold drawn shells of ANACONDA Copper and is assembled without a longitudinal seam. Manufactured in capacities of from 30 to 300 gallons.

ESTABLISHED 1851

AMERICAN TUBE WORKS

Seamless Drawn Brass and Copper Pipe

10 Oliver Street, BOSTON, MASS.

NEW YORK, N. Y.

PHILADELPHIA, PA.

Products

SEAMLESS DRAWN BRASS and COPPER PIPE.

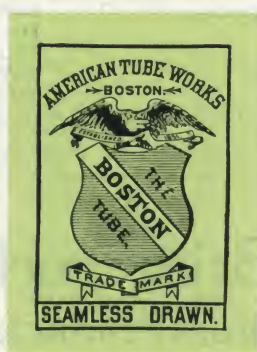
Original American Manufacturers of Seamless Drawn Brass and Copper Pipe

For 50 years every length of our brass and copper pipe, iron pipe sizes, has been stamped "A. T. W. Boston" on each end, has borne our green trade-mark as shown below and has been absolutely guaranteed.

Superiority of "A. T. W. Boston" Pipe

The illustrations below are photo-

graphs of brass pipe exhibited at the Sanitary and Efficiency Show held at Pittsburgh, Pa., during the 38th annual convention of the National Association of Master Plumbers. They are given simply to show that seamless drawn pipes made by the exclusive process of the AMERICAN TUBE WORKS (at left of illus-



TRADE-MARK

tration) will stand, before bursting, a pressure which expands the pipe greatly beyond its original diameter—a pressure exceeding by many times any pressure not due to accident or to any extremely severe test. They also show that some seamless drawn brass pipes (at right of illustration and not made by the AMERICAN TUBE WORKS process) do not expand and burst, but simply give way by splitting.

All brass pipe is far superior to iron and steel in non-corrosive quality, but some brass pipe is more reliable than others and more durable under pressure.

"A. T. W. Boston" pipe is tested to

1000 lbs. pressure before leaving the mill. It is positively guaranteed not to split. When specifying this pipe, please call for "American Tube Works Brass Pipe." We shall be pleased to furnish upon application a complete set of our architects' samples of seamless brass pipe, standard iron pipe sizes with weight per foot stamped on each piece, and threaded with standard thread.



Every Length Is Stamped "A. T. W. Boston" on Each End and Bears Our Trade-Mark

DIMENSIONS AND WEIGHT OF "A. T. W. BOSTON" SEAMLESS DRAWN BRASS, COPPER AND RED BRASS PIPE

Iron pipe sizes, in.	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Outside diameter, in.	.405	.540	.675	.840	1.05	1.315	1.66	1.90	2.375	2.875	3.50	4.00	4.50	5.00	5.563	6.625	7.625	8.625	9.625	10.750	12.750
Inside diameter, in.	.281	.375	.494	.625	.822	1.062	1.368	1.60	2.062	2.50	3.062	3.50	4.00	4.50	5.062	6.125	7.062	8.000	8.937	10.019	12.000
Approx. weight per lineal ft., lbs.:																					
Brass	.246	.437	.622	.911	1.240	1.740	2.560	3.040	4.020	5.830	8.310	10.850	12.290	13.740	15.400	18.440	23.920	30.050	36.940	43.910	53.710
Red Brass, 85-15	.253	.450	.630	.938	1.270	1.790	2.630	3.130	4.140	6.000	8.560	11.170	12.660	14.150	15.850	18.990	24.630	30.950	38.020	45.200	55.270
Copper	.259	.460	.643	.957	1.300	1.830	2.690	3.20	4.230	6.140	8.750	11.410	12.940	14.460	16.200	19.410	25.170	31.630	38.850	47.380	56.562

BRIDGEPORT BRASS COMPANY

Manufacturers of Electric Furnace Brass Pipe

BRIDGEPORT, CONN.

CABLE ADDRESS
"BRASSPORT"

BRANCH OFFICES

NEW YORK, N. Y., Farmers Loan & Trust Co. Building
CHICAGO, ILL., 2016 Palmolive Building
CLEVELAND, OHIO, 1969 East 119th Street
DETROIT, MICH., 12-217 General Motors Building
NEWARK, N. J., 325 Jelliff Avenue

PHILADELPHIA, PA., Bankers Trust Building
BOSTON, MASS., 1060 Park Square Building
PROVIDENCE, R. I., 70 Clifford Street
DAYTON, OHIO, 1327 Third National Building
BUFFALO, N. Y., 623 Genesee Building

LOUISVILLE, KY., 428 Inter-Southern Building

Large Stocks of Pipe Carried in Bridgeport, Newark, Providence and Cleveland

Products

BRIDGEPORT PLUMRITE BRASS and COPPER PIPE; COPPER WATER TUBING.

Also: Brass, Bronze and Copper Seamless Tubes; Copper Heater Tubes; Brass Condenser Tubes; Copper, Brass and Bronze Sheet, Rod and Wire.



Service to Architects and Engineers

Our technical staff is at the disposal of architects and engineers to help them recommend the proper alloy to use for certain locations. This service is available without charge.

Bridgeport Plumrite Brass and Copper Pipe

The superiority of brass and copper pipe for use in plumbing is so well known and has been so universally accepted as the best practice that it need not be discussed here. For the ultimate consumer, who is concerned mainly with the problem of obtaining from a reliable source of supply first class, dependable material that has had a long record of good service behind it, it will suffice to state briefly that BRIDGEPORT BRASS COMPANY has been in the brass business since 1865, a period of 65 years. All the Bridgeport brass and copper pipe for plumbing is trade-marked "Plumrite." Our records enable us to trace back specific instances of early installations in which Plumrite brass pipe has given almost a half century of satisfactory, useful life, which terminated with the demolishing of the buildings in question.

All Bridgeport Plumrite brass and copper pipe is made in electric furnaces and is fabricated in accordance with the best brass mill practice. The finished pipe is furnished in a semi-annealed or soft condition unless special requirements demand a pipe which must take exceptionally severe bends when cold. All pipe is subjected to an internal pressure test of 1000 lbs. per sq. in. at the factory and is carefully inspected to make sure that only high grade material is shipped.

Use the Correct Alloy to Meet Water Conditions

Owing to the fact that water conditions, as far as corrosive action is concerned, vary in different parts of the country, it has been found from experience that certain brass mixtures give better satisfaction and longer life than others. To protect the consumer, who can tell at a glance as to the kind of alloy he is getting, our trade-mark Plumrite, together with the name or percentage of copper, is stamped on each length 9 in. apart, as shown in the illustrations.

We make the following recommendations:

Bridgeport Plumrite Standard

For general good water conditions. Contains approximately 60% copper and 40% zinc. Made by hot working or hot forging process, which refines the grain of the metal and increases its ductility. It is inherently harder and physically stronger than any other of the brass pipe alloys by upwards of 7000 lbs. per sq. in. tensile strength. It threads easily and



freely and does not crush under the action of a vise. Large sized pipe can be bent easily when heated to a dull red heat. It has had an enviable record of long and reliable service and meets A.S.T.M. Specifications B 43-24; U. S. Government Master Specification 342 A, Grade C; and U. S. Army Specification 83-5A, Grade C.

Bridgeport Plumrite 67%

For general good water conditions. Contains 65 to 68% copper. Meets A.S.T.M. Specifications B 43-24; Navy 44P-12, Grade B; U. S. Government Specifications Grade B; and U. S. Army Specifications 85-5A. Can be bent only when cold.



Bridgeport Plumrite Admiralty

For salt water conditions. Recommended for hot and cold sea water, such as is used in some of the Atlantic City hotels. This alloy contains approximately 70% copper, 1% tin and 29% zinc and resists this type of corrosion remarkably well.



This type of alloy is used by both United States and British Navies for condenser tubes. Meets A.S.T.M. Specifications B 44-24 and Navy 44-B-7E.

Bridgeport Plumrite 85%

For corrosive water conditions. Recommended for conditions where water is polluted with acid mine wastes or with organic acid found in peaty soils or with chemicals that purify and soften water. This alloy is very strong and ductile and is becoming increasingly popular for use in underground service lines. Contains approximately 85% copper and 15% zinc.



Also known as red brass. Meets U. S. Navy Specifications 44-P-12 Grade A; U. S. Government Master Specification No. 342 A; and U. S. Army Specification No. 35-5A.

Bridgeport Plumrite Copper

Recommended for corrosive water conditions and for underground service lines. It has not quite the strength nor the corrosion resistance that is possessed by Plumrite 85%. Con-



tains approximately 99.9% copper. Meets A.S.T.M. Specifications B 42-24; U. S. Navy Specification No. 44-P-2C; U. S. Government Master Specification No. 287.

Bridgeport Copper Water Tubing

This is furnished generally in coils and has a wall thickness which is considerably thinner than copper pipe, iron pipe size. Used in connection with compression fittings.



Booklets for Distribution

Water Pipe Sizes—a booklet containing formulae and tables for determining the pipe sizes for water pipes in buildings. It is very useful to engineers for their pipe layouts.

Plumrite Brass Pipe—contains many illustrations of some of our latest installations in the newest of the modern skyscrapers and important buildings.

Bridgeport Copper Water Tubing—a booklet describing this material in detail.

CHASE FLEXIBLE COPPER WATER TUBING

CHASE BRASS & COPPER CO.,
—INCORPORATED—

WATERBURY, CONN.

NEW YORK, N. Y., 80 Lafayette Street
BOSTON, MASS., 411 "D" Street
BUFFALO, N. Y., 25 Ellicott Street
NEWARK, N. J., 361 Halsey Street
PHILADELPHIA, PA., 46 North 6th Street
BALTIMORE, MD., 307 E. Lombard Street
MINNEAPOLIS, MINN., 145 No. 10th Street

PITTSBURGH, PA., 855 North Avenue, West
CINCINNATI, OHIO, 222 Post Square
CLEVELAND, OHIO, 5005 Superior Avenue
DETROIT, MICH., 2798 E. Grand Boulevard
CHICAGO, ILL., 1300 W. Harrison Street
MILWAUKEE, WIS., 512 North Water Street
SEATTLE, WASH., 1957 First Avenue, South

ST. LOUIS, MO., 314 North 2nd Street
NEW ORLEANS, LA., 429 Camp Street
DALLAS, TEX., 1407 Main Street
LOS ANGELES, CAL., 210 Central Avenue
SAN FRANCISCO, CAL., 680 Second Street
OAKLAND, CAL., 1808 Peralta Street

For Chase pages on Copper Roofing Materials and Door Saddles, Chase Bronze and Copper Screen Cloth, and Brass Pipe, see Manufacturers' Index

Chase Flexible Copper Water Tubing

A pure *flexible* copper tubing used with compression fittings, primarily for easy and economical replacement of wornout house water lines but adaptable to many other uses. Being 99.9% pure copper it cannot rust; it bends readily, yet is hard enough not to dent or flatten easily. It is freeze-proof and heat-proof. It will stand over 2000-lb. water pressure. It is quick to install because it requires no threading and comes in 60-ft. lengths up to the $\frac{3}{4}$ -in. size which includes the most used sizes, and above that, in 20-ft. lengths.



The same identical type of tubing and fittings has come into quite general use for water service lines from street mains to house meters, and on country estates for service lines from springs and artesian wells.

Flexibility

It can be bent around corners and snaked down through partitions. It will bend to radii of 6 in. and larger, without kinking.



Ability to Stand Pressures

Every length of Chase copper water tubing up to $\frac{3}{4}$ in. is tested to 2000 lb. hydrostatic pressure. (Average city water pressure is 60 to 120 lb.) Sizes above $\frac{3}{4}$ in. are tested to 1500 lb. A line of copper water tubing connected with standard Chase compression fittings, withstood an actual pull of over 2500 lb. without showing any signs of leakage. It has a factor of safety of at least 30.

Freeze-proof—Heat-proof

Freezing water will expand Chase copper water tubing but will not crack it. In an actual test, seven successive freezings expanded the outside diameter of $\frac{3}{4}$ in. Chase copper water tubing about .218 in. but the walls did not crack. It will stand any temperature up to 400° F. (Water boils at 212° F.).

Applications

Rapid strides have been made during the past two years in the use of this new flexible copper water tubing. References to thousands of satisfactory installations can be furnished. Similar material has been used successfully for years, in England and on the Continent.

Ease of Bending Chase Copper Tubing

One knee on the tubing, a succession of short and easy pulls, and a corner is turned without an elbow and without cutting, threading, or time spent in assembling

How It Works

The only tools required for installing Chase copper water tubing are, a hammer, hacksaw, reamer or file, wrench and proper sized flanging tools.

On the average job the plumber throws a coil of tubing on his shoulder and carries all necessary tools in one hand.

Starting at the highest floor to which water is to be carried, he slips a sleeve nut on the tubing, flanges the tube and pulls the sleeve nut up to the body of the fitting with a monkey wrench.



A Chase Copper Water Tubing Plumber

Fully equipped to make an installation



Sectional View of the Flanged Tubing with a Chase Copper Water Tube Union



Snaking Chase Flexible Copper Tubing through the Floor

After a small passageway has been opened through fire stops on the lower floors, one continuous length of flexible copper water tubing can be snaked from the top floor to the cellar.

Then he pushes his tubing down between the partitions to the cellar, cutting in compression tees for lateral take-offs on the lower floors.

In the cellar and likewise under flooring in the upper stories, he *bends* the tubing around corners and obstructions instead of using elbows, which eliminates a lot of fittings and saves labor—no threading, no scrap ends of pipe, fewer fittings.

Where You Can Get It

Chase copper water tubing is distributed exclusively through plumbing supply jobbers who can get it promptly from any one of our eighteen branch warehouses listed at the top of the preceding page.

Compression Fittings

Principal fittings only are illustrated here. Our complete line includes every size and type that would be needed for hooking up an all-new job or replacing only a part of an old installation and connecting up to rigid iron, steel or brass pipe already installed.



**Compression Tee
No. 211**



**Compression
Union No. 201**



**Compression
Elbow No. 207**

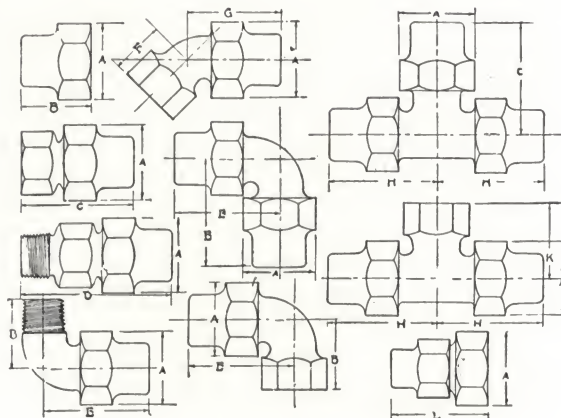
STANDARD SIZES AND LENGTHS

Nominal size, i.d. in.	Actual outside diam., in.	Actual wall thickness, in.	Approx. weight per lin. ft., lb.	Lengths
$\frac{3}{8}$	$\frac{1}{2}$.049	.269	60-ft. coils 45-ft. coils 20-ft. straight lengths
$\frac{1}{2}$	$\frac{5}{8}$	.049	.343
$\frac{3}{4}$	$\frac{7}{8}$	.049	.415
$\frac{3}{4}$	$\frac{7}{8}$	.065	.640
1	$1\frac{1}{4}$.065	.838	20-ft. straight lengths only
$1\frac{1}{4}$	$1\frac{3}{8}$	.065	1.04
$1\frac{1}{2}$	$1\frac{5}{8}$	.072	1.36
2	$2\frac{1}{4}$	.083	2.06

Shut-offs, faucets, toilet connections, and hot water boiler hook-ups can be quickly and easily accomplished with Chase tube and compression fittings.

Dimensions of Chase Compression Fittings

The outline drawings and table below will be found useful in figuring exact space requirements for fittings in a plumbing installation.



Size, in.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
A	$1\frac{3}{16}$	$1\frac{1}{2}$	$1\frac{9}{16}$	$1\frac{11}{16}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{7}{8}$	$3\frac{3}{8}$
B	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$2\frac{1}{4}$	$2\frac{5}{8}$	$2\frac{5}{8}$	$3\frac{3}{8}$
C	$1\frac{7}{8}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$3\frac{3}{8}$	4	$4\frac{1}{8}$	5
D	$2\frac{5}{8}$	$2\frac{3}{4}$	$3\frac{3}{8}$	$3\frac{1}{2}$	$3\frac{1}{2}$	5	5	$5\frac{7}{8}$
E	$1\frac{3}{4}$	$2\frac{1}{8}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{3}{4}$	4	$4\frac{1}{16}$
F	$1\frac{1}{8}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{11}{16}$	$1\frac{3}{4}$	2
G	$1\frac{5}{8}$	$1\frac{3}{4}$	2	$2\frac{3}{16}$	$2\frac{1}{8}$	$3\frac{7}{16}$	$3\frac{1}{2}$	$4\frac{1}{16}$
H	$1\frac{3}{4}$	$1\frac{5}{8}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{1}{16}$	$4\frac{1}{16}$	5
K	$1\frac{3}{8}$	$1\frac{7}{8}$	$1\frac{13}{16}$	$1\frac{13}{16}$	$2\frac{3}{8}$	$2\frac{5}{8}$	$4\frac{1}{4}$	$3\frac{1}{16}$
L	$1\frac{3}{8}$	2	$2\frac{1}{4}$	$2\frac{1}{4}$	$3\frac{1}{8}$	$3\frac{5}{8}$	$4\frac{1}{4}$	5

Guaranteed

"*Tube and Fittings by Chase*" means one guarantee on both materials. Our name and trade-mark are stamped in every foot of genuine Chase Copper Water Tubing. Chase fittings also carry our trade-mark.

The Chase District Office nearest to you will be pleased to furnish further details upon request.



Typical Cellar Replacement Job

Note the complete absence of elbows at the corners, which means that a lot less labor and fewer fittings are required.

CHASE ALPHA BRASS PIPE

CHASE BRASS & COPPER CO.

—INCORPORATED—

WATERBURY, CONN.

NEW YORK, N. Y., 80 Lafayette Street
 BOSTON, MASS., 411 "D" Street
 BUFFALO, N. Y., 25 Ellicott Street
 NEWARK, N. J., 361 Halsey Street
 PHILADELPHIA, PA., 46 No. 6th Street
 BALTIMORE, MD., 307 E. Lombard Street
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PITTSBURGH, PA., 855 North Avenue, West
 CINCINNATI, OHIO, 222 Post Square
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 MILWAUKEE, WIS., 512 North Water Street

ST. LOUIS, MO., 314 No. 2nd Street
 NEW ORLEANS, LA., 429 Camp Street
 DALLAS, TEX., 1407 Main Street
 LOS ANGELES, CAL., 210 Central Avenue
 SAN FRANCISCO, CAL., 680 Second Street
 OAKLAND, CAL., 1808 Peralta Street
 SEATTLE, WASH., 1957 First Avenue, So.

Products

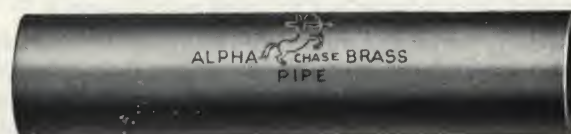
ALPHA BRASS PIPE.

For Chase pages on Copper Roofing Materials and Door Saddles, Bronze and Copper Screen Cloth, Copper Water Tubing and Compression Fittings, see Manufacturers' Index.



Guarantee

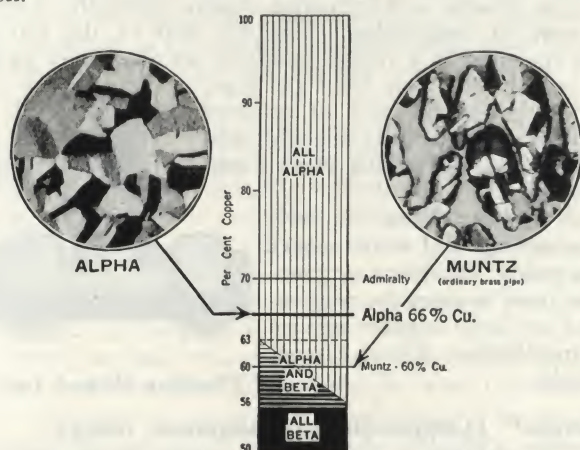
Alpha Brass Pipe is fully guaranteed. Defective pipe will be replaced free of charge and if any is found to be defective after it is installed we will pay for new pipe and all reasonable labor costs for removal and reinstalling it.



Differences in Brass Pipes

All brasses, while smooth as glass to the naked eye, are in reality made up of hundreds of thousands of minute irregular shaped particles which in metallurgy are known as "crystals."

There are two distinct types of crystals in some brasses, one, rich in copper with clean cut surfaces and sharp corners, is called "*Alpha*" (Greek: "the first"). The other, poorer in copper and not as regular in shape, is called "*Beta*." Alpha crystals are tough, dense and highly resistant to corrosion. Beta crystals are poorer in copper and are considerably less resistant to corrosion.



Brasses that contain from 56% to 63% copper are made up of both Alpha and Beta crystals. Below 56% copper the resultant brass will be entirely "Beta" and above 63% it will be all "Alpha."

There are two general kinds of brass pipe. One is made of 60% copper and 40% zinc and, as explained above, contains both Alpha and Beta crystals. Alpha Brass Pipe contains approximately 66 $\frac{2}{3}$ % copper and 33 $\frac{1}{3}$ % zinc, and is made up entirely of Alpha crystals.

That is where our Alpha Brass Pipe gets its name; it contains only Alpha crystals that are superior in resistance to corrosion.

Specifications for Brass Pipe

The following form of specification is short and to the point, yet broad enough to insure getting the best for your clients as well as material that the plumber likes.

(1) Pipe—

All hot and cold water supply lines shall be semi-annealed, standard pipe size, brass pipe, containing over 65% copper. The following make is approved:

Alpha Brass Pipe

All pipe must be reamed to remove burrs and cut into the pipe wall so as to slightly flare the opening.

Every length of pipe shall bear the trade-mark or name of the manufacturer and must have been tested to at least 2000 lb. hydrostatic pressure.

Exposed supplies to fixtures shall be chromium [or nickel] plated.

(2) Fittings—

All fittings shall bear the name or identifying mark of a reputable manufacturer and shall contain not less than 70% copper. "Cast" pattern fittings shall be used on all lines 2 in. and larger in diameter; "malleable" pattern fittings may be used on lines 1 $\frac{3}{4}$ in. and smaller.

Each fitting must have been tested to at least 100 lb. air pressure under water, to detect casting defects.

(3) Installation—

All pipe shall be installed in a manner that will permit expansion and contraction without harm to the pipe or joints. Pipe bends must not be left under tension.

No wicking or packing shall be used in joints. Joint compounds, if used, must be applied to pipe threads, not to fittings. No wrenches or tools that will score the pipe shall be used.

T. E. CONKLIN BRASS & COPPER CO., INC.

TELEPHONE
WALKER 7500

54-60 Lafayette Street
NEW YORK, N. Y.

Member of Copper and Brass Research Association

Products

ARCHITECTURAL BRONZE, BRASS, COPPER and NICKEL SILVER in the form of Sheets, Rods, Tubes, Wire, Angles, Channels and Extruded Shapes.

BRASS PIPE.

COPPER TUBING and SERVICE PIPE.

RED BRASS SERVICE FITTINGS.

SCREWS, BOLTS, NUTS, WASHERS and RODS of "Everdur."

BRONZE and COPPER SCREEN CLOTH.

Large Stocks for Immediate Delivery

We carry one of the largest stocks of architectural bronze, brass, copper and nickel silver in the East with a variety second to none. Quick shipments and deliveries are thus made possible, regardless of the geographical location of the job or contractor.

In addition to the above we always have on hand for prompt shipment large stocks of rivets and burrs; copper wire and cut nails for slating, roofing and boat building; brass escutcheon pins; bronze and copper tacks; soldering irons, etc.

Bronze

Sheets—Half hard patent leveled and square edged; acid dipped patent leveled.

Rolls—Soft commercial in continuous rolls.

Strips—Commercial drawn with square corners.

Rods—Round, half round, square, rectangular, and hexagon. Round and hexagonal Naval bronze rods.

Tubes—Round, square and rectangular.

Wire—Half hard round and flat.

Channels and Angles—With square edges.

Phosphor Bronze—Sheets, rods and wire.

Brass

Sheets—Rich low, half hard, patent leveled and square edged.

Rolls—For spinning and deep drawing.

Strips—Flat and in coils.

Rods—Round, square, hexagon, half round and half oval.

Tubes—Round, square, rope, reeded and rectangular.

Wire—Hard, spring and rich low soft; high and low round, half round, square and flat.

Angles and Channels—With square edges.

Copper

Sheets and Rolls—Hot rolled; cold rolled; plain, polished or tinned. Sheet and roll copper for roofing and flashing.

Rods—Round, square and rectangular.

Tubes—Round, square, rope, reeded and rectangular.

Wire—Soft, hard or spring; round, square, flat and half round.

Nickel Silver

Sheets—Plain or polished on one side and patent leveled.

Rolls—For spinning or drawing.

Rods—Round, square, half round and hexagon.

Wire—Soft, hard or spring; round, half round, hexagon, octagon, square and flat.

Brass Pipe

We are prepared to make prompt shipment of brass pipe from our large stock. A complete range of sizes is carried at all times.

Bronze and Copper Screen Cloth

We carry a large stock for immediate delivery, in 100-ft. rolls, in widths 18 in. and every 2 in. wider up to and including 48 in., and in 14, 16 and 18-mesh.

Copper Tubing and Service Pipe

For plumbing and underground water service.

Water works officials and municipal engineers are giving serious consideration to the subject of pipe for water service. The chief requirements sought are resistance to corrosion, both internal and external, ductility and facility in making the necessary joints and connections.

Conklin Copper Water Tubing and Service Pipe provide all the above mentioned requisites. Both tubing and pipe bend easily and the use of elbows and fittings is reduced to a minimum. Only a few simple tools are required for installation.

STANDARD DIMENSIONS AND WEIGHTS OF COPPER TUBING

Nominal size, in.	Exact o.d., in.	Permitted tolerance, plus or minus, in.	Wall thickness, in.	Weight per ft., lb.	Test pressure per sq. in., lb.	Maximum length in coils, ft.	Maximum straight lengths, ft.
$\frac{3}{8}$	.500	.0025	.049	.269	1460	60	35
$\frac{1}{2}$	.625	.0025	.049	.343	1140	60	35
$\frac{3}{4}$	.875	.003	.065	.640	1040	60	35
1	1.125	.003	.065	.838	780	60	35
$1\frac{1}{4}$	1.375	.0035	.065	1.04	630	..	35
$1\frac{1}{2}$	1.625	.004	.072	1.36	580	..	35
2	2.125	.005	.083	2.06	520	..	35

Red Brass Plumbing Method and Copper Service Tube Fittings

A leakproof connection is the best assurance of a troubleproof piping installation. Such connections are provided by Conklin fittings because of their assured *double-seal* feature.

The *double seal* provides *double* strength, safety and ease of installation. The 45° seat of the fitting holds the pipe in a wedge, insuring an absolutely tight seal and the 90° seat locks the pipe, provides a second seal of positive tightness, and protects the 45° seal by absorbing all pulling strains and vibration.

A complete line of tees, elbows, couplings and water works brass goods, as well as separate connections to meet the requirements of any copper service pipe installation, always carried in stock.

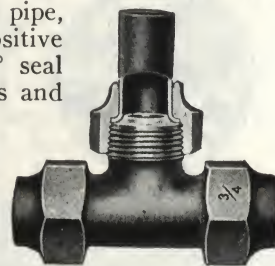


Fig. 500

Plumbing Method Tee

"Everdur" (Copper-Silicon-Manganese Alloy)

The addition of silicon and manganese to copper, when their proportions are properly adjusted, produces a copper-rich alloy of the solid solution type and gives to the copper strength approaching that of steel without impairing its non-rusting and corrosion-resistant properties. Products made of "Everdur" alloy are recommended for use where conditions of unusual stress and exposure to severe weather or corrosion must be met with a reasonably priced metal.

A complete line of the following items made of "Everdur" in all standard sizes is carried in stock:

Lag screws; wood screws (round, flat and oval head); cold headed machine bolts; hexagon nuts; lock and flat washers; piston finish rods in 18-ft. lengths and in diameters of $\frac{3}{4}$ to 2 in. for marine shafting and underwater parts.

FOSTER WHEELER CORPORATION

Manufacturers of Brass Pipe, Hot Water Heaters, Hot Water Heating Systems, Wainwright Expansion Joints and Power Plant Equipment

165 Broadway, NEW YORK, N. Y.

• BRANCH OFFICES AND REPRESENTATIVES

ATLANTA, Candler Building
BOSTON, 80 Federal Street
CHICAGO, 20 No. Wacker Drive
CINCINNATI, 18 East 4th Street
CLEVELAND, Leader News Building
DALLAS, Republic National Bank Building
DENVER, University Building
DETROIT, Dime Bank Building

KANSAS CITY, Board of Trade Building
LOS ANGELES, Petroleum Securities Building
MILWAUKEE, Security Building
NEW ORLEANS, 109 Tchoupitoulas Street
PHILADELPHIA, Packard Building
PITTSBURGH, Oliver Building
SALT LAKE CITY, Continental Bank Building
SAN FRANCISCO, Balboa Building

HONOLULU, T. H., GRACE BROTHERS

Member of Copper and Brass Research Association

Products

CRESCENT BRAND BRASS, RED BRASS, and COPPER PIPE.

WAINWRIGHT EXPANSION JOINTS.

Wainwright Hot Water Heaters and Hot Water Heating Systems.

Copper Service Tubing.

Foster Wheeler Crescent Brand Brass Pipe

Crescent brand brass pipe is specially desirable for plumbing and steam work. It is easy threading and gives a clean, sharp thread.

Manufacture—Crescent brand brass pipe is made in the same tube mill that produces the high grade condenser tubing used in the world's foremost condensers. The pipe is made from selected metals only, which are closely checked by chemical analysis before being used. Those not conforming to rigid specifications are rejected.

Most modern methods are used in the manufacture of Crescent brand pipe. Electric furnaces are used in melting the metals so that oxidation and volatilization are reduced to a minimum. High standards in physical properties are thus maintained and specified alloys accurately produced.

The tubing is cold drawn to desired dimensions by successive drawings through highly polished steel dies. After each drawing operation the tubing is annealed, so that the hardness produced by the drawing process is removed. Temperatures are controlled by indicating pyrometers and recording instruments, thereby maintaining an accurate check on heat treatment during the process of annealing. The entire manufacture is under the constant supervision of metallurgists long associated in the wrought brass business.

Guarantee—Every length of Crescent brand brass pipe is guaranteed to be as nearly physically perfect as possible. Successive tests to insure proper hardness and ductility, also pressure tests exceeding many times the conditions of actual service, are applied to all pipe. These tests, coupled with a rigid inspection of all lengths, assure a high class and fully dependable pipe.



The Above Identification Appears on All Foster Wheeler Crescent Brand Brass Pipe



Identification—All Foster Wheeler Crescent brand pipe is readily recognized by the identification (shown below) appearing in approximately every 12 in. of length. This marking permanently identifies all Foster Wheeler Crescent brand brass pipe.

Sizes—Crescent brand brass pipe is made in standard pipe sizes, in regular, extra heavy and double extra heavy. Special sizes and gages made to order.

Delivery—Crescent brand pipe is manufactured and stocked at Carteret, N. J. It is also handled by leading distributors of plumbing materials.

Service—The Foster Wheeler research laboratory, which controls the manufacturing processes of Crescent brand pipe, has collected much material relative to the durability of brass tubing, and to the proper materials and best heat treatment for various services. It will be glad to assist the architect in studying and analyzing his special brass pipe requirements.

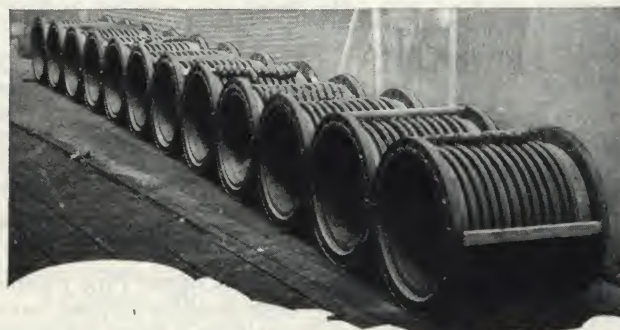
Wainwright Expansion Joints

Wainwright multicorrugated copper expansion joints are built for high and low pressure service to take up the expansion in pipe lines carrying steam, hot water or oil.

Wainwright Joints are constructed of seamless copper cylinders with corrugations rolled inwardly to prevent thinning of the metal without restricting the nominal pipe area. The total movement caused by expansion is evenly distributed to each corrugation so that excessive movement is not imposed on any one corrugation.

High pressure joints have equalizing rings on the inside as well as the outside of each corrugation with internal protecting sleeve to minimize frictional loss and to protect the corrugations from erosion.

Low pressure joints are designed for any vacuum and are good for moderate pressures.



Shop View of 20-in. Wainwright Expansion Joints, Showing Part of an Order for 32, to Be Used in High Pressure Work

HAYS MANUFACTURING COMPANY

Hays Copper Plumbing Method

ERIE, PA.

For Hays Plumbers' Brass Goods, see Manufacturers' Index

Copper Plumbing

The use of pure copper pipe for plumbing is growing rapidly since the introduction of a practical method of installation which makes its cost little more, often less, than the cost of older systems, while the result is permanent, troubleproof piping.

The use of pure copper pipe at a low cost is made possible by compression fittings which eliminate the need for threading the pipe. A thin wall pipe may be used without any sacrifice in wall strength, since the strength of heavier pipe is reduced by the depth of the threads. At the same time this thin wall pipe made of ductile copper greatly simplifies installation. The number of fittings required is reduced and the connections are easier to make.

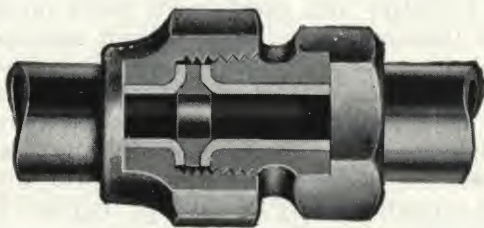
This system, installed in a workmanlike manner, means an uninterrupted flow of clear, clean water for the life of the building. A great mechanical factor in bringing about this important improvement in plumbing systems has been the Hays Double Seal Connection.

Hays Copper Plumbing Method

This is the name given to copper pipe plumbing installed with Hays Fittings.

No special plans are needed. The installation, as far as the position in the building is concerned, is practically the same as that of any other system.

Copper pipe, being ductile, can be led around obstructions, bends at corners unless very abrupt; cross-overs, etc., can be made without the use of elbows.



Hays Double Seal Connection

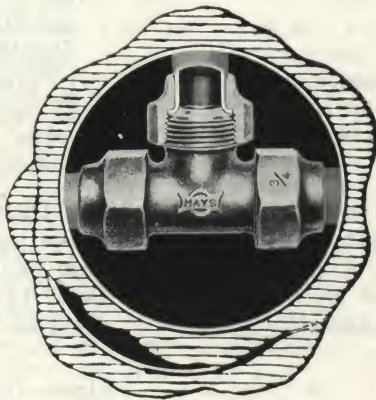
This connection provides a double contact between flanged copper pipe and connection by means of a 45-degree angle and a 90-degree angle in the seat. This design insures ample tightness and strength to make a permanently leakproof joint. The flanged pipe is locked easily and securely between the two parts of the connection by tightening the nut section.

The 45-degree angle holds the pipe in a wedge, making a seal that is absolutely tight. The 90-degree angle is the shock absorber. It locks the pipe, provides a second seal of positive tightness and protects the first seal by absorbing pulling strains and vibrations.

Hays Double Seal Connections are accurately machined to match the bore of the copper pipe used, permitting the same full flow of water. Each connection is tested under a hydraulic pressure of 200 lbs. per sq. in. This precaution insures long life and eliminates leaks or breakdown in service. The Hays Double Seal Connection is the standard thread fitting to tie in with present plumbing.

Recommended Service Pipe

With the development of Hays Copper Pipe Plumbing Fittings we sought the best possible copper service pipe and found the quality of Rome Brass & Copper Company products to be of the highest, and in every way



Advantages of This System

This piping system, properly installed, is permanently troublefree and will cause no interruption of the flow of water during the life of the building. If water freezes in copper pipes, they do not burst or crack. Expansion and contraction take place without damage, unless too frequently repeated. There will be no built-up obstacles to block the water at some points and develop noise.

The first cost of this system will usually run just a little higher than the cost of iron or steel, a

little lower than brass.

Considering the permanent service that may be expected from this system without further expense, it will prove to be one of the best investments for the building owner.

Copper pipe will not rust or corrode, the inside walls remain smooth and the water is never discolored nor its force diminished due to deterioration of the piping system.

How the Flange Is Made

The Hays Flanging Tool is driven into the copper pipe; the nut which has been placed on the tubing before the flange is made will be attached to the fitting and when drawn tight, the curved flange is compressed into the 45-90 double seal shown in the other illustrations on this page. The joint is easily made and will be permanently watertight. No threading—no gaskets—no white lead. The only tools needed are hacksaw, file, wrench, hammer and flanging tool.



Flange

Remodeling and Repair Work

The Hays Copper Plumbing Method may be used for the replacement of worn-out piping, and here, in addition to its other advantages, it eliminates most of the tearing up of floors and cutting into walls which is often necessary where rigid pipe is used. Hays Double Seal Connections are the only fittings for copper pipe with standard threading to tie in with present plumbing.

Fittings

Hays manufactures a complete line of Double Seal connections, tees, elbows, couplings, etc., to meet every requirement in the installation of copper pipe.

Booklet

More detailed information about this system will be found in the booklet "The Hays Copper Plumbing Method," A.I.A. File No. 29b4.

most dependable for the purpose. Rome copper service pipe (see index in this volume) is therefore recommended by us for use with Hays Copper Pipe Plumbing Fittings, and a stock is carried in Erie so that the trade is assured prompt service.

REVERE COPPER AND BRASS INCORPORATED

Copper and Brass Pipe

GENERAL OFFICES
ROME, N. Y.

DIVISIONS

BALTIMORE COPPER MILLS, Baltimore, Md.
DALLAS BRASS & COPPER CO., Chicago, Ill.
HIGGINS BRASS & MANUFACTURING CO., Detroit, Mich.

MICHIGAN COPPER & BRASS CO., Detroit, Mich.
ROME BRASS & COPPER CO., Rome, N. Y.
TAUNTON-NEW BEDFORD COPPER CO., Taunton, Mass.
(Founded by Paul Revere)

BRANCH OFFICES

NEW YORK, N. Y., 230 Park Avenue
BOSTON, MASS., 61 Battery March Street
PHILADELPHIA, PA., 123 So. Broad Street
RICHMOND, VA., Travelers Building, 1108 E. Main Street
PITTSBURGH, PA., 910-937 Pennsylvania Avenue
CLEVELAND, OHIO, 809 Bulkley Building
CINCINNATI, OHIO, Union Central Building

DETROIT, MICH., 3104 E. Woodbridge Street
CHICAGO, ILL., 2200 No. Natchez Avenue
ST. LOUIS, MO., 2817 Laclede Avenue
NEW ORLEANS, LA., 207 Queen & Crescent Building
SAN FRANCISCO, CAL., 610 Wells Fargo Building
LOS ANGELES, CAL., 1321 Washington Building
SEATTLE, WASH., 317-318 Pioneer Building

Products

PR PIPE (an All-copper Pipe), REVERE BRASS PIPE, TUBES.

For Revere Copper, Bronze and Brass Sheets, Rolls, Rods, Bars, Extruded Shapes, Angles and Channels, Architectural Bronze, Strips, Brass and Copper Rivets and Nails, see Manufacturers' Index.

PR Pipe

(Paul Revere Pipe.)

PR Pipe is an all-copper pipe, manufactured of virgin copper having a purity of 99.9%. It is completely deoxidized and seamless. PR Pipe possesses a gun-barrel finish inside which is free from flaws and imperfections.

It is drawn to accurate gage and annealed to correct temper, which has been determined by careful research.

Physical Properties and Tests—Each length of PR Pipe is subjected to a hydrostatic test sufficient to impose a fibre stress of 6000 lb. per sq. in. PR Pipe will withstand tension tests of over 30,000 lb. per sq. in. as well as exacting bend and flange tests. The high quality and uniformity of PR Pipe is thus assured.

Weights and Dimensions of PR Pipe—PR Pipe is furnished in two tempers. No. 1 soft, is available in straight lengths of 20 ft. and coils up to 60 ft. No. 2 hard, in straight lengths only.

WEIGHTS AND DIMENSIONS OF PR PIPE (PAUL REVERE PIPE)

Nominal size, in.	Exact o. d., in.	Permitted tolerance plus or minus	Gauge BWG	Permitted tolerance plus or minus	Weight per foot, lb.	Permitted tolerance plus or minus %	Test pressure per sq. in., lb.
$\frac{3}{8}$	0.500	0.002	18	0.002	0.269	5	1240
$\frac{1}{2}$	0.625	0.0025	18	0.0025	0.344	5	1140
$\frac{3}{4}$	0.875	0.003	16	0.003	0.647	5	1040
1	1.125	0.003	16	0.003	0.839	5	780
$1\frac{1}{4}$	1.375	0.0035	16	0.003	1.04	5	630
$1\frac{1}{2}$	1.625	0.004	15	0.0035	1.36	5	580
2	2.125	0.005	14	0.004	2.06	5	520

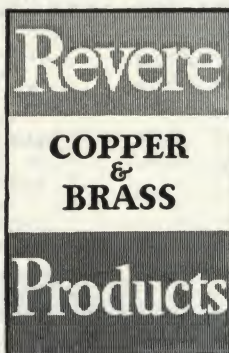
PR Pipe for House Plumbing—PR Pipe makes an everlasting plumbing system, which may be installed at very reasonable cost.

There is no waste metal in PR Pipe, because the use of compression fittings instead of threaded fittings, eliminates unnecessarily thick walls. PR Pipe, being bendable, is readily installed around obstructions.

Being all-copper PR Pipe will not rust with the most corrosive of potable water.

The ductility of copper renders PR Pipe practically immune from damage by freezing. PR Pipe has been frozen up to 12 times, without expanding to the bursting point.

PR Pipe is also the ideal water service pipe from the city main to house meters as it will withstand the



severe conditions imposed upon this section of water service systems, such as vibration, shifting of soil and dampness and can be readily run around obstructions.

It is also the ideal material for use in watering systems for lawns, gardens, and golf courses.

Copper Plumbing Pipe Specifications

Kind of Pipe—All hot and cold water supply lines and all branches to plumbing fixtures shall be of Copper PR Pipe as manufactured and guaranteed by REVERE COPPER AND BRASS INCORPORATED, Rome, N. Y.

Hard Pipe—All horizontal runs and exposed work where a rigid pipe is desirable shall be of hard temper PR Pipe. The hard pipe shall in all cases be bent and formed with a bending tool.

Soft Pipe—Soft temper PR Pipe may be used when desirable for services, risers, and concealed work.

Guarantee—REVERE COPPER AND BRASS INCORPORATED guarantees that the pipe furnished is of the best quality of material and composition within the specified limits, and that each pipe has been subjected to the specified hydrostatic tests before leaving the mill.

Revere Brass Pipe

Revere Brass Pipe is manufactured in the Rome plant of REVERE COPPER AND BRASS INCORPORATED. Over sixty years of manufacturing experience are behind its quality.

The proportion of metals in the mixture is rigidly maintained to a standard which has been ascertained most suitable for free cutting and bending qualities without sacrifice of strength of resistance to corrosion.

Revere Brass Pipe is manufactured in two mixtures. The standard mixture for ordinary water conditions, and Revere Red Brass for extra corrosive water.

All processes of manufacture of Revere Brass Pipe are subject to careful inspection. Scientific heat treatment eliminates possibility of season cracking. As a final test, each length of Revere Brass Pipe is subjected to an internal hydrostatic pressure of 1000 lb. per sq. in.

The advantages of brass pipe for repair-proof plumbing are too well known to need stressing. However, it is not sufficient to merely specify brass pipe. The finest workmanship demands the best material—Revere Brass Pipe.

Estimates and detailed information will be gladly furnished upon request to any of Revere's divisions or branch offices.

MUELLER BRASS COMPANY

Manufacturers of Mueller Streamline Copper Water Tube and Fittings

PORT HURON, MICH.

SALES REPRESENTATIVES AND BRANCHES

ATLANTA, GEORGIA
RAPP Co. Inc., P. O. Box 584
BUFFALO, NEW YORK
J. M. & L. A. OSBORN COMPANY, 64-86 Rapin Street
CHICAGO, ILLINOIS
STEEL SALES CORP., 129 South Jefferson Street
CLEVELAND, OHIO
MUELLER BRASS COMPANY, 4500 Euclid Avenue
DAYTON, OHIO
MUELLER BRASS COMPANY, 620 Harries Building
DETROIT, MICHIGAN
HUNTER-WILKIE Co., 428 Curtis Building, W. Grand
Boulevard at Hamilton
STEEL SALES CORP., 3-218 General Motors Building
FLINT, MICHIGAN
GEO. A. REAMER, 20 Dort Building
INDIANAPOLIS, INDIANA
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KANSAS CITY, MISSOURI
STEEL SALES CORP., 1115 Grand Avenue
LOS ANGELES, CALIFORNIA
NORMAN S. WRIGHT & Co., 923 East Third Street

MELBOURNE, AUSTRALIA
HOWARD HUDSON, 380 Bourke Street, Box 674E
MILWAUKEE, WISCONSIN
STEEL SALES CORP., 490 Broadway
MINNEAPOLIS, MINNESOTA
STEEL SALES CORP., 525 South Seventh Street
NEWARK, NEW JERSEY
MUELLER BRASS COMPANY, 98-108 Frelinghuysen
Avenue
PHILADELPHIA, PENNSYLVANIA
H. L. HESS Co., Room 325 Center Building, 6816 Mar-
ket Street
PITTSBURGH, N. S., PENNSYLVANIA
WM. M. ORR COMPANY, 1411 Brighton Road
ST. LOUIS, MISSOURI
STEEL SALES CORP., 4030 Chouteau Avenue
SAN FRANCISCO, CALIFORNIA
NORMAN S. WRIGHT & Co., 41 Spear Street
SEATTLE, WASHINGTON
NORMAN S. WRIGHT & Co., 608 Pioneer Building
SYDNEY, AUSTRALIA
HOWARD HUDSON, 352 Kent Street

CANADIAN REPRESENTATIVES: MUELLER LIMITED, SARNIA, ONTARIO

The Company

The MUELLER BRASS COMPANY of Port Huron, Michigan, was incorporated in 1917 and was originally a branch of the Mueller Co. of Decatur, Illinois, which was established in 1857. Since 1927, however, the MUELLER BRASS COMPANY has existed as a separate organization. They are considered the world's largest manufacturers of brass forgings and their many products are internationally recognized as being of superior quality. There is hardly a nationally known product in America that contains brass parts in its assembly that does not have some piece of MUELLER BRASS COMPANY manufacture.



THREE GENERATIONS
OF BRASSMAKING

Reliability

The MUELLER BRASS COMPANY's rating in Bradstreet's and Dun's is over one million dollars—first grade of credit. The experience gained over seventy years of manufacture of non-ferrous products is largely responsible for the high quality of Mueller products. Complete control from virgin metal to finished product, including extensive engineering and laboratory facilities, is an outstanding feature in the Mueller organization. No new product is ever put upon the market without having successfully passed tests far beyond those which it would ever be called upon to withstand.

MUELLER COPPER WATER TUBE AND STREAMLINE FITTINGS

Composition

Mueller STREAMLINE Copper Water Tube is of 99.90% copper.

Tube Sizes

Sizes are equivalent to standard iron pipe sizes. 1/4 in. to 6 in. (1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 3 1/2", 4", 4 1/2", 5", 5 1/2", 6").

Tube Classifications

General—On account of the many varying conditions in actual use, the MUELLER BRASS COMPANY, after many experiments and tests, furnish copper water tube in three classifications: STREAMLINE Copper Water Tube "Standard," STREAMLINE Copper Water Tube "Extra-Heavy" and "Extra-Heavy—Soft Temper."

STREAMLINE Copper Water Tube "Standard" and "Extra-Heavy" are intended for plumbing, heating and

numerous industrial uses and "Extra-Heavy—Soft Temper" for underground, for repair or replacement work or on new work where bends are intended to be made.

The "Standard" and "Extra-Heavy" classifications of tube are of requisite stiffness for ease in handling and installing, particularly on new or exposed jobs.

Standard—STREAMLINE Copper Water Tube, a hard, thin wall tube recommended for hot and cold water, gas, oil, air, etc., up to 200 lb. operating pressure and on steam (saturated) up to 15 lb. gauge. This tube cannot be bent. It is for use with Mueller STREAMLINE fittings. It is shipped boxed in straight lengths of 20 ft.

Extra Heavy—STREAMLINE Copper Water Tube, a hard, heavy wall tube recommended for hot and cold water, gas, oil, air, etc., up to 500 lb. operating pressure and on steam (saturated) up to 15 lb. on gauge. This

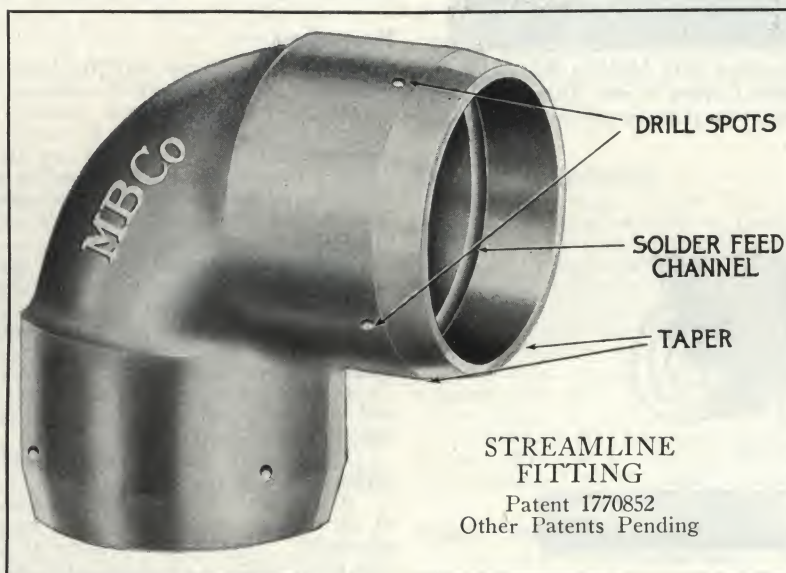
tube can be successfully bent after annealing with a blow torch. It is for use with Mueller STREAMLINE fittings. It is shipped boxed in straight lengths of 20 ft.

Extra-heavy Soft Temper—STREAMLINE Copper Water Tube, a soft heavy wall tube recommended for hot and cold water, steam, gas, oil, air, etc., up to 300 lb. operating pressure and on steam (saturated) up to 15 lb. gauge. For steam pressures in excess of 15 lb. gauge, special fittings can be furnished. This tube can be bent without annealing and is recommended for repair, replacement or for new work where it is necessary to make bends. On certain work where it is considered good practice to make bends in the tube rather than to use elbows, this tube is particularly indicated. When installing this tube it is necessary to use the Mueller Sizing Tool. This material is shipped crated in coils of 30, 45 and 60-ft. lengths, up to and including 1-in. nominal pipe sizes, or boxed in straight lengths of 20 ft.

Streamline Fittings

The new STREAMLINE fitting recently invented by the MUELLER BRASS COMPANY of Port Huron, Michigan, is the most far reaching contribution of the age to the development of the plumbing and heating professions. It is a fitting made for the mechanic requiring the mechanic's skill to install. It is not intended for the jack-of-all-trades, yet is readily installed by the experienced plumber.

The new Mueller STREAMLINE fitting is threadless and is designed to make a conveniently soldered connection to Mueller STREAMLINE Copper Water Tube for plumbing, heating and industrial uses.



The soldering is not done with a soldering iron. The method of connecting is by means of the application of solder wire fed in by the use of a gasoline torch through conveniently placed openings in the fitting.

There are several distinct mechanical features utilized in the construction of Mueller STREAMLINE Fittings. The pipe openings in the fittings are machined to close tolerances and the copper tube, when inserted in the fitting, fits snugly.

The distance to which the copper tube may be inserted in the fitting has been carefully determined and made positive by a shoulder in the fitting itself against which the tube rests. This shoulder is the same thickness as the tube wall, thus insuring a continuous uninterrupted waterway that cuts flow resistance to a minimum. On the outside of the fitting, drilling location spots are placed at convenient points and the mechanic merely drills through the most convenient location to make his opening for feeding in the solder.

The drilling location spots are placed immediately above the solder feed channel (see illustration) so that when the solder is fed in after heating with a blow torch, it is carried around and evenly distributed in all directions by capillary attraction. The tube is thus uniformly soldered to the fitting.

The tapered ends of the fitting, which naturally produce a thin edge, hasten the cooling of the solder at this point and form what is known to the trade as a solder gate.

A joint made with Mueller STREAMLINE Fittings to Mueller STREAMLINE Copper Water Tube is actually much stronger than the tube itself.

OUTSTANDING ADVANTAGES of Mueller Copper Water Tube and Streamline Fittings

The Elimination of Threaded Connections

For generations piping systems (other than cast iron) have required labor consuming threaded connections. The advent of the Mueller STREAMLINE Copper Tubing and Fittings is the first practical solution of a permanently tight, easily made soldered connection. By the elimination of the cut thread the strength of the tube or pipe is not reduced at the connections—the STREAMLINE fitting and the completely soldered connection actually increase the strength of the piping system.

The Soldered Connection—a Mueller Accomplishment

The well known physical law of capillary attraction has been utilized when making a connection with the new STREAMLINE fitting. Capillary attraction is that property which liquids possess of rising or being drawn up through close fitting surfaces or capillary channels. In making a connection with a STREAMLINE fitting to Mueller Copper Water Tube, the solder, when applied at the right temperature, will flow up, down or laterally with equal facility and the plumber installing a pipe in the upper opening of a tee, for instance, has no more difficulty than in the down or side outlets.

The law of capillary attraction is really the basic principle on which the STREAMLINE fitting is constructed and on which it depends for success. The successful application of this natural law in making a connection with Mueller STREAMLINE Copper Water Tube and Fitting depends upon close tolerances and clean surfaces. Mueller STREAMLINE Copper Water Tube is designed for and intended to be used with Mueller STREAMLINE fittings. There is practically no limit to the height to which solder will rise by capillary attraction, depending upon proper working conditions and the uniform application of heat. Experiments conducted in our own laboratory have conclusively shown that solder will rise by capillary attraction a distance of 2½ ft. which, obviously, never would be required in actual practice.

Tests

Expansion and Contraction—Several sections of ¾-in. Mueller Copper Tube were connected with Mueller STREAMLINE couplings making a total length of 36 ft. containing 14 joints. Cold water was run through the tube for 15 seconds alternated with 100 lb. of steam at 339° F. This alternating test of steam

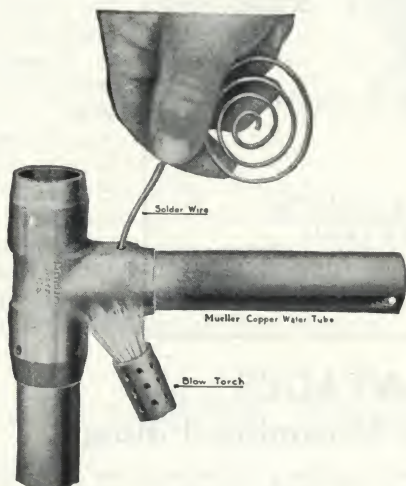
(Continued on page 4)

METHOD OF INSTALLATION



Plumber Making Connection with Mueller Streamline Fitting to Mueller Copper Water Tube

Note the neat, compact, STREAMLINE appearance of the finished job



Close-up View—Heating Up the Fitting and Applying the Solder



Sectional View of the Finished Job

Connections

The method of making a connection with a Mueller STREAMLINE Fitting to Mueller STREAMLINE Copper Water Tube is by soldering, using Mueller Special Solder, a blow torch and the application of the natural law of capillary attraction.

The fitting is placed on the pipe where required, after a suitable solder paste or flux has been applied, heated uniformly with a blow torch and wire solder fed in at convenient openings for the purpose.

The solder is drawn around evenly in the joint by capillary attraction and in a few moments the connection has been completed.

The solder will flow up, down or laterally with equal facility and the plumber installing a pipe in the upper opening of a tee, for instance, has no more difficulty than in the down or side outlets.

Connections Located in Places Difficult of Access

While the illustration on this page of the plumber making a connection shows him working in an almost ideal situation, there is very little trouble involved even in almost inaccessible places high up on walls or near the ceiling.

In the great majority of cases it is quite possible, after a little careful measuring has been done, to lay out and connect sections of the tubing on the floor or bench.

Procedure

1. Cut tube *square* with fine hack saw (use 28 tooth saw preferably); use mill file to remove burr.

2. Using sandpaper, rub outside of copper tube around the end at least $1\frac{1}{2}$ to $2\frac{1}{2}$ in. until it becomes bright. Do not leave any dark spots. Do not use emery cloth.

3. Use drill to pierce a hole in the uppermost position of fitting which is conveniently spotted for the purpose. This is for feeding in the solder. Caution—Be sure and drill only the uppermost hole.

4. Sandpaper inside of fitting, where tube goes into it, until surface is bright, thus removing any foreign substance.

5. Now apply a light coat of Mueller non-corrosive paste to outside of tube and inside of fitting. Be sure that it is distributed evenly all around (this can be accomplished with ease if you warm fitting slightly with torch).

6. Slip fitting on the tube until it will go no farther and turn back and forth once or twice to further insure an equal distribution of paste.

7. Use only Mueller special solder as it is expressly prepared for this work.

8. Apply the heat around the entire surface of the end of the fitting where the tube is inserted and warm it up gradually. Then hold the flame at the side of the fitting at a point where it also covers the hole and melt off a small piece of solder in the hole itself. Continue to apply the flame until this small piece of solder starts to run into the hole. Then apply more solder until it shows up at the end of the fitting where the tube goes in. (You will then notice that the solder starts to work around the tube, so move the flame down to the end of the fitting gradually and continue to add solder.) Be sure and add enough solder to fill entire inner groove of the fitting, and the space between the tube and the fitting. When the solder shows at the end of the fitting all around the tube, remove the flame and then add more solder until the hole is full. Then take a small cloth and wipe off the surplus solder and flux above the hole and at the end of the fitting, being careful not to move the connection until the solder is set.

9. It is necessary on sizes larger than $1\frac{1}{4}$ in. to move the fitting on the tube when the solder starts in, to break the surface tension and to insure an equal distribution of solder.

10. Allow the fitting to cool slowly. If solder does not show in a continuous ring at the end of the fitting, apply heat where it fails to show, until the solder creeps outwards, forming a small fillet between the end of the fitting and the outside of the tube. Do not apply solder except through the hole.

11. When soldering large sizes, insert wooden plug in tube to stop the draft.

OUTSTANDING ADVANTAGES—Continued from Page 2

and cold water was run continuously until 20,160 complete cycles had been effected. After a thorough inspection there was not the slightest sign of any damage or leak in the connection. This test was a very severe one and in view of the results obtained should satisfactorily answer any questions as to its dependability under service conditions.

Vibration—A test to determine the effect of continued vibration on connections made with Mueller STREAMLINE fittings to Copper Water Tube was conducted as follows:

The test was run on a 10-ft. length of $\frac{3}{4}$ -in. vertical tube which contained nine joints; the lower end was held rigid. The upper end of the tube was attached to a vibrator. The vibrator was set in motion and run continuously day and night for one week. The tube was subjected to 850 vibrations per minute, totaling 8,568,000 vibrations over the test period with not the slightest sign of failure.

Tensile Strength—Two pieces of $\frac{3}{4}$ -in. iron pipe were screwed into a coupling and pulled on the Olsen testing machine. Repeated experiments showed that the threads fractured at about 6,400 lb.

Extra-heavy STREAMLINE Copper Water Tube soldered into STREAMLINE coupling and subjected to the same test resulted in a fracture of the tube itself at slightly over 9,000 lb. but showed not the slightest sign of joint failure.

Deflection or Bending—Two pieces of $\frac{3}{4}$ -in. iron pipe size brass pipe 6 in. long were screwed into a coupling and placed over supports $5\frac{1}{2}$ in. center to center. A deflection test showed that the thread failed at $1\frac{1}{8}$ in. from horizontal.

The same test was carried out on two 6-in. pieces of Standard and Extra-Heavy STREAMLINE Copper Water Tube and after being bent to a 45° angle the joint was still intact.

Radiation

A Mueller STREAMLINE Copper Water Tube and Fitting installation radiates very little heat and in hot water lines, steam lines, etc., can be very often installed without insulation.

Copper heating surfaces are widely used at present, especially in the form of finned tubes for convection heat transfer or as exemplified in the numerous types of automobile engine-cooling-radiators. It is interesting to note that without exception the successful brass and copper surfaces so used for heat transfer must have air traveling over them, and that a current of air always is necessary for successful results, this current being provided either by power-driven fans or by heated flues above the warm surfaces.

The users of the ultra modern concealed heaters built into the walls under the windows of so many residences have learned the extreme importance of the height of the heated flue or drafthead.

When air ceases to travel over the smooth surface of a heated copper tube, heat transfer ceases to a great extent. If the heat transfer by radiation from an ideal black body is called 1.0 the corresponding heat transfer from a polished body is 0.1. If the copper has been heavily oxidized even to the extent of becoming nearly black, its value is only .72. It is fair to say that a copper surface may radiate only about one-ninth as much heat as a corresponding unpainted steel surface such as that of a commercial pipe.

An important point to remember is the fact that the hot exposed surface areas of the thinner, smaller copper tubes will be much less in extent than that of ferrous tubing. In the judgment of many experienced steam fitters and based on several well authenticated installations, which have passed through at least one heating season, the pipe sizes marked on the plans could be reduced at least one size throughout, due to the smooth interior of the tubing and to the absence of turmoil at the recessed fitting. This reduction in size represents, of course, a material saving in installation cost.

It must be remembered that although copper pipe surfaces radiate very little heat, copper itself is a very rapid conductor of heat. Therefore it naturally follows that there is considerably less loss of heat when being conveyed from the point of generation to the points of distribution.

The advantages mentioned above, together with the fact that there is no room required for a wrench grip and that the fitting itself is very little larger than the tube, permits of it being installed close up to walls or ceiling.

Permanence

Made of 99.90% pure copper, Mueller STREAMLINE Copper Water Tube is permanently non-corrosive.

Mueller STREAMLINE Copper Water Tube is hard drawn and is shipped in 20-ft. straight lengths. Being hard drawn it retains its fine straight appearance and when installed there are no kinks, ripples or bends to spoil the effect.

It requires no more hangers or supports than an ordinary iron installation and being lighter, quite frequently, less.

In soft copper pipe installations there is always the danger of driving nails through it during the process of lathing, etc., but with Mueller STREAMLINE Copper Water Tube (Standard and Extra-Heavy) tests conclusively show that its hard surface readily deflects the nail points.

Installations of materials that rust away and corrode will, at best, last but a few years depending upon the nature of the soil or water and will then have to be replaced. In many cases corrosion and rust will start almost immediately, gradually decreasing their service and cutting down the flow capacity. At the end of a few years they have no salvage value.

An installation of Mueller Copper Water Tube and STREAMLINE Fittings will continue to give uninterrupted service during the entire life of the building and its flow capacity remains the same.

Salvage Value

Should it be necessary to tear down a building in which it is installed or to make alterations, a copper tube installation, because of its everlasting life, has a very high salvage value and in almost every case can be installed again without any preparation other than a slight cleaning. The fittings also will be just as good as the day they were first installed and can be again utilized for new work with perfect satisfaction.

Ease of Installation

Mueller Copper Water Tube is considerably lighter in weight than standard steel or iron piping, due to the reduced thickness of the tube walls without reduction of strength. This is not only practicable due to the nature of the material (copper) but no reduction of the original thickness is made by the cutting of thread as is the case with screw connections.

Again much of a STREAMLINE installation may be assembled on the bench or floor and whole sections completed to be coupled later at the most convenient point, whereas with threaded pipe, each section must be added progressively as the job continues or until a union fitting is used.

Competent plumbers find greatly reduced labor costs when Mueller STREAMLINE Tubing and Fittings are installed with the standard Mueller soldered connections.

Space Saving

The new STREAMLINE fittings require less space than any other fittings for the purpose—a great advantage where working room is restricted. They are exceedingly strong and are smooth inside, permitting an uninterrupted flow. Due to the reduced size, the new fitting makes it possible to use the larger sizes of copper pipe in the same space that would be occupied by smaller steel and iron pipe with their standard larger fittings. It is not practical, commercially, to flare copper pipe larger than the 1-in. size and threading copper has always been a rather expensive and difficult matter but with the new fitting which requires neither thread nor flare, the problem in the larger sizes of pipe has been solved.

Cross-over Fittings Eliminated

In large buildings, where there are frequently very intricate systems of piping to lavatories, kitchens, etc., it is often necessary to use a great many cross-over fittings. This is done to avoid weakening joists or studding by cutting into them to permit the pipe lines to cross. Cross-over fittings cut down the pressure of the water until the velocity is almost entirely lost in some of the upper floors.

When Mueller STREAMLINE Copper Tube is used the sections where the lines cross each other may be slightly flattened, thus eliminating the cost of the cross-over fitting and reducing labor to a minimum. The slight amount of flattening necessary on the STREAMLINE Copper tube will not materially affect the flow and will greatly conserve space.

Cost Comparisons

An installation of Mueller STREAMLINE Copper Water Tube and Fittings in average residence buildings in the great majority of cases costs no more than a galvanized iron installation and costs a great deal less than an installation of brass pipe and fittings. It must be remembered that STREAMLINE Copper Water Tube is not connected by threading or flaring and consequently does not require the heavy wall of brass or iron pipe. In larger buildings, however, such as hotels, large office buildings, etc., a STREAMLINE installation may cost from 15% to 30% more than an iron installation, but considerably less than brass. If, however, the fact is taken into consideration that smaller sizes in STREAMLINE Copper Water Tube can be used on hot water lines than corresponding service in iron, together with lower labor costs for installing, and the high salvage value of the copper tube, which is immediately usable for the same purpose, even after it has been in use for years, then the cost is very much lower.

As a matter of fact, some authorities on the subject of non-ferrous conductors claim that two sizes less than the corresponding sizes of iron pipe on hot water lines and one size less

on cold water lines is satisfactory. This condition is chiefly due to the smooth interior of the non-ferrous pipes and the absence of turmoil. This is particularly true in its application to STREAMLINE installations because there is no recess in the fittings themselves, which results in an uninterrupted waterway that cuts flow resistance to a minimum.

Service to Architects

The MUELLER BRASS COMPANY maintains a staff of competent installation engineers, whose services are available in offering suggestions for the guidance of the architect or contractor. Their active co-operation in the initial stages of the larger installations is often very valuable. This service is offered without obligation and is for the convenience of the designing architect or for actual demonstration to the contractor or his workmen to promote the best methods of smooth running efficiency in starting the job.

Literature

Complete data on tests; also catalogs and various pieces of descriptive literature will be sent upon application.

ARCHITECTURAL SPECIFICATIONS

Mueller Copper Water Tube and Streamline Fittings

Note: The majority of STREAMLINE fittings are furnished with the solder feed hole drilled. Fittings on which the position of the solder feed hole cannot be prelocated are furnished with convenient location spots for drilling.

NO. 101, STANDARD

(1) All lines for plumbing and heating, hot and cold water, gas, oil, compressed air and vacuum lines for pressures up to 200 lb., and saturated steam (up to 15 lb. gauge) up to and including 6 in. (equivalent I. P. S.), shall be hard drawn, Standard STREAMLINE Copper Water Tube, deoxidized, analyzing not less than 99.9% Copper, and shall successfully pass a hydrostatic test of 6000 lb. per sq. in. fibre stress; all fittings shall successfully withstand an air pressure test of 75 lb. under water. The STREAMLINE Copper Water Tube and Fittings shall be of MUELLER BRASS CO., Port Huron, Mich., manufacture.

(2) Weights and Dimensions of Standard STREAMLINE Copper Water Tube shall be as given in the table following.

No tube exceeding the O. D. tolerance shown will be accepted.

The weight of the tube shall vary not more than 5 per cent from the weight specified.

The thickness at any point shall be not less than that specified by more than 5 per cent.

Equivalent I. P. S., in.	Wall thickness, in.	Nominal weight pounds per foot of length	O. D. tolerance
3/8	.025	.144	.500 + or - .001
1/2	.028	.203	.625 + or - .001
3/4	.032	.328	.875 + or - .001
1	.035	.464	1.125 + or - .0015
1 1/4	.042	.681	1.375 + or - .0015
1 1/2	.049	.940	1.625 + or - .002
2	.058	1.46	2.125 + or - .002
2 1/2	.065	2.03	2.625 + or - .002
3	.072	2.68	3.125 + or - .002
3 1/2	.083	3.58	3.625 + or - .002
4	.095	4.66	4.125 + or - .002
5	.109	6.65	5.125 + or - .002
6	.120	8.77	6.125 + or - .002

(3) STREAMLINE joints must be made with solder and non-corrosive paste as supplied by MUELLER BRASS CO.

NO. 102, EXTRA HEAVY

(1) All lines for plumbing and heating, hot and cold water, gas, oil, compressed air and vacuum lines for pressures up to 500 lb., and saturated steam (up to 15 lb. gauge) up to and including 4 in. (equivalent I. P. S.), shall be hard drawn, Extra Heavy STREAMLINE Copper Water Tube, deoxidized, analyzing not less than 99.9% Copper, and shall successfully pass a hydrostatic test of 6000 lb. per sq. in. fibre stress; all fittings shall successfully withstand an air pressure test of 75 lb. under water. The STREAMLINE Copper Water Tube and Fittings shall be of MUELLER BRASS CO., Port Huron, Mich., manufacture.

(2) Weights and Dimensions of Extra Heavy STREAMLINE Copper Water Tube shall be as given in the table following.

No tube exceeding the O. D. tolerance shown will be accepted.

The weight of the tube shall vary not more than 5% from the weight specified.

The thickness at any point shall be not less than that specified by more than 5 per cent.

Equivalent I. P. S., in.	Wall thickness, in.	Nominal weight pounds per foot of length	O. D. tolerance
3/8	.049	.269	.500 + or - .001
1/2	.049	.343	.625 + or - .001
3/4	.065	.640	.875 + or - .001
1	.065	.838	1.125 + or - .0015
1 1/4	.065	1.04	1.375 + or - .0015
1 1/2	.072	1.36	1.625 + or - .002
2	.083	2.06	2.125 + or - .002
2 1/2	.095	2.92	2.625 + or - .002
3	.109	4.00	3.125 + or - .002
3 1/2	.120	5.12	3.625 + or - .002
4	.134	6.51	4.125 + or - .002

(3) STREAMLINE joints must be made with solder and non-corrosive paste as supplied by MUELLER BRASS CO.

NO. 103, EXTRA HEAVY, SOFT TEMPER

(1) All lines for plumbing and heating, hot and cold water, gas, oil, compressed air and vacuum lines for pressures up to 300 lb., and saturated steam (up to 15 lb. gauge) up to and including 2 in. (equivalent I. P. S.), shall be annealed, Extra Heavy STREAMLINE Copper Water Tube, soft temper, deoxidized, analyzing not less than 99.9% Copper, and shall successfully pass a hydrostatic test of 6000 lb. per sq. in. fibre stress. (For steam pressures in excess of 15 lb. gauge, Mueller Flared Fittings shall be used.) All fittings shall successfully withstand an air pressure test of 75 lb. under water. The STREAMLINE Copper Tube and Fittings shall be of MUELLER BRASS CO., Port Huron, Mich., manufacture.

(2) Weights and Dimensions of Extra Heavy STREAMLINE Copper Water Tube, soft temper, shall be as given in the table following.

The weight of the tube shall vary not more than 5% from the weight specified.

The thickness at any point shall be not less than that specified by more than 5 per cent.

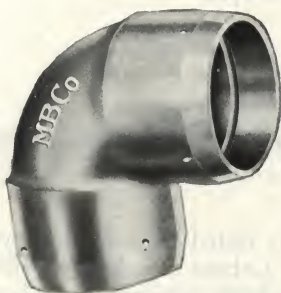
Equivalent I. P. S., in.	Wall thickness, in.	Nominal weight pounds per foot of length	O. D. tolerance*
3/8	.049	.269	.500 + .000 - .005
1/2	.049	.343	.625 + .000 - .005
3/4	.065	.640	.875 + .000 - .005
1	.065	.838	1.125 + .000 - .005
1 1/4	.065	1.04	1.375 + .000 - .005
1 1/2	.072	1.36	1.625 + .000 - .005
2	.083	2.06	2.125 + .000 - .005

*The O.D. tolerance of the tube may vary from that specified, due to the soft temper. Sizing tools, manufactured by the MUELLER BRASS CO., should be used to insure a perfect fit for each joint prior to soldering.

(3) STREAMLINE joints must be made with solder and non-corrosive paste as supplied by MUELLER BRASS CO.

MUELLER STREAMLINE FITTINGS

Patent 1770852—Other Patents Pending

**90° ELBOW—COPPER TO COPPER**

This elbow is furnished in sizes from $\frac{1}{4}$ to 6 in. inc.

**45° ELBOW—COPPER TO COPPER**

This elbow is furnished in sizes from $\frac{1}{4}$ to 6 in. inc.

**DROP EAR TEE—COP. TO COP. TO INSIDE I.P.S.**

$\frac{1}{2}$ -in. C. to $\frac{1}{2}$ -in. C. to $\frac{1}{2}$ -in. Inside I.P.S.

**DROP EAR ELBOW—COP. TO INSIDE I.P.S.**

$\frac{1}{2}$ -in. C. to $\frac{1}{2}$ -in. Inside I.P.S.
 $\frac{1}{2}$ -in. C. to $\frac{3}{8}$ -in. Inside I.P.S.

RANGE BOILER COUPLING SIZES

$\frac{3}{4}$ -in. C. to 1-in. Outside I.P.S. to $\frac{3}{4}$ -in. Inside I.P.S.
 $\frac{1}{2}$ -in. C. to 1-in. Outside I.P.S. to $\frac{1}{2}$ -in. Inside I.P.S.
 $\frac{3}{4}$ -in. C. to 1-in. Outside I.P.S. to $\frac{1}{2}$ -in. Inside I.P.S.

**COUPLING—COPPER TO COPPER**

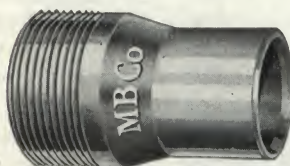
Provided with an internal stop or boss situated midway from the two pipe openings. Makes positive the distance to which pipe may be inserted in the fitting. To use the connection as a union coupling, stop can be flattened by placing over a rounded surface such as a pipe or chisel and striking a few light blows with hammer. Furnished in sizes from $\frac{1}{4}$ to 6 in. inc.

**COUPLING—COPPER TO OUTSIDE I.P.S.**

This coupling is furnished in sizes from $\frac{1}{4}$ to 6 in. inc.

COUPLING—COPPER TO INSIDE I.P.S.

This coupling is furnished in sizes from $\frac{1}{4}$ to 6 in. inc.

**ADAPTER—COPPER TO OUTSIDE I.P.S.**

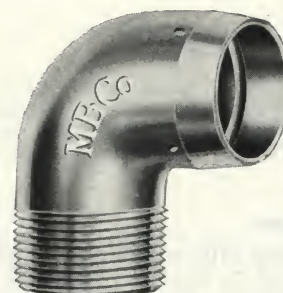
This adapter is furnished in sizes from $\frac{1}{4}$ to 6 in. inc.

ADAPTER—COPPER TO INSIDE I.P.S.

This adapter is furnished in sizes from $\frac{1}{4}$ to 6 in. inc.

**TEE—COPPER TO COPPER TO COPPER**

This tee is furnished in sizes from $\frac{1}{4}$ to 6 in. inc.

**90° ELBOW—COPPER TO OUTSIDE I.P.S.**

This elbow is furnished in sizes from $\frac{1}{4}$ to 6 in. inc.

**90° ELBOW—COPPER TO INSIDE I.P.S.**

This elbow is furnished in sizes from $\frac{1}{4}$ to 6 in. inc.

**TEE—COP. TO COP. TO INSIDE I.P.S.**

This tee is furnished in sizes from $\frac{1}{4}$ to 2 in. inc.

TEE—INSIDE I.P.S. TO COP. TO COP.

This tee is furnished in sizes from $\frac{1}{4}$ to 2 in. inc.

TEE—INSIDE I.P.S. TO INSIDE I.P.S. COP.

This tee is furnished in $\frac{1}{2}$ -in. size only.

**CAP****PLUG**

Furnished in sizes from $\frac{1}{4}$ to 6 in. inc.

RANGE BOILER ELBOW SIZES

$\frac{3}{4}$ -in. C. to 1-in. Outside I.P.S. to $\frac{3}{4}$ -in. Inside I.P.S.
 $\frac{1}{2}$ -in. C. to 1-in. Outside I.P.S. to $\frac{1}{2}$ -in. Inside I.P.S.
 $\frac{3}{4}$ -in. C. to 1-in. Outside I.P.S. to $\frac{1}{2}$ -in. Inside I.P.S.

COHOES ROLLING MILL COMPANY

Manufacturers of Genuine Wrought Iron Pipe

COHOES, N. Y.

Products

GENUINE WROUGHT IRON PIPE, COUPLINGS and NIPPLES.

Guarantee

Cohoes pipe is made from all genuine wrought iron guaranteed to conform with the requirements outlined by the various Societies for Testing Materials and is unexcelled by that of any competitor.

Identification

We were the first mill to brand our pipe in the rolling, while the metal is hot. Every piece of pipe bears the trade-mark "Cohoes" and the year it was rolled which insures to the buyer *genuine full weight wrought iron pipe*.

Fabricating Qualities

The fabricating qualities of Cohoes pipe are one of the most important features of its economic installation. Though its fiber is tough and strong enough to resist all shocks and vibrations, the softness of the metal and its freedom from hard spots makes it easy to cut and thread, saving labor and tools. In these days of high labor costs, this is a most important item.

Natural and Galvanized Finish

Cohoes pipe is produced with a natural iron finish, which is called "black pipe." But when used under severe conditions it is a wise precaution to have it galvanized. Because wrought iron is a more porous metal than steel, it takes or absorbs a greater quantity of the molten zinc. As zinc is not subject to corrosion, this

thicker coating naturally means a much longer life for Cohoes wrought iron pipe.

Inspection and Testing

Every piece of pipe is tested by hydraulic pressure to prove that it is of the Cohoes standard of strength. Several hundred pounds higher pressure than is necessary in actual use is applied to give a reasonable factor of safety.

Exceptional Durability

The more severe the service demanded of pipe, the greater reason to insist upon Cohoes genuine wrought iron pipe. It is built to stand up under conditions where ordinary pipe would quickly deteriorate.

Genuine Wrought Iron Pipe has proved its superiority in use for railroad cars, locomotives, signal pipe and general railroad maintenance.

For the conveyance of gas, water, air, ammonia, salt water and other exceptionally hard usage, Cohoes gives maximum service.

The Service Department

We have a staff of specialists on pipe. They are thoroughly informed by experience and study on the many uses for which pipe is required.

They have at their disposal data that has been gathered from time to time during our seventy-six years of pipe manufacture. They never work on theory. They know the facts about the actual use of different kinds of pipe by demonstrations that have been years in the making.

The services of these experts are free to any one directly or indirectly interested in the use of pipe.



Cohoes Genuine Wrought Iron Pipe

*STANDARD FULL WEIGHT GENUINE WROUGHT IRON PIPE

Size, in.	List price, per ft.	Diameters, in.		Thick-ness, in.	Weight per ft., lb.	Threads per in.
		External	Internal			
1/8	\$.05 1/2	.405	.269	.068	.245	27
1/4	.06	.540	.364	.088	.425	18
3/8	.06	.675	.493	.091	.568	18
1/2	.08 1/2	.840	.622	.109	.852	14
3/4	.11 1/2	1.050	.824	.113	1.134	14
1	.17	1.315	1.049	.133	1.684	11 1/2
1 1/4	.23	1.660	1.380	.140	2.281	11 1/2
1 1/2	.27 1/2	1.900	1.610	.145	2.731	11 1/2
2	.37	2.375	2.067	.154	3.678	11 1/2
2 1/2	.58 1/2	2.875	2.469	.203	5.819	8
3	.76 1/2	3.500	3.068	.216	7.616	8
3 1/2	.92	4.000	3.548	.226	9.202	8
4	1.09	4.500	4.026	.237	10.889	8
5	1.48	5.563	5.047	.258	14.810	8
6	1.92	6.625	6.065	.280	19.185	8
8	2.88	8.625	7.981	.322	28.809	8
10	4.12	10.750	10.020	.365	41.132	8
12	5.07	12.750	12.000	.375	50.706	8
13	5.60	14.000	13.250	.375	55.824	8
14	6.10	15.000	14.250	.375	60.375	8
15	6.50	16.000	15.250	.375	64.500	8

*Any size not listed will be considered "Special."

*EXTRA STRONG GENUINE WROUGHT IRON PIPE

Size, in.	List price, per ft.	Diameters, in.		Thick-ness, in.	Weight per ft., lb.
		External	Internal		
1/4	\$.07 1/2	.540	.302	.119	.535
3/8	.07 1/2	.675	.423	.126	.738
1/2	.11	.840	.546	.147	1.087
3/4	.15	1.050	.742	.154	1.473
1	.22	1.315	.957	.179	2.171
1 1/4	.30	1.660	1.278	.191	2.996
1 1/2	.36 1/2	1.900	1.500	.200	3.631
2	.50 1/2	2.375	1.939	.218	5.022
2 1/2	.77	2.875	2.311	.276	7.661
3	1.03	3.500	2.900	.300	10.252
3 1/2	1.25	4.000	3.364	.318	12.505
4	1.50	4.500	3.826	.337	14.983
5	2.08	5.563	4.813	.375	20.778
6	2.86	6.625	5.761	.432	28.573
8	4.34	8.625	7.625	.500	43.388
10	5.48	10.750	9.750	.500	54.735
12	6.55	12.750	11.750	.500	65.415

*DOUBLE EXTRA STRONG GENUINE WROUGHT IRON PIPE

Size, in.	List price, per ft.	Diameters, in.		Thick-ness, in.	Weight per ft., lb.
		External	Internal		
1/4	\$.32	.840	.252	.294	1.714
3/8	.35	1.050	.434	.308	2.440
1	.37	1.315	.599	.358	3.659
1 1/4	.52 1/2	1.660	.896	.382	5.214
1 1/2	.65	1.900	1.100	.400	6.408
2	.91	2.375	1.503	.436	9.029
2 1/2	1.37	2.875	1.771	.552	13.695
3	1.86	3.500	2.300	.600	18.583
3 1/2	2.30	4.000	2.728	.636	22.850
4	2.76	4.500	3.152	.674	27.541
5	3.86	5.563	4.063	.750	38.552
6	5.32	6.625	4.897	.864	53.160

*Any size not listed will be considered "Special."

WHEELING STEEL CORPORATION

Manufacturers of COP-R-LOY—The Copper Alloyed Steel

GENERAL OFFICES
WHEELING, W. VA.

DISTRICT OFFICES

NEW YORK, N. Y., Equitable Building
CHICAGO, ILL., Peoples Gas Building
PHILADELPHIA, PA., Franklin Trust Building
DETROIT, MICH., Fisher Building

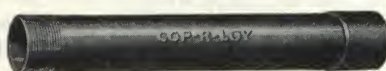
BOSTON, MASS., Statler Building
ST. LOUIS, MO., Paul Brown Building
CINCINNATI, OHIO, Union Trust Building
ATLANTA, GA., Healey Building
SEATTLE, WASH., Skinner Building

DALLAS, TEX., Dallas National Bank Building
NEW ORLEANS, LA., Whitney Building
LOS ANGELES, CAL., Washington Building
SAN FRANCISCO, CAL., Rialto Building

Products

WHEELING "COP-R-LOY," the Copper Alloyed Steel, supplied in Standard Black and Galvanized Pipe, Black and Galvanized Sheets, Special Finished Sheets.

Also Wheeling Steel Pipe, Wheeling Black and Galvanized Steel Sheets, Long Terme Sheets, Locker Sheets, etc.



"Cop-R-Loy" Pipe

"Cop-R-Loy" Pipe provides the composite of all steel pipe qualities and advantages. In addition, it has a copper content by admixture which metallurgical science has established as a means to maximum pipe durability under the majority of, if not all, service conditions. It is pipe you hear discussed frequently and used extensively by request of architects, building and industrial engineers. As a rust retardant under atmospheric conditions it has won distinction under the most treacherous conditions to which pipe can be subjected.

"Cop-R-Loy" Pipe averages approximately 56,000 lb. tensile strength and provides all the structural strength of steel pipe so necessary to present day piping installations. It cuts easily and threads readily without filling dies. Also it is quite readily bent cold. No better pipe for any plumbing, heating or waste lines need be desired.

Cost of "Cop-R-Loy" Pipe

It has been variously estimated that "Cop-R-Loy" Pipe delivers from 50% more service under the most trying conditions to more than double the service in normal usage, based on experience of users.

Its cost represents only a slight advance over that of standard steel pipe, so that in consideration of its qualities and its performance, it is an economical pipe. To use it any-

where for building purposes is to obtain perfect combination of pipe qualities without extravagance in price per foot, in the cost of fitting or the sacrifice of desirable results in plumbing or heating efficiency.

General

"Cop-R-Loy" Pipe has not escaped the inevitable criticism and opposition that spring eternally to meet an innovation of any kind but it is significant that this tubular product, since its introduction to the trades in 1928, has won a wide acceptance and is responsible for a demand that has increased at a rapid rate in every quarter of the country. High pipe quality at a reasonable cost has been recognized with the result that "Cop-R-Loy" Pipe is specified for the largest as well as for the smallest installations.

Identification

Substitutes and imitations are avoided by insisting upon the pipe that has the name "Cop-R-Loy" rolled in the pipe wall. Genuine "Cop-R-Loy" Pipe, in the black finish, has a maroon coating; galvanized "Cop-R-Loy" Pipe, a maroon stripe, in addition to the name.

"Cop-R-Loy" Nipples

Nipples for "Cop-R-Loy" Pipe installations are made of "Cop-R-Loy" Pipe by leading nipple manufacturers. Names on request. Specify "Cop-R-Loy Nipples" throughout.

Full Standard Weights

"Cop-R-Loy" Pipe is available black or galvanized, in the following weights and sizes: Standard, $\frac{1}{8}$ to 12 in.

Wheeling Steel Pipe

Wheeling Steel Pipe is supplied in the same weight and sizes.



The Clay-Jones Apartments,
San Francisco, Cal.

Designed by A. H. LARSEN, San Francisco, Cal.,
Architect

"Cop-R-Loy" Pipe was furnished for the plumbing and heating of this building by RICHMOND SANITARY COMPANY and installed by WM. J. FORSTER COMPANY

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS

Jones & Laughlin Building, PITTSBURGH, PA.

DISTRICT SALES OFFICES

ATLANTA, GA., 1313-14 Healey Building
Telephone, Walnut 6805
BOSTON, MASS., 131 State Street
Telephone, Hubbard 5151
BUFFALO, N. Y., Liberty Bank Building
Telephone, Washington 0268
CHICAGO, ILL., 111 W. Washington Street
Telephone, Franklin 2522
CINCINNATI, OHIO, Carew Tower
Telephone, Main 2324
CLEVELAND, OHIO, Union Trust Building
Telephone, Main 7866
DALLAS, TEX., Magnolia Building
Telephones, 2-6810, L.D.700

DENVER, COLO., First National Bank Building
Telephone, Main 2449
DETROIT, MICH., Fisher Building
Telephone, Empire 9010-11-12-13
ERIE, PA., Erie Trust Building
Telephone, C 54146
LOS ANGELES, CAL., 416 Roosevelt Building
Telephone, Vandike 6178
MEMPHIS, TENN., 1 Auction Street
Telephone, 64-836
MILWAUKEE, WIS., 1410 The Bankers' Bldg.
Telephone, Daly 4418
MINNEAPOLIS, MINN., 1030 Rand Tower
Building
Telephone, Atlantic 5048

NEW YORK, N. Y., 165 Broadway
Telephone, Cortlandt 7513
PHILADELPHIA, PA., Broad Street Station
Building
Telephone, Rittenhouse 0750
PITTSBURGH, PA., Jones & Laughlin Building
Telephone, Court 3240
ST. LOUIS, MO., Boatmen's Bank Building
Telephone, Garfield 4075
SAN FRANCISCO, CAL., Standard Oil Building
Telephone, Douglas 1776
WASHINGTON, D. C., Woodward Building
Telephone, Main 2293

CANADIAN REPRESENTATIVES: JONES & LAUGHLIN STEEL PRODUCTS COMPANY

PITTSBURGH, PA., U. S. A., Jones & Laughlin Building
Telephone, Court 3240

TORONTO, ONT., CANADA, Toronto Daily Star Building
Telephone, Adelaide 0022

WAREHOUSES

CHICAGO, ILL.—Telephone, Virginia 1600

CINCINNATI, OHIO—Telephone, Main 2324

MEMPHIS, TENN. Telephone, 64-836

PITTSBURGH, PA.—Telephone, Hemlock 1000

DETROIT, MICH.—Telephone, Melrose 6650

Products

J & L TUBULAR PRODUCTS, Standard Weight, Extra Strong, and Double Extra Strong Pipe, Black and Galvanized, for steam, gas, air, water, refrigeration and sprinkler work, fences, railing, etc.

Copper-bearing Steel Pipe, when specified, can be supplied in standard weight, or extra strong black or galvanized.

J & L SEAMLESS TUBULAR PRODUCTS for oil and gas well drilling, pipe line construction and other purposes.

Also J & L Structural Shapes and Fabricated Structural Work, Columns, Girders, Trusses, Plate Work, Tanks, Mill and Factory Buildings; J & L Steel Piling; J & L Wire Products.

For J & L Bars for Concrete Reinforcement, Junior Beams and Light Weight Channels for Stair Stringers and other uses, see page numbers in Manufacturers' Index.

Description

Jones & Laughlin Steel Pipe is made from uniformly good quality of soft weldable steel rolled from solid ingots made to a special analysis which checked over a period of years has proven to be very uniform in quality. The steel pipe produced from this special grade of J & L Steel is soft and ductile, free cutting, strong at the welds, and free from excess scale. J & L Pipe is reasonably straight and free from blisters, cracks or other injurious defects and is well within the allowable tolerances as to dimensions and weights, and true to round in the outside diameter.

Vast resources and complete ownership-control



of every manufacturing process from the iron ore in the ground to the finished products of the tube mills, under an organization which has been producing iron and steel for over three-quarters of a century, assure the production of steel pipe of exceptional quality.

Uniform Quality

Self-owned basic materials and control under one organization of every process from the mining of the ore to the final testing of the finished pipe, result in a high degree of uniformity in the quality of J & L Pipe that could not otherwise be maintained.

Threading

Recognizing that a pipe installation cannot be stronger than the joint, careful attention is given the threading of the pipe with good clean-cut threads fitted with sound couplings correctly tapped to give a tight joint. Soft ductile steel of free cutting quality enables the contractor to cut clean, sound threads on the job.

Galvanized Pipe

The Jones & Laughlin process of galvanizing assures a thorough coating and insures against pipe being clogged with spelter. The surface of the pipe is carefully cleaned so that when the galvanized coating is applied it adheres strongly and does not tend to flake off.

Identifying Marks

The name "Jones & Laughlin" is rolled in each piece of pipe as a means of identifying a quality product carefully made and finished, and rigidly tested and inspected before shipment. Specify J & L Pipe and have a satisfied clientele.

Specifications for J & L Welded Steel Pipe

(1) **Material**—J & L Welded Pipe shall be made from a uniformly good quality of soft weldable steel rolled from solid ingots from which sufficient crop has been cut to insure sound metal in the skelp.

(2) **Process of Manufacture**—Pipe 3 in. and smaller may be made by the butt-welding process. Pipe over 3 in. shall be lap-welded; also smaller sizes as listed, when ordered as lap-welded pipe.

The welding shall be performed in accordance with the best practice in heating and rolling.

(3) **Physical Properties**—The steel used in the manufacture of the pipe shall show the following physical characteristics:

Tensile strength per sq. in.—minimum 50,000 lb.

Yield point per sq. in.—30,000 lb.

Elongation in 8 in.—20%.

(4) **Finish**—The finished pipe shall be commercially straight and free from injurious defects. All burrs at the ends of the pipe shall be removed.

Threads shall be in accordance with Briggs standard, and cut so as to make a tight joint when the pipe is tested at the mill to the specified internal hydrostatic pressure. The variation from standard, when tested with a standard working gage, shall not exceed a maximum of one and one-half turns either way.

Couplings shall be of sound metal, free from injurious defects, and tapped to such pitch diameter as to make a tight joint.

Galvanized pipe shall be coated with zinc by the hot-dipping process. The coating on the inside and the outside of the pipe shall be free from injurious defects, excessive roughness, or lumps.

Solid tapped rings or split couplings shall be provided as thread protectors on each length of pipe 4 in. and larger.

(5) **Tests**—Each length of pipe shall be subjected at the mill to the hydrostatic test pressures per square inch as shown in the appended table.

For lap-welded pipe, a flattening test on standard weight and extra strong pipe in sizes over 2 in. shall be made by taking a section of pipe 6 in. long, which shall be flattened between parallel plates until the distance between the plates is one-third the outside diameter of the pipe, with the weld located 45° from the line of direction of the applied force, without developing cracks.

Tension test specimens shall consist either of pieces of pipe in full cross-sections, or of sections machined longitudinally from the walls of the pipe.

One tension test, and one flattening test as specified for the respective sizes, may be made on a length of pipe in each lot of 500 lengths or less of each size.

(6) **Size Variation**—Pipe 1½ in. or under shall not vary at any point more than ¼ in. over nor more than ⅜ in. under the nominal outside diameters as shown in the table. For pipe in sizes 2 in. and over, the outside diameter shall not vary more than 1 per cent over or under the standard dimension shown in the table.

(7) **Inspection**—When so desired, pipe may be inspected at the mill, in which event the inspector representing the purchaser shall have free entry, at all times while work on the contract of the purchaser is being performed, to all parts of the manufacturer's works which concern the manufacture of the pipe ordered. The manufacturer shall afford the inspector, free of charge, all reasonable facilities to satisfy him that the pipe is being furnished in accordance with these specifications. All tests and inspection shall be made at the place of manufacture prior to shipment, unless otherwise specified, and shall be so conducted as not to interfere unnecessarily with the operation of the works.

Material which shows injurious defects subsequent to acceptance at the manufacturer's works, or which proves defective when properly applied in service, may be rejected and the manufacturer shall be notified.

J & L FULL STANDARD WEIGHT PIPE, BLACK AND GALVANIZED

All weights and dimensions are nominal

Size, in.	Diameters, in.		Thickness, in.	Weight per ft., lb.		Mill test, lb.	
	External	Internal		Plain ends	Threads and couplings	Threads per in.	Butt weld Lap weld
1/8	.405	.269	.068	.244	.245	27	700
1/4	.540	.364	.088	.424	.425	18	700
3/8	.675	.493	.091	.567	.568	18	700
1/2	.840	.622	.109	.850	.852	14	700
3/4	1.050	.824	.113	1.130	1.134	14	700
1	1.315	1.049	.133	1.678	1.684	11½	700
1¼	1.660	1.380	.140	2.272	2.281	11½	700
1½	1.900	1.610	.145	2.717	2.731	11½	700
2	2.375	2.067	.154	3.652	3.678	11½	700
2½	2.875	2.469	.203	5.793	5.819	8	800
3	3.500	3.068	.216	7.575	7.616	8	800
3½	4.000	3.548	.226	9.109	9.202	8	1000
4	4.500	4.026	.237	10.790	10.889	8	1000
4½	5.000	4.506	.247	12.538	12.642	8	1000
5	5.563	5.047	.258	14.617	14.810	8	1000
6	6.625	6.065	.280	18.974	19.185	8	1000
8	8.625	8.071	.277	24.696	25.000	8	800
8	8.625	7.981	.322	28.554	28.809	8	1000
10	10.750	10.192	.279	31.201	32.000	8	600
10	10.750	10.136	.307	34.240	35.000	8	800
10	10.750	10.020	.365	40.483	41.132	8	900
12	12.750	12.090	.330	43.773	45.000	8	600
12	12.750	12.000	.375	49.562	50.706	8	800

The permissible variation in weight is 5 per cent above and 5 per cent below.

Furnished with threads and couplings and in random lengths unless otherwise ordered.

J & L EXTRA STRONG PIPE, BLACK AND GALVANIZED

All weights and dimensions are nominal

Size, in.	Diameters, in.		Thickness, in.	Weight per ft., plain ends, lb.	Mill test, lb.	
	External	Internal			Butt weld	Lap weld
1/8	.405	.215	.095	.314	700	.....
1/4	.540	.302	.119	.535	700	.....
3/8	.675	.423	.126	.738	700	.....
1/2	.840	.546	.147	1.087	700	.....
3/4	1.050	.742	.154	1.473	700	.....
1	1.315	.957	.179	2.171	700	.....
1¼	1.660	1.278	.191	2.996	1500	2500
1½	1.900	1.500	.200	3.631	1500	2500
2	2.375	1.939	.218	5.022	1500	2500
2½	2.875	2.323	.276	7.661	1500	2000
3	3.500	2.900	.300	10.252	1500	2000
3½	4.000	3.364	.318	12.505	.....	2000
4	4.500	3.826	.337	14.983	.....	2000
4½	5.000	4.290	.355	17.611	.....	1800
5	5.563	4.813	.375	20.778	.....	1800
6	6.625	5.761	.432	28.573	.....	1800
8	8.625	7.625	.500	43.388	.....	1500
10	10.750	9.750	.500	54.735	.....	1200
12	12.750	11.750	.500	65.415	.....	1100

The permissible variation in weight is 5 per cent above and 5 per cent below.

Furnished with plain ends and in random lengths, unless otherwise ordered.

J & L DOUBLE EXTRA STRONG PIPE, BLACK AND GALVANIZED

All weights and dimensions are nominal

Size, in.	Diameters, in.		Thickness, in.	Weight per ft., plain ends, lb.	Mill test, lb.	
	External	Internal			Butt weld	Lap weld
1/8	.840	.252	.294	1.714	700	.....
1/4	1.050	.434	.308	2.440	700	.....
1	1.315	.599	.358	3.659	700	.....
1¼	1.660	.896	.382	5.214	2200	.....
1½	1.900	1.100	.400	6.408	2200	3000
2	2.375	1.503	.436	9.029	2200	3000
2½	2.875	1.771	.552	13.695	2200	3000
3	3.500	2.300	.600	18.583	2200	3000
3½	4.000	2.728	.636	22.850	.....	2500
4	4.500	3.152	.674	27.541	.....	2500
4½	5.000	3.580	.710	32.530	.....	2000
5	5.563	4.063	.750	38.552	.....	2000
6	6.625	4.897	.864	53.160	.....	2000
8	8.625	6.875	.875	72.424	.....	2000

The permissible variation in weight is 10 per cent above and 10 per cent below.

Furnished with plain ends and in random lengths, unless otherwise ordered.

READING IRON COMPANY

World's Largest Manufacturers of Genuine *Puddled* Wrought Iron Pipe

READING, PA.

BRANCH OFFICES

ATLANTA, GA.
BALTIMORE, MD.
BOSTON, MASS.
BUFFALO, N. Y.

SEATTLE, WASH.

CHICAGO, ILL.
CINCINNATI, OHIO
CLEVELAND, OHIO
DETROIT, MICH.

TULSA, OKLA.

HOUSTON, TEX.
KANSAS CITY, MO.
LOS ANGELES, CALIF.
NEW ORLEANS, LA.

SAN FRANCISCO, CALIF.

NEW YORK, N. Y.
PHILADELPHIA, PA.
PITTSBURGH, PA.
ST. LOUIS, MO.

Products

READING GENUINE PUDDLED WROUGHT IRON PIPE, sizes $\frac{1}{8}$ to 24 in., outside diameter.

Also, Puddled Wrought Iron Nipples and Couplings; Reading Charcoal Iron Boiler Tubes, "Old Hickory" Bar Iron and Reading Cut Nails.

Reducing Operating Costs with Puddled Wrought Iron Pipe

When pipe is considered as an item of *operating* expense—as it should be—the importance of long lasting, corrosion resisting pipe, such as Reading Genuine *Puddled* Wrought Iron Pipe, is immediately apparent. Experience has shown that pipe which is not resistant to corrosion, or which fails for some other reason, increases the operating costs of a building enormously, often necessitating replacement of the entire pipe system within a relatively short period of time. Because Reading 5-Point Pipe, under ordinary conditions, lasts as long as the building in which it is installed, you can be certain that it will reduce pipe operating costs to the minimum.

Specific Advantages of Genuine Puddled Wrought Iron

Reading Genuine *Puddled* Wrought Iron Pipe, produced by the original puddling process, possesses five specific advantages over other ferrous pipe. First, this pipe is remarkably resistant to corrosion, due to the filaments of silicious slag uniformly and minutely distributed throughout every part of its structure. These filaments, overlapping, present a barrier which rust does not penetrate. Second, Reading 5-Point Pipe is *fibrous* in structure—not crystalline—and is therefore immune to the effects of strain and metal "fatigue." Reading 5-Point Pipe makes permanently leakproof joints because of its superior threading ability. In addition, Reading 5-Point Pipe is remarkably easy to weld, and holds paint or other coatings permanently.

With a fibrous structure and a melting point approximately 300 degrees higher than that of ordinary pipe, Reading Genuine *Puddled* Wrought Iron Pipe possesses a distinct advantage in resisting the destructive effects of high temperatures. Reading 5-Point Pipe does not oxidize as rapidly as ordinary pipe under excessive heat, and therefore will not scale or be reduced in thickness so quickly.

All lapweld pipe, as made by the READING IRON COMPANY, is *double welded*—an operation which is unique with this company. The practice of double welding all lapwelded tubular goods assures a more perfect weld and a more uniform length of lap throughout the entire length of the pipe being welded. It provides extra strength—tests show that the welds of Reading 5-Point Pipe are as strong as the unwelded parts.

Made by a Time-tested Process

For more than eighty years, the puddling furnace—where the hot, pure pig iron and silicious slag are worked together by *constant agitation*—has been the accepted method of manufacturing genuine *puddled* wrought iron. Numerous attempts have been made to duplicate this process by other methods, but none of these methods has stood the test of generations of service—the only true test of pipe vitality.

It should be noted that the wrought iron pipe that is still serving in buildings which have endured for more than half a century was made by the *puddling* process which the READING IRON COMPANY has used since 1848.



All Reading Pipe Is Marked with the Reading Name, Date of Manufacture, and Indented Spiral Mark

READING STANDARD GENUINE PUDDLED WROUGHT IRON PIPE, BLACK AND GALVANIZED

Size, in.	List price per ft.	Diameters, in.		Thick- ness, in.	Weight per ft., lb.		Thds. per in.	Lgth. of thread, in.	Taper per ft., in.	Hydro- static test, lbs.	
		Ex- ternal	In- ternal		Plain ends	Thds. and couplings					
Buttweld	$\frac{1}{8}$	\$0.05 $\frac{1}{2}$	.405	.266	.070	.244	.245	27	$1\frac{1}{2}$	$\frac{3}{4}$	750
	$\frac{1}{4}$	.06	.540	.360	.090	.424	.425	18	$1\frac{1}{2}$	$\frac{3}{4}$	750
	$\frac{1}{2}$	.08	.675	.489	.093	.567	.568	18	$1\frac{1}{2}$	$\frac{3}{4}$	750
	$\frac{3}{4}$	.08 $\frac{1}{2}$	.840	.617	.111	.850	.852	14	$1\frac{1}{2}$	$\frac{3}{4}$	750
	1	.11 $\frac{1}{2}$	1.050	.819	.115	1.130	1.134	14	$1\frac{1}{2}$	$\frac{3}{4}$	750
	$1\frac{1}{4}$	.17	1.315	1.043	.136	1.678	1.684	11 $\frac{1}{2}$	1	$\frac{3}{4}$	750
	$1\frac{1}{2}$	.23	1.660	1.374	.143	2.272	2.281	11 $\frac{1}{2}$	1	$\frac{3}{4}$	750
	$1\frac{3}{4}$	.27 $\frac{1}{2}$	1.900	1.604	.148	2.717	2.731	11 $\frac{1}{2}$	1	$\frac{3}{4}$	750
	2	.37	2.375	2.060	.158	3.652	3.678	11 $\frac{1}{2}$	1	$\frac{3}{4}$	1000
Lapweld	$1\frac{1}{4}$	.23	1.660	1.374	.143	2.272	2.281	11 $\frac{1}{2}$	1	$\frac{3}{4}$	1000
	$1\frac{1}{2}$	.27 $\frac{1}{2}$	1.900	1.604	.148	2.717	2.731	11 $\frac{1}{2}$	1	$\frac{3}{4}$	1000
	2	.37	2.375	2.060	.158	3.652	3.678	11 $\frac{1}{2}$	1	$\frac{3}{4}$	1000
	$2\frac{1}{2}$	.58 $\frac{1}{2}$	2.875	2.460	.208	5.793	5.819	8	$1\frac{1}{2}$	$\frac{3}{4}$	1000
	3	.76 $\frac{1}{2}$	3.500	3.059	.221	7.575	7.616	8	$1\frac{1}{2}$	$\frac{3}{4}$	1000
	$3\frac{1}{2}$	.92	4.000	3.538	.231	9.109	9.202	8	$1\frac{1}{2}$	$\frac{3}{4}$	1000
	4	1.09	4.500	4.016	.242	10.790	10.889	8	$1\frac{1}{2}$	$\frac{3}{4}$	1000
	$4\frac{1}{2}$	1.27	5.000	4.496	.252	12.538	12.642	8	$1\frac{1}{2}$	$\frac{3}{4}$	1000
	5	1.48	5.563	5.036	.263	14.617	14.810	8	$1\frac{1}{2}$	$\frac{3}{4}$	1000
	6	1.92	6.625	6.053	.286	18.974	19.185	8	$1\frac{1}{2}$	$\frac{3}{4}$	1000
	7	2.38	7.625	7.010	.307	23.544	23.769	8	$1\frac{1}{2}$	$\frac{3}{4}$	1000
	8	2.50	8.625	8.059	.283	21.696	21.900	8	$1\frac{1}{2}$	$\frac{3}{4}$	800
	9	2.88	8.625	7.967	.329	23.554	23.809	8	$1\frac{1}{2}$	$\frac{3}{4}$	1000
	10	3.45	9.625	8.927	.349	33.907	34.188	8	$1\frac{1}{2}$	$\frac{3}{4}$	900
	10	3.20	10.750	10.181	.284	31.201	32.000	8	$2\frac{1}{4}$	$\frac{3}{4}$	600
	10	4.12	10.750	10.005	.372	40.483	41.132	8	$2\frac{1}{4}$	$\frac{3}{4}$	900
	11	4.63	11.750	10.985	.382	41.557	46.247	8	$2\frac{1}{4}$	$\frac{3}{4}$	800
	12	4.50	12.750	12.077	.336	43.773	45.000	8	$2\frac{1}{4}$	$\frac{3}{4}$	600
12	5.07	12.750	11.985	.382	49.562	50.706	8	$2\frac{1}{4}$	$\frac{3}{4}$	800	
140 D.	Prices	11.000	13.250	.375	53.510	55.712	8	3	$\frac{3}{4}$	700	
150 D.		15.000	14.250	.375	57.437	59.859	8	3	$\frac{3}{4}$	700	
160 D.	on	16.000	15.250	.375	61.364	63.927	8	3	$\frac{3}{4}$	600	
170 D.	Appli-	17.000	16.250	.375	65.292	69.436	8	3	$\frac{3}{4}$	550	
180 D.		18.000	17.250	.375	69.219	73.681	8	3	$\frac{3}{4}$	550	
200 D.	cation	20.000	19.250	.375	77.073	82.078	8	3	$\frac{3}{4}$	550	

Furnished with threads and couplings and in random lengths unless otherwise ordered.

Weights and dimensions are nominal.

Weight per foot of pipe with threads and couplings is based on a length of 20 ft., including the coupling, but shipping lengths of small sizes will usually average less than 20 ft.

Permissible variation in weight is 2 1/2 % below and 5 % above weights given in tables.

All weights are figured on the basis of 1 cu. in. of wrought iron weighing .2778 lb.

All pipe threaded to Briggs' standard gauges as made by Pratt & Whitney Co., Hartford, Conn.

For cut lengths, an extra charge will be made above random lengths.

For pipe smoothed on the inside (known as plugged and reamed) an extra charge will be made above standard pipe.

For galvanized or coated pipe an extra charge will be made above black.

When ordering sizes 8 to 12 in., please state weight of pipe wanted.

READING X STRONG AND XX STRONG GENUINE PUDDLED WROUGHT IRON PIPE, BLACK AND GALVANIZED

Size, in.	List price per ft.	Diameters, in.		Thick- ness, in.	Weight, per ft., plain ends, lbs.	Hydro- static test, lbs.	
		External	Internal				
Extra Strong							
Buttweld	$\frac{1}{8}$	\$0.12	.405	.210	.098	.314	750
	$\frac{3}{8}$	.07 $\frac{1}{2}$	.540	.295	.122	.535	750
	$\frac{1}{2}$	.07 $\frac{1}{2}$	.675	.417	.129	.738	750
	$\frac{3}{4}$	.11	.840	.535	.151	1.087	750
	1	.15	1.050	.735	.157	1.473	750
	1 $\frac{1}{4}$	.22	1.315	.949	.183	2.171	750
	1 $\frac{1}{2}$	.30	1.660	1.269	.195	2.996	1500
	1 $\frac{3}{4}$	.36 $\frac{1}{2}$	1.900	1.491	.204	3.631	1500
	2	.50 $\frac{1}{2}$	2.375	1.929	.223	5.022	2500
Lapweld	1 $\frac{1}{4}$	.30	1.660	1.269	.195	2.996	2500
	1 $\frac{1}{2}$	.36 $\frac{1}{2}$	1.900	1.491	.204	3.631	2500
	2	.50 $\frac{1}{2}$	2.375	1.929	.223	5.022	2500
	2 $\frac{1}{2}$	.77	2.875	2.311	.282	7.661	2000
	3	1.03	3.500	2.887	.306	10.252	2000
	3 $\frac{1}{2}$	1.25	4.000	3.350	.325	12.505	2000
	4	1.50	4.500	3.811	.344	14.983	2000
	4 $\frac{1}{2}$	1.80	5.000	4.275	.363	17.611	1800
	5	2.08	5.563	4.797	.383	20.778	1800
	6	2.86	6.625	5.743	.441	28.573	1800
	7	3.81	7.625	6.603	.511	38.048	1500
	8	4.34	8.625	7.604	.510	43.388	1500
	9	4.90	9.625	8.604	.510	48.728	1500
	10	5.48	10.750	9.729	.510	54.735	1200
11	6.10	11.750	10.729	.510	60.075	1100	
12	6.55	12.750	11.729	.510	65.415	1100	
Double Extra Strong							
Buttweld	$\frac{1}{2}$	.32	.840	.226	.307	1.714	750
	$\frac{3}{4}$	.35	1.050	.413	.318	2.440	750
	1	.37	1.315	.576	.369	3.659	750
	1 $\frac{1}{4}$	.52 $\frac{1}{2}$	1.660	.874	.393	5.214	2200
	1 $\frac{1}{2}$	.65	1.900	1.078	.411	6.408	2200
Lapweld	2	.91	2.375	1.480	.447	9.029	3000
	2 $\frac{1}{2}$	1.37	2.875	1.742	.567	13.695	3000
	3	1.86	3.500	2.270	.615	18.583	3000
	3 $\frac{1}{2}$	2.30	4.000	2.697	.651	22.850	2500
	4	2.76	4.500	3.119	.690	27.541	2500
	4 $\frac{1}{2}$	3.26	5.000	3.546	.727	32.530	2000
	5	3.86	5.563	4.028	.768	38.552	2000
	6	5.32	6.625	4.857	.884	53.160	2000
	8	7.25	8.625	6.835	.895	72.424	2000

Extra strong and double extra strong pipe will be shipped in random lengths and with plain ends unless otherwise ordered.

All weights and dimensions are nominal.

Random lengths extra strong and double extra strong pipe are considered to be 12 to 20 ft.—5 % may be 6 to 12 ft.

If fitted with threads and couplings, an extra charge will be made above regular. When extra strong or double extra strong pipe is ordered with threads and couplings, regular line couplings will be furnished, unless otherwise specified.

For cut lengths, an extra charge will be made above random lengths. For galvanized or tar coated pipe, an extra charge will be made above black.

There is 5 % permissible variation in weight from above extra strong sizes—10 % on double extra strong.

Specification of Reading Genuine Puddled Wrought Iron Pipe

To assist buyers in securing genuine *puddled* wrought iron pipe, READING IRON COMPANY urges the adoption of the following model specifications where pipe of long life and ultimate economy is desired.

Material—All black and galvanized pipe, nipples and couplings shall be Reading guaranteed quality genuine *puddled* wrought iron standard, full weight, made from best grade pig iron by the process of puddling, and no scrap or cuttings except crop ends from the sheet or crop ends of the pipe shall be used in the manufacture.

Trade or Identification Marks—All pipe, nipples and couplings must bear the spiral diamond design identification mark rolled on the outside surface.

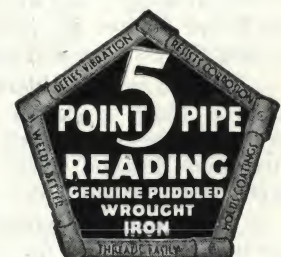
The design shall be so placed that the mark can be quickly identified, regardless of at what angle the pipe, nipple or coupling may be placed.

Pipe—All pipe 1 1/2 in. and smaller, standard and special sizes, shall be butt welded (1 1/4 and 1 1/2 in. where specified can be lap welded).

All pipe 2 in. and larger, standard and special sizes, shall be lap welded. All in accordance with the best methods and practice.

Nipples—All nipples shall be cut from the same quality and weight as described and specified in the above specification.

Couplings—All couplings shall be the same quality of material and made by the same process as that of genuine *puddled* wrought iron pipe described above. Couplings for oil country goods must be made from double refined genuine *puddled* wrought iron. Threads must be clean cut, tapped straight through, and of such pitch diameter as will make a tight joint; the ends must be countersunk. All couplings longer than 4 in., and all oil country couplings must be full taper-tapped on each end, facial and recessed.



REPUBLIC STEEL CORPORATION

GENERAL OFFICES AND TUBE WORKS
YOUNGSTOWN, OHIO

DISTRICT SALES OFFICES

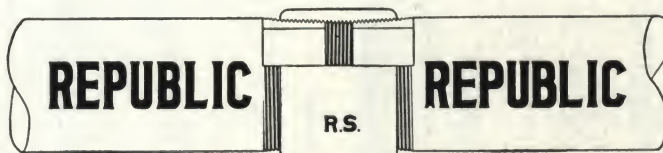
BIRMINGHAM, ALA., Empire Bldg.
BOSTON, MASS., Chamber of Commerce Bldg.
BUFFALO, N. Y., Liberty Bank Bldg.
CHICAGO, ILL., McCormick Bldg.
CINCINNATI, OHIO, First Nat'l Bank Bldg.
CLEVELAND, OHIO, Union Trust Bldg.
DALLAS, TEX., Republic Bank Bldg.

DENVER, COLO., Continental Oil Bldg.
DETROIT, MICH., Fisher Bldg.
EL PASO, TEX., Mills Bldg.
INDIANAPOLIS, IND., Circle Tower
LOS ANGELES, CAL., Rives-Strong Bldg.
MILWAUKEE, WIS., First Wisconsin Nat'l Bank Bldg.
NEW YORK, N. Y., Lincoln Bldg.

PHILADELPHIA, PA., Fidelity Philadelphia Trust Bldg.
PITTSBURGH, PA., Oliver Bldg.
ST. LOUIS, MO., Paul Brown Bldg.
ST. PAUL, MINN., Merchants Bank Bldg.
SAN FRANCISCO, CAL., Rialto Bldg.
SEATTLE, WASH., Smith Power Bldg.
YOUNGSTOWN, OHIO, Central Tower Bldg.

Products

TONCAN COPPER MO-
LYB-DEN-UM IRON PIPE.
REPUBLIC COPPER
BEARING STEEL PIPE.
REPUBLIC WROUGHT
STEEL PIPE, Butt and Lap Welded.
REPUBLIC ELECTRICALLY WELDED STEEL PIPE.



From Mine to Consumer

This company controls and operates the manufacture of its products from the mines to the consumer, therefore

is able to produce a commodity that is of a high standard and uniform quality.

WHERE AND WHEN REPUBLIC PIPE SHOULD BE USED

It is rather difficult to recommend uses of tubular products that will hold true in all localities because of the varying degrees of corrosive action. In addition, some jobs are speculative and the additional cost of a better material is not warranted. However, in general, the following uses are suggested to the architect who has a pipe installation problem.

Heating

Excessive Corrosion—Where excessive corrosion will be encountered, black standard weight Toncan Copper Mo-lyb-den-um Iron Pipe or black extra strong wrought steel pipe should be used and will justify the slightly higher cost.

Ordinary Conditions—Where all piping, risers and returns are subjected to ordinary conditions, black standard weight wrought steel pipe is suggested.

Plumbing

Excessive Corrosion—Where hot and cold water lines and general plumbing installations are subjected to high corrosive action, galvanized standard weight Toncan Copper Mo-lyb-den-um Iron Pipe is most suitable.

Atmospheric Corrosion—Where atmospheric conditions cause corrosion on tubular products, it is suggested that galvanized standard weight copper bearing steel pipe be used.

Ordinary Conditions—Where pipe is subjected to ordinary usage and corrosion is light, black standard wrought steel pipe will ordinarily be satisfactory.

Vents, Drainage and Down-spouts—Tubular products for such uses are subjected to atmospheric corrosive action which suggests the use of galvanized standard weight copper bearing steel pipe. When such corrosive action is light, galvanized standard weight wrought steel pipe will usually suffice.

Fire Lines—Where water pressures are not excessive, black standard weight wrought steel pipe is recommended. Where water pressure is heavy and fire laws demand, black extra heavy weight wrought steel pipe is suggested.

Sprinkler Systems—Black standard weight wrought steel pipe for all piping.

Gas Lines—Black standard weight wrought steel pipe for all piping.

Toncan Copper Mo-lyb-den-um Iron Pipe

Toncan is primarily a corrosion resistant material, being a pure iron alloyed with copper and molybdenum. Better grain refinement can be secured in iron when a small amount of molybdenum is present. This improvement in grain structure has an important bearing on strength and ductility and has been proven a definite aid to corrosion resistance. Toncan threads, bends, flanges and coils easily.

Toncan is recommended where highly corrosive conditions are encountered and where a slightly increased initial cost is warranted; this in most instances will be equalized by increased life of the installation.

Identification—Every length of Toncan Iron Pipe is marked with a blue stripe, and the name Republic in raised letters. Couplings are blue and stamped RT.

Republic Copper Bearing Steel Pipe

This type of material is suggested for installations comparable to atmospheric corrosive conditions. The long exposure tests of the American Society for Testing Materials prove beyond question that copper, when added to steel, is a decided benefit in resisting this type of corrosive attack. The increased cost is a sound investment which yields increased life of installation.

Identification—Each length is properly identified "Republic Copper Bearing Steel Pipe," with no possibility of confusion at the time of installation or inspection by the architect.

Republic Wrought Steel Pipe—Butt and Lap Welded

This pipe is made from uniformly good quality soft weldable wrought steel, rolled from solid ingots. Sufficient crop is cut from the ends to insure sound material, and the steel is given the most approved treatment in heating and rolling. Every piece is carefully inspected and tested. Republic Wrought Steel Pipe threads, flanges and bends easily.

Identification—Each length of pipe is identified with the name "Republic" rolled in raised letters every 3 ft. of length.

SPECIFICATIONS UNDER WHICH REPUBLIC WROUGHT STEEL WELDED PIPE IS MANUFACTURED

The manufacturers of Republic Pipe have adopted a rigorous system of testing and inspection that practically makes it impossible for inferior product to pass. The system insures the best of material and workmanship. While every precaution is taken to guard against inferior material entering into the manufacture, a most rigid inspection is made after the welding of the skelp into the pipe, for it is quite possible to deteriorate the best of material in the process of welding.

In order to insure first class product without necessarily increasing the cost of manufacture, we have adopted and recommend the following specifications:

Process of Manufacture—All pipe shall be made either by the lap or butt-weld process as specified on order, according to the best methods and practice.

Surface Inspection—The pipe must be reasonably straight and free from blisters, cracks or other injurious defects. Liquor marks incidental to the manufacture of lap-welded pipe will not be considered as surface defects. The pipe shall not vary more than 1% either way from being perfectly round or true to the standard outside diameter, except on the small sizes (1½ in. and smaller) where a variation of ⅛ in. will be accepted. The pipe must not vary more than 5% either way from standard weight.

Threading and Reaming—When required, the pipe must have a good Briggs standard thread. The threads must not vary more than 1½

turns either way when tested with a Pratt & Whitney Briggs standard gauge. All burrs at ends to be removed.

Internal Pressure Test—The test pressures will be applied to the respective sizes of standard butt and lap-weld pipe as indicated in tables.

Testing of Material—The steel from which the pipe is made must show the following physical properties:

Tensile strength..... 52,000 to 62,000 lb. per sq. in.
Elastic limit..... not less than 30,000 lb. per sq. in.
Elongation in 8 in..... not less than 20%
Reduction of area..... not less than 50%

A test piece cut lengthwise from the pipe and filed smooth on the edges shall bend, without fracture, through 180 degrees with an inner diameter at the bend equal to the thickness of the material.

Couplings—The material to be sound and free from injurious defects. Threads must be clean cut, tapped straight through, and of such pitch diameter as will make a tight joint. Ends must be countersunk.

Thread Protection—Solid tapped rings or split couplings will be provided as thread protectors on all sizes 3½-in. diam. or larger. Protection will be provided for smaller sizes when called for on order.

Additional Specifications—In addition to the above, Republic Pipe is manufactured in accordance with all standard specifications such as, A.S.T.M., A.P.I., etc.

REPUBLIC STANDARD WEIGHT WROUGHT STEEL PIPE, BLACK AND GALVANIZED

All Weights and Dimensions Are Nominal

Size	Diameters, in.		Thick-ness, in.	Wt. per ft., lb.		Thds. per in.	Pipe length in ft., per sq. ft. of surface		Test pressure, lb.		Couplings			List price per ft.
	Ex-ternal	In-ternal		Plain ends	Thds. and couplings		Ex-ternal	In-ternal	Butt weld	Lap weld	Diam. in.	Lgth. in.	Wt. lb.	
1/8	.405	.269	.068	.244	.245	27	9.431	14.199	700	.....	.562	7/8	.030	\$0.05½
1/4	.540	.364	.088	.424	.425	18	7.073	10.493	700	.....	.685	1	.044	.06
3/8	.675	.493	.091	.567	.568	18	5.658	7.747	700	.....	.848	1½	.072	.06
1/2	.840	.622	.109	.850	.852	14	4.547	6.141	700	.....	1.024	1¾	.118	.08½
3/4	1.050	.824	.113	1.130	1.134	14	3.637	4.635	700	.....	1.281	1½	.214	.11½
1	1.315	1.049	.133	1.678	1.684	11½	2.904	3.641	700	.....	1.576	1¾	.350	.17
1¼	1.660	1.380	.140	2.272	2.281	11½	2.301	2.767	700	1000	1.950	2½	.546	.23
1½	1.900	1.610	.145	2.717	2.731	11½	2.010	2.372	700	1000	2.218	2¾	.758	.27½
2	2.375	2.067	.154	3.652	3.678	11½	1.608	1.847	700	1000	2.760	2¾	1.233	.37
2½	2.875	2.469	.203	5.793	5.819	8	1.328	1.547	800	1000	3.276	2¾	1.755	.58½
3	3.500	3.068	.216	7.575	7.616	8	1.091	1.245	800	1000	3.948	3½	2.549	.76½
3½	4.000	3.548	.226	9.109	9.202	8	.954	1.076	.....	1000	4.591	3¾	4.328	.92
4	4.500	4.026	.237	10.790	10.889	8	.848	.948	.....	1000	5.091	3¾	5.410	1.09
4½	5.000	4.506	.247	12.538	12.642	8	.763	.847	.....	1000	5.591	3¾	5.984	1.27
5	5.563	5.047	.258	14.617	14.810	8	.686	.756	.....	1000	6.296	4¾	9.158	1.48
6	6.625	6.065	.280	18.974	19.185	8	.576	.629	.....	1000	7.358	4¾	10.823	1.92
*7	7.625	7.023	.301	23.544	23.769	8	.500	.543	.....	1000	8.358	4¾	12.390	2.38
8	8.625	8.071	.277	24.696	25.000	8	.442	.473	.....	800	9.420	4¾	15.843	2.50
8	8.625	7.981	.322	28.554	28.809	8	.442	.478	.....	1000	9.420	4¾	15.843	2.88
*9	9.625	8.941	.342	33.907	34.188	8	.396	.427	.....	900	10.420	5¾	19.752	3.45
10	10.750	10.192	.279	31.201	32.000	8	.355	.374	.....	600	11.721	6¾	33.923	3.20
10	10.750	10.136	.307	34.240	35.000	8	.355	.376	.....	800	11.721	6¾	33.923	3.50
10	10.750	10.020	.365	40.483	41.132	8	.355	.381	.....	900	11.721	6¾	33.923	4.12
*11	11.750	11.000	.375	45.557	46.247	8	.325	.347	.....	800	12.721	6¾	36.970	4.63
12	12.750	12.090	.330	43.773	45.000	8	.299	.315	.....	600	13.958	6¾	48.266	4.50
12	12.750	12.000	.375	49.562	50.706	8	.299	.318	.....	800	13.958	6¾	48.266	5.07

*Item now obsolete.

The permissible variation in weight is 5% above and 5% below.

Furnished with threads and couplings and in random lengths unless otherwise ordered.

For cut lengths, an extra charge will be made above random lengths.

For pipe smoothed on the inside, known as reamed and drifted, an extra charge will be made above standard pipe.

For galvanized or coated, an extra charge will be made above black.

Taper of threads is ⅜ in. diam. per ft. length for all sizes.

REPUBLIC EXTRA STRONG WROUGHT STEEL PIPE BLACK AND GALVANIZED

All Weights and Dimensions Are Nominal

Size	Diameters, in.		Thick-ness, in.	Weight per ft., lb., plain ends	Pipe length in ft., per sq. ft. of surface		Test pressure, lb.		List price per ft.
	Ex-ternal	In-ternal			Ex-ternal	In-ternal	Butt weld	Lap weld	
1/8	.405	.215	.095	.314	9.431	17.766	700	.....	\$0.12
1/4	.540	.302	.119	.535	7.073	12.648	700	.....	.07½
3/8	.675	.423	.126	.738	5.658	9.030	700	.....	.07½
1/2	.840	.546	.147	1.087	4.547	6.995	700	.....	.11
3/4	1.050	.742	.154	1.473	3.637	5.147	700	.....	.15
1	1.315	.957	.179	2.171	2.904	3.991	700	.....	.22
1¼	1.660	1.278	.191	2.996	2.301	2.988	1500	2500	.30
1½	1.900	1.500	.200	3.631	2.010	2.546	1500	2500	.36½
2	2.375	1.939	.218	5.022	1.608	1.969	1500	2500	.50½
2½	2.875	2.323	.276	7.661	1.328	1.644	1500	2000	.77
3	3.500	2.900	.300	10.252	1.091	1.317	1500	2000	1.03
3½	4.000	3.364	.318	12.505	.954	1.135	.....	2000	1.25
4	4.500	3.826	.337	14.983	.848	.998	.....	2000	1.50
*4½	5.000	4.290	.355	17.611	.763	.890	.....	1800	1.80
5	5.563	4.813	.375	20.778	.686	.793	.....	1800	2.08
6	6.625	5.761	.432	28.573	.576	.663	.....	1800	2.86
*7	7.625	6.625	.500	38.048	.500	.576	.....	1500	3.81
8	8.625	7.625	.500	43.388	.442	.500	.....	1500	4.34
*9	9.625	8.625	.500	48.728	.396	.442	.....	1500	4.90
10	10.750	9.750	.500	54.735	.355	.391	.....	1200	5.48
*11	11.750	10.750	.500	60.075	.325	.355	.....	1100	6.10
12	12.750	11.750	.500	65.415	.299	.325	.....	1100	6.55

*Item now obsolete.

Furnished with plain ends and in random lengths, unless otherwise ordered. Random lengths of extra strong and double extra strong pipe

REPUBLIC DOUBLE EXTRA STRONG WROUGHT STEEL PIPE BLACK AND GALVANIZED

All Weights and Dimensions Are Nominal

Size	Diameters, in.		Thick-ness, in.	Weight per ft., lb., plain ends	Pipe length in ft., per sq. ft. of surface		Test pressure, lb.		List price per ft.
	Ex-ternal	In-ternal			Ex-ternal	In-ternal	Butt weld	Lap weld	
1/2	.840	.252	.294	1.714	4.547	15.157	700	.....	\$0.32
3/4	1.050	.434	.308	2.440	3.637	8.801	700	.....	.35
1	1.315	.599	.358	3.659	2.904	6.376	700	.....	.37
1¼	1.660	.896	.382	5.214	2.301	4.263	2200	.....	.52½
1½	1.900	1.100	.400	6.408	2.010	3.472	2200	3000	.65
2	2.375	1.503	.436	9.029	1.608	2.541	2200	3000	.91
2½	2.875	1.771	.552	13.695	1.328	2.156	2200	3000	1.37
3	3.500	2.300	.600	18.583	1.091	1.660	.....	3000	1.86
3½	4.000	2.728	.636	22.850	.954	1.400	.....	2500	2.30
4	4.500	3.152	.674	27.541	.848	1.211	.....	2500	2.76
4½	5.000	3.580	.710	32.530	.763	1.066	.....	2000	3.26
5	5.563	4.063	.750	38.552	.686	.940	.....	2000	3.86
6	6.625	4.897	.864	53.160	.576	.780	.....	2000	5.32
7	7.625	5.875	.875	63.079	.500	.650	.....	2000	6.35
8	8.625	6.875	.875	72.424	.442	.555	.....	2000	7.25

are considered to be 12 to 22 ft. We have the privilege, however, of supplying not exceeding 5% of total order in lengths from 6 to 12 ft.

For pipe fitted with threads and couplings, an extra charge will be made above plain ends.

For cut lengths, an extra charge will be made above random. For galvanized or coated pipe, an extra charge will be made above black.

The permissible variation in weight is 5% above and 5% below for the extra strong pipe, and 10% above and 10% below for the double extra strong pipe.

SPANG, CHALFANT & CO., INC.

Manufacturers of Welded and Seamless Steel Pipe

GENERAL OFFICES

Clark Building, PITTSBURGH PA.

SALES OFFICES

PITTSBURGH, PA., Clark Building
ST. LOUIS, MO., Boatmen's Bank Building

NEW YORK, N. Y., Vanderbilt Avenue Building
LOS ANGELES, CALIF., Bank of Italy Building

CHICAGO, ILL., McCormick Building
TULSA, OKLA., Exchange Bank Building

SALES REPRESENTATIVES

BOSTON, MASS.

BIRMINGHAM, ALA.

DALLAS, TEX.

Products and Facilities

SPANG CHALFANT WELDED and SEAMLESS TUBULAR STEEL PRODUCTS, including Standard, Extra Strong and Double Extra Strong Pipe, both black and galvanized, for all purposes and Spang "Copper-Clude" Pipe.

This company is the oldest pipe mill operating in America and has a record of many years of satisfactory service to users of tubular products of all kinds and for all purposes. Its present facilities include plants for the manufacture of butt weld $\frac{1}{8}$ to 3-in. inside diameter, lap weld $1\frac{1}{4}$ -in. inside diameter to 24-in. outside diameter, inclusive, and seamless $1\frac{1}{2}$ -in. inside diameter to 16-in. outside diameter, inclusive, pipe.

claim for damages beyond the price of the tubular goods will be considered and no charge for labor or expense of repair will be allowed.

Identification of Pipe

All Spang Chalfant Pipe, whether welded or seamless, carry the following identifying marks:

Welded Pipe—All welded pipe, in sizes $\frac{1}{2}$ in. and larger is marked with the name "Spang" rolled into every length during the process of manufacture.

Seamless Pipe—"Standard" seamless pipe is marked with a designating mark "Standard" stamped into the finished product.



"Spang" Welded Pipe



"Standard" Seamless Pipe



Spang "Copper-Clude" Pipe

Inspection

Every piece of pipe, tubing or casing is carefully inspected during process of manufacture and is tested and inspected after all the operations are finished. All imperfections that are possible to detect are therefore found and eliminated.

Guarantee

We guarantee to replace such goods as prove defective, or allow credit for same, at our option. No

"Copper-Clude" Pipe—Spang "Copper-Clude" is a new trade-name for steel pipe which has a percentage of pure copper added. This pipe is soft, easy to work, but highly resistant to corrosion, making it ideal for exposed piping jobs where severe atmospheric conditions are present (alternate wet and dry, etc.)

To identify—Spang Black "Copper-Clude" is solidly enameled maroon; Galvanized "Copper-Clude" carries two bright maroon stripes the entire length of each piece of pipe.

CHEMICAL AND PHYSICAL PROPERTIES

Data	Bessemer steel	Open hearth steel	Rephosphorized steel
Chemical Properties			
Manganese.....	.30 to .60	.30 to .60	.30 to .60
Phosphorus.....	Not over .11	Not over .045	Not over .08
Sulphur.....	Not over .065	Not over .06	Not over .045
Physical Properties*			
Tensile strength, lbs. per sq. in.	50,000	45,000	48,000
Yield point, lbs. per sq. in.	30,000	25,000	28,000
Elongation in 8 in.	20%	22%	20%

*The material shall conform to the minimum requirements as to tensile properties as shown here.

BUNDLING SCHEDULE

Pipe, in.	Standard			Extra Heavy			Double Extra Heavy		
	Number pieces	Ft.	Wt., lb.	Number pieces	Ft.	Wt., lb.	Number pieces	Ft.	Wt., lb.
$\frac{1}{4}$	30	500	122	30	14-16	141			
$\frac{3}{4}$	24	440	137	24	15-17	205			
$\frac{1}{2}$	18	350	200	18	15-17	226	12	14-16	200
$\frac{3}{4}$	12	240	205	12	19-21	254	7	16-18	205
$\frac{1}{2}$	7	140	160	7	19-21	200	5	16-18	220
1	5	105	180	5	19-21	220	3	18-20	200
$1\frac{1}{4}$	3	61	140	3	19-21	180	3	18-20	285
$1\frac{1}{2}$	3	62	169	3	19-21	220	3	18-20	352

Information of Value When Specifying or Ordering

The following information, some of which pertains to the tables below, will be found of value when specifying or ordering pipe.

All weights given in tables are limited to three decimal points and are figured on the basis of 1 cu. in. of steel weighing .2833 lb.

All material will be cut to length, when so ordered, with extreme variation not exceeding $\frac{1}{8}$ in. over or under, unless otherwise arranged. All pipe is threaded to American Standard (Briggs) working gages as made by Pratt & Whitney Co.

Pipe and tubing are known and spoken of by their nominal inside diameters from $\frac{1}{8}$ to 12 in., inclusive and by their nominal outside diameters above 12 in. inside diameter. Where pipe and tubing, heavier than standard, are specified the extra thickness is on the inside reducing the inside diameter of the

pipe. All dimensions are subject to change without notice.

Where $\frac{1}{8}$ to 12-in. pipe is to be finished with threads and couplings and where orders specify quantity in lineal feet, random lengths fitted with threads both ends and coupling one end will be shipped and measurement charge from end to end, including coupling. Where cut lengths are specified order must state whether plain ends, threads only or threads and couplings are required. Sizes from 14 in. up are customarily held in stock in plain ends and orders should specify whether plain ends, threads only or threads and couplings are desired.

When figuring on lineal feet of pipe for long lines allowance should be made, on pipe fitted with threads and couplings, for the distance pipe is screwed into coupling, when assembling, usually one-half length of coupling.

"SPANG" STANDARD PIPE—BLACK AND GALVANIZED

All Weights and Dimensions Are Nominal

Size	List price per foot	Diameters, in.		Thickness, in.	Weight per foot, lb.		Threads per inch	Test pressure, lb.		Couplings		
		External	Internal		Plain ends	Threads and couplings		Butt	Lap	Diameter, in.	Length, in.	Weight, lb.
$\frac{1}{8}$	\$.05 $\frac{1}{2}$	.405	.269	.068	.244	.245	27	700	....	.562	$\frac{7}{8}$	.030
$\frac{1}{4}$	.06	.540	.364	.088	.424	.425	18	700	....	.685	1	.044
$\frac{3}{8}$	.06	.675	.493	.091	.567	.568	18	700	....	.848	$1\frac{1}{8}$	.072
$\frac{1}{2}$	.08 $\frac{1}{2}$	.840	.622	.109	.850	.852	14	700	....	1.024	$1\frac{3}{8}$	.118
$\frac{3}{4}$	.11 $\frac{1}{2}$	1.050	.824	.113	1.130	1.134	14	700	....	1.281	$1\frac{5}{8}$	.214
1	.17	1.315	1.049	.133	1.678	1.684	$11\frac{1}{2}$	700	....	1.576	$1\frac{7}{8}$	.350
$1\frac{1}{4}$	.23	1.660	1.380	.140	2.272	2.281	$11\frac{1}{2}$	700	1000	1.950	$2\frac{1}{8}$	.546
$1\frac{1}{2}$	.27 $\frac{1}{2}$	1.900	1.610	.145	2.717	2.731	$11\frac{1}{2}$	700	1000	2.218	$2\frac{3}{8}$	.758
2	.37	2.375	2.067	.154	3.652	3.678	$11\frac{1}{2}$	700	1000	2.760	$2\frac{5}{8}$	1.233
$2\frac{1}{2}$	.58 $\frac{1}{2}$	2.875	2.469	.203	5.793	5.819	8	800	1000	3.276	$2\frac{7}{8}$	1.755
3	.76 $\frac{1}{2}$	3.500	3.068	.216	7.575	7.616	8	800	1000	3.948	$3\frac{1}{8}$	2.549
$3\frac{1}{2}$	.92	4.000	3.548	.226	9.109	9.202	8	...	1000	4.591	$3\frac{3}{8}$	4.328
4	1.09	4.500	4.026	.237	10.790	10.889	8	...	1000	5.091	$3\frac{5}{8}$	5.410
* $4\frac{1}{2}$	1.27	5.000	4.506	.247	12.538	12.642	8	...	...	5.591	$3\frac{7}{8}$	5.984
5	1.48	5.563	5.047	.258	14.617	14.810	8	...	1000	6.296	$4\frac{1}{8}$	9.158
6	1.92	6.625	6.065	.280	18.974	19.185	8	...	1000	7.358	$4\frac{3}{8}$	10.823
*7	2.38	7.625	7.023	.301	23.544	23.769	8	...	...	8.358	$4\frac{1}{2}$	12.390
8	2.50	8.625	8.071	.277	24.696	25.000	8	...	800	9.420	$4\frac{3}{4}$	15.843
8	2.88	8.625	7.981	.322	28.554	28.809	8	...	1000	9.420	$4\frac{5}{8}$	15.843
*9	3.45	9.625	8.941	.342	33.907	34.188	8	...	...	10.420	$5\frac{1}{8}$	19.752
10	3.20	10.750	10.192	.279	31.201	32.000	8	...	600	11.721	$6\frac{1}{8}$	33.923
10	3.50	10.750	10.136	.307	34.240	35.000	8	...	800	11.721	$6\frac{3}{8}$	33.923
10	4.12	10.750	10.020	.365	40.483	41.132	8	...	900	11.721	$6\frac{5}{8}$	33.923
*11	4.63	11.750	11.000	.375	45.557	46.247	8	...	...	12.721	$6\frac{7}{8}$	36.970
12	4.50	12.750	12.090	.330	43.773	45.000	8	...	600	13.958	$6\frac{7}{8}$	48.266
12	5.07	12.750	12.000	.375	49.562	50.706	8	...	800	13.958	$6\frac{7}{8}$	48.266

"SPANG" EXTRA STRONG AND DOUBLE EXTRA STRONG PIPE—BLACK AND GALVANIZED

All Weights and Dimensions Are Nominal

Size	List price per foot	Diameters, in.		Thick-ness, in.	Weight per foot plain ends, lb.	Test pressure, lb.		Size	List price per foot	Diameters, in.		Thick-ness, in.	Weight per foot plain ends, lb.	Test pressure, lb.	
		External	Internal			Butt	Lap			External	Internal			Butt	Lap
Extra Strong								Extra Strong (Continued)							
$\frac{1}{8}$	\$0.12	.405	.215	.095	.314	700	.....	* 11	6.10	11.750	10.750	.500	60.075	.....	1100
$\frac{1}{4}$	.07 $\frac{1}{2}$	.540	.302	.119	.535	700	.....	12	6.55	12.750	11.750	.500	65.415	.....	1100
$\frac{3}{8}$	.07 $\frac{1}{2}$	.675	.423	.126	.738	700	.....	Double Extra Strong							
$\frac{1}{2}$	.11	.840	.546	.147	1.087	700	.....	$\frac{1}{2}$	\$0.32	.840	.252	.294	1.714	700	.....
$\frac{3}{4}$	.15	1.050	.742	.154	1.473	700	.....	$\frac{3}{4}$	.35	1.050	.434	.308	2.440	700	.....
1	.22	1.315	.957	.179	2.171	700	.....	1	.37	1.315	.599	.358	3.659	700	.....
$1\frac{1}{4}$	.30	1.660	1.278	.191	2.996	1500	2500	$1\frac{1}{4}$	.52 $\frac{1}{2}$	1.660	.896	.382	5.214	2200	.....
$1\frac{1}{2}$	.36 $\frac{1}{2}$	1.900	1.500	.200	3.631	1500	2500	$1\frac{1}{2}$	.65	1.900	1.100	.400	6.408	2200	3000
2	.50 $\frac{1}{2}$	2.375	1.939	.218	5.022	1500	2500	2	.91	2.375	1.503	.436	9.029	2200	3000
$2\frac{1}{2}$	.77	2.875	2.323	.276	7.661	1500	2000	$2\frac{1}{2}$	1.37	2.875	1.771	.552	13.695	2200	3000
3	1.03	3.500	2.900	.300	10.252	1500	2000	3	1.86	3.500	2.300	.600	18.583	2200	3000
$3\frac{1}{2}$	1.25	4.000	3.364	.318	12.505	.....	2000	$3\frac{1}{2}$	2.30	4.000	2.728	.636	22.850	.....	2500
4	1.50	4.500	3.826	.337	14.983	.....	2000	4	2.76	4.500	3.152	.774	27.541	.....	2500
* $4\frac{1}{2}$	1.80	5.000	4.290	.355	17.611	.....	1800	* $4\frac{1}{2}$	3.26	5.000	3.580	.710	32.530	.....	2000
5	2.08	5.563	4.813	.375	20.778	.....	1800	5	3.86	5.563	4.063	.750	38.552	.....	2000
6	2.86	6.625	5.761	.432	28.573	.....	1800	6	5.32	6.625	4.897	.864	53.160	.....	2000
*7	3.81	7.625	6.625	.500	38.048	.....	1500	*7	6.35	7.625	5.875	.875	63.079	.....	2000
8	4.34	8.625	7.625	.500	43.388	.....	1500	8	7.25	8.625	6.875	.875	72.424	.....	2000
*9	4.90	9.625	8.625	.500	48.728	.....	1500								
10	5.48	10.750	9.750	.500	54.735	.....	1200								

*These sizes eliminated from general production September 1, 1927. Permissible variation in weight is 5% above and 5% below for extra strong pipe; 10% above and 10% below for double extra strong pipe.

Furnished with plain ends and in random lengths, unless otherwise ordered. Random length of extra strong and double extra strong pipe is considered to be 12 to 22 ft.; we have the privilege, however, of sup-

plying not exceeding 5% of total order in lengths from 6 to 12 ft. For pipe fitted with threads and couplings, an extra charge will be made above plain ends. For cut lengths, an extra charge will be made above random lengths. For galvanized, or coated pipe, an extra charge will be made above black. Taper of threads (when threaded) is $\frac{3}{4}$ in. diameter per foot length for all sizes.

THE YOUNGSTOWN SHEET & TUBE COMPANY

YOUNGSTOWN, OHIO

DISTRICT SALES OFFICES

ATLANTA, GA., Healey Building
BOSTON, MASS., Chamber of Commerce Building
BUFFALO, N. Y., Liberty Bank Building
CHICAGO, ILL., Conway Building
CINCINNATI, OHIO, Union Trust Building
CLEVELAND, OHIO, Union Trust Building
DALLAS, TEX., Magnolia Building

DENVER, COLO., Continental Oil Building
DETROIT, MICH., Fisher Building
KANSAS CITY, MO., Commerce Building
LOS ANGELES, CAL., 3000 Santa Fe Avenue
MINNEAPOLIS, MINN., Andrus Building
NEW ORLEANS, LA., Hibernia Building
NEW YORK, N. Y., 30 Church Street, Hudson Terminal Building

PHILADELPHIA, PA., Franklin Building
PITTSBURGH, PA., Oliver Building
SAN FRANCISCO, CAL., Sharon Building
SEATTLE, WASH., Central Building
ST. LOUIS, MO., Louderman Building
YOUNGSTOWN, OHIO, Stambaugh Building

FOREIGN REPRESENTATIVES

LONDON, E. C. ENGLAND, The Youngstown Steel Products Co., Dashwood House, Old Broad Street
HAVANA, CUBA, RIERA, TORO & VAN TWISTERN

BUENOS AIRES, ARGENTINA, A. ROLFE-ROGERS, Victoria 450
MEXICO CITY, MEXICO, GENERAL COMMISSION Co., S. A., P. O. Box 961 BIS.

Products

RAW and SEMI-FINISHED MATERIALS: Iron Ore; Zinc Ore; Coal; Coke and By-products; Pig Iron; Bessemer Steel; Open-hearth Steel; Ingots; Blooms; Billets; Slabs; Sheet Bars and Skelp.

TUBULAR GOODS: Lap-welded, Butt-welded, Electric-welded and Seamless Pipe, Casing and Tubing for all purposes, sizes $\frac{1}{8}$ to 20 in. in diameter; "Youngstown-Buckeye" Rigid Steel Conduit, enameled or electro-galvanized.

"YOUNGSTOWN" SHEETS: Steel; Copperoid Steel; Black; Galvanized; One-pass Cold Rolled; Box Annealed; Blue Annealed; Single Pickled; Full Pickled; "Galvannealed"; Special Oven-lining Sheets, dull and polished; Automobile; Furniture; Special Finished Sheets for all purposes and in all standard sizes and gauges; Roofing and Siding plain, corrugated, V-crimp, roll and pressed standing seam.

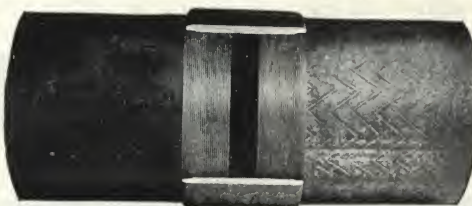
TIN PLATE.

PLATES: Sheared and Universal, Pickled, Oil or Lined.

MERCHANT BARS. RODS.

WIRE: Plain; Black; Galvanized; Welded; Barbed.

NAILS. STAPLES. HOOPS.



YOUNGSTOWN WELDED STEEL PIPE
All Weights and Dimensions are Nominal

Information and Catalogues

For information and catalogues refer to any of our District Sales Offices.

Manufacturing Facilities

Owning its own ore and coal mines, manufacturing its own coke, pig iron and steel, and equipped with complete research, laboratory and inspection organizations, as well as the most modern machinery, THE YOUNGSTOWN SHEET & TUBE COMPANY is in a position to serve the trade with products unexcelled.

Of equal importance is the well established policy of co-operation with customers by furnishing only materials of the highest quality.

Youngstown products have been in use all over the world for more than a quarter of a century, and the high reputation they enjoy has been earned by satisfactory performance. They may be regarded as thoroughly dependable and the equal of similar products made anywhere.

Youngstown Pipe

Youngstown Pipe is the principal product of the company. Its output of this material is approximately 1,390,000 tons annually, and includes pipe for all purposes and in all standard sizes of butt-welded, lap-welded and seamless (both Pilger and Automatic process). Youngstown Pipe is made of the best tube steel that can be manufactured and with utmost care in regard to details. It is a product of uniformly high quality.

Size, in.	List price per foot	Diameters, in.		Thick- ness, in.	Weight per foot, lbs.		Threads per in.
		External	Internal		Plain ends	Threads and couplings	
Full Standard Weight—Black and Galvanized*							
$\frac{1}{8}$	\$.05 $\frac{1}{2}$	.405	.269	.068	.244	.245	27
$\frac{1}{4}$	.06	.540	.364	.088	.424	.425	18
$\frac{3}{8}$	.06	.675	.493	.091	.567	.568	18
$\frac{1}{2}$	.08 $\frac{1}{2}$	.840	.622	.109	.850	.852	14
$\frac{3}{4}$	.11 $\frac{1}{2}$	1.050	.824	.113	1.130	1.134	14
1	.17	1.315	1.049	.133	1.678	1.684	11 $\frac{1}{2}$
1 $\frac{1}{4}$	.23	1.660	1.380	.140	2.272	2.281	11 $\frac{1}{2}$
1 $\frac{1}{2}$	.27 $\frac{1}{2}$	1.900	1.610	.145	2.717	2.731	11 $\frac{1}{2}$
2	.37	2.375	2.067	.154	3.652	3.678	11 $\frac{1}{2}$
2 $\frac{1}{2}$	.58 $\frac{1}{2}$	2.875	2.469	.203	5.793	5.819	8
3	.76 $\frac{1}{2}$	3.500	3.068	.216	7.575	7.616	8
3 $\frac{1}{2}$	.92	4.000	3.548	.226	9.109	9.202	8
4	1.09	4.500	4.026	.237	10.790	10.889	8
5	1.48	5.563	5.047	.258	14.617	14.810	8
6	1.92	6.625	6.065	.280	18.974	19.185	8
8	2.50	8.625	8.071	.277	24.696	25.000	8
8	2.88	8.625	7.981	.322	28.554	28.809	8
10	3.20	10.750	10.192	.279	31.201	32.000	8
10	3.50	10.750	10.136	.307	34.240	35.000	8
10	4.12	10.750	10.020	.365	40.483	41.132	8
12	4.50	12.750	12.090	.330	43.773	45.000	8
12	5.07	12.750	12.000	.375	49.562	50.706	8

Furnished with threads and couplings and in random lengths unless otherwise ordered.

For pipe smoothed on the inside, known as reamed and drifted, an extra charge will be made above standard pipe.

For cut lengths, an extra charge will be made above random lengths.

For galvanized or coated, an extra charge will be made above black. *The permissible variation in weight is 10% above or 10% below. †Furnished with plain ends and in random lengths, unless otherwise ordered. Random length of Extra Strong and Double Extra Strong pipe is considered to be 12 to 22 ft.; we to have the privilege, however, of supplying not exceeding 5% of the total order in lengths of from 6 to 12 ft. For pipe fitted with threads and couplings, an extra charge will be made above plain ends.

Size in.	List price per foot	Diameters, in.		Thick- ness, in.	Weight per foot, lb., plain ends
		External	Internal		
Extra Strong Pipe—Black and Galvanized*†					
$\frac{1}{8}$	\$.12	.405	.215	.095	.314
$\frac{1}{4}$	.07 $\frac{1}{2}$	.540	.302	.119	.535
$\frac{3}{8}$	.07 $\frac{1}{2}$	.675	.423	.126	.738
$\frac{1}{2}$	.11	.840	.546	.147	1.087
$\frac{3}{4}$	.15	1.050	.742	.154	1.473
1	.22	1.315	.957	.179	2.171
1 $\frac{1}{4}$	.30	1.660	1.278	.191	2.996
1 $\frac{1}{2}$	.36 $\frac{1}{2}$	1.900	1.500	.200	3.631
2	.50 $\frac{1}{2}$	2.375	1.939	.218	5.022
2 $\frac{1}{2}$	.77	2.875	2.323	.276	7.661
3	1.03	3.500	2.900	.300	10.252
3 $\frac{1}{2}$	1.25	4.000	3.364	.318	12.505
4	1.50	4.500	3.826	.337	14.983
5	2.08	5.563	4.813	.375	20.778
6	2.86	6.625	5.761	.432	28.573
8	4.34	8.625	7.625	.500	43.388
10	5.48	10.750	9.750	.500	54.735
12	6.55	12.750	11.750	.500	65.415
Double Extra Strong Pipe—Black and Galvanized*†					
$\frac{1}{8}$	\$.32	.840	.252	.294	1.714
$\frac{1}{4}$	.35	1.050	.434	.308	2.440
1	.37	1.315	.599	.358	3.659
1 $\frac{1}{4}$	.52 $\frac{1}{2}$	1.660	.896	.382	5.214
1 $\frac{1}{2}$	.65	1.900	1.100	.400	6.408
2	.91	2.375	1.503	.436	9.029
2 $\frac{1}{2}$	1.37	2.875	1.771	.552	13.695
3	1.86	3.500	2.300	.600	18.583
3 $\frac{1}{2}$	2.30	4.000	2.728	.636	22.850
4	2.76	4.500	3.152	.674	27.541
5	3.86	5.563	4.063	.750	38.552
6	5.32	6.625	4.897	.864	53.160
8	7.25	8.625	6.875	.875	72.424

Youngstown Copperoid Pipe

Believing that many architects, engineers, contractors and others interested in pipe installations are not thoroughly familiar with the qualities of copper steel pipe, it is felt that the following information will be of interest and value.

THE YOUNGSTOWN SHEET & TUBE COMPANY was one of the first steel manufacturers in this country to manufacture copper steel and the first to use copper commercially in steel pipe. Copper steel was first made by this company more than seventeen years ago in the manufacture of its various products, such as sheets, wire, bars, rods, etc., and the word "Copperoid" was registered in the United States Patent Office July 13, 1915, by THE YOUNGSTOWN SHEET & TUBE COMPANY as a trade-mark for its copper steel products. Late in 1915 THE YOUNGSTOWN SHEET & TUBE COMPANY began the commercial manufacture of Youngstown Copperoid pipe for special orders. Since its inception, tests and experiments calculated to establish its value as a resistant have continued, with the one thought in mind of producing a product worthy of the name "Youngstown." As a result of these investigations, the most desirable percentage of copper and the best procedure of producing copper steel products have been determined.

It was established early in these tests that all Copperoid products possessed a decided advantage in their resistance to atmospheric corrosion, and now, after nearly fifteen years, this has been found to be definitely proven.

In 1916 the American Society for Testing Materials began atmospheric corrosion tests on uncoated ferrous sheets, simultaneously at Pittsburgh, Pa., Fort Sheridan, Ill., and Annapolis, Md. These districts were selected as having industrial, rural and salt water atmospheres, respectively. The metals in this test consisted of wrought iron, open-hearth iron, Bessemer steel and open-hearth steel containing no copper, also the same metals containing copper in varying amounts. Although all of these metals had not gone to destruction, it became necessary to abandon the tests at Pittsburgh and Fort Sheridan after a period of several years as the government required the land for other purposes. The results of these tests thoroughly showed the superiority of copper steel above all other materials in the tests, and the test in progress at the other location corroborates these findings. (See Annual Reports of A.S.T.M. Committee A-5, on Corrosion of Iron and Steel.)

Other investigations have shown the success of Copperoid Steel when subjected to such corrosive agencies as aqueous solutions of sulphuric acid, vapors of sulphur and steam in sulphur mines, water containing hydrogen sulphide, coal mine water, complex mixtures of hot water, steam and vapors of organic acids, such as pyroligneous acid, turpentine, solvent naphtha and pile oil at 250° F., sea water, sea air, salt water conditions in oil wells, and acid conditions in general, whether organic or mineral, soil or water.

Special attention is called to the adaptability of Youngstown Copperoid Pipe for shipbuilding purposes, such as in plumbing and heating, hand rails, masts and booms, vent pipes, etc., around shipyards, docks, wharf-warehouses, etc.

Youngstown Copperoid Pipe is available in both black and galvanized in all standard sizes.

Youngstown Square and Rectangular Tubing

Youngstown Square and Rectangular Tubing is manufactured from fine tube steel and furnished cut to any length desired.

Square tubing is made in 1, 1¼, 1½, 1¾, 2, 2½ and 3-in. sizes. Rectangular tubing sizes are 1½x1¼, 2x1¼, 2x1½, 2½x1½, 3x2, 4x2 and 4x2½ in.

The 2½-in. size square tubing and the 2x1¼, 3x2, 4x2 and 4x2½-in. size rectangular tubing are each offered in one weight only. Other sizes of both square and rectangular tubing are furnished in a number of weights or thicknesses, depending on the service requirements. For sizes that are made in more than one weight, the thickness or weight desired must be specified.

Youngstown Buckeye Conduit

Youngstown Buckeye Electrical Conduit is the most widely used material of this kind made in this country. It is made of specially selected Youngstown Pipe, carefully and thoroughly



Buckeye Conduit

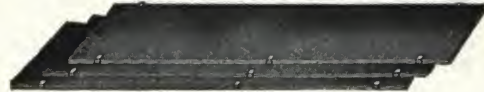
enameled or electro-galvanized coated. It is regularly tested and inspected by The Underwriters' Laboratories, Inc., and is used extensively on government work. Youngstown Buckeye Conduit is a product of uniform excellence entitling it to the

approval of the most careful engineer. We are the most extensive manufacturers of rigid steel conduit in the world.

The enameling is baked on Youngstown Buckeye Conduit and all electro-galvanized conduit is given an additional exterior coating of special transparent enamel.

Youngstown Steel Sheets

Recent additions to our equipment for the manufacture of sheets enable us to produce numerous kinds of steel sheets formerly not manufactured by us, including full-finished and special-finished sheets, oven-lining sheets and the galvanized sheets, as well as a number of different styles in roofing and siding.



Youngstown Sheets

Youngstown Copperoid Steel Sheets

In Youngstown Copperoid Steel, a material has been developed which resists corrosion under exposure to the atmosphere to such a surprising degree that it should receive special attention from all engineers preparing specifications for steel roofing, siding, cornice work, steel window frames, sash, metal lath, and all other work in which metal sheets are used.

Exhaustive tests conducted by The American Society for Testing Materials have demonstrated the rust-resisting qualities of Youngstown Copperoid Steel to be far superior to those of plain carbon, so-called "pure irons," made in open hearth furnaces, or in fact, any other metal at approximately equal cost. Full information on this subject can be had on application or by reference to the reports of this test as published by the Society.

Youngstown Galvannealed Sheets

A heat-treated galvanized steel sheet that lends itself admirably to the many new duco paint and enamel finishes. Youngstown Galvanized Sheets are coated by a patented process which gives them a dull rather than a bright spangled appearance. The coating adheres closely to the base metal and adds greatly to its rust resisting qualities. Forms splendidly and can be soldered as well as any galvanized sheet. Furnished with plain or "Copperoid" steel base, both grades being very reasonably priced. Obtainable in widths up to and including 48 in. and in lengths up to and including 144 in.

Youngstown Automobile Sheets

Youngstown Automobile Sheets are used by leading manufacturers whose output covers a wide price range. Our mills are fully equipped with every facility for meeting ordinary or special requirements for bodies, hoods, fenders, doors, aprons, cowls, splash guards, etc.

Youngstown Furniture Sheets

Many of the leading metal furniture manufacturers throughout the country are using Youngstown Furniture Sheets.

Since every element is under our control, and every facility for manufacture now known is at our command, we have a decided advantage in filling orders for users whose requirements are such as demand careful adherence to specifications, prompt shipment and general excellence.

Youngstown Special Finished Sheets

Youngstown Sheets can be furnished with any desired special finish obtainable in steel sheet metal manufacture.

Identification

Youngstown Steel Pipe, Youngstown Steel Sheets, and Youngstown Copperoid Steel Sheets are plainly marked. In pipe, the name is rolled in the steel. On sheets, it is stenciled in the usual manner on the first sheet in each bundle.

Sizes and Weights

All of these products are regularly manufactured in standard sizes and weights, but can be furnished to meet special requirements within reasonable limits. They can be obtained from leading jobbers and dealers in all parts of the United States, as well as in most foreign countries.

Additional Information Supplied on Request

This company is always glad to furnish detailed information concerning any of its products, and to render any assistance possible to engineers who communicate with it direct or with any of its sales offices as listed herewith.

Write for catalogues on any of the products in which you are interested.

THE CENTRAL FOUNDRY COMPANY

SUBSIDIARY OF THE UNIVERSAL PIPE AND RADIATOR COMPANY

GENERAL OFFICES

Graybar Building, 420 Lexington Avenue, at 43rd Street
NEW YORK, N. Y.

BIRMINGHAM, ALA., Comer Building
BOSTON, MASS., 105 Cummings Street
CHICAGO, ILL., 332 So. Michigan Avenue
ST. LOUIS, MO., 4451 Duncan Avenue

BROOKLYN, N. Y., 9628 Metropolitan Avenue
NEWARK, N. J., 131 Lockwood Street
DALLAS, TEX., Praetorian Building
SAN FRANCISCO, CAL., 100 Potrero Avenue

Products

NUHUB TRADE-MARK CAST IRON
SOIL PIPE and FITTINGS.

Also F. & W. Trade-Mark Cast
Iron Combination Vent, Revent and
Drainage Fittings; Universal Cast Iron
Pipe and Fittings; Monitor Service,
Curb and Roadway Boxes with "Stay-on"
Covers; Central Drain Traps.

Structural Advantages of Nuhub Trade-Mark Soil Pipe

THE CENTRAL FOUNDRY COMPANY, one of the largest foundry organizations in the world, has produced what is claimed by architects, engineers, builders and plumbing contractors as the most perfect pipe ever offered the building industry for vertical and horizontal lines in buildings and under the ground—soil lines, waste lines, leader lines, vent lines, house drains and house sewers.

NUHUB is a cast iron soil pipe designed especially to overcome all shortcomings of old style soil pipe. It embodies strength where strength is most needed. The accompanying illustrations show how NUHUB is strengthened at the exact location where old style soil pipe is weakest—at the base of the hub.

Note the bead at the base of the hub. This bead assures double strength where the hub and the barrel of the pipe meet. This hub meets all requirements for proper pipe hanging in steel and reinforced buildings.

The Led-LoK groove inside of the hub is another successful improvement in soil pipe design. The lead, poured in the usual manner, becomes locked in this groove immediately upon cooling and cannot work loose. NUHUB lead joints can be thoroughly calked without splitting the hubs. No gaskets to eat away and cause settlement of stack and breakage of branches.

Dimensions, Diameters, and Thicknesses

The dimensions, the diameter and the wall thickness of NUHUB Soil Pipe and NUHUB Fittings are strictly in accordance with "Naco" specifications, the recognized and accepted standards for soil pipe and fittings the country over.

Every length of NUHUB Soil Pipe is tested under 50 lb. hydrostatic pressure.

NUHUB

TRADE-MARK REG. U. S. PAT. OFF.

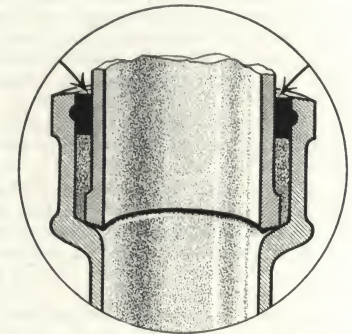
SOIL PIPE



Made in extra heavy, medium and standard weights.

Price is no higher than that asked for old style pipe.

Handled by wholesalers of plumbing supplies.



Reinforced Hub Takes No More
Wall Coverage Than Ordinary
Soil Pipe



No. 1. Nuhub Soil
Pipe

The Led-LoK is the one lead groove worthy of Nuhub Soil Pipe and Fittings. The lead cannot work loose. No gaskets to eat away and cause settlement of stack and branches



No. 2. Old Style Soil
Pipe

Compare No. 2 with No. 1. Note thin easily broken wall at base of hub in old style pipe. See how this glaring weakness has been eliminated in Nuhub Pipe and Fittings

Identification

The bead at the base of the hub on NUHUB Pipe and Fittings is a protection against error and substitution, and a distinctive and permanent mark of identification that can always be seen after the pipe is installed.

Specifications

Soil pipe and fittings for soil lines, vent lines, waste lines, leader lines, house drains and house sewers shall be NUHUB Trade-Mark Soil Pipe and Fittings (weight of pipe in accordance with plumbing code requirements) as manufactured by THE CENTRAL FOUNDRY COMPANY.

GENERAL CERAMICS COMPANY

Manufacturers of High Grade Acidproof Chemical Stoneware

225 Broadway
NEW YORK, N. Y.

SAN FRANCISCO, CAL., 276 Monadnock Building

CHICAGO, ILL., 208 South La Salle Street

MONTREAL, QUE., 1111 Beaver Hall Hill

PLANTS AT KEASBEY and METUCHEN, N. J.

Products

HIGH GRADE ACIDPROOF CHEMICAL STONEWARE manufactured by the GENERAL CERAMICS COMPANY has been specified as standard equipment in many large chemistry and physics laboratories in both the United States and Canada. It is also being used in leading hospitals, newspaper plants, photo-engraving shops and other establishments where corrosive fluids are used.

Advantages

Sinks, drain lines and ventilating ducts made of this ware are absolutely unaffected by any of the chemicals met with in industrial work, as it is the material in which such chemicals are manufactured. Equipment made of General Ceramics High Grade Chemical Stoneware for handling corrosive materials is, therefore, practically indestructible and is the most permanent part of the entire building construction. Alternative materials, such as so-called acid-resisting metals or alloys, sewer tile, soapstone, enameled metals or inferior chemical ware, that are resistant to certain chemicals but are rapidly eaten away by others, must be replaced at intervals and are a constant expense for repairs and upkeep. Such alternative materials are frequently more expensive than the General Ceramics High Grade Chemical Stoneware.

This stoneware is a dense granite-like mass covered with an acidproof glaze serving only to give it a smooth attractive finish, the ware itself being acidproof all the way through. It is the strongest of all materials made from clay, yet it can be readily cut with a sharp chisel without danger of splitting on account of its homogeneous texture.

Installations

Among the many important buildings that have been equipped with GENERAL CERAMICS COMPANY ware are the chemistry laboratories of Yale University, Harvard University, Walter Reed Hospital, New York Times Building, Curtis Publishing Building, New York

Assay Office and the Metropolitan Life Insurance Building.

The manufacture of the highest quality of chemical stoneware is a somewhat protracted process that cannot be hurried without detriment to the product. The time required for manufacture varies from six to ten weeks, depending on the dimensions and the shapes required. We endeavor to carry at all times an ample stock of all standard equipment, but orders should be placed in sufficient time to allow for the manufacture of specials.

Specifications

In order to be sure of getting a permanent installation of acidproof chemical stoneware, specifications should read:

All parts of this installation subject to the action of acids or acid wastes are to be made of high grade acidproof chemical stoneware manufactured by the GENERAL CERAMICS COMPANY of New York, N. Y.

Service

Our Engineering Department is prepared to assist in laying out chemical stoneware installations and in the design of special equipment.

Write for catalogue showing our complete line, dimensions, etc., also price list.



Fig. 389. Laboratory Sink

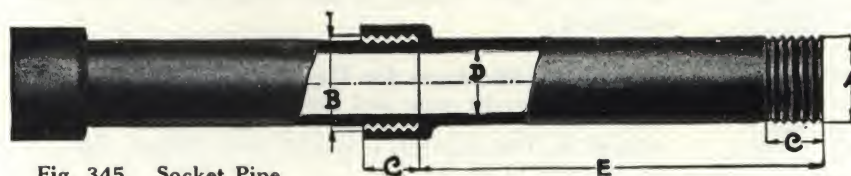


Fig. 345. Socket Pipe

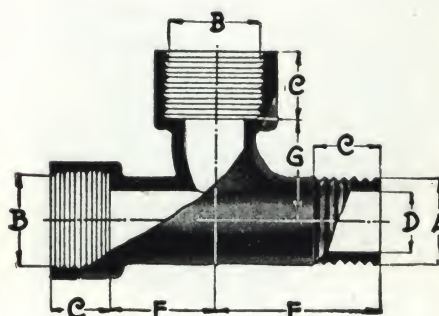


Fig. 397. Sanitary Tee

THE DURIRON COMPANY, INC.

Sole Manufacturers of Duriron Acid-proof Drain Pipe and Fittings, Exhaust Fans,
Laboratory Equipment and Special Castings

DAYTON, OHIO

BUILDING EQUIPMENT SALES OFFICES

BIRMINGHAM, ALA., American Traders
Bank Building
BOSTON, MASS., Tremont Building
BUFFALO, N. Y., Jackson Building
BUTTE, MONT., 910 So. Arizona Street
CHARLOTTE, N. C., Builders Building
CHICAGO, ILL., Straus Building
CLEVELAND, OHIO, 2021 Reveley Avenue
DALLAS, TEX., 711 Westmount Avenue
DENVER, COLO., Exchange Building
DES MOINES, IOWA, Masonic Temple
DETROIT, MICH., Lexington Building

EL PASO, TEX., 600 San Francisco Street
HOUSTON, TEX., Post Dispatch Building
KANSAS CITY, MO., Mutual Building
LOS ANGELES, CAL., Hollingsworth Build-
ing
MINNEAPOLIS, MINN., 210 So. Tenth Street
NASHVILLE, TENN., Stahlman Building
NEW ORLEANS, LA., Jahnke Building
NEW YORK, N. Y., 1054 Grand Central Ter-
minal
OKLAHOMA CITY, OKLA., Savings and
Loan Building

PHILADELPHIA, PA., Schaff Building
PITTSBURGH, PA., Empire Building
RICHMOND, VA., 1714 Summitt Avenue
SALT LAKE CITY, UTAH, Dooly Block
SAN FRANCISCO, CAL., Monadnock Building
ST. LOUIS, MO., Arcade Building
TACOMA, WASH., Tacoma Building
TAMPA, FLA., Builders Exchange Building
MONTREAL, QUE., 1111 Beaver Hall Hill
TORONTO, ONT., Kent Building
VANCOUVER, B. C., 410 Homer Street
WINNIPEG, MAN., Electric Railway Chambers

Products

ACID-PROOF DRAIN PIPE and FITTINGS (all extra heavy); EXPANSION JOINTS; ASBESTOS PACKING.

ACID-PROOF VENTILATING FANS.

LABORATORY EQUIPMENT, including Sinks, Outlets, Traps, Floor Drains, Beehive Strainers, Overflows, Glass Cleaning Kettles, Kjeldahl Apparatus, etc.

Acid-proof Pumps, Valves, Cocks, Tank Connections and Outlets, Flanged Pipe and Fittings, Ejectors, Kettles and Special Castings.

What Duriron Is

Duriron is a hard, close grained cast metal that is resistant to the action of practically all corrosives used commercially or in the laboratory.

Despite the similarity of names, Duriron should not be confused with iron. In analysis it differs more from iron than bronze from brass. Its signal advantages over other materials for acid handling are its greater strength, its universal resistance, and the fact that it does not depend on a coating, lining or glaze, but is wholly and equally resistant clear through its structure.

Corrosive Tests on Duriron

In 1919 tests were made on Duriron over a period of 120 days duration, using all of the corrosives in general commercial use. The tabulated results of these tests are given below, from which it is proved that the life of Duriron pipe handling corrosive wastes is virtually unlimited.

A 5% solution of hydrochloric acid shows the greatest percentage of loss, but computations prove that it would take about 350 years for that acid to corrode Duriron to a depth of 1 in.

Solution	Per cent of loss	Depth of corrosion in inches, per year
95% Sulphuric acid .....	.007	.0000206
25% Sulphuric acid .....	.016	.0000463
10% Sulphuric acid .....	.025	.0000685
70% Nitric acid .....	.006	.0000188
25% Nitric acid .....	.007	.0000206
10% Nitric acid .....	.000	.0000000
5% Hydrochloric acid	1.162	.00324
90% Acetic acid .....	.006	.0000188
87% Phosphoric acid .....	.006	.0000188
25% Phosphoric acid .....	.010	.0000292
10% Phosphoric acid .....	.008	.000024
7.9% Oxalic acid .....	.014	.0000412
2.1% Oxalic acid .....	.013	.000036
9.1% Picric acid .....	.005	.0000137
25% Copper sulphate .....	.008	.000024
27% Ammonium chloride .....	.026	.0000977
48% Ferric chloride .....	.013	.0000485
Commercial oleic acid.....	.003	.00000857

A number of Duriron installations carrying the most corrosive liquids have been in service for over ten years, and show no signs of deterioration. We have a great volume of data on the corrosion of other materials, and this is at all times available to the architect.

Duriron Engineering Service

Our extensive experience with all conditions in the handling of acids and acid wastes, and our familiarity with building and plumbing codes and regulations, enables us to offer valuable co-operation in the layout of acid waste lines; to make definite recommendations on ventilating problems, and to be of help in all matters where corrosion must be considered. We shall be glad to make specific recommendations as to which lines and fittings should be Duriron in any given installation, but for preliminary plans or estimates the following general recommendations will be found of value.

Duriron Should Be Specified

For the waste lines from educational, hospital and industrial laboratories. In structures devoted to crafts, such as: photoengraving, electroplating, etc. In loft buildings devoted to general manufacturing. Battery repair stations. In commercial kitchens where drainage of corrosives is extensive. This is particularly true of the garbage "raking pan" drainage. Wastelines from industrial plants whose processes require the use of corrosives.

For sink outlets, traps, horizontal piping and stack entrance fittings in medical buildings housing physicians, surgeons and dentists. House drains for combination sanitary and acid wastes.

Waste lines through cinder concrete, and similar situations where corrosion attacks on outside of pipe.

Exhaust fans and ducts for removal of corrosive fumes from chemical hoods, laboratories, pickling rooms, etc.

Roof vents exposed to coal smoke and moisture, or extreme atmospheric corrosion of any sort.

All wastes where absolute insurance against failure is important, due either to corrosion or rust; such as memorials, public buildings, and those erected to endure indefinitely.

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(2) All such pipe and fittings shall be of bell and spigot type, extra heavy weight and dimensions, and shall fulfill the requirements of the city plumbing code of the City of

(3) **Joints**—All joints in lines carrying acid wastes shall be made by ramming tightly in bottom of bell one ring of pure asbestos wick packing, upon which shall be poured sufficient molten lead to fill the bell completely, the lead being properly calked in the manner usual with cast iron soil pipe.

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Duriron Drain Pipe

Advantages—

Easily installed and familiar work to plumbers.

Duriron pipe joints, properly made, *stay tight*; this is a serious limitation in other materials used to handle acid and acid waste.

Requires no protective coating inside or outside. Not necessary to encase in concrete, provide drip pans, or otherwise prepare for failure. Elaborate supports not needed.

Lines may be concealed in walls and ceiling when desirable.

Fills all code requirements for sanitary drain, and may be used for dual service of acid and sanitary line, saving an extra line. No other material may be so used.

Does not warp nor sag from heat. No discoloration of walls when run in partitions. Takes paint readily when desired for decoration.

Permits the location of a department such as a laboratory anywhere in the structure.

Complete stocks always maintained, assuring immediate deliveries.

Duriron pipe joints, properly calked, will not loosen under ordinary building vibration. Its hardness is such that it is not scoured by sharp solids carried in solutions. Duriron drain lines, once installed, are permanent. They may be concealed in walls and floors without fear of disfigurement from leaks, and consequent tearing out of finish. Not requiring asphaltum coating, there is no wall discoloration.

Cost—

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ments due to corrosion, in addition to insuring the finish from damage by leaking waste lines. After one replacement of a cast iron line the costs are about equal, and it should be remembered that replacement follows numerous repair jobs. With other materials, repairs and replacements afford only temporary relief, and are a continuous charge on maintenance.

Pipe Installation—

Duriron drain pipe is installed the same, as easily, and with the same labor cost as cast iron soil pipe. No special instruction to plumber is necessary.

Joints should be packed with asbestos wick packing rather than hemp or oakum, which are not acid-proof.

Any pure asbestos is suitable, but not always obtainable. For this reason we manufacture a specially treated pure asbestos packing for this purpose.

Comparative Physical Tests—

The Testing Laboratories of Columbia University some years ago made an exhaustive series of tests, both chemical and physical, on vitrified tile, lead and Duriron pipe. The chemical tests show Duriron far superior in universal resistance. The physical tests are summarized below:

COMPARATIVE PHYSICAL PROPERTIES DURIRON, LEAD AND VITRIFIED TILE PIPE

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Average transverse ultimate load, lbs., center load, span 21 in.	1813	400	11250
Modulus of rupture, computed from crushing load, lbs. per sq. in.	1644	*	17200

*Impossible to compute for a plastic material such as lead.

Immediate Shipments—

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Duriron Ventilating Fans

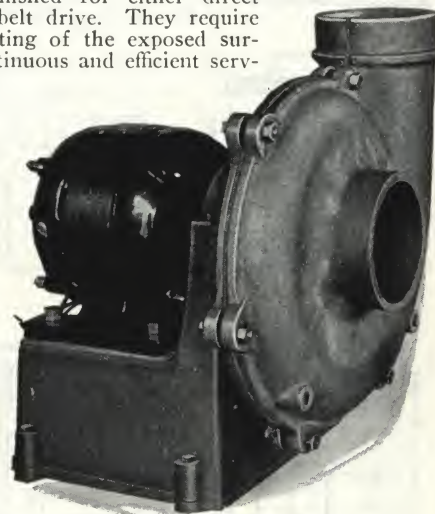
Ventilation of laboratories, laboratory hoods, pickling rooms, and places where it is necessary to remove corrosive and noxious fumes, require an exhauster that will not be affected by the gases handled. All parts of Duriron fans that come in contact with the fumes carried are of Duriron, and are unaffected by vapors or condensate.

This type of equipment is used only for bettering atmospheric conditions and is usually located in an inaccessible position and should, therefore, operate with the least amount of attention. Duriron fans are of simple and sturdy construction.

They may be furnished for either direct connection or for belt drive. They require no coating or painting of the exposed surfaces, and give continuous and efficient service with little care other than lubrication.

These fans are built in four sizes, having approximate capacities of 60, 450, 1500 and 4000 cu. ft. per minute.

Literature—Duriron Bulletin No. 140-B, "Exhaust Fans," contains complete specifications and capacities of Duriron ventilating fans. (Size 8x10½ in., A.I.A. File Number 30dl.)



Duriron Exhaust Fan

THE DURIRON COMPANY, INC.

Sole Manufacturers of Duriron Acid-proof Drain Pipe and Fittings, Exhaust Fans, Laboratory Equipment and Special Castings

DAYTON, OHIO

BUILDING EQUIPMENT SALES OFFICES

BIRMINGHAM, ALA., American Traders Bank Building
BOSTON, MASS., Tremont Building
BUFFALO, N. Y., Jackson Building
BUTTE, MONT., 910 So. Arizona Street
CHARLOTTE, N. C., Builders Building
CHICAGO, ILL., Straus Building
CLEVELAND, OHIO, 2021 Reveley Avenue
DALLAS, TEX., 711 Westmount Avenue
DENVER, COLO., Exchange Building
DES MOINES, IOWA, Masonic Temple
DETROIT, MICH., Lexington Building

EL PASO, TEX., 600 San Francisco Street
HOUSTON, TEX., Post Dispatch Building
KANSAS CITY, MO., Mutual Building
LOS ANGELES, CAL., Hollingsworth Building
MINNEAPOLIS, MINN., 210 So. Tenth Street
NASHVILLE, TENN., Stahlman Building
NEW ORLEANS, LA., Jahnke Building
NEW YORK, N. Y., 1054 Grand Central Terminal
OKLAHOMA CITY, OKLA., Savings and Loan Building

PHILADELPHIA, PA., Schaff Building
PITTSBURGH, PA., Empire Building
RICHMOND, VA., 1714 Summitt Avenue
SALT LAKE CITY, UTAH, Dooly Block
SAN FRANCISCO, CAL., Monadnock Building
ST. LOUIS, MO., Arcade Building
TACOMA, WASH., Tacoma Building
TAMPA, FLA., Builders Exchange Building
MONTREAL, QUE., 1111 Beaver Hall Hill
TORONTO, ONT., Kent Building
VANCOUVER, B. C., 410 Homer Street
WINNIPEG, MAN., Electric Railway Chambers

Products

ACID-PROOF DRAIN PIPE and FITTINGS (all extra heavy); EXPANSION JOINTS; ASBESTOS PACKING.

ACID-PROOF VENTILATING FANS.

LABORATORY EQUIPMENT, including Sinks, Outlets, Traps, Floor Drains, Beehive Strainers, Overflows, Glass Cleaning Kettles, Kjeldahl Apparatus, etc.

Acid-proof Pumps, Valves, Cocks, Tank Connections and Outlets, Flanged Pipe and Fittings, Ejectors, Kettles and Special Castings.

What Duriron Is

Duriron is a hard, close grained cast metal that is resistant to the action of practically all corrosives used commercially or in the laboratory.

Despite the similarity of names, Duriron should not be confused with iron. In analysis it differs more from iron than bronze from brass. Its signal advantages over other materials for acid handling are its greater strength, its universal resistance, and the fact that it does not depend on a coating, lining or glaze, but is wholly and equally resistant clear through its structure.

Corrosive Tests on Duriron

In 1919 tests were made on Duriron over a period of 120 days duration, using all of the corrosives in general commercial use. The tabulated results of these tests are given below, from which it is proved that the life of Duriron pipe handling corrosive wastes is virtually unlimited.

A 5% solution of hydrochloric acid shows the greatest percentage of loss, but computations prove that it would take about 350 years for that acid to corrode Duriron to a depth of 1 in.

Solution	Per cent of loss	Depth of corrosion in inches, per year
95% Sulphuric acid .....	.007	.0000206
25% Sulphuric acid .....	.016	.0000463
10% Sulphuric acid .....	.025	.0000685
70% Nitric acid .....	.006	.0000188
25% Nitric acid .....	.007	.0000206
10% Nitric acid .....	.000	.0000000
5% Hydrochloric acid	1.162	.00324
90% Acetic acid .....	.006	.0000188
87% Phosphoric acid .....	.006	.0000188
25% Phosphoric acid .....	.010	.0000292
10% Phosphoric acid .....	.008	.000024
7.9% Oxalic acid .....	.014	.0000412
2.1% Oxalic acid .....	.013	.000036
9.1% Picric acid .....	.005	.0000137
25% Copper sulphate .....	.008	.000024
27% Ammonium chloride .....	.026	.0000977
48% Ferric chloride .....	.013	.0000485
Commercial oleic acid .....	.003	.00000857

A number of Duriron installations carrying the most corrosive liquids have been in service for over ten years, and show no signs of deterioration. We have a great volume of data on the corrosion of other materials, and this is at all times available to the architect.

Duriron Engineering Service

Our extensive experience with all conditions in the handling of acids and acid wastes, and our familiarity with building and plumbing codes and regulations, enables us to offer valuable co-operation in the layout of acid waste lines; to make definite recommendations on ventilating problems, and to be of help in all matters where corrosion must be considered. We shall be glad to make specific recommendations as to which lines and fittings should be Duriron in any given installation, but for preliminary plans or estimates the following general recommendations will be found of value.

Duriron Should Be Specified

For the waste lines from educational, hospital and industrial laboratories. In structures devoted to crafts, such as: photoengraving, electroplating, etc. In loft buildings devoted to general manufacturing. Battery repair stations. In commercial kitchens where drainage of corrosives is extensive. This is particularly true of the garbage "raking pan" drainage. Wastelines from industrial plants whose processes require the use of corrosives.

For sink outlets, traps, horizontal piping and stack entrance fittings in medical buildings housing physicians, surgeons and dentists. House drains for combination sanitary and acid wastes.

Waste lines through cinder concrete, and similar situations where corrosion attacks on *outside* of pipe.

Exhaust fans and ducts for removal of corrosive fumes from chemical hoods, laboratories, pickling rooms, etc.

Roof vents exposed to coal smoke and moisture, or extreme atmospheric corrosion of any sort.

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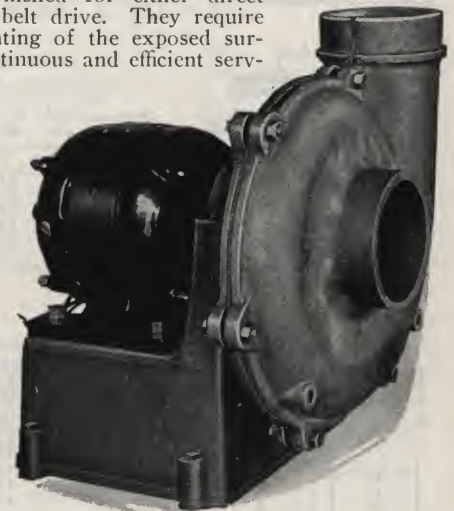
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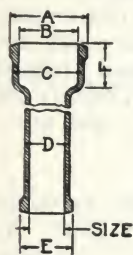
Literature—

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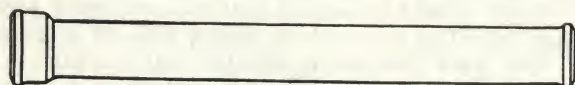
Duriron Exhaust Fan

Note: Larger sizes of pipe and fittings which are not shown here are not regularly stocked, but are furnished on special order.



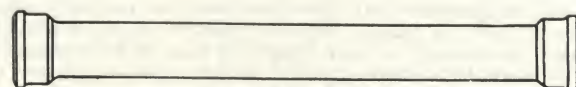
DIMENSIONS (IN INCHES) OF DURIRON PIPE

Size	1½	2	3	4	6	8	10	12	15	Size
A	3 11/16	4 1/8	5 1/8	6 1/8	8 1/2	11 1/4	14 1/4	16 3/4	20	A
B	2 1/8	3 1/8	4 1/8	5 1/8	7 1/8	9 3/8	12 1/4	14 1/4	17 3/4	B
C	3 1/8	4 1/8	5 1/8	6 1/8	8 1/8	10 3/4	13 3/4	16	19 1/2	C
D	2 1/8	3 1/8	4 1/8	5 1/8	7 1/8	9 3/8	11 3/4	13 3/4	16 1/2	D
E	2 3/8	3 3/8	4 3/8	5 3/8	7 3/8	9 1/2	11 3/8	14	17	E
F	2 3/8	3 3/8	4 3/8	5 3/8	7 3/8	9 1/2	11 3/8	14	17	F



SINGLE HUB PIPE

Size, in.	Length, ft.	Over all length, ft.-in.	Weight, lb.
1½	3	3-2 3/8	20
2	4	4-2 1/2	32
3	5	5-2 3/4	56
4	5	5-3	86
6	5	5-3	135
8	5	5-5 3/8	217

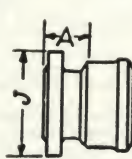


DOUBLE HUB PIPE

Size, in.	Length, ft.	Over all length, ft.-in.	Weight, lb.
1½	3	3-2 3/8	23
2	4	4-5 3/8	34
3	5	5-2 3/4	61
4	5	5-3	88
6	5	5-6	142
8	5	5-6 3/4	258

DOUBLE HUBS

Size, in.	Wt., lb.	Dim. A, in.
1½	5 1/2	1
2	6 1/2	1
3	9	1
4	15	1
6	24	1
8	44	2

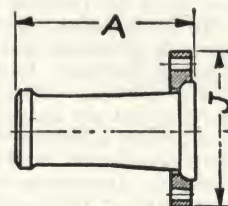


ADAPTER—BELL AND FLANGE

Size, in.	Wt., lb.	Dim. A, in.	Dim. J, in.
1½	7	2 1/4	5
2	9	2 1/4	5
3	14 1/2	2 3/4	7 1/2
4	21	2 3/4	9
6	30	3	11
8	35	3 1/2	13 1/2

Note: Bolt dimensions U. S. 1914 Standard.

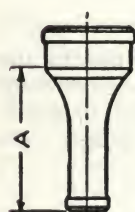
ADAPTER—SPIGOT AND SPLIT FLANGE



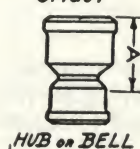
Size, in.	Wt., lb.	Dim. A, in.	Dim. J, in.
1½	6	5 1/4	5
2	9	5 3/4	6
3	16	7	7 1/2
4	24	8	9
6	32	9 1/2	11
8	45	10 3/4	13 1/2

SANITARY INCREASERS

Size, in.	Wt., lb.	A, in.	Size, in.	Wt., lb.	A, in.
1½x2	7	9	3x6	16	9
1½x3	8 1/2	9	4x5	16	9
1½x4	10 1/2	9	4x6	17 1/2	9
2x3	9	9	4x8	43	11 5/8
2x4	11	9	5x6	18	9
2x6	15	9	6x8	50	11 1/8
3x4	13	9			



SPIGOT



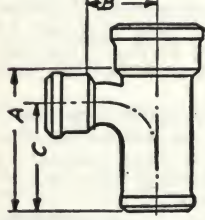
HUB or BELL

SANITARY REDUCERS

Size, in.	Wt., lb.	A, in.	Size, in.	Wt., lb.	A, in.
2x1½	5	5	6x2	12	5
3x1½	6	5	6x3	13	5
3x2	7	5	6x4	14	5
4x1½	7	5	6x5	18	5
4x2	8	5	8x4	27	6
4x3	9	5	8x6	29	6
5x4	12	5			

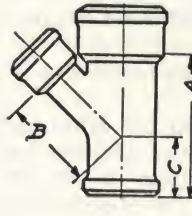
SANITARY T BRANCHES

Size, in.	Wt., lb.	Dimensions, in.	Size, in.	Wt., lb.	Dimensions, in.
1½x1½	9	8 3/8 3 1/4 6 3/4	4x4	22	11 4 1/2 8
2x1½	10	8 3/8 3 1/2 6 3/4	6x2	35	9 5 1/2 7
2x2	11	9 3 3/8 7	6x3	39	10 5 1/2 7 1/2
3x1½	13	8 3/8 4 6 3/4	6x4	44	11 5 1/2 8
3x2	14	9 4 7	6x6	52	13 5 1/2 9
3x3	17	10 4 7 1/2	8x4	65	10 5/8 6 1/2 8
4x1½	16	8 3/8 4 6 3/4	8x6	72	14 1/2 6 3/8 10 1/2
4x2	18	9 4 7 1/2	8x8	87	19 6 3/8 13 1/2
4x3	21	10 4 7 1/2			



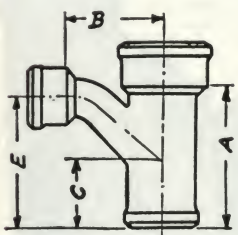
SANITARY Y BRANCHES

Size, in.	Wt., lb.	Dimensions, in.	Size, in.	Wt., lb.	Dimensions, in.
1½x1½	9	8 3/8 3 1/4 4 3/8	4x4	25	12 6 3/4 5 1/4
2x1½	10	8 3/8 3 1/2 4 3/8	6x2	35	9 7 1/8 2 3/4
2x2	11	9 4 4 3/8	6x3	39	10 7 1/8 3 1/2
3x1½	13	8 3/8 4 5 3/8	6x4	44	12 8 3/8 3 3/4
3x2	14	9 5 4 3/4	6x6	52	15 9 3/4 4 3/4
3x3	17	10 5 5 1/2	8x4	71	13 1/2 10 4 1/2
4x1½	17	9 3/8 5 3/4 3 3/8	8x6	87	16 1/2 11 4 1/2
4x2	18	9 5 5 3/4 3 3/8	8x8	122	19 1/2 12 1/4 5 1/4
4x3	21	10 1/2 6 1/4 4 3/8			



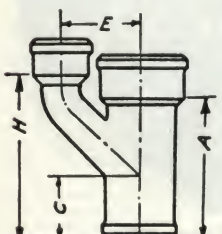
SANITARY T-Y OR COMBINATION Y AND 1/8 BEND

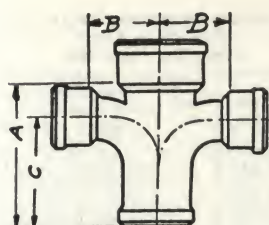
Size, in.	Wt., lb.	Dimensions, in.	Size, in.	Wt., lb.	Dimensions, in.
1½x1½	9	8 1/8 4 3/8 4 3/8 7 3/8	4x2	19	9 6 1/4 3 1/2 8 3/8
2x1½	11	8 3/8 4 3/8 4 3/8 7 3/8	4x3	22	10 1/2 7 4 4 1/2 9 3/8
2x2	12	9 5 1/4 4 3/8 4 3/8 8 1/4	4x4	28	12 7 3/4 5 1/4 10 1/2 8 3/8
3x1½	14	8 3/8 5 1/8 3 3/8 7 3/8	6x2	26	9 7 1/4 2 1/2 8 3/8
3x2	15	9 5 3/4 4 3/8 4 3/8 8 3/8	6x3	34	10 1/2 8 3 1/2 9 3/8
3x3	19	10 1/2 6 1/2 5 9 3/8	6x4	36	12 8 3/4 4 1/2 10 1/2 8 3/8
4x1½	18	9 1/8 5 3/8 3 3/8 8 3/8	6x6	47	15 10 1/4 5 3/4 13 1/8



SANITARY UPRIGHT Y BRANCH OR H FITTING

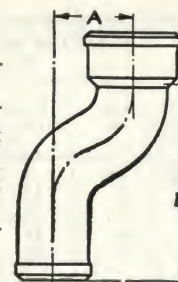
Size, in.	Wt., lb.	Dimensions, in.	Size, in.	Wt., lb.	Dimensions, in.
1½x1½	9	8 1/8 4 3/8 4 4 1/4 10	4x2	19	9 3 1/2 5 1/2 11
2x1½	11	8 3/8 4 3/8 4 4 1/4 10 1/4	4x3	22	10 1/2 4 1/2 6 1/2 12 1/2
2x2	12	9 4 3/8 4 4 1/4 11	4x4	28	12 5 1/4 6 1/4 14
3x1½	14	8 3/8 3 3/8 4 3/4 10 1/4	6x2	36	9 2 1/2 6 3/4 11
3x2	15	9 4 3/8 5 5 1/2 11	6x3	41	10 1/2 3 1/2 7 1/4 12 1/2
3x3	19	10 1/2 5 5 1/2 12 1/2	6x4	46	12 4 1/2 8 1/4 14
4x1½	18	9 1/8 3 3/8 5 1/4 10 3/4	6x6	56	15 5 3/4 8 3/2 16 3/8





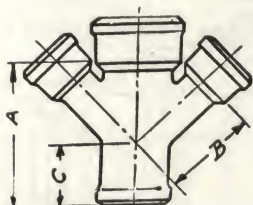
DOUBLE BRANCH SANITARY T

Size, in.	Wt., lb.	Dim., in.			Size, in.	Wt., lb.	Dim., in.		
		A	B	C			A	B	C
1½ x 1½	11	8½	6½	6¾	4 x 2	20	9	9	7
2 x 1½	12	8½	7	6¾	4 x 3	26	10	9	7½
2 x 2	14	9	7	7	4 x 4	33	11	9	8
3 x 1½	13	8½	8	6¾	6 x 2	42	9	11	7
3 x 2	20	9	8	7	6 x 3	50	10	11	7½
3 x 3	21	10	8	7½	6 x 4	54	11	11	8
4 x 1½	19	8½	9	6¾	6 x 6	65	13	11	9



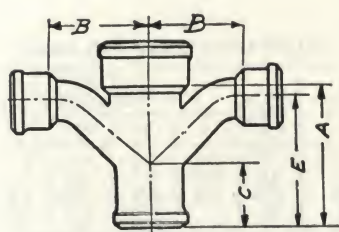
SANITARY OFFSETS

Size, in.	Dimensions, in.		Wt., lb.
	A	B	
1½	2	8½	7½
1½	4	8½	9½
1½	6	9½	9½
1½	8	9½	10½
1½	10	10½	11½
1½	12	10½	12½
2	2	8	8
2	4	8½	9½
2	6	9	11
2	8	9½	14
2	10	10	15
2	12	10½	16
3	2	8½	12
3	4	9½	13
3	6	10	15
3	8	10½	16½
3	10	11	18
3	12	11½	19½
4	2	9	19½
4	4	11	23
4	6	11	26
4	8	11½	29
4	10	12	34½
4	12	12½	37½
6	2	10	33
6	4	12	38½
6	6	13	44
6	8	13½	48
6	10	14	52
6	12	14½	55



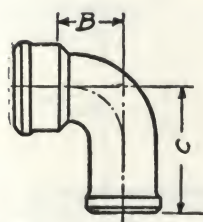
DOUBLE BRANCH SANITARY Y

Size, in.	Wt., lb.	Dimensions, in.			Size, in.	Wt., lb.	Dimensions, in.		
		A	B	C			A	B	C
1½ x 1½	11	8½	3¾	4¾	4 x 2	21	9	5¾	3¾
2 x 1½	13	8½	4¾	4¾	4 x 3	27	10½	6¼	4¾
2 x 2	15	9	4¾	4¾	4 x 4	33	12	6¾	5¼
3 x 1½	16	8½	5	3¾	6 x 2	42	9	7½	2¾
3 x 2	17	9	5	4¾	6 x 3	51	10½	7½	3¾
3 x 3	21	10½	5½	5	6 x 4	55	12	8½	4¼
4 x 1½	20	9½	5¾	3¾	6 x 6	66	15	9¼	5¾



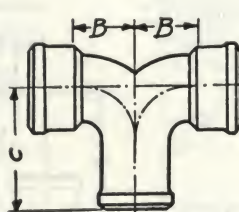
DOUBLE BRANCH SANITARY COMBINATION Y AND ½ BEND

Size, in.	Wt., lb.	Dimensions, in.				Size, in.	Wt., lb.	Dimensions, in.			
		A	B	C	E			A	B	C	E
1½ x 1½	14	8½	9¼	4¾	7¾	4 x 2	26	9	12½	3¼	8¾
2 x 1½	15	8½	9¼	4¾	7¾	4 x 3	30	10½	14	4¾	9¾
2 x 2	18	9	10½	4¾	8¾	4 x 4	45	12	15½	5¼	10½
3 x 1½	21	8½	10½	3¾	7¾	6 x 2	44	9	14½	2¼	8¾
3 x 2	22	9	11½	4¾	8¾	6 x 3	53	10½	16	3¼	9¾
3 x 3	29	10½	13	5	9¾	6 x 4	57	12	17½	4¼	10½
4 x 1½	24	9½	11¾	3¾	8¾	6 x 6	71	15	20½	5¼	13¾



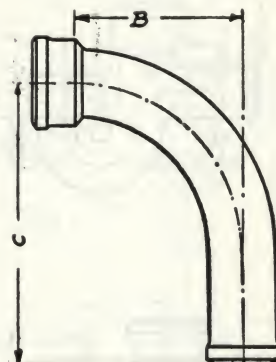
QUARTER BENDS

Size, in.	Wt., lb.	Dims., in.	
		B	C
1½	6	3¼	6¾
2	7	3½	7
3	12	4	7½
4	16	4½	8
6	30	5½	9
8	67	6½	10



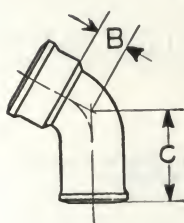
DOUBLE QUARTER BENDS

Size, in.	Wt., lb.	Dims., in.	
		B + C	C
1½	11	6½	6¾
2	12	7	7
3	17	8	7½
4	25	9	8
6	40	11	9



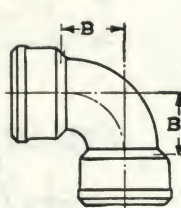
LONG SWEEP QUARTER BENDS

Size, in.	Wt., lb.	Dimensions, in.	
		B	C
1½	10	8¼	11¾
2	12	8½	12
3	19	9	12½
4	28	9½	13
6	50	10½	14



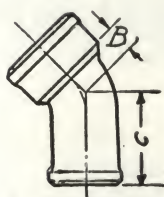
SIXTH BENDS

Size, in.	Wt., lb.	Dims., in.	
		B	C
1½	3	2	5¾
2	7	2¼	5¾
3	10	2½	6
4	13	2¾	6½
6	27½	3¾	6¾



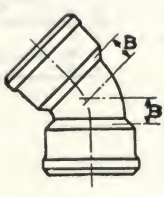
DOUBLE HUB QUARTER BENDS

Size, in.	Wt., lb.	Dims., in.	
		B	C
1½	8	3¼	3¼
2	9	3½	3½
3	16	4	4
4	19	4½	4½
6	39	5½	5½



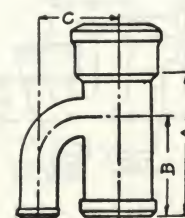
EIGHTH BENDS

Size, in.	Wt., lb.	Dims., in.	
		B	C
1½	5	1½	5½
2	6	1¾	5¾
3	9	2	5¾
4	13	2¼	6½
6	25	2½	6½
8	50	3½	8½



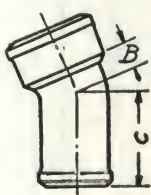
DOUBLE HUB EIGHTH BENDS

Size, in.	Wt., lb.	Dims., in.	
		B	C
1½	6	1½	1½
2	7	1¾	1¾
3	13	2	2
4	17	2¼	2¼
6	34	2½	2½



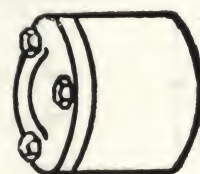
VENT BRANCHES

Size, in.	Wt., lb.	Dimensions, in.		
		A	B	C
3 x 2	14	10	7½	5
3 x 3	18	10	7½	5½
4 x 2	18	11	8	5½
4 x 3	20	11	8	6
4 x 4	26	11	8	6½
6 x 3	32	13	9	7
6 x 4	33	13	9	7½
6 x 6	43	13	9	8½



SIXTEENTH BENDS

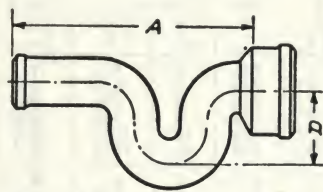
Size, in.	Wt., lb.	Dimensions, in.	
		B	C
1½	4½	1	4½
2	6	1½	4½
3	9	1¾	4½
4	12	1¾	4½
6	17	1¾	5
8	44	2	7½



CLEANOUT PLUGS WITH BOLTED COVER

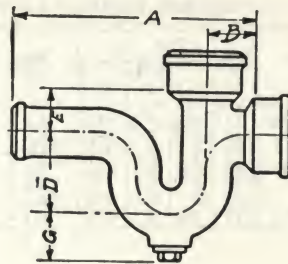
Size, in.	Weight, lb.
1½	2
2	2½
3	6½
4	11
6	14

Note: Minimum depth of seal on all traps, 2½ in.



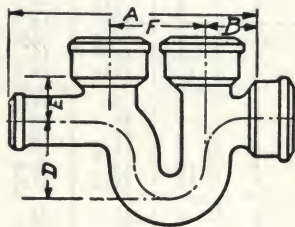
SANITARY RUNNING TRAP—NO VENT

Size, in.	Wt., lb.	Dimensions, in.	
		A	D
1½	9	12½	4
2	13	13½	4½
3	21	15½	5½
4	40	17½	6½
6	48	21½	8½
8	155	26½	11



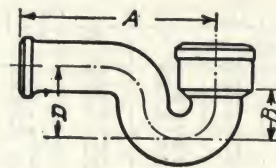
SANITARY RUNNING TRAP—SINGLE HUB VENT (Showing Cleanout)

Size, in.	Wt., lb.	Vent, in.	Dimensions, in.				
			A	B	D	E	G
1½	13	1½	12½	1¾	4	1¾	2¾
2	17	2	13½	2½	4½	2½	3
3	27	3	15½	3	5½	3¼	4
4	43	4	17½	3½	6½	3½	4½
6	60	4	21½	4½	8½	4¼	5½
8	187	6	26½	4¾	11	4¼	6



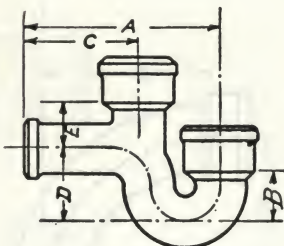
SANITARY RUNNING TRAP—DOUBLE HUB VENT

Size, in.	Wt., lb.	Vent, in.	Dimensions, in.					
			A	B	D	E	F	
1½	16	1½	12½	1¾	4	1¾	4¾	
2	19	2	13½	2½	4½	2½	5¼	
3	32	3	15½	3	5½	3¼	6¼	
4	45	4	17½	3½	6½	3½	7¼	
6	88	4	21½	4½	8½	4¼	8¼	
8	208	6	26½	4¾	11	4¼	12	



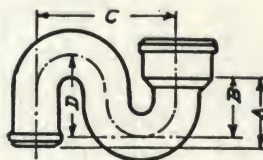
SANITARY P TRAP (OR ½ S TRAP)—NO VENT

Size, in.	Wt., lb.	Dimensions, in.		
		A	B	D
1½	8	10¼	2¾	4
2	11	11	3	4½
3	19	12½	4¼	5½
4	27	14	5½	6½
6	67	17	8½	8½



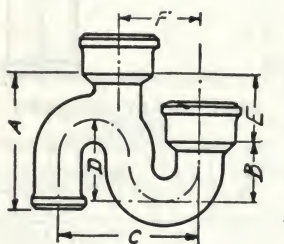
SANITARY P TRAP (OR ½ S TRAP)—HUB VENT

Size, in.	Wt., lb.	Vent, in.	Dimensions, in.				
			A	B	C	D	E
1½	12	1½	10¼	2¾	6¼	4	1½
2	15	2	11	3	6¼	4½	2¼
3	24	3	12½	4¼	6¼	5½	3
4	38	4	14	5½	7	6½	3½
6	80	4	17	8½	8	8½	4



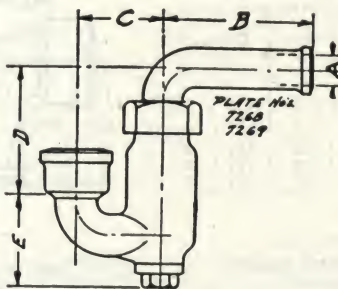
SANITARY S TRAP—NO VENT

Size, in.	Wt., lb.	Dimensions, in.			
		A	B	C	D
1½	9	5½	2¾	7	4
2	14	5½	3	8	4½
3	22	6¼	4¼	10	5½
4	32	7	5½	12	6½
6	46	9	8½	16	8½



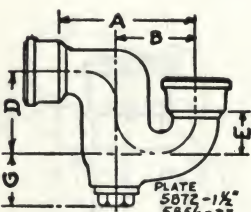
SANITARY S TRAP—HUB VENT

Size, in.	Wt., lb.	Vent, in.	Dimensions, in.					
			A	B	C	D	E	F
1½	13	1½	8¾	2¾	7	3¼	4½	1½
2	16	2	9¼	3	8	3¾	4¾	2¼
3	28	3	10½	4¼	10	4¼	6¼	3
4	39	4	11¼	5½	12	4¼	7	3½
6	57	4	13	8½	16	4	9	



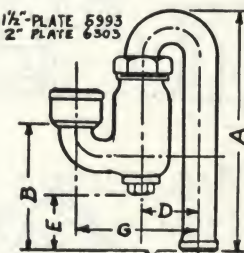
NON-SYPHON P TRAP

Plate No.	Size A, in.	Wt., lb.	Dimensions, in.				
			B	C	D	E	
7268	1½	18	8	4½	6¾	5¼	
7269	2	28	8	5½	6	9	



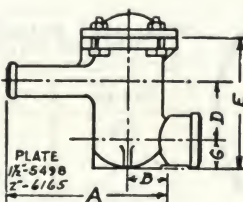
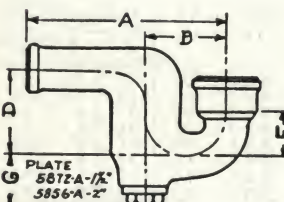
DRUM TRAPS

Plate No.	5872	5856	5872-A	5836-A	5498	6165
Size, in.	1½	2	1½	2	1½	2
Wt., lb.	16	22	14	20	27	31
Dimensions, in.	A 6½, B 7¾, C 4¼, D 4½, E 1½, G 3¾	A 7¾, B 8½, C 5, D 5½, E 2¼, G 3¾	A 12¼, B 13¾, C 5, D 4½, E 1½, G 3¾	A 13¾, B 15, C 5, D 4½, E 1½, G 3¾	A 11, B 12½, C 4½, D 4½, E 1½, G 3¾	A 11½, B 13½, C 4½, D 4½, E 1½, G 3¾



CENTRIFUGAL DRUM TRAPS (NON-SYPHON)

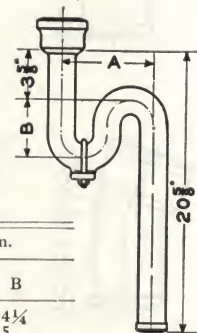
Plate No.	Size, in.	Wt., lb.	Dimensions, in.				
			A	B	D	E	G
5993	1½	23	16½	8½	4	3¼	8½
5993-A	1½	29	24½	16½	4	11¼	8½
6303	2	38	20¼	13	5½	4	11
6303-A	2	44	28¼	21	5½	12	11



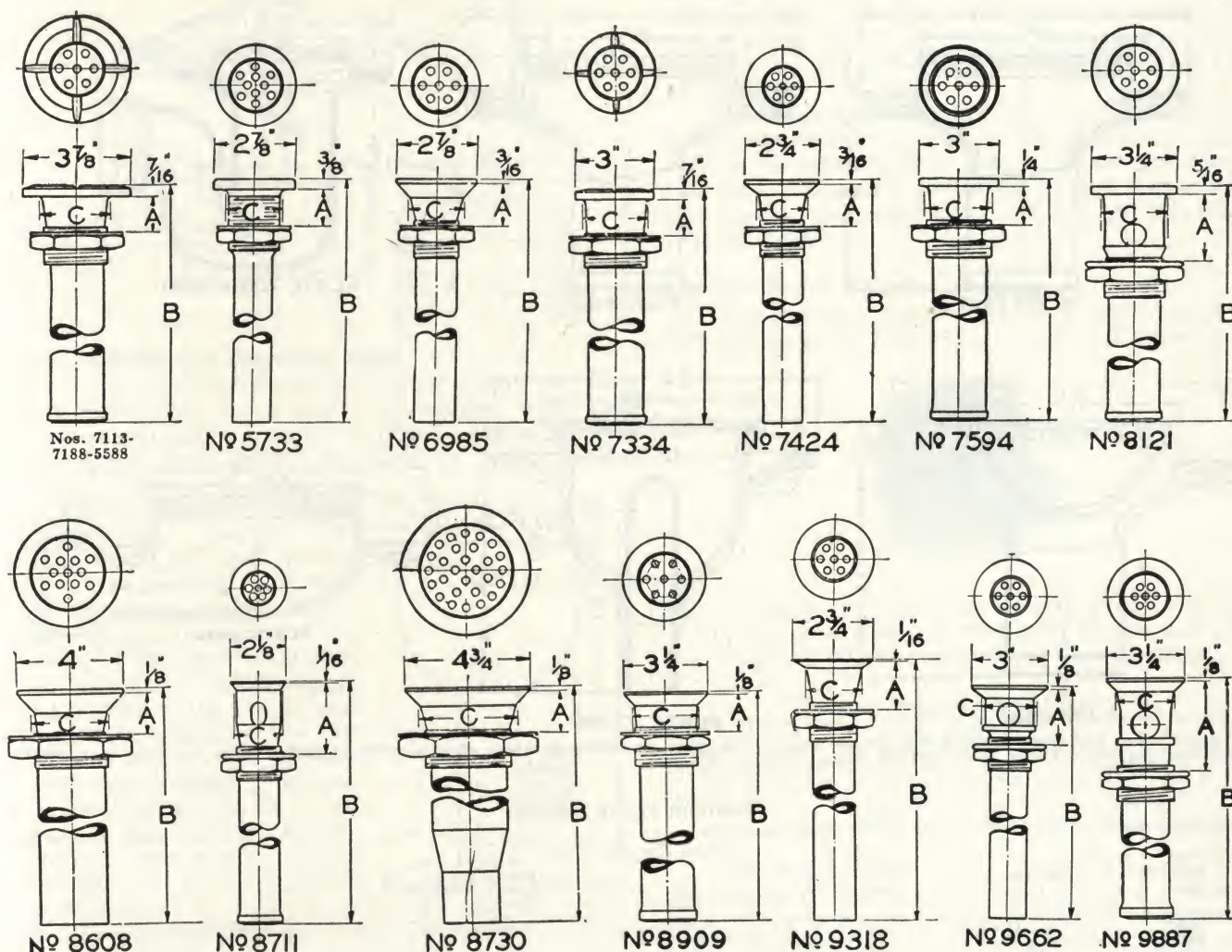
Long Sink Traps

The 1½-in. sink trap may also be furnished with flared end for standard sink coupling.

Plate No.	Size, in.	Dimensions, in.	
		A	B
5419-A	1½	6¾	4¼
7075	2	7¾	5



SINK STRAINERS AND STANDING OVERFLOWS



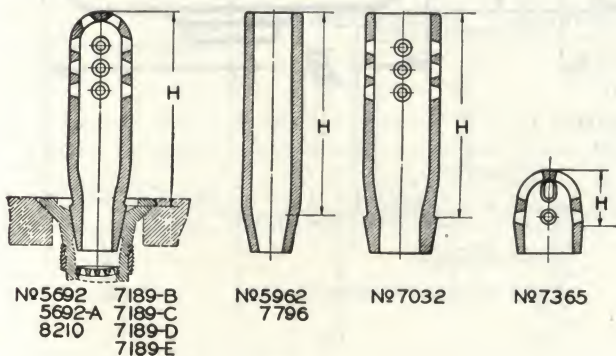
DURIRON SINK OUTLETS

Plate No.	Size, in.	Dimensions, in.			Plate No.	Size, in.	Dimensions, in.		
		A	B	C			A	B	C
5588	1½ or 2	1 to 2¼	10	2½	8121†*	1½ or 2	2 to 3¼	10	2½
5733†	1	¾ to 2	8¼	2	8608†	2	1 to 2	5¼	3
5985	1	1 to 2¼	10	2¼	8711†*	1	2 to 2¾	10	1¾
7113	1½ or 2	1 to 2¼	13	2½	8730†	1½	1¾ to 2¾	7	3¾
7188†	1½ or 2	1 to 2¼	4¾	2½	8909	1½ or 2	1 to 2¾	10	2½
7334†	1½ or 2	1 to 2¼	10	2½	9318†	1	¾ to 1¾	10	1¾
7424†	1	½ to 2	10	1¾	9662†*	1	1¼ to 2½	10	2¼
7594	1½ or 2	1 to 2¼	10	2½	9887†*	1½ or 2	2¾ to 4¼	10	2½

Furnished with flat loose strainers. All except Nos. 5733, 8608, 8711, 8730 and 9662 can be furnished with Duriron stoppers.

†Not kept in stock. Shipment one week.

*For sink with patent overflow.



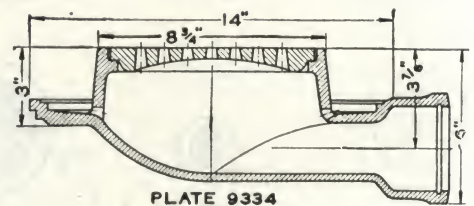
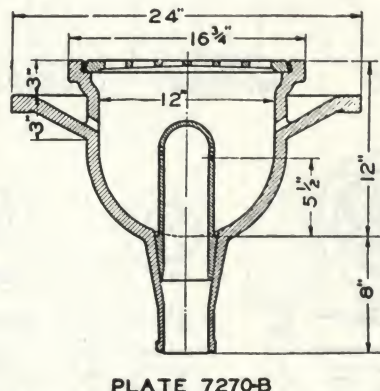
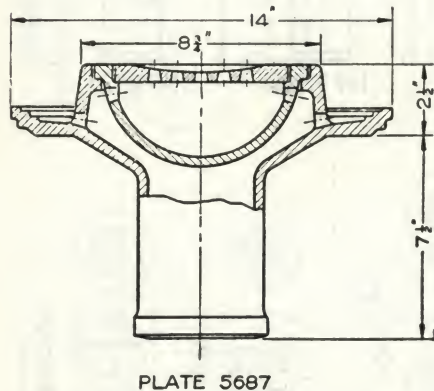
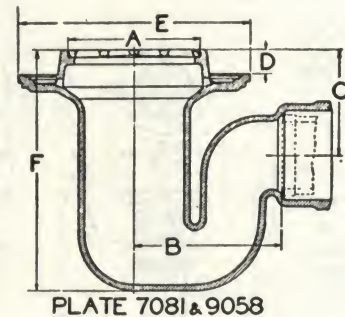
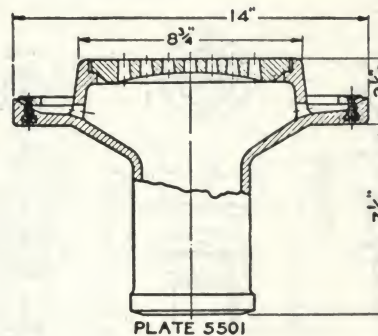
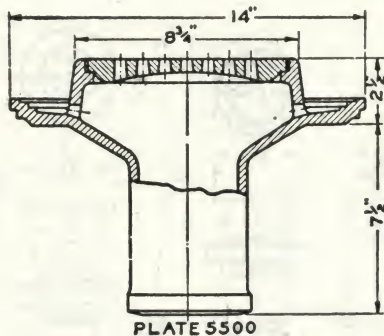
STANDING OVERFLOWS

Plate No.	Height, in.	Type
5692	4½	Beehive
5692-A	9	Beehive
8210†	5	Beehive
7189-B†	9½	Beehive
7189-C†	4	Beehive
7189-D†	6	Beehive
7189-E	8	Beehive
5962	9 max.	Open end
7796†	9 max.	Open end
7032	8½	Open end
7365†	1	Beehive

No standing overflows can be furnished for outlets Nos. 5733, 8608, 8711, 8730 or 9662.

†Not kept in stock. Shipment one week.

DURIRON FLOOR DRAINS



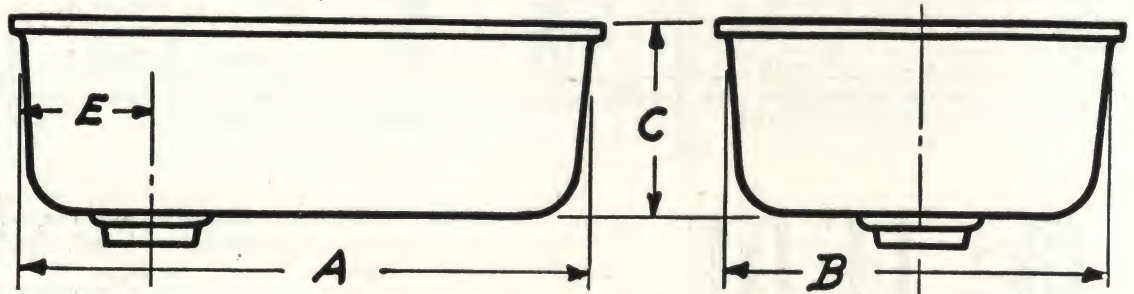
Note: Floor drains are furnished with strainer plates of Alcumite (an aluminum bronze of high tensile strength) unless the drain is to handle nitric acid and ferric chloride, when Duriron strainer plates are furnished.

DURIRON FLOOR DRAINS

Double Drainage Type									
Plate No.	Outlet size, in.	Wt., lb.	Dimensions, in.					Flashing ring	
			A	B	C	D	E		F
5500	2, 3, 4 or 6	40							No
5501	2, 3, 4 or 6	40							Yes
7081-A	1½	30							No
7081-B	2	32	4	6½	3¾	1½	10⅝	9	No
9058-3	3	75	4	6½	3⅝	1½	10⅝	9	No
9058-4	4	79	8	9	5⅜	1½	14	14½	No
5687	2, 3, 4 or 6	72			6⅝	1½	14	14½	No
5687-A	2, 3, 4 or 6	75							No
7270-B	3 or 4	270							Yes
9334	2	40							No

Duriron Sinks—
Flat Rim

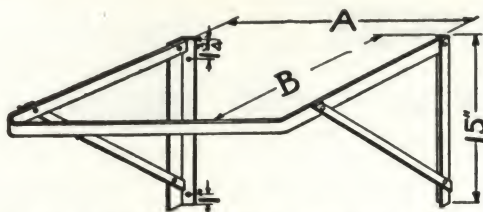
Duriron sink outlet (Plate 5588) is included. These dimensions are outside of sink under rim. Rim width, 1/2 in.; thickness, 5/8 in. Other sizes sinks made to order.



DURIRON SINKS (Flat Rim)

Plate No.	Wt., lb.	Dimensions, in.			
		A	B	C	E
5851	72	16	14	8	5 3/8
5852	103	24	16	8	5 1/2
5853	120	28	16	8	5 1/8
5964	73	17	9	10	8 1/2
7924*	58	14	10 1/2	9	5
7925*	68	16	12	9	5
8142*	45	15 1/4	7 1/4	7 1/2	7 1/4

*Not carried in stock.

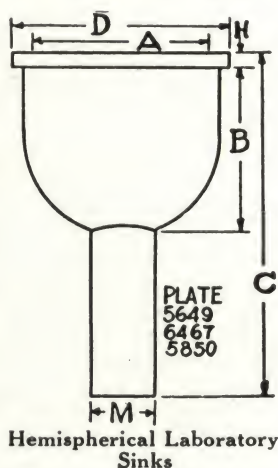


Steel Brackets for Sinks (Painted Black)

Size	To fit Sink No.	Dimensions, in.	
		A	B
1	5851	16 1/8	14 5/8
2	5852	24 1/8	16 5/8
3	5853	28 1/8	16 5/8
4	5964	17 1/8	9 5/8

Hemispherical Laboratory Sinks

Duriron hemispherical sinks or bowls are finding great favor in chemistry laboratories when used in fume hoods or in tops of tables. When set in a hood, one bowl should be placed in each compartment, recessed so that the top of the sink rim is slightly below the working surface. A drainage groove should be provided in the floor of the hood, sloping to the sink across the rear of the hood. When used in the tops of chemistry tables, these sinks replace the trough and should be spaced so that one sink is within reach of each student or chemist. Their use in the tables avoids the necessity of repairs which so frequently occur in stone or lead troughs, and provides greater cleanliness.

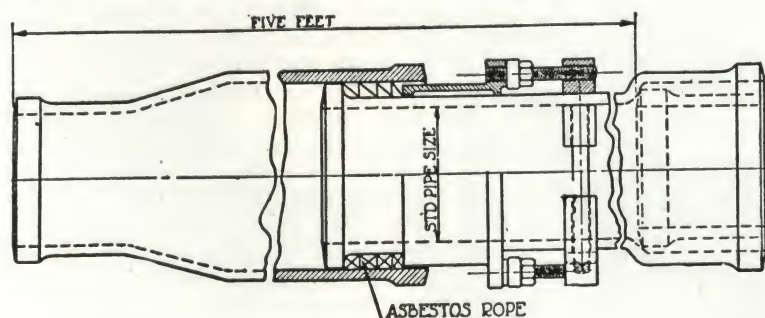


Hemispherical Laboratory Sinks

Plate No.	Size (I. D.) outlet, in.	Dimensions, in.					
		A	B	C	D	H	M
5649	1 1/2	5	5	11	6 1/4	3/8	2 1/4
6467	1 1/2	6	6	12	7 1/2	1/2	2 1/4
5850-1 1/2	1 1/2	8	4 1/2	10 1/2	9 1/2	1/2	2 1/4
5850-2	2	8	4 1/2	10 1/2	9 1/2	1/2	2 1/4
7332-1 1/2	1 1/2	12	6	12	13 1/2	5/8	2 1/4
7332-2	2	12	6	12	13 1/2	5/8	2 1/4

Duriron Expansion Joints

Since the coefficient of expansion of Duriron is much greater than that of cast iron, special provision must be made when drainage systems are subject to unusual variations in temperature. The Duriron expansion joint is designed and used for such cases.



Duriron Expansion Joint

The length of this expansion joint is the same as a full piece of corresponding pipe so that it may be installed without difficulty. Made in 3, 4 and 6-in. sizes which weigh 70, 85 and 150 lb., respectively. These sizes are carried in stock, others made to order when required.

Particulars of Installation—Care must be taken to provide suitable anchors for the pipe line at points midway between expansion joints. In extreme cases it may also be necessary to provide locking clamps at all pipe joints. Our experience on this point is available without obligation.

Duriron Rope Asbestos Packing

The Duriron asbestos packing is made from commercially pure asbestos, and is treated with special mate-



rials to make it most desirable for acid service. So that the correct amount may be calculated for the work, the following table of requirements per joint is given:

Duriron Rope Asbestos Packing

Pipe size, in.....	1 1/2	2	3	4	6	8
Weight per joint, lb...	0.14	0.16	0.22	0.26	0.35	0.44
Length, in.....	10	12	16	19	26	33

Note: 100 ft. (1200 in.) of this packing weighs 16 lb.

Pure asbestos rope should always be specified for use in place of hemp or oakum to secure an acidproof joint. This is for the reason that hemp or oakum is soon destroyed by the action of acids, allowing the joint to leak.

In the packing of a joint, in order to make sure that there is no open space left when this packing is put in the bottom of the bell or hub, we recommend that the packing be separated into two or three strands and laid in so that the ends will overlap, and surely make a joint all the way round.

The amounts of packing given above, when calked in tightly, fill up the bell or hub from 1 1/2 to 1 3/4 in. from the top, which space is left for the lead backing.

Other Laboratory Equipment

Many educational and hospital laboratories have occasion to perform protein, nitrogen or ammonia determination by the Kjeldahl digestion process. For this purpose, there is available a complete Duriron digestion equipment of novel design which does not require the use of a hood. It is described in Bulletin No. 139 which also discusses the application. Large laboratories often find it desirable to provide a container for hot chromic acid in which is cleaned the glassware. Duriron jacketed kettles, heated by steam or hot water, are available in two standard sizes, 13 and 35 gal. Drawings of these will be furnished on request.

MAURICE A. KNIGHT

Manufacturer of Acid and Corrosion Proof Chemical Stoneware

AKRON, OHIO

BRANCH OFFICES

NEW YORK OFFICE: 804 World Building, FRED M. KLEIN, Mgr.—
Telephone, Beekman 1657
PHILADELPHIA OFFICE: 1600 Arch Street, EDWARD B. WILSON,
Mgr.—Telephone, Rittenhouse 6300
CHICAGO OFFICE: 230 No. Canal Street, S. D. BARKMAN, Mgr.—
Telephone, Franklin 4658

ST. LOUIS OFFICE: First National Life Building, F. HATFIELD, Mgr.—
Telephone, Main 1784
SAN FRANCISCO OFFICE: Merchants Exchange Building, B. M.
PILHUSHY, Mgr.—Telephone, Douglas 375
NIAGARA FALLS OFFICE: 309 United Office Building, E. M. SER-
GEANT, Mgr.—Telephone, Niagara Falls 507

CANADIAN OFFICE: 1307 Notre Dame Street, West, Montreal, P. H. JAMIESON, Mgr.—Telephone, Main 2625

Guaranty

Knight-ware is guaranteed to be acid proof throughout the entire body, free from defects and satisfactory in every respect.

Knight-ware will withstand the action of acids, alkalis, chemicals, and all corrosive solutions and gases, weak or strong, hot or cold.

Its acid proof qualities do not depend upon any glaze, enamel or veneer, "It is the body itself."



supply any type connection desired and offer several standard connections from which to choose. We also make up special types to order.

Bell and spigot pipe are available in any bore and in all standard fittings. Special fittings made to order. All bells are deep and well grooved permitting tight packing.

Each piece fully covered by our guaranty.

Where Knight-ware Is Used

Knight-ware is used extensively as plant equipment in the manufacture of acids, alkalis, chemicals and corrosive solutions and gases.

Because of the readiness with which Knight-ware lends itself to various shapes and designs, it is used as equipment for almost every purpose involving the use of acids and corrosive agents. It is especially adapted for acid proof sinks, waste lines and fittings, ventilating lines, sumps or catchbasins, as well as many other types of apparatus for high school, college and university laboratories, hospitals, newspaper buildings, and any other buildings where acid and corrosive solutions are used and acid proof waste, sewer or ventilating lines are necessary.

Knight-ware Pipe and Fittings

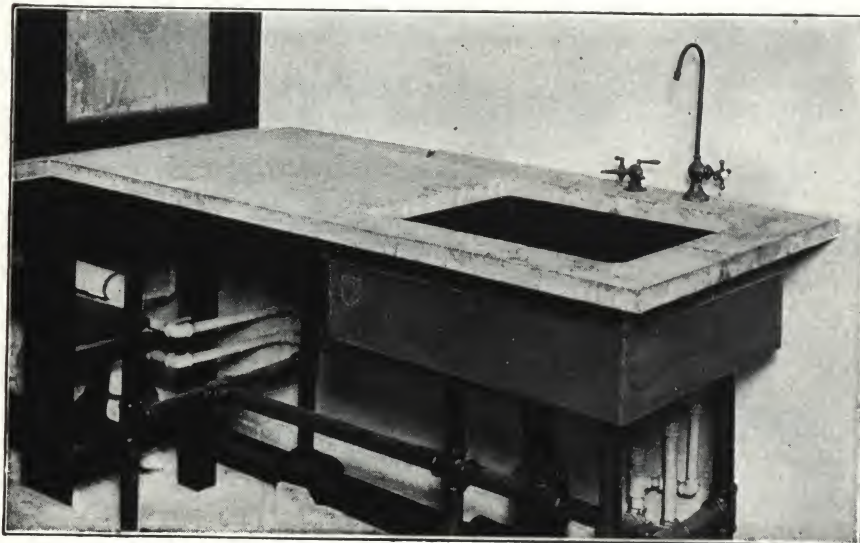
The bell and spigot type of connection is shown on the following page. This design is the one generally employed for laboratory use, although we are able to

Knight-ware Sinks

Because of the great diversity of shapes and sizes in which laboratory sinks are required by colleges, universities, commercial and private laboratories, it has been found inadvisable to carry any so-called standard sizes in stock. We make sinks to your order from your prints and specifications and to suit your requirements exactly. *Because Knight-ware sinks are entirely hand-made, it costs no more for this service.*

Knight-ware sinks are made in one piece and are not slabs bolted or cemented together. All faces are smooth and well glazed, corners are well rounded and, in general, every precaution is taken to see that they are easy to clean and keep clean. Outlets to the sinks are ordinarily made as an integral part of the sink itself, so that no separate outlet connections have to be purchased. If required, we can also manufacture outlet connections separately.

Knight-ware sinks are fully guaranteed acid proof, free from defects and satisfactory in every respect.



Knight-ware Sink Set-up, Johns Hopkins University

For Estimates on Laboratory Sinks

We ask that you give us the following detailed information:

(1) Length, width and depth, inside of sinks. (2) Bore and position of outlet. (3) Type of outlet, length, and outside diameter of pipe. (4) Size and depth and kind of rim, if rim required. (5) Height, thickness and width of back, if with or without faucet holes and position of same (if back is required). Also, if back is to be an integral part of sink or a loose plate. (6) Size, width, length and thickness, also design, and number and size of grooves of drainboard, if drainboard is required. (7) Number of sinks required. (8) Preferably a pencil sketch with the measurements or a blue print of the sink and attachments required.

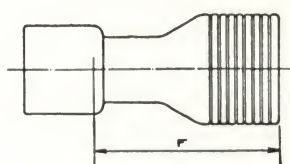


Fig. 277
B&S Reducer

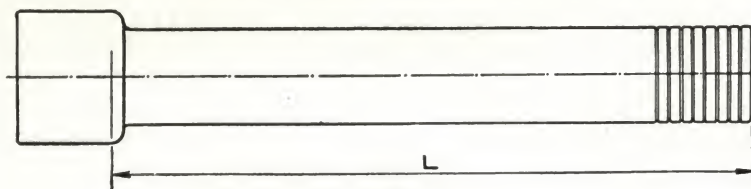


Fig. 271
Straight Length B&S Pipe

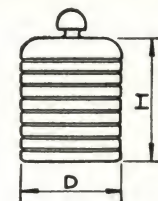


Fig. 271-CO
Plug or Cleanout

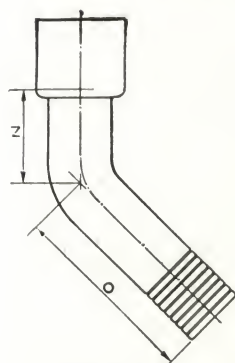


Fig. 272-B
B&S 45° or Eighth
Bend

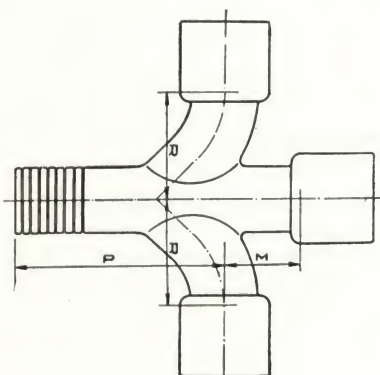


Fig. 273-D
B&S Double Sanitary T

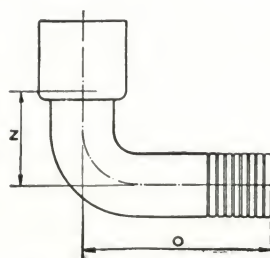


Fig. 272-A
B&S 90° or Quarter Bend

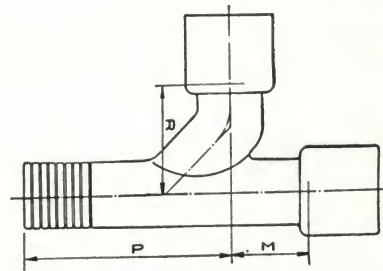


Fig. 273-A
B&S T-Y Fitting

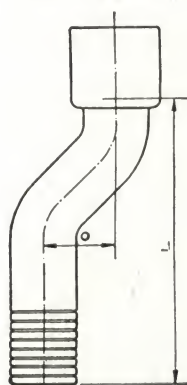


Fig. 271-O
B&S Offset

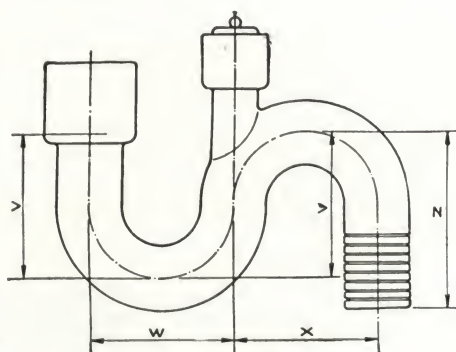


Fig. 268
B&S "S" Trap with Cleanout

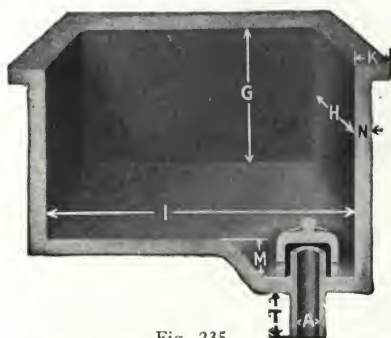


Fig. 235
Acid Proof Laboratory Sink with
Lute Trap Outlet



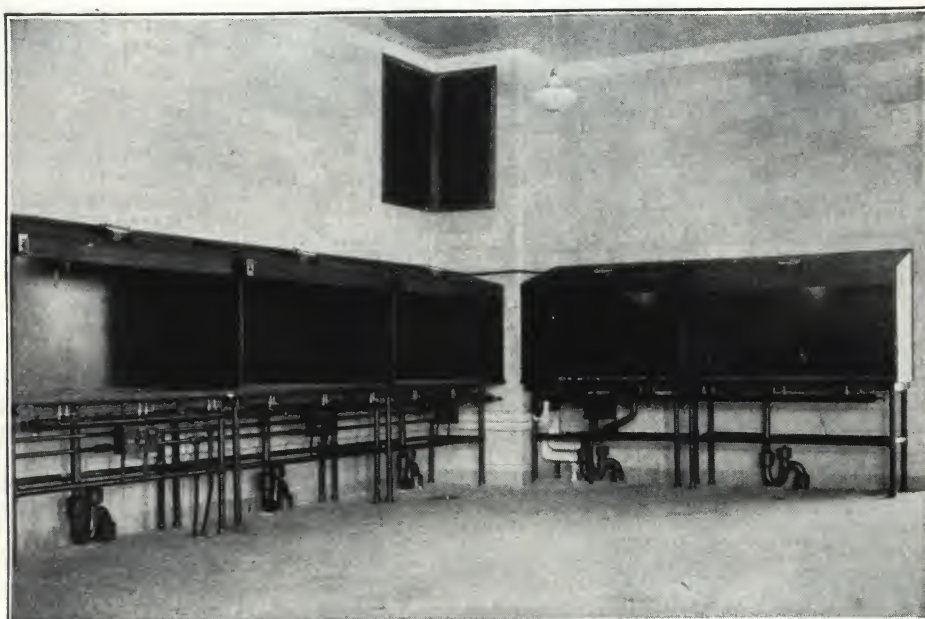
Fig. 237
Acid Proof Laboratory Sink with
Integral Back

Installations

A few of the more recent and important Knight-ware installations that have been made:

Princeton University, Chemistry Building
Columbia University, Chemistry Building
West Virginia University, Hall of Chemistry
Johns Hopkins University, Chemistry, Hygiene and
Biology Buildings
New York University, Chemistry Building
Washington University, Biology Building
Duke University, Chemistry Building
Purdue University, Chemistry and Pharmacy Buildings
Penn State College, Chemistry Building
Lafayette College, Mining Engineering Hall
Battelle Memorial, Chemistry Laboratory
McGill University, Pulp and Paper Research Building
Columbia Presbyterian Hospital Center

We shall be glad to furnish on request the names of the architects, engineers and contractors who handled any of these jobs.



Knight-ware Waste Lines and Traps from Troughs and Steam Baths, Princeton University

PACIFIC FOUNDRY COMPANY, LTD.

PLANT AND OFFICES
3100 Nineteenth Street
SAN FRANCISCO, CALIF.

EASTERN OFFICE
551 Fifth Avenue
NEW YORK, N. Y.

Products

"CORROSIRON" ACIDPROOF DRAIN PIPE and FITTINGS for drainage purposes.

"CORROSIRON" ACIDPROOF DRAIN PIPE and FITTINGS for drainage purposes are produced and controlled to an analysis specified by New York state and city authorities, which specifications have been followed by other leading municipalities.

"Corrosiron" a Process

"CORROSIRON" is a high silicon acid resisting cast iron, which has been produced, marketed and successfully used for over fifteen years.

"CORROSIRON" is a process, not a mixture or formula, developed and controlled by the PACIFIC FOUNDRY COMPANY, LTD., as one of their several similarly developed products, under both metallurgical and foundry supervision, including alloys prepared in the electric furnace and special moulding appliances and methods.

"CORROSIRON" was developed about the year 1913 when improved processes in the manufacture and use of sulphuric and nitric acids called for a material which would withstand corrosion, could be cast into various designs and would be strong enough to withstand moderate pressures and temperatures.

The corrosive actions of different solutions vary greatly while passing through drains, so it is not possible to predetermine the life of the pipe, but the facts are that "CORROSIRON" will result in prolonging the life of the drainage system because of its acid and alkali resistance.

Conditions of Installation

"CORROSIRON" drain pipe and fittings present no unusual problems of installation, excepting that lines should be secured or anchored closer than cast iron. Standard extra heavy drain pipe dimensions have been closely followed; pipe can be cut on the job and joints are made with molten lead and lead wool, caulked and tested as usual. It is advisable to caulk asbestos into the bottom of the bell before pouring lead so as to protect the lead from corrosion.

Chemical Tests for "Corrosiron" Resistance

Below is given the results of tests made by Government chemists, university chemists and chemical laboratories. These tests cover long periods in solutions at room temperature and losses figured in depth of corrosion per year.

Solution	Depth of corrosion in inches per year
95% Sulphuric acid	H ₂ SO ₄..... .0000208
25% Sulphuric acid	H ₂ SO ₄..... .0000291
10% Sulphuric acid	H ₂ SO ₄..... .0000173
70% Nitric acid	HNO ₃ none
25% Nitric acid	HNO ₃ none
10% Nitric acid	HNO ₃ none
5% Hydrochloric acid	HCl..... .00266
90% Acetic acid	CH ₃ COOH..... .0000048
87% Phosphoric acid	H ₃ PO ₄..... .000019
25% Phosphoric acid	H ₃ PO ₄..... .0000116
10% Phosphoric acid	H ₃ PO ₄..... .0000232
7.9% Oxalic acid	COOH.COOH.2H ₂ O..... .00002335
2.1% Oxalic acid	COOH.COOH.2H ₂ O..... .0000306
9.1% Picric acid	C ₆ H ₂ (NO ₂) ₃ .OH..... .0000051
25% Copper sulphate	CuSO ₄ .5H ₂ O..... .0000102
27% Ammonium chloride	NH ₄ Cl..... .0000409
48% Ferric chloride	FeCl ₃..... .0000414
Commercial oleic acid	C ₁₇ H ₃₃ CH ₂ CH(CH ₂) ₇ COOH..... none

CORROSIRON

We are pleased to furnish on request round discs of "CORROSIRON," weighing about 80 grams, which will be found to be suitable for testing under any specific conditions. We are also pleased to furnish upon request, various special shapes of "CORROSIRON"—such as pipe sections, small pots or kettles, and other designs—which will enable any one interested to determine just what can be expected of the metal.

A Partial List of Services

Cascade Pans—Concentrating sulphuric acid.
Pulsometers—Pumping nitric acid in large powder plants.
"S" Bends—Nitric acid condensers in powder plants.
Powder Plant Apparatus—Used in nitric, sulphuric and mixed acids.
Agitator Head, Blades—Used in standard agitators in corrosive solutions.
Anode Plates—Various sizes up to 30x36 in. in successful use.
Nut Guard—Making possible the use of wrought iron bolts in acid.
Flanged Pipe, Fittings—In general use for piping acids, alkalis and corrosive mixtures.
Drain Pipe and Fittings—Drains in chemistry laboratories, schools, colleges and commercial plants.
Tubes—For contact plants.
Drain Lines—For the cannery.
Bell and Spigot Pipe—For non-corrosive piping where flanged pipe is not suitable.
Valves and Cocks—For use in corrosive lines carrying sulphuric and nitric acids, alkalis and fruit juice mixtures.
Cast Threads—For special uses threads are being cast.
Nitric Acid Clamp—For use on glass tubes from pulsometers.
Paddles, Exhaust Fans, and Tanks—For photo-engraving establishments.
Acid Coolers—Used for cooling nitric and sulphuric acid after concentration.
Acid Eggs—Special types and shapes for every use.
Tower Sections—Complete sections for denitrating towers.
Pots and Kettles—Patterns in stock for various sizes and many types.
Heating Units—Special types for acid work.
Acid Recovery Parts—Special castings.
Acid Ejectors—Used for pumping with low heads. Inexpensive operation.
Pyrometer Tubes—To protect pyrometers from corrosives; 12 to 60 in. long.
Hooks—For suspending metals in corrosive solutions.
Filter Parts—Valve heads in boracic acid.
Roaster Blades—Used for rabbling corrosive sulphides in circular roaster.
Parting Dome Covers—Domes, covers and downtake show practically no wear after years of service.
Chute Sections—For delivering ores combined with acid mine water.
Pipes and Valves—For use in the tannery.
Pumps—Both centrifugal and plunger types for pumping sulphuric and nitric acids or other corrosive acid or alkaline liquors.
Pump Plungers—In mine waters and leaching plants.
Other "CORROSIRON" manufactured parts are covers for concentrating pans, spray nozzles, steam jets, troughs, battery grids, baffle plates, etc.

Stock Available

"CORROSIRON" bell and spigot drain pipe and fittings of dimensions of the gray iron extra heavy standard are carried in stock. Also laboratory sinks, sink connections, strainers, etc.

Stocks are carried at the principal points of the United States.

"CORROSIRON" chemical castings, special castings, split flanged pipe, split flanged fittings, pumps, valves, etc., can be furnished to order and from stock.

Prices and complete details furnished on request.

THE U. S. STONWARE CO.

Manufacturers of Guaranteed Acid-proof Chemical Stoneware

WORKS (SINCE 1865)

AKRON, OHIO

NEW YORK OFFICE: 50 Church Street

Acid-proof Chemical Stoneware Laboratory Sinks

U. S. Standard Chemical Stoneware Laboratory Sinks are widely used in chemistry and bacteriological laboratories of *universities, schools, hospitals* and *industrial companies*. These sinks offer the following overwhelming advantages:

- (1) They are of one-piece construction, made without seams, slabs or interlocking joints and thus permanently leak-proof and trouble-proof.
- (2) The material is non-porous and non-absorbent; it does not become slimy, does not peel, flake, chip, stain or disintegrate.
- (3) These sinks can be kept clean very easily. With rounded inside corners, smooth salt glaze, they can always be kept immaculately clean.
- (4) Our body is of a uniform and homogeneous texture throughout and is stronger and tougher. Each sink is unconditionally guaranteed to give full and complete satisfaction in every respect and to be acid-proof, chemical-proof and corrosion-proof throughout the stoneware body, *with or without the salt glaze*.
- (5) The salt glaze on U. S. Standard Sinks will not crack or craze—a condition which invariably develops with porcelain or vitreous china.
- (6) These sinks are everlasting and permanent because they are incorrodible.
- (7) The cost is no greater than for other types of sinks which are obviously less desirable for laboratory service.

We are always glad to make up special sizes and styles. Write for Laboratory Bulletin No. 503 containing complete data, standard sizes, list prices, etc.



Acid-proof Chemical Stoneware Pipe and Fittings

The universal resistance of U. S. Standard Chemical Stoneware to acids, alkalis and chemicals makes it ideally suitable for any service involving the handling of corrosive solutions. This accounts for its wide use for waste and ventilating lines in *school, university, hospital* and *commercial laboratories*, and for acid drainage lines from photo-engraving, electroplating and industrial plants. U. S. Standard Chemical Stoneware Pipe is free from the limitations and weaknesses of lead, iron, brass, rubber, alloys, etc.

The cost is low, there is no hazard, no upkeep, no leaks, no repairs and the installation will outlast the building itself. U. S. Standard Chemical Stoneware is strong and tough and is unqualifiedly guaranteed to be acid-proof and chemical-proof throughout the entire body, with or without the salt glaze. The sockets and pipe ends are made with deep grooves to more firmly hold the packing.

Our line is complete in all sizes, including special and standard fittings, such as sanitary tees, TY's, "P" traps, running traps, troughs, sumps, etc.

Laboratory Bulletin No. 503 describing our entire line will be sent to you for the asking.



Fig. 24

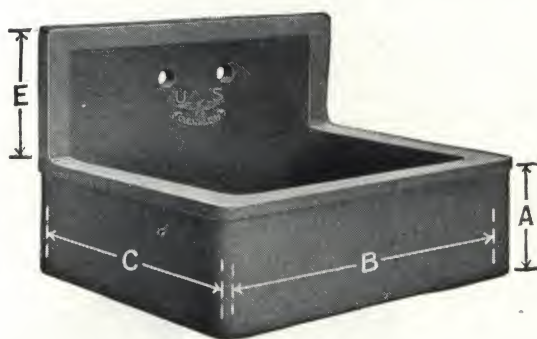


Fig. 112-ASP

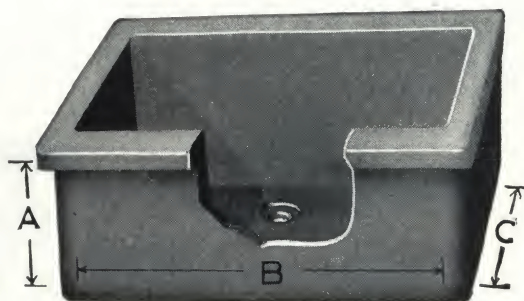


Fig. 112-A

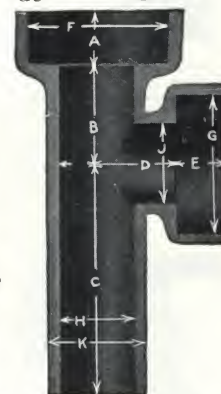


Fig. 25

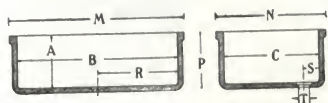


Fig. 112-A

Laboratory Sink (Plain Countersunk Outlet)

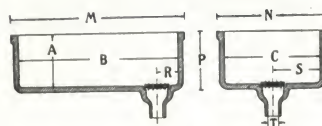


Fig. 112-B

Laboratory Sink (with Integral Nipple and Removable Strainer)

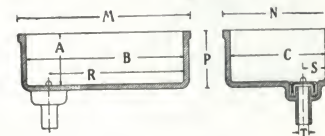


Fig. 112-C

Laboratory Sink (with Integral Nipple and Lute Trap)

DIMENSIONS OF "U. S. STANDARD" ACID-PROOF CHEMICAL STONWARE SINKS

Size No.	B	C	A	M	N	P	Code word	Size No.	B	C	A	M	N	P	Code word
700	11	9	8	14	12	9	Tab	709	18	16	6	21	19	7	Tape
701	14	10	6	17	13	7	Tacit	710	20	12	7	23	15	8	Tally
702	16	8	6	19	11	7	Tack	711	20	12	12	23	15	13	Tar
703	15	14	6	18	17	7	Taffy	712	20	16	7	23	19	8	Taunt
704	16	12	6	19	15	7	Tag	713	24	15	8	27	18	9	Tenor
705	16	16	9	19	19	10	Tale	714	32	16	7	35	19	8	Terse
706	18	10	11	21	13	12	Talon	715	30	20	8	33	23	9	Thumb
707	18	14	7	21	17	8	Tamp	716	36	18	7	39	21	8	Tiger
708	18	14	10½	21	17	11½	Tang	717	42	20	12	45	23	13½	Toast

Integral backs on No. 700 to No. 709 sinks (dimension "E" on Fig. No. 112-ASP) are 8 in. high and are 10 in. high on the larger sizes. Special sizes can be made to order.

JENKINS BROS.

Manufacturer of Valves and Mechanical Rubber Goods

PRINCIPAL STORES AND OFFICES

80 White Street
NEW YORK, N. Y.

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BOSTON, MASS.

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PHILADELPHIA, PA.

646 Washington Boulevard
CHICAGO, ILL.

1121 No. San Jacinto
HOUSTON, TEX.

FACTORIES IN ELIZABETH, N. J. and BRIDGEPORT, CONN.

JENKINS BROS., LIMITED

CANADIAN WORKS AND HEAD OFFICE: MONTREAL, QUE., 103 St. Remi Street
LONDON OFFICE: 6 Great Queen Street, Kingsway, W. C. 2

Products

VALVES: Globe, Angle, Cross, Check, Hose, Blow-Off and Safety Valves; Rapid Action Valves; Quick Opening Valves; Needle Valves; Radiator Valves in a variety of types; Air Valves; Modulating and Vacuum Valves; Medium Pressure Globe and Angle Valves, in bronze and iron; Extra Heavy Valves for high pressures, in Globe, Angle, Cross, Check, Blow-Off, Automatic Equalizing Stop and Check, and other patterns; Gate Valves in standard, medium and extra heavy patterns; Valves in Bronze and Iron for all pressures and purposes; Bronze Fire Line Angle Valves; Underwriters' Hose Gate Valves; Marine Valves.

MECHANICAL RUBBER GOODS: Jenkins '96; Jenarco; and Oiltite Sheet Packing and Gaskets; Gasket Tubing; Pump Valves; Jenkins Composition Valve Discs; Rings; Washers; etc. Compressed Asbestos Jointing.

MONCRIEFF GENUINE SCOTCH GAUGE GLASSES.

Also Air Guns and Gauge Cocks.



FIG. 106-A
Bronze Globe,
Screwed

One piece
screw-over bon-
net, slip-on,
stay-on disc
holder

Bronze Valves with One-piece Screw-over Bonnet and Slip-on Stay-on Disc Holder

Strength is an outstanding characteristic of these Jenkins Standard Bronze Valves. The screw-over bonnet is made in one sturdy piece. Large hex faces provide easy and full purchase with a wrench. The bonnet can be easily removed and replaced repeatedly without becoming sprung or distorted.

Another advantage is the slip-on stay-on disc holder, an unusual feature made possible by the Jenkins one-piece screw-over bonnet design.



The disc can be changed in a moment. Before unscrewing the bonnet, just open the spindle a turn or two. There is no need to open the spindle all the way. The disc holder does not fall off the spindle while the bonnet is being removed from the valve body. It stays on the spindle until the spindle is turned in the opposite direction. Then the disc holder

slips off just as easily as it slips on.

These valves are made in globe, angle, cross, horizontal, check and angle check types.

Renewable Disc, Bronze and Iron Body Valves, Standard Pattern

Jenkins Valves, standard pattern, have the feature of renewable disc and disc-holder as shown in the sectional view of Fig. 106. The renewable disc, first introduced by JENKINS BROS. many years ago, assures absolute tightness. The flexibility of the Jenkins disc secures perfect seat contact and is a most important improvement in valve construction. For steam use, the discs are made of hard composition, which becomes pliable under the action of steam; for water, gas and air service, somewhat softer compounds are furnished.

If grit or scale lodges on the seat it does not seriously injure the valve body, but it becomes embedded in the composition disc, thus saving the valve seat. Discs worn out in service can be replaced easily at very little expense. All parts are standardized and perfectly interchangeable.

Radiator Valves

The wide range of Jenkins Radiator Valves assures the correct selection for each type of job.

They are furnished in the standard pattern as supplied for many years, or the new Low Bonnet Pattern. The line includes: Globe, Angle, Offset Globe and Corner Valves. The Corner Valves in regular straight or offset pattern, right or left hand. Regularly fitted with black composition hand wheels, but also can be furnished with bronze hand wheels, when required, or with lock shield and key.



FIG. 114
Hose Angle Valve



FIG. 106
Globe Valve

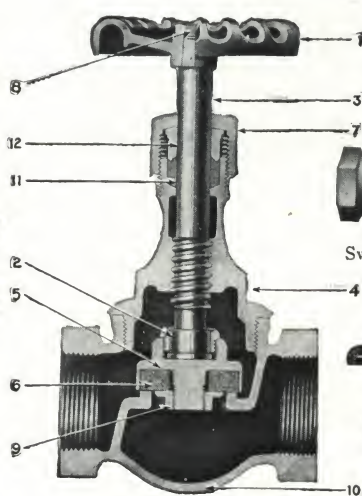


FIG. 106. Sectional View

- | | |
|-----------------|--------------------|
| (1) Wheel | (8) Wheel nut |
| (2) Locknut | (9) Disc nut |
| (3) Spindle | (10) Body |
| (4) Bonnet | (11) Stuffing box |
| (5) Disc-holder | packing |
| (6) Disc | (12) Gland or fol- |
| (7) Packing nut | lower |

Bronze Valves, Standard Pattern



FIG. 352
Swing Check
Valve



FIG. 108
Angle Valve

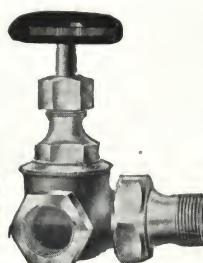


FIG. 176
Standard Regular
Corner

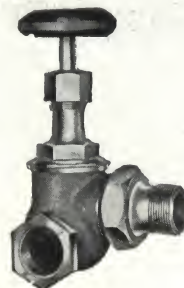


FIG. 180
Standard Offset
Corner



FIG. 168
Standard Angle, with
Union

Types of Standard Radiator Valves

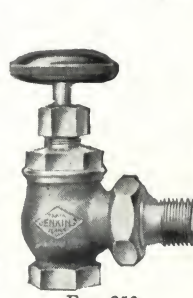


FIG. 853
Angle, Male Union

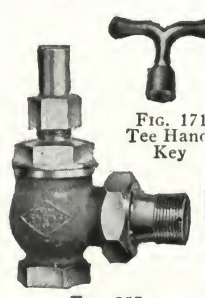


FIG. 857
Lock Shield Angle,
Male Union

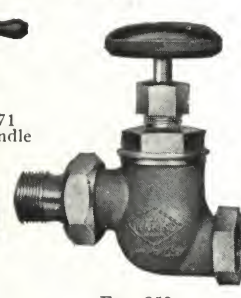


FIG. 859
Offset Globe, Male Union

Types of Low Bonnet Radiator Valves

In addition Jenkins Radiator Gate Valves are furnished when this type of valve is desired.

For hot water heating, valves may be had with a small hole drilled through diaphragm to permit slight circulation of water through radiator.

When so specified, valves are specially fitted for hot water heating systems *using forced circulation*.

Regular styles of finish follow:

Rough body, finished trimmings, No. 1 screwed, No. 6 with union

Finished and polished all over, No. 2 screwed, No. 7 with union
Rough body, nickelplated trimmings, No. 3 screwed, No. 8 with union

Rough body, nickelplated all over, No. 4 screwed, No. 9 with union

Finished and nickelplated all over, No. 5 screwed, No. 10 with union

Jenkins Improved Automatic Air Valves (Figs. 190 to 193) are used to remove air from radiators and heating coils automatically. All finished and nickelplated.

Regular sizes, $\frac{1}{8}$ and $\frac{1}{4}$ in.; also $\frac{3}{8}$ -in. size for long runs or large stacks.

Approved Fire Line Valves

Specially designed to meet the general demand for efficient, dependable hose valves and to fulfill the requirements of fire line service. Bronze, fitted with Jenkins composition disc. Large wheel enameled red.

Underwriters' Hose Gate Valve

Made in accordance with the Specifications of the National Board of Fire Underwriters, Associated Factory Mutual Fire Insurance Companies, and the National Fire Protection Association.

Hose end of valve is threaded with Eastern standard threads unless otherwise specified. Hand

wheel enameled bright red with the word "open" and an arrow cast on top of the rim.

Rapid Action Valves

For laundry wash wheels, and any service requiring frequent opening and closing of valves.

Opened wide by quarter pull of lever. Stays open automatically. Closes instantly without waterhammer.

Made of bronze with malleable iron lever.

Quick Opening Globe and Angle Valves

Valves have quadruple threaded spindle and bonnets, and can be opened full with about a quarter usual number of turns.

Bronze Globe, Angle and Check Valves for 250-lb. Working Steam Pressure

For many years the advantages afforded in the resiliency of the Jenkins composition disc have been well known, and this valuable feature is incorporated in this new line of

valves. The valves are fitted with a Jenkins disc, specially made to withstand working steam pressures up to 250 lb. The disc, being more resilient than the metal, readily conforms to the seat, and insures a tight valve without regrinding.

These valves are made in every respect to meet the higher pressure for which they are recommended and tested.

They can be furnished in globe, angle, and cross patterns; sizes from $\frac{1}{4}$ to 2 in.

Extra Heavy Bronze Valves

Globe, angle, cross, check and Y valves are designed for steam working pressures up to 300 lb., or 500-lb. water working pressures. Extra heavy iron body valves for pressure up to 250 lb.



FIG. 141

Standard Globe Screwed

Sizes, 2 to 12 in.



FIG. 370

Standard Bronze Gate with Inside Screw

or 300 lb. oil, water, gas; extra heavy for 250 lb. steam or 500 lb. oil, water, gas.

They are of the solid wedge, double face type. One of the important features of these valves is the improved globe shaped body. This new design is used because it secures the greatest possible strength, good proportion and neat appearance.

They are made with inside screw, stationary spindle; or with outside screw and yoke, rising spindle.

Iron Body Globe and Angle Valves

Jenkins Iron Body Globe and Angle Valves possess the strength to stand up in the most severe service. They are fitted with manganese bronze spindles and renewable bronze seat rings. The Jenkins Composition Disc, with which they are regularly provided, insures leak-tight seating under strains and stresses of maximum pressures, heat, weight and settling of piping, or frequent rough handling.

These valves are made in standard, medium and extra heavy pattern, with screwed or flanged ends. For pressures from 150 lb. working steam and 250 lb. working water to 350 lb. working steam and 400 lb. working water, according to the pattern. Sizes, from 2 to 12 in.

Jenkins Automatic Equalizing Stop and Check Valves

Are especially adapted to prevent boiler room accidents and to equalize the pressure between the different boilers in a battery.

This type is made in extra heavy globe or angle patterns with iron or cast steel bodies.

Gate Valves

Jenkins Gate Valves are made in bronze or iron body in three patterns: standard, for 125 lb. working steam pressure or 200 lb. oil, water, gas; medium, for 175 lb. steam



FIG. 325

Standard Iron Body Gate with Inside Screw

Iron Body Check Valves

All Jenkins Iron Body Check Valves in standard and extra heavy pattern are regularly fitted with a Jenkins Renewable Disc.

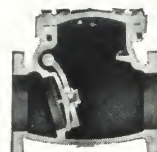


FIG. 629

Sectional View of Iron Body Swing Check Valve

Underwriters' pattern



FIG. 825

Iron Body Gate Valve

Underwriters' pattern

In Jenkins Swing Check Valves, the disc lifts well out of the passage. The hanger is heavy and has large bearing surface for carrying disc holder. The hanger pin is carried by a plug in each side of the body, making it always easy to remove.

Quality and Guarantee

Each Jenkins Valve is made for the maximum service, not merely for the average and is guaranteed when used in the service for which it is recommended.

Specification

"All valves shall be genuine Jenkins bearing the name 'Jenkins' within a Diamond mark."

For convenience, and to avoid possible mistakes, it is suggested that figure numbers also be specified.

Catalogue

A catalogue of all the Jenkins Valves, giving sizes, styles and list prices, mailed on request.

THE LITTLE GIANT MFG. CO.

Manufacturer of Sentinel Safety Sewer Valve

1401 3rd Avenue South, MINNEAPOLIS, MINN.

Product

SENTINEL SAFETY SEWER VALVES.

For Tu-bu-lur Radiator Brackets, Little Giant Radiator Hangers, Concrete Inserts and Temporary Radiator Legs, see Manufacturers' Index.

Sentinel Safety Sewer Valve

The Sentinel Safety Sewer Valve automatically prevents the backup of sewers through floor drains and fixtures. It closes immediately when backup occurs and opens as soon as water level recedes. This valve gives positive protection to property and merchandise and eliminates a dangerous health menace. It functions without human attention or electric current.

Sizes and Installation—Scale below shows the dimensions of the valve in sizes from 3 to 16 in. Valves are also made in 2-in. size and in larger sizes up to 24 in. The standard valve has hub ends but can be furnished with flanged or screw ends if specified. The standard model is built for upright installation in any specified position. On a single valve installation there is only one connection to be made to city water supply.

Operation—The valve is operated with city water connected to specially designed control valves on the hydraulic cylinder. The water supply is controlled by the cause of the trouble in the sewer. When the sewer pipe fills by reason of backup, the float in chamber (No. 1) rises to the top, causing the city water supply to be turned on at top of cylinder which forces the valve to close. When the water in sewer line recedes, the float drops, shutting water off at top of cylinder and turning on water beneath piston at bottom of cylinder (No. 2) which forces the valve to open.

Note—50 lbs. of water pressure creates approximately 1350 lbs. hydraulic pressure, assuring positive action. This force is sufficient to cut any ordinary substances such as paper, rags, and wood up to ½ in.

in thickness. Only metal or stones can prevent the valve from fully closing. The valve will operate on water pressure as low as 20 lbs.

The water remaining in the hydraulic cylinder when the pressure is reversed is discharged under hydraulic pressure through exhaust pipe (No. 3) through strainer (No. 4) and into the sewer pipe on sewer side of valve. This flushing action keeps the strainer clean at all times. The purpose of the strainer is to prevent any heavy substance from entering the float chamber.

The valve is constructed of the highest grades of materials: monel metal, bronze, brass, copper and cast iron being used in its construction. It meets the requirements of the best mechanical critics as well as all sanitary requirements and being a safety device, its manufacturers have spared no expense in constructing it perfectly.

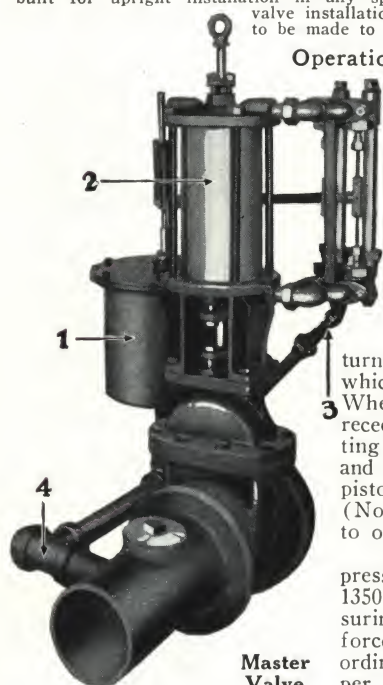
Sentinel Safety Auxiliary Valves

Sentinel Safety Auxiliary Valves are used exclusively with the Sentinel Safety Sewer Valve and are placed on water supplies of any source or on additional sewers where more than one sewer serves the same building. These valves are cross-connected with the Master Valve (water supply, top and bottom) and function in unison with it. When the sewer backs up and the Master Sentinel Valve closes, the auxiliary valve closes with it. The water supply to the building is thus shut off in order to prevent the plumbing fixtures being used and the sewage water from flooding the basement through basement fixtures. When placed on sewer lines, the auxiliary will close and open in unison with the Master Valve. One Master Valve will control a series of auxiliary valves placed either on sewer lines or water supplies.

Electric switches, rheostats, and alarms can also be made to function with both the Master and Auxiliary Valve where it is desirable to shut off ice machinery or other equipment when sewers are not open.

These valves are installed in all classes of buildings—industrial, commercial and domestic.

Prices, details and recommendations will be furnished gladly on request.



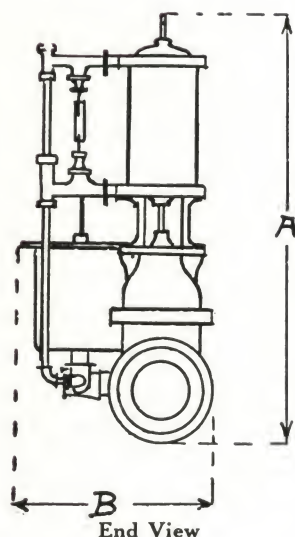
Master Valve



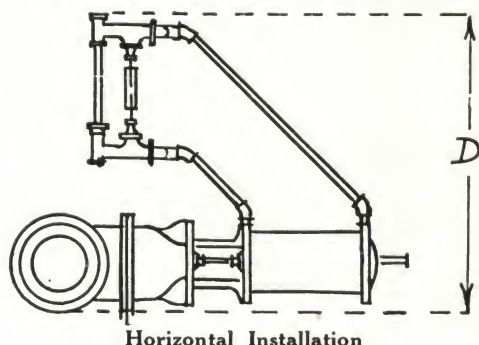
Auxiliary Valve

SENTINEL SAFETY SEWER VALVE DIMENSIONS

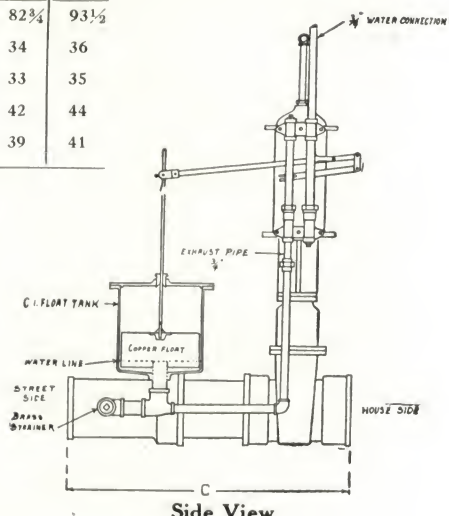
Size, in.	3	4	5	6	8	10	12	14	16
Dimension A	33	38½	41½	50½	58	66½	75½	82½	93½
Dimension B	23	24	25	26	28	30	32	34	36
Dimension C	23	25	25	26	27	29	31	33	35
Dimension D	31	32	33	34	36	38	40	42	44
Over-all length	28	29	30	31	33	35	37	39	41



End View



Horizontal Installation



Side View

THE AMERICAN SEWAGE DISPOSAL CO., INC.

FORMERLY THE AMERICAN SANITARY PRODUCTS CO., INC.

STAMFORD, CONN.

NEW YORK OFFICE, 101 Park Avenue

Products and Services

AMERICAN REINFORCED CONCRETE SEPTIC TANKS.

DESIGN and INSTALLATION of Sewage Disposal Systems for residences, schools, factories, institutions.

ENGINEERING INVESTIGATIONS of Sewage Disposal, Factory Waste Treatment, Water Supply Projects and Land Drainage.

Special equipment and experience in handling installations for Boy Scout, private and labor camps.



TRADE-MARK

carefully considered before the system is planned. American systems are designed only after soil absorption tests have been made and results checked.

The usual method employed for secondary treatment is the absorption of the clarified sewage in the soil, either in tile fields, leaching trenches or wells. Where these methods are not possible or advisable, we provide the type of treatment best suited to the requirements. This may be such as open top or subsurface sand filter, disinfecting or other units.

Complete Sewage Disposal Systems

All installations have as their ultimate object the complete disposal of sewage waste in an efficient and sanitary manner. The method used depends entirely upon local conditions, but in general, the system will consist of a settling tank, followed by a soil absorption area.

Septic Tanks

The main function of the septic tank is to relieve the sewage of the solids, which will either settle or float, so that the liquid from the tank can be more easily discharged into the soil or secondary unit.

For small residence work, the precast American tank may be successfully used.

For larger installations we design the type of tank best suited to the requirements.

Whether precast, or built-in-place, American tanks are made of watertight reinforced concrete. Proper facilities are always provided to permit easy cleaning of tanks.

Secondary Treatment

The most important part of any sewage disposal system is that of secondary treatment. This should be

Standard Materials Used

This company is not committed to any particular system, apparatus or device, but provides whatever will meet the requirements of the problem practically and economically. It avoids, in so far as possible, the use of so called "specials," designing systems with such standard materials as are commonly employed and which can be purchased economically on the open market.

Capacities of Systems

Septic tanks for residence work should provide a capacity of not less than 60 gallons per person, plus proper allowance for guests. Tank capacities for schools, institutions, etc. vary with the use of the particular building. We shall be glad to furnish detailed information on such tanks upon request.

The capacities of secondary treatment units depend entirely on soil conditions. The type and size of these units can be correctly determined only after a careful study of these conditions.

DETAILS OF AMERICAN PRECAST TANKS

No.	Size, in.	Capacity, gal.	Weight, lb.
7	42 x 66 x 45	300	1900
177	42 x 132 x 45	600	3800

A Few American Sewage Disposal Installations

LOCATION

Frank Altschul Estate, Stamford, Conn.
 W. M. Nones, Southport, Conn.
 Woodbridge Center School, Woodbridge, Conn.
 Waterbury Country Club, Waterbury, Conn.
 Sikorsky Aviation Corp., Stratford, Conn.
 E. P. Prentice Estate, Williamstown, Mass.
 I. K. Fulton, Sachem's Head, Conn.
 Feeding Hills School, Agawam, Mass.
 Groton High School, Groton, Conn.
 Crawford Allen Memorial Hospital, East Providence, R. I.
 Fairfield High School, Fairfield, Conn.
 Westchester County Park Commission, New Rochelle, N. Y.
 R. H. Gillespie, Stamford, Conn.
 Wm. M. Putman, Waterford, Conn.
 H. Smith Richardson, Westport, Conn.
 North Hadley School, North Hadley, Mass.
 Dr. W. T. Dannreuther, Lee, Mass.
 A. J. Van Beuren, Carmel, N. Y.
 Sidney Becker, Fairfield, Conn.
 Howard Sachs, Stamford, Conn.
 Center School, East Longmeadow, Mass.
 D. J. Hardenbrook, Waterford, Conn.
 Elmsford Country Club, Elmsford, N. Y.
 Louis Wilputte, New Rochelle, N. Y.

ARCHITECT

R. H. Dana, Jr., New York, N. Y.
 Walter J. Skinner, Bridgeport, Conn.
 Harrison Baldwin, New Haven, Conn.
 Parsons & Wait, Boston, Mass.
 Fletcher-Thompson, Bridgeport, Conn.
 C. K. B. Nevin, Boston, Mass.
 Brooks & Glazier, Hartford, Conn.
 P. B. Johnson, Springfield, Mass.
 Haynes & Mason, Fitchburg, Mass.
 York & Sawyer, New York, N. Y.
 O. C. S. Zirol, Fairfield, Conn.

Butler & Provoost, Stamford, Conn.
 Smith & Bassett, Hartford, Conn.
 A. Raymond Ellis, Hartford, Conn.
 Putman & Stuart, Northampton, Mass.
 Joseph McArthur Vance, Pittsfield, Mass.
 F. B. Hinchman, New York, N. Y.
 Clark & Arms, New York, N. Y.
 A. C. Holden Associates, New York, N. Y.
 E. C. & G. C. Gardner, Springfield, Mass.
 Payne & Keefe, New London, Conn.
 Bloch & Hesse, New York, N. Y.
 Julius Gregory, New York, N. Y.

Tide Water Oil Company—Base Plants in Connecticut, New York, New Jersey, Virginia and Rhode Island

ATEN SEWAGE DISPOSAL CO., INC.

TELEPHONE CONNECTION

286 Fifth Avenue
NEW YORK, N. Y.

Products and Service

The ATEN SEWAGE DISPOSAL CO., INC., designs and furnishes sewage disposal systems for residences, clubs, schools, hotels, hospitals, factories or other institutions not connected with city sewers. We contract for the complete installation of our systems, or we can furnish necessary parts (septic tank fittings, metal forms for crowned roofs and reinforced wire forms for concrete work, cast iron manhole collars and covers, siphons, diverting gates, special "Y" branches for tile lines, and special horse-shoe tile) for installation by common labor.

Upon receipt of the necessary information, we will gladly prepare the necessary drawings and specifications for the proper type of system to meet present and future conditions in the most economical and satisfactory manner, and furnish an estimate for either complete installation or special materials.

Guarantee

When installed by us, or in conformity with our directions, we guarantee the successful operation of our systems to dispose of domestic sewage from the buildings served.

Principles of Sewage Disposal

For systems adapted to individual buildings or groups of buildings the greatest efficiency is attained by settling and digesting the solids in septic tanks and disposing of the sewage effluent from these tanks by filtration through the ground by means of percolation tile drains, leaching chambers or filter beds.

Aten Sewage Disposal Systems

The system consists essentially of a septic tank and filtration fields or leaching chambers. A diverting gate, siphon, special fittings and special tile are features promoting automatic and efficient operation.

Septic Tank—The Aten septic tank consists of an airtight reinforced concrete chamber which receives the sewage, and settles and digests the solids by bacterial action. No chemicals are used.

After many years of experience and experimenting, we designed a reinforced wire form by means of which a concrete tank can be poured in position without the use of wooden forms.

The Aten wire form is embedded and remains in the concrete, thus reinforcing it. This form saves about half the cost of concrete because thinner walls are used; it saves the cost of wooden forms and the time of a carpenter to erect and to take them down.

Filtration Field—Consists of at least two sets of tile lines, especially designed to allow air to reach the sewage and permit uniform seepage to the soil. A diverting gate permits one set of lines to "rest" while the other is in operation.

Leaching Chambers—Used where land is not available for tile fields. Two or more are used for each septic tank so that one chamber may "rest" while the other is in operation. Constructed of stone, brick, or hollow building block.



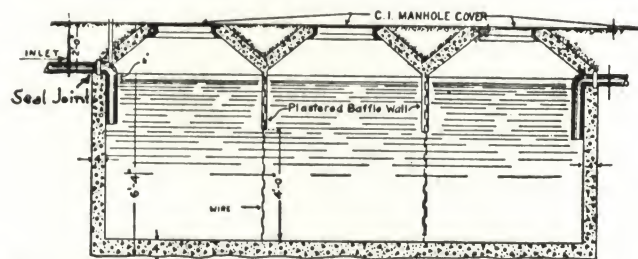
TRADE-MARK

References

Aten systems are approved by all leading boards, including State Boards of Health and Departments of Engineering.

A Few Aten Installations

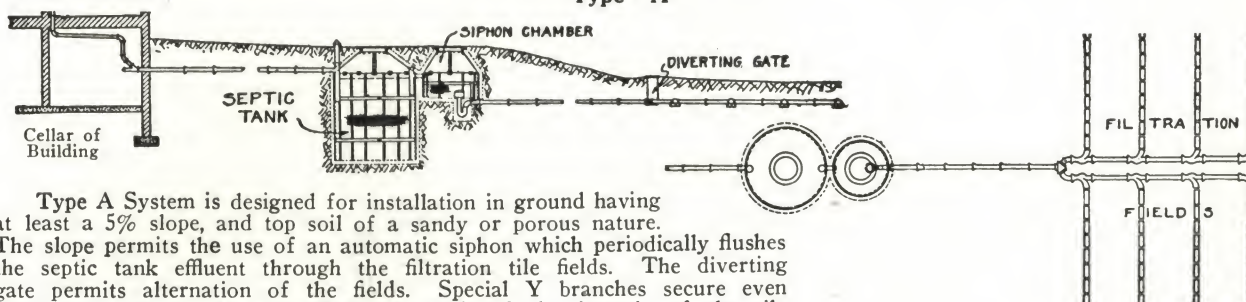
W. K. Vanderbilt, Centerport, L. I., N. Y.
Piping Rock Club, Locust Valley, L. I., N. Y.
Engineers Club, Roslyn, L. I., N. Y.
Canada Dry Ginger Ale Factory, Hudson, N. Y.
E. D. Morgan, Wheatly Hills, L. I., N. Y.
Thomas Hastings (Carrere & Hastings), Westbury, L. I., N. Y.
High and Grade Schools, Oceanside, L. I., N. Y. (5 Systems)
Cheney Bros. Hospital, South Manchester, Conn.
Nelson Doubleday, Oyster Bay, L. I., N. Y.
Dan Beard Outdoor School, Pike County, Pa.
Camp Pok-O-Moonshine, Willsborough, N. Y.
Grade Schools, Lynbrook, L. I., N. Y. (5 Systems)
Department of Parks, New York, N. Y.
Florida East Coast Railways, New Smyrna, Fla.
Montauk Beach Development Corp., Montauk, L. I., N. Y.
Grade Schools, Valley Stream, L. I., N. Y. (4 Systems)
Isolation Hospital, Perth Amboy, N. J.
Grade Schools, Rockville Center, L. I., N. Y. (2 Systems)
Oliver Morosco, Great Neck, L. I., N. Y.
Milton L'Ecluse, Huntington, L. I., N. Y.
W. C. Langley, Old Westbury, L. I., N. Y.
Carbondale Machinery Co., Carbondale, Pa.
High and Grade Schools, Mineola, L. I., N. Y. (2 Systems)
Salisbury Golf Links, Garden City, L. I., N. Y. (3 systems)
Henry Hornblower, Plymouth, Mass.
John W. Weber, Shelter Island, L. I., N. Y.
Camp Dudley, Westport, N. Y.
High and Grade Schools, Westbury, L. I., N. Y. (3 Systems)
A. H. Wyatt, Prop., Huellets-on-Lake-George, N. Y.
Leake & Watts Orphan House, Tivoli, N. Y.
Cherrydale Manor School, Darien, Conn.
St. Joseph's Convent and Academy, Babylon, L. I., N. Y.
Evangeline Booth, Hartsdale, N. Y.
Supplee Wills Jones Dairy Co., Woodstown, N. J.
Fata Morgana, Centerport, L. I., N. Y.
W. F. Schlemmer, Great Neck, L. I., N. Y.
Grade Schools, Smithtown, L. I., N. Y. (2 Systems)
C. S. Goldsborough, Oxford, Md.
Glen Oaks Golf & Country Club, Great Neck, L. I., N. Y.
Grade School, Northport, L. I., N. Y.
Deepdale Gold Club, Great Neck, L. I., N. Y.
Knickerbocker Ice Co., Mineola, L. I., N. Y.
Cooke Milk & Cream Co., Central Square, N. Y.
Nazareth Trade School, Farmingdale, L. I., N. Y.
Delaware County Hospital, Delhi, N. Y.
High and Grade Schools, Floral Park, L. I., N. Y. (3 Systems)
Dr. Frederick Prime, Huntington and Shelter Island, L. I., N. Y.
St. Joseph's Novitiate, Metuchen, N. J.
Home for the Aged, Hempstead, L. I., N. Y.
High School, Hicksville, L. I., N. Y.
Col. Henry Du Pont, Wilmington, Del.
Henry A. Colgate, Morristown, N. J.
The Dry Milk Company, Jasper, Mo.
Workman's Circle Camp, Sylvan Lake, N. Y.
Westchester Beach & Yacht Club, Mamaroneck, N. Y.



Sectional View of Aten Concrete Septic Tanks in Multiple

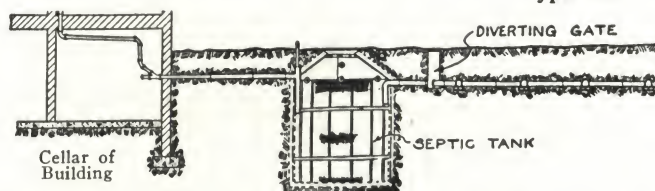
Aten single septic tanks can be furnished with capacities from 550 to 2500 gal. For schools, camps, clubs and factories where greater capacities are required septic tanks are installed in multiple, as shown above

THE ATEN SYSTEMS Type "A"



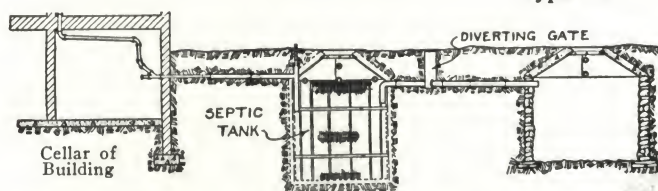
Type A System is designed for installation in ground having at least a 5% slope, and top soil of a sandy or porous nature. The slope permits the use of an automatic siphon which periodically flushes the septic tank effluent through the filtration tile fields. The diverting gate permits alternation of the fields. Special Y branches secure even distribution of the sewage effluent to each of the laterals of the tile lines.

Type "B"



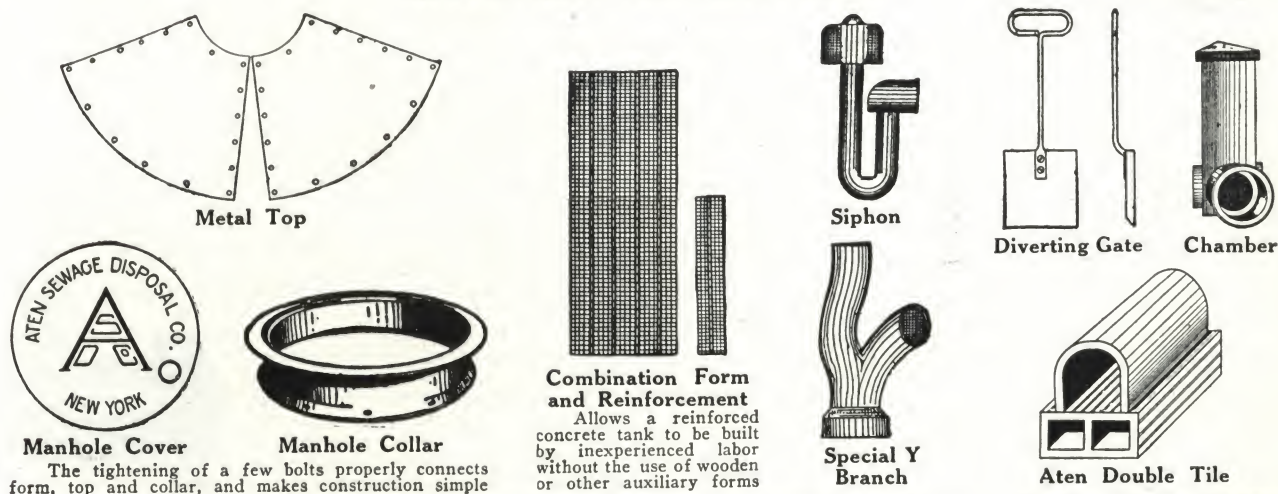
Type B Design is adapted to ground having a very flat grade. A modification of Type A, omitting the siphon. A feature of this design is that it permits laying the tile lines nearer to the surface of the ground, which is desirable for soils of slow seepage rate. Diverting gate and special Y branches are used, as in Type A.

Type "C"



Type C System is used where sufficient land is not available for the fields, or where the subsoil is more porous than the top soil. The siphon is omitted, and two or more leaching chambers are substituted for the tile fields. For school buildings where more than two leaching chambers are required, they are installed in series, controlled by a diverting gate. In this manner one series is in operation while the other series is drying out. Chambers are built of concrete building blocks.

ATEN MATERIAL AND SPECIAL PARTS



ATEN SEWAGE DISPOSAL CO., INC.	DIAGRAMS OF ATEN SEWAGE DISPOSAL SYSTEMS, MATERIALS AND SPECIAL PARTS	NO SCALE	DRWG. 1
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KAUSTINE COMPANY, INC.

Manufacturers of Kaustine Septic Tanks and Kaustine System Chemical and Septic Toilets

MAIN OFFICE AND FACTORY

PERRY, N. Y.

Consult Telephone Directory for Local Offices

Products

KAUSTINE SUPER-SEPTIC TANKS; KAUSTINE ARMCO INGOT IRON SEPTIC TANKS.

KAUSTINE SYSTEM CHEMICAL and SEPTIC TOILETS.

KAUSTINE CHEMICALS.

Kaustine Products are endorsed by public health authorities.

Kaustine

tical and the horizontal. By a system of internal baffles which are found only in these tanks, a clearer effluent is produced which consequently results in a more speedy ab-

sorption of it.

The tables at bottom of first column show the various sizes and capacities of the Kaustine Super-Septic Tank. This tank is covered by a U. S. Government patent.

Services

Engineering staff; local field men. The KAUSTINE COMPANY, INC., has an engineering department at the main office devoting its attention wholly to sanitary engineering work. In conjunction with this head office and co-operating with it are local offices manned by graduate engineers or men especially trained for the work. This service, together with a product of widely known quality, relieves architects of all sewage disposal details. Write for Architects' Data Sheets.

Design

KAUSTINE COMPANY, INC. are the originators of the metal septic tank and, as such, have kept in the forefront of the design of septic tanks for sewage disposal purposes. Improvements to the tanks in accordance with the best methods of sewage disposal are constantly being made, thus keeping the Kaustine Septic Tanks in the front rank of this class of equipment.

Kaustine Super-Septic Tanks

The Kaustine Super-Septic Tanks stand among those at the head of the line of sewage treatment tanks for rural and suburban installations and are made in two styles: the ver-



CAPACITIES, DIMENSIONS, ETC., KAUSTINE VERTICAL SUPER-SEPTIC TANKS

Cat. No.	Dimensions, in.		Working capacity, gal.	Gage of metal	Wt., lb.	Number of persons designed to accommodate			
	Diam.	Height				Home	Hotel	Factory	School
112	38	50	200	12	295	7	8	15	20
113	48	50	320	12	470	10	12	25	30
114	55	60	530	12	800	17	30	40	45
115	65	60	740	10	1290	25	45	55	60
116	75	60	1000	10	1650	35	60	75	85
117	92	60	1500	10	1950	50	90	115	130

SPECIFICATIONS STANDARD SIZES HORIZONTAL SUPER-SEPTIC TANKS

Cat. No.	Capacity, gal.	Length, ft. in.	Height, ft. in.	Width, ft. in.	Weight, lb.
S2250	2250	8 4	7 3	7 4	3600
S2800	2800	10 5	7 3	7 4	4000
S3400	3400	12 6	7 3	7 4	4400
S4000	4000	14 7	7 3	7 4	4900
S4600	4600	16 8	7 3	7 4	5400
S5200	5200	18 9	7 3	7 4	5900
S5800	5800	12 6	9 9	8 0	6500
S7800	7800	16 8	9 9	8 0	7800
S9800	9800	20 10	9 9	8 0	9100
S11800	11800	25 0	9 9	8 0	10400
S13800	13800	29 2	9 9	8 0	11700
S15800	15800	33 4	9 9	8 0	13000

Materials

Kaustine Super-Septic Tanks and Kaustine Armco Iron Septic Tanks and the Chemical Toilet and Septic Toilet Tanks are made exclusively of *Armco Ingot Iron* protected by a heavy coating of black plastic enamel inside and outside. As far as materials and workmanship are concerned there is only one grade of Kaustine quality products.

Kaustine Armco Ingot Iron Septic Tanks

Ofttimes price is a determining factor in the purchase of a septic tank. In that case, the Kaustine Armco Ingot Iron Septic Tank is recommended. It too, is built of *Armco Ingot Iron* coated with black plastic enamel, but does not have the baffle which is a feature of the Super-Septic Tank. These tanks are made in two styles: the vertical tanks of 200 and 320-gal. capacities and the horizontal tanks of 200 to 5000-gal. capacities.

CAPACITIES, DIMENSIONS, ETC., KAUSTINE ARMCO INGOT IRON SEPTIC TANKS

Cat. No.	Dimensions, in.		Working capacity, gal.	Gage of metal	Number of persons designed to accommodate				Wgt., lb.
	Diam.	Height			Home	Hotel	Factory	School	
Vertical Septic Tanks									
62	38	48	200	14	7	8	12	15	260
63	48	48	320	14	10	12	20	25	330
Horizontal Septic Tanks									
82	38	48	200	14	7	8	12	15	260
85	52	60	500	14	25	35	40	40	395
810	52	120	1000	12	50	70	80	80	845
815	52	180	1500	12	75	105	120	1150	
820	68	144	2000	7	100	140	165	2270	
825	68	180	2500	7	125	175	210	2675	
830	68	216	3000	7	150	200	250	3095	
835	68	252	3500	7	175	235	290	3525	
840	68	288	4000	7	200	270	330	3945	
845	68	324	4500	7	225	305	370	4365	
850	68	360	5000	7	250	340	410	4800	

Kaustine System Toilets

Frequently in rural homes an indoor toilet is desired but running water under pressure is not available. For these conditions either a Kaustine System Toilet, chemical type, or a Kaustine System Toilet, septic type, is recommended. In the former sewage is held in a tight tank in which there is a solution of Kaustine Chemical which sterilizes the sewage and, together with the specially designed system of rotary agitation, breaks down the solids, rendering them liquid and easily disposed of. In the latter, sewage is discharged into a metal tank provided with an overflow where, without the use of chemical under a natural, biological process, the sewage is digested. Liquid flowing out of the overflow is disposed of by means of tile lines laid with open joints in the ground adjacent to the installation.



Kaustine Chemical

Guaranteed to be of standard purity and strength, being many times stronger than phenol (carbolic acid). It is an odorless crystalline compound and renders sewage harmless and free from odor by destroying all organic matter and bacilli. It can also be used as a resolvent in the case of clogged drains and clogged cesspools.

NATIONAL SANITARY ENGINEERING CO.

Engineers and Contractors for Sewage Disposal and Water Supply Systems

BETHEL, CONN.

NEW YORK OFFICE, 101 Park Avenue

Products and Services

COMPLETE SEWAGE DISPOSAL and WATER SUPPLY SYSTEMS installed for residences, schools, clubs, institutions, camps or communities.

Also Septic Tanks, Water and Sewage Pumps, Sewer Pipe, Drain Tile, Siphons, Diverting Gates and Miscellaneous Water Supply and Sewage Disposal Equipment.

Engineering Reports submitted.

Ultimate Disposal of Sewage

Sewage may be ultimately disposed of in only two ways:

(1) Discharge into a watercourse.

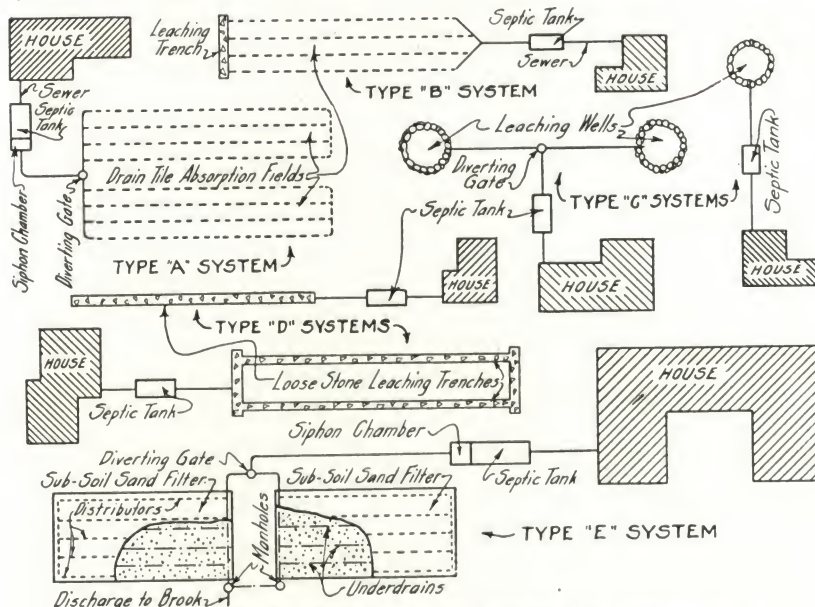
(2) Absorption by the soil.

Where large quantities are to be disposed of, particularly from cities, the usual method of ultimate disposal is by discharge into a watercourse. Various constituents in the sewage, however, must first be removed by treatment plants in accordance with State, local or other governmental regulations.

For buildings not served by city sewers, the general method is to construct individual systems which will permit the liquid to be absorbed by the soil.

Layouts of Systems

Treatment plants for removing sewage constituents prior to discharge into a watercourse are of many types and forms of construction and require skilled



Typical Layouts of Sewage Disposal Systems for Residences

engineering investigation for proper layout and design.

Systems for absorption of the liquid by the soil should include two main units:

(1) A settling tank, usually of the septic tank type, for removing soil clogging solids from the sewage.

(2) Soil absorption units for permitting the settled sewage to seep away through the soil.



St. Thomas Seminary, Bloomfield, Conn.

LOUIS A. WALSH, Architect, Waterbury, Conn.

Sewage disposal system consisting of Imhoff tank, siphon chamber, glass covered sludge bed and sand filters, capable of treating over 30,000 gals. per day.

Designed and constructed by NATIONAL SANITARY ENGINEERING CO.

Where a watertight soil is encountered, soil absorption systems cannot be successfully used and the wastes must pass through a proper treatment plant and be discharged into a watercourse.

Specifications and Cost Estimates

Upon obtaining pertinent data, we will furnish, without obligation, specifications and quotations for complete installation of sewage disposal and water supply systems. The general layout and size of the various units comprising the system will be included in the specifications.

Engineering Services

In addition to preparing plans and specifications, our Engineering Department will, when properly authorized, act for our clients in securing necessary approval of plans from State or local health departments or other authorities having jurisdiction.

Our Engineering Department is also available for special reports on water and sewage treatment projects, particularly for the larger institutions and communities.

References and Installations

References and a list of our installations will be gladly sent upon request.

NUSTONE SEPTIC TANKS AND SEWAGE DISPOSAL SYSTEMS

NUSTONE PRODUCTS CORP. OF NEW JERSEY

For New York and New Jersey

4315 Hudson Blvd., UNION CITY, N. J.

Telephone, Palisade 6-4450

BRANCHES

LONG ISLAND NUSTONE CORP., HICKSVILLE, N. Y.

NEW YORK NUSTONE CORP., KINGSTON, N. Y.

NUSTONE PRODUCTS CORP. OF CONNECTICUT

For Connecticut and Westchester County

222 Boulevard, NEW HAVEN, CONN.

BRANCHES

103 Park Avenue, NEW YORK, N. Y.

Telephone, Ashland 4852

STAMFORD, CONN. HARTFORD, CONN. DANBURY, CONN.
BRIDGEPORT, CONN. DEVON, CONN. SOUTH NORWALK, CONN.
PORT CHESTER, N. Y. PHILADELPHIA, PA.

Organization and Material

Quality and service since 1886.

Our installation departments include graduates of colleges, and former officers of the U. S. Army for the engineering and sales work.

For installation of the systems, we maintain permanent crews of men operating from our nearest office.

The tanks we use are made in our own factories or built on the property.

Our precast septic tanks are made of carefully prepared and seasoned concrete—giving a composite stone that we guarantee for a lifetime.

Types of Septic Tanks

In addition to our precast concrete tank, we build concrete tanks on the job, also brick tanks, as shown on the plate of details opposite.

Features

Where separate line is not provided for kitchen waste, we include a grease trap arrangement with our system for the purpose of trapping the grease, so that it can be easily removed at proper intervals.

Cast iron manhole covers (one or more) are provided for all installations we make.

The design of our tank permits us to bring this manhole cover close to the surface of the ground (with extra sections) no matter what the depth of the soil line may be.

Modern drainage methods are used for seepage.

The cost of our system installed is exceptionally low. Every detail of the work—from manufacture of the article, to the covering over of the finished job—comes under our own supervision, thus eliminating unnecessary overhead and other expenses.

Service

An engineer will inspect and report and will make recommendations, on request, without obligation. Plans and specifications will be submitted, if desired.

We keep in constant touch with the users of our systems, advising them when to remove grease, or do it for them at a nominal cost.

Brief Description of Systems and Their Installation

Attention is invited to the fact that this company has originated the grease trap arrangement—considered as very essential even though traps may be placed beneath sinks.

We have also originated the sectional arrangement to bring the manhole covers to any height desired, irrespective of the depth of the soil line.

Special type of drain tile has also been introduced by us, insuring seepage over every square inch of the trenches.

Sewer Line—This is usually vitrified tile pipe. Cast iron pipe is used where the pipe line is likely to get rough contact (as under driveways).

Precast Septic Tank—The size of the tank is judged according to standard specifications. The sewage enters the grease trap sections first, where it is detained long enough to permit the rising of the grease to the surface, and its retention in that section—most of the natural sewage in solution then being passed on to the second section.

The second section retains the liquefied sewage, passing on the water effluent to the third section, and from there it is carried off for amœbic bacterial treatment—and seepage—in the trenches.

Siphon—For the purpose of discharging the water effluent into the drainage field to obtain more far-reaching drainage, and also rest periods for the trenches between discharges.

Contour conditions, ground water and available space are the opposite factors to consider. Where these objectionable conditions do not exist, the siphon is advisable.

Disposal Field—Standard size and "fill" for trenches are used by us. Special type of tile is used to obtain the best drainage possible. Check basins (serving also as dry wells) are installed where considerable trench is used.

Distribution chambers are used—instead of branch pipe lines—in order to get more perfect distribution to the branch lines.

Capacity Required—For schools, with showers, 30 gal. per capita per day.

For factories, without showers, 35 gal. per capita per day.

For hospitals, hotels and similar institutions, 100 gal. per capita per day.

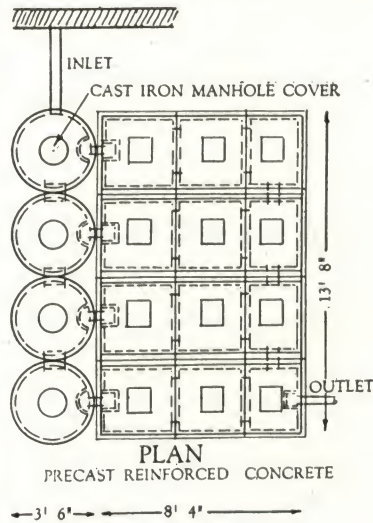
Based on a 12-hour retention period, the tank capacity would be equal to one-half the above figures, per capita per day.

For ordinary size home, 100 gal. per person per day. Other requirements estimated on request.

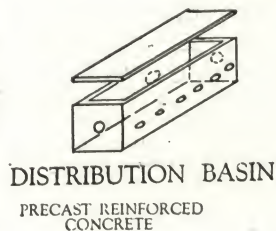
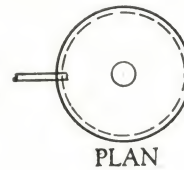
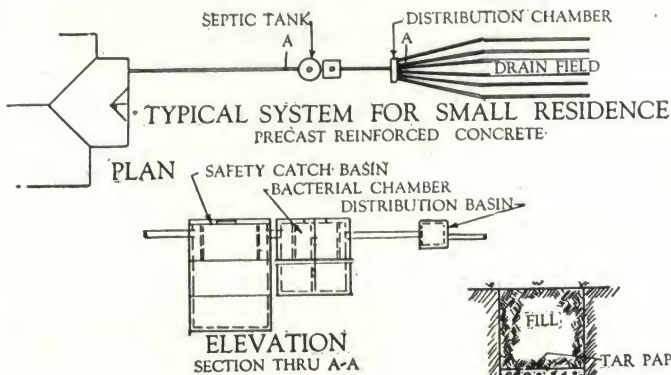
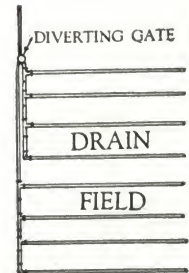
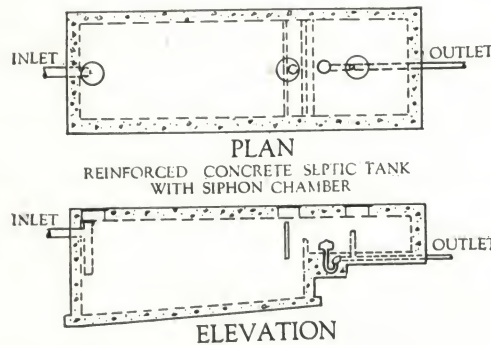
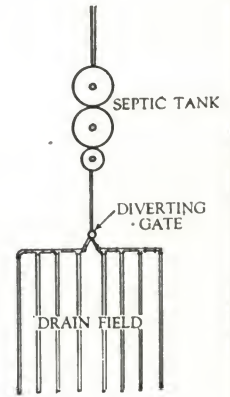
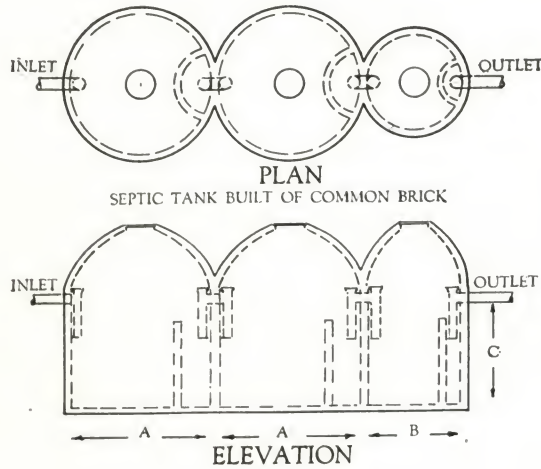
Partial List of Our Institutional and Individual Installations

Arthur S. Brisbane, Allaire, N. J.
Riverside Yacht Club, Riverside, Conn.
Greenwich Country Day School, Greenwich, Conn.
Percy A. Rockefeller Estate, Greenwich, Conn.
Wm. G. Rockefeller Estate, Greenwich, Conn.
Owen D. Young Estate, Riverside, Conn.
Coolidge Estate, Mount Kisco, N. Y.
Dr. Albert M. Greminger Estate, Bedford, N. Y.
Scott Residence, Westchester Biltmore, Rye, N. Y.
V. Green Residence, Greenhaven, Mamaroneck, N. Y.
Ruxton Estate, Greenwich, Conn.
Pinkham Estate, Stamford, Conn.
Dr. Thaddeus Hyatt Residence, Stamford, Conn.
Allen Estate, Port Chester, N. Y.
Holy Ghost Fathers Dormitory, West Norwalk, Conn.
Broad River School, West Norwalk, Conn.
Du Pont Fabrikoid Co., Fairfield, Conn.
Choate Preparatory School, Wallingford, Conn.
New Haven Orphan Asylum, New Haven, Conn.
Connecticut College, New London, Conn.
Corbin Estate, Hartford, Conn.
Summit Golf Club, Summit, N. J.
Tenakil Public School, Closter, N. J.
Standard Oil Co.—in various locations.
Bohack Stores—in various locations.
Nanuet Public School, Nanuet, N. Y.
Sheffield Farms, West Norwood, N. J.

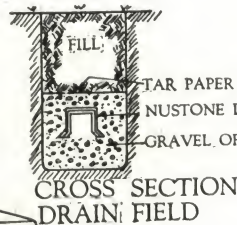
Jas. J. Donahue, Mountain View, N. J.
Major B. C. Black Residence, Great Neck, N. Y.
University Gardens, Great Neck, N. Y.
New York Military Academy, Cornwall-on-Hudson, N. Y.
New York Tribune Summer Camp for Boys, Rhinebeck, N. Y.
Hopatcong Public School, Hopatcong, N. J.
Greenwood Lake Public School, Greenwood Lake, N. J.
Cedar Grove Municipal Building, Cedar Grove, N. J.
Camp Unser, Highland Mills, N. Y.
Bayonne Public Parks, Bayonne, N. J.
Beth Israel Cemetery, Woodbridge, N. J.
Northvale Public School, Northvale, N. J.
Stanley A. Russell Residence, Montclair, N. J.
Shupe Terminal Building, Newark, N. J.
New York Telephone Co., Eltingville, S. I., N. Y.
St. Cloud Public School, West Orange, N. J.
Cresskill Public School, Cresskill, N. J.
Home Bank & Trust Company, Darien, Conn.
Heather Residence, Westchester Biltmore, Rye, N. Y.
Milbrook Country Club, Greenwich, Conn.
Dr. Jimenez Estate, New Canaan, Conn.
Topping Estate, Round Hill Road, Greenwich, Conn.
St. Clement's Church, Stamford, Conn.
Bruce Park Memorial, Greenwich, Conn.
Dominick Residence, Khakum Woods, Greenwich, Conn.
Stamford Hall Sanitarium, Stamford, Conn.



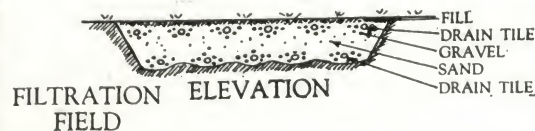
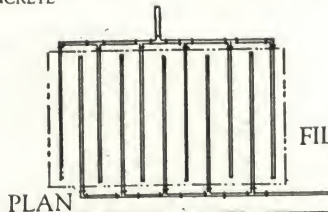
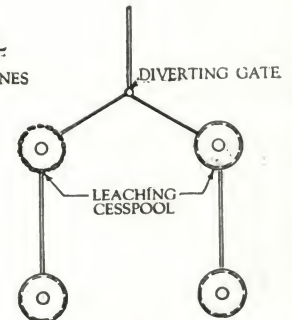
TYPICAL SEPTIC TANKS
FOR
INSTITUTIONAL BUILDINGS



NUSTONE DRAIN TILE
PIPES JOINED TOGETHER BY TONGUE AND GROOVE



LEACHING CESSPOOL
BUILT OF COMMON BRICK,
CONCRETE BLOCKS OR FIELD STONES



NUSTONE SEPTIC TANKS AND SEWAGE DISPOSAL SYSTEMS

THE NEW YORK SEWAGE DISPOSAL CO.

Experts in Sanitary Engineering

5621 Grand Central Terminal
NEW YORK, N. Y.

Products and Services

Experts in the DESIGN and CONSTRUCTION of SEWAGE DISPOSAL, WATER SUPPLY and kindred SUB-URBAN UTILITIES.

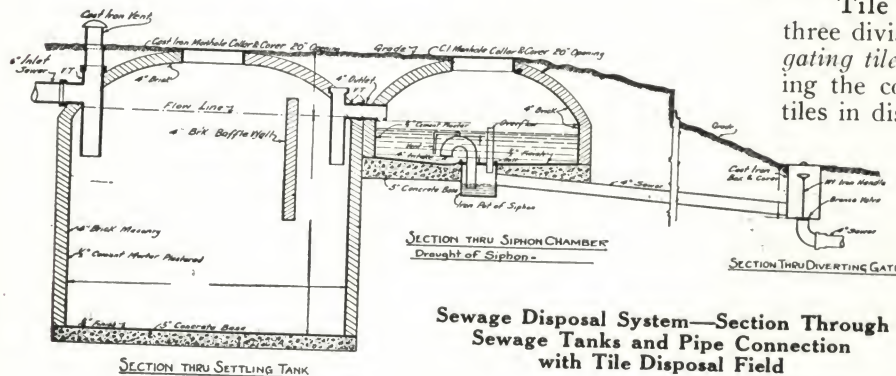
The engineering staff is made up of graduates of the best technical schools who are trained by years of experience in sanitary and mechanical engineering in the fullest meaning of the terms. They will investigate and report on Sewerage, Drainage, Water Supply, Pumps, Swimming Pools and kindred subjects.

Experience

Over twenty-five years' active work in design and construction.

Plans and work are approved by State, county and city health officers and engineers.

The scope of the work of this company extends from the smallest plants for dwellings to hospitals, golf clubs and institutions.



Sewage Disposal System—Section Through
Sewage Tanks and Pipe Connection
with Tile Disposal Field

Description of Residential and Institutional Sewage Disposal Plants

This company is the originator and developer of an automatic siphon which works properly; a diverting gate that does not rust or jam, and a type of sewage irrigation tile.

Sewer—Vitrified or iron pipe; standard engineering specifications.

Settling Tank—A tight masonry structure provided with special inlet and outlet devices, baffle and weir walls and other arrangements.

The particular design which may be selected depends upon the nature and volume of sewage to be treated.

Siphon Chamber—A masonry structure built in connection with settling tank. Receives liquid overflow and by means of an automatic siphon, discharges this effluent at periods. The siphon chamber produces periodic discharges filling uniformly the tile disposal field beyond, permitting a period of rest.

Tile Disposal Field—Made up of two or three divisions, or fields, of *special sewage irrigating tiles*, laid in a series of trenches following the contours. The quantity of absorption tiles in disposal fields is determined by a study of the ground, and amount and nature of sewage to be treated.

Special Diverting Gate—Provided so that siphon discharge may be deflected into either of the fields.

Special Terra Cotta Fittings—Designed to set along the distribution lines, permitting a uniform flow.

A Few of Our Clients

Private Plants

Elihu Root, Southampton, N. Y.
Col. H. H. Rogers, Southampton, N. Y.
Marshall Field, Lloyd Neck, N. Y.
A. H. Cosden, Southold, N. Y.
A. C. Bedford, Glen Cove, N. Y.
Geo. W. Wickersham, Cedarhurst, N. Y.
Julius Fleischmann, Port Washington, N. Y.
Harry F. Guggenheim, Port Washington, N. Y.
George F. Baker, Jr., Locust Valley, N. Y.
John W. Davis, Locust Valley, N. Y.
Horace D. Taft, Wainscott, N. Y.
J. Watson Webb, Woodbury, N. Y.
Robert Goelet, Goshen, N. Y.
Jesse I. Straus, Mt. Kisco, N. Y.
Whitelaw Reid Estate, Purchase, N. Y.
Felix M. Warburg, White Plains, N. Y.
H. N. French, Fishers Island, N. Y.
W. Redmond Cross, Morristown, N. J.
Jas. C. Brady, Gladstone, N. J.
Dean Mathey, Princeton, N. J.
G. H. Kinnicutt, Far Hills, N. J.
Major Max C. Fleischmann, Greenwich, Conn.
Winchell Smith, Farmington, Conn.
Edw. S. Harkness, New London, Conn.
Mrs. Earle Baillie, Cannondale, Conn.
John Holman, Fairfield, Conn.
Dr. Wm. D. Tracy, Stamford, Conn.
Geo. W. Elkins, Elkins Park, Pa.
W. C. Sproul, Chester, Pa.
C. W. Power, Pittsfield, Mass.
Arthur Curtis James, Newport, R. I.
W. F. Raskob, Wilmington, Del.
Miss Pauline duPont, Wilmington, Del.
Dr. Cary D. Langhorne, Delaplane, Va.
P. A. Rockefeller, Overhills, N. C.
Estate of Frank Goodyear, East Aurora, N. Y.

Golf and Country Clubs

Port Washington Yacht Club, Port Washington, N. Y.
Woodmere Country Club, Woodmere, N. Y.
Glenwood Country Club, Glen Head, N. Y.
Nassau Country Club, Glen Cove, N. Y.
National Golf Club House, Shinnecock Hills, N. Y.
Hudson River Country Club, Yonkers, N. Y.
Orienta Beach Club, Mamaroneck, N. Y.
Gypsy Trail Camp and Country Club, Carmel, N. Y.
Larchmont Yacht Club, Larchmont, N. Y.
Knoll Club, Boonton, N. J.
Cedar Ridge Country Club, Livingston, N. J.
Somerset Hills Country Club, Bernardsville, N. J.
Plainfield Country Club, Plainfield, N. J.
Pequot Yacht Club, Southport, Conn.
Southport Country Club, Southport, Conn.
The Kahkwa Club, Erie, Pa.
Cove Club, Seal Harbor, Me.

Hotels, Camps, Developments, etc.

Heckscher Foundation Camp for Boys, Peekskill, N. Y.
Children's Vacation Home, Nyack, N. Y.
Children's Vacation Home, White Plains, N. Y.
Surprise Lake Camp, Cold Spring, N. Y.
Volunteer Firemen's Home, Hudson, N. Y.
Lenox Hill Settlement Summer Camp, Eatons Neck, N. Y.
Children's Country Home, Westfield, N. J.
Life's Fresh Air Camp, Pottersville, N. J.
Children's Camp, New London, Conn.
Lutheran Conference and Camp Association, Pocono Pines, Pa.
Carroll Club Camp, Pauling, N. Y.
Life's Fresh Air Camp, Branchville, Conn.

Schools

The Bennett School, Millbrook, N. Y.
Queens Village Parochial School, Queens, N. Y.
Lawrence School, Hewlett, N. Y.
Sisters of St. Vincent de Paul, East Moriches, N. Y.
Green Vale School, Roslyn, N. Y.
Livingston Avenue Grade School, Livingston, N. J.
Rumson School, Rumson, N. J.
The Newman School, Lakewood, N. J.
Parochial School of Our Lady of Perpetual Help, Bernardsville, N. J.
Manual Training School for Colored Youth, Bordentown, N. J.
Princeton University, Princeton, N. J.
The Taft School, Watertown, Conn.
Mt. St. Joseph's School for Boys, Chestnut Hill, Pa.
Saint Elizabeth's Convent, Cornwells Heights, Pa.

Hospitals

Grasslands Hospital, Mount Pleasant, N. Y.
State Hospital for Insane, Willard, N. Y.
State Hospital for Insane, Kings Park, N. Y.
Craig Colony for Epileptics, Sonoma, N. Y.
Mary McClellan Hospital, Cambridge, N. Y.
Tuberculosis Preventorium for Children, Farmingdale, N. J.
N. Y. Custodial Asylum, Newark, N. Y.
Schuylkill County Hospital for Insane, Schuylkill Haven, Pa.
Homeopathic State Hospital for Insane, Allentown, Pa.
Pittsfield Tuberculosis Hospital, Pittsfield, Mass.
B. S. Cable Memorial Hospital, Ipswich, Mass.
Greenwich General Hospital, Greenwich, Conn.

R. D. SIMPSON COMPANY

Sewage Disposal Equipment

136 East Gay Street
COLUMBUS, OHIO

Products

SEWAGE DISPOSAL EQUIPMENT: SIMPSON PNEUMATIC TIPPING TROUGHS and SIMPSON EQUIDOSE DISTRIBUTORS.

Centralized School House or Country Club, Institution or Industry Lath Filter Plant Design

A lath filter plant includes a settling tank, one or more lath filters and a secondary settling tank. Under gravity operation ordinarily, the raw sewage flows successively through the settling tank and an inspection or surge chamber, thence through 2-in. galvanized steel pipe located on the longitudinal center line of the lath unit into one end of a tipping trough. The liquid is distributed over the top of the laths by Simpson Equidose Distributors, which are suspended a short distance above the laths and are alternately flooded. The trough is supported between the two units of the filter and does not rest on the lath.

Catalogue covering details of equipment and lath filter plant design sent on request.

Simpson Pneumatic Tipping Trough

For trickling filter influent distribution.

Especially adapted to the application of trickling filters to the treatment of sewage.

Intermittent controlled flooding—approximately uniform distribution on filtering material.

Small loss of head—siphons and dosing tanks eliminated; non-clogging operation; very limited attention required; unaffected by freezing.

Especially adapted for replacement of wornout wooden tipping troughs.

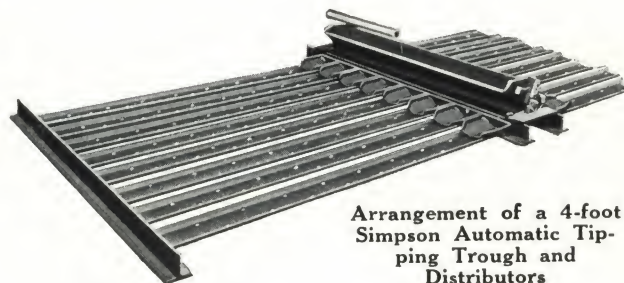
Maximum practical flooded area, 12-ft. trough, 120 sq. ft.; capacity per tip, 0.37 gal. per lin. ft. of trough.

Made in lengths up to 15 ft.

Simpson Equidose Distributors

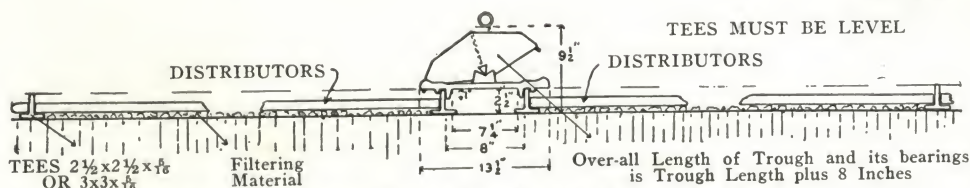
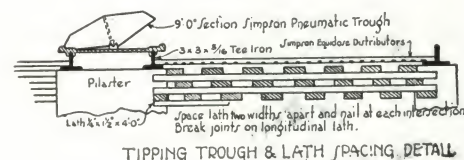
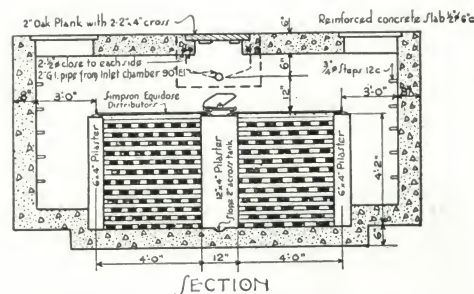
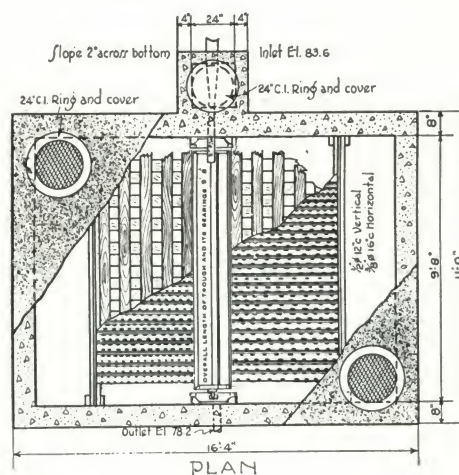
These distributors are made of 16 in. gauge steel—channel shapes and are perforated with many half-inch holes affording uniform distribution and also practically eliminating suspended matter deposition with resultant clogging.

They assure the longest, most economical and satisfactory service because they resist rot, heat, atmospheric conditions, moisture, etc. Rigid, non-warping, and will not sag.



Arrangement of a 4-foot Simpson Automatic Tip- ping Trough and Distributors

Patent applied for



Assembly Pneumatic Tipping Trough and Equidose Distributors

SAN-EQUIP INC.

East Brighton Avenue, SYRACUSE, N. Y.

BALTIMORE, MD., H. P. SUPPLEE, 530 No. Charles Street
 BOSTON, MASS., T. R. McELROY, 46 Everdean Street
 CHARLOTTE, N. C., W. R. JOUETT, 1511 Cleveland Avenue
 CHICAGO, ILL., GEO. E. ROBERTSON, P. O. Box 437
 CLEVELAND, OHIO, S. L. CARPENTER, 14935 Delaware Avenue, Lakewood
 EAST ORANGE, N. J., M. F. GREENE, 76 Washington Street

FORT WORTH, TEX., MACIL ENGINEERING CO., 408 First Nat'l Bank Building
 LOS ANGELES, CAL., H. W. BRAUTIGAM, 923 E. Third Street
 PHILADELPHIA, PA., P. SCOTT, 127 Shelbourne Rd., Manoa
 SEATTLE, WASH., F. C. NEUPERT, 330 Centrai Building
 SPRINGFIELD, MASS., W. L. TODD, 804 Belmont Avenue

Distributors are Plumbing Jobbers—Additional Warehouse Service at all Important Trade Centers

Complete Sewage Disposal Systems

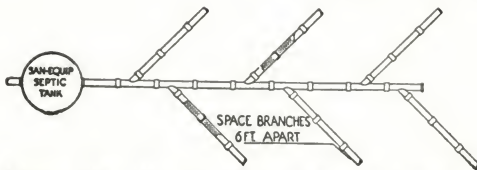
San-Equip now offers a complete septic system that provides safe sewage disposal for suburban and rural homes, camps, schools, or factories. The San-Equip Septic, proven dependable by thousands of satisfactory installations, is combined with either of two new drainage units—San-Equip Filter Pipe or Drain Pool to provide a completely

San-Equip

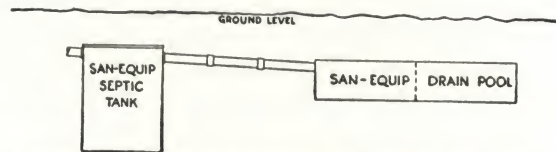
unified and more efficient service.

Every San-Equip installation is "certified"—a definite assurance of adequate and dependable disposal. A Certificate of Approved Equipment, posted in the building, serves as a permanent record of the installation.

Our factory representatives listed above will be glad to assist you with your particular requirements.



Installation Plan No. 1—Septic Tank and Filter Pipe



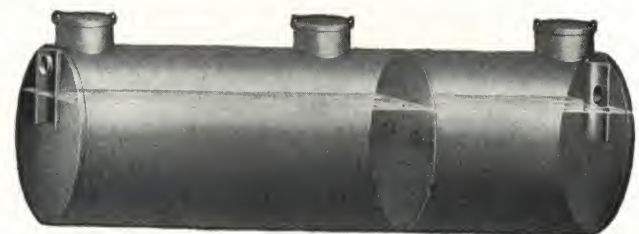
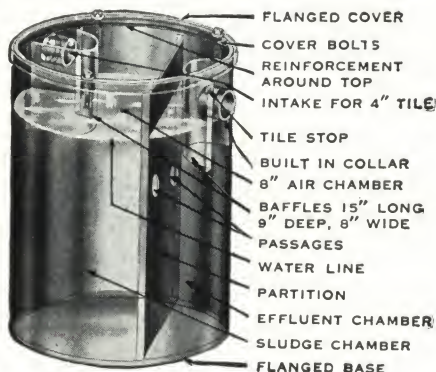
Installation Plan No. 2—Septic Tank and Drain Pool

The Septic Tank Unit

This is the septic tank that has been approved by health authorities as standard equipment for homes beyond the sewer lines. Its patented, two-chamber design assures complete treatment of sewage. Thousands of satisfactory installations have proven San-Equip durability.

Design—Follows U. S. Public Health Service recommendations. Construction is featured by liberal baffles, reinforcement around top of tank, set-in collars with stop lugs, and a full partition that divides the tank into two distinct chambers.

Material—Copper-bearing iron, rustproofed against moisture, acids and soil by a heavy mineral asphalt coating. 20% to 30% heavier.



CAPACITIES AND DIMENSIONS, SAN-EQUIP SEPTIC TANKS

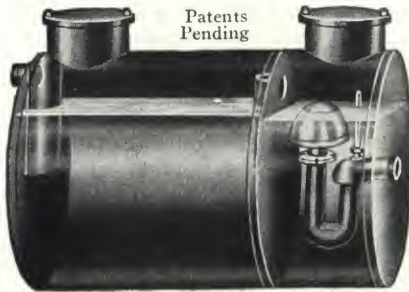
No.	Net gal.	Number of people			Dimensions	Shipping wgt., lb.	Price
		Home	School	Factory			
Vertical Tanks							
402	200	7	15	12	38" x 48"	295	\$ 36
403	300	10	25	20	48" x 48"	325	48
Horizontal Tanks							
405	500	25	40	35	52" x 60"	420	84
410	1000	50	80	70	52" x 10'	950	164
915	1500	75	120	105	52" x 15'	1300	244
920	2000	100	165	140	69" x 11' 8"	2400	328
925	2500	125	210	175	69" x 14' 7"	2850	408
930	3000	150	250	200	69" x 17' 6"	3300	488
935	3500	175	290	235	69" x 20' 5"	3750	568
940	4000	200	330	270	69" x 23' 4"	4200	648
945	4500	225	370	305	69" x 26' 3"	4650	728
950	5000	250	410	340	69" x 29' 2"	5100	800

Vertical Type Tanks for the Small Installation—San-Equip Septics Nos. 402 and 403, 200 and 300-gallon capacities respectively, are upright tanks as shown above. These sizes are most commonly used for the average small home, or camp.

The Siphon Septic Tank Unit

This San-Equip Tank embodies the outstanding improvement in septic design—the combination of siphon discharge with septic process in one compact unit. Every architect will recognize its operating advantages.

The siphon discharges at 4 to 8-hour intervals in such volume as to send the effluent to every part of the filter field. This provides equal distribution of the drainage load—keeps the entire tile field active, reduces the possibility of overloading or clogging. Intervals of rest, between discharge periods, allow the drainage field to better absorb the treated sewage for final disposal.



Design—Approved by leading health authorities. Siphon unit completely assembled in tank. Easily handled and installed. All systems are horizontal type as shown. No. 725 up have three manholes. Liberal baffles, set-in collars with stop lug, and full partition making two distinct chambers. All outlet openings are 4-in. diameter. Intake openings as specified. Siphon chamber capacity may be changed if desired.

Material—Special, rust resisting, copper-bearing iron, rustproofed inside and out with mineral asphalt.

CAPACITIES AND DIMENSIONS, SAN-EQUIP SIPHON SYSTEM

No.	Net gal.	Siphon discharge, gal.	Number of people			Dimensions	Shipping wgt., lb.	Price
			Home	School	Factory			
703	240	65	7	15	12	48"x48"	400	\$ 76
705	350	85	12	25	25	52"x60"	495	116
707	550	110	25	50	40	52"x90"	695	148
710	750	135	40	75	60	52"x10'	1025	196
715	1125	190	70	110	95	52"x15'	1375	272
720	1500	265	85	155	130	69"x11' 8"	2475	368
725	1875	330	115	200	170	69"x14' 7"	2975	448
730	2250	400	140	245	200	69"x17' 6"	3425	528
735	2625	470	170	290	235	69"x20' 5"	3875	608
740	3000	550	195	330	270	69"x23' 4"	4325	688
745	3375	630	220	370	305	69"x26' 3"	4775	768
750	3750	700	250	410	340	69"x29' 2"	5225	840

The Drainage Unit

Complete Disposal Depends on Adequate Drainage—Complete septic sewage disposal depends as much upon efficient drainage as upon septic action within the tank itself. It is most important, therefore, that adequate drainage equipment be installed to assure correct operation of the tank as well as a constant trouble-free service. Either the Filter Pipe or Drain Pool listed below will provide maximum drainage efficiency.

San-Equip Filter Pipe—An improved, unbreakable pipe designed primarily to provide greater filter field efficiency. Special perforations along the pipe increase the drainage area 12 to 20 times per foot. Consequently, less pipe is necessary with a proportionate saving in installation cost.

All-metal in construction, this new pipe lays easier and eliminates costly breakage in handling. Tight joints maintain alignment and prevent seepage of dirt into the line. Made of 16 gage copper-bearing iron, rustproofed with mineral asphalt.



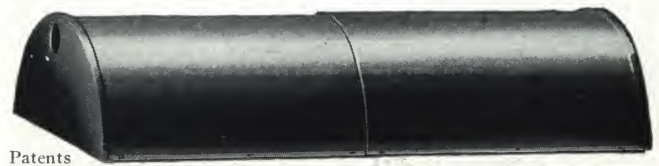
For 24-hour service, use 12 to 15 ft. of San-Equip Pipe per person in porous soil. In tight soil increase capacity up to 20 ft. per person. Information gladly furnished for school or other part time service.

Ideal depth of septic tank and filter bed is 12 to 18 in. underground. Grade line to tank at least 1/4 in. to 1 ft. Grade line from tank 1 in. to 10 ft. with branches spaced 6 ft. apart.

San-Equip Filter Pipe is packed in cartons for convenient shipping and handling.

No. 420	Carton of 10 2-ft. lengths of 4-in. pipe.....	\$5.00
No. 425	Carton of 2 2-ft. lengths unperforated pipe and 4 single Y fittings 4x24 in.....	5.00
No. 445	45° angle fitting 4x12x12 in., each.....	.50

San-Equip Drain Pool—A scientifically designed seepage pool for use where septic drainage area is limited and where there is no danger of water supply pollution. It is easier to install this San-Equip Pool than to build the ordinary type. Saves labor and materials.



The drain pool—shipped in two sections—is assembled as shown above. This makes an open bottom pool 19 in. deep, 38 in. wide, 96 in. long, providing 25 sq. ft. of soil drainage. In average soil this is sufficient to serve 200 or 300-gal. septic tanks. For larger systems, a number of San-Equip Drain Pools may be connected to provide ample drainage in a limited space. Pools should be spaced 15 ft. apart.

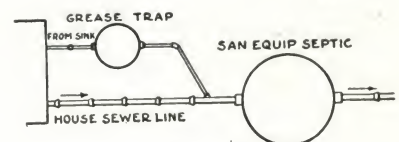
No. 240 DP is the complete Drain Pool. Made of 14-ga. copper-bearing iron—completely rustproofed by mineral asphalt. Shipped in two sections—nested.

No. 240 DP	240-gal. capacity	Weight 180 lb.	\$20.00
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San-Equip Grease Trap—For use with the septic system wherever there is a large amount of grease and kitchen waste. Requires occasional skimming.

Made of rustproofed copper-bearing iron. Standard openings 2 in., threaded couplings. Openings for 4-in. soil pipe if specified.

No. GT 40	40-gal. capacity	22 1/2 x 24 in.	\$15.00
No. GT 60	60-gal. capacity	22 1/2 x 36 in.	18.00



STANDARD CEMENT CONSTRUCTION CO.

INCORPORATED

Manufacturers of "Standard" Septic Sewage Disposal Devices

EXECUTIVE OFFICES

Heyburn Building, LOUISVILLE, KY.

ADVISORY ENGINEER FOR THE NORTHERN DISTRICT, G. A. P. BOWMAN, BEAVER, PA.

Products

"STANDARD" SEPTIC SEWAGE DISPOSAL SYSTEMS.

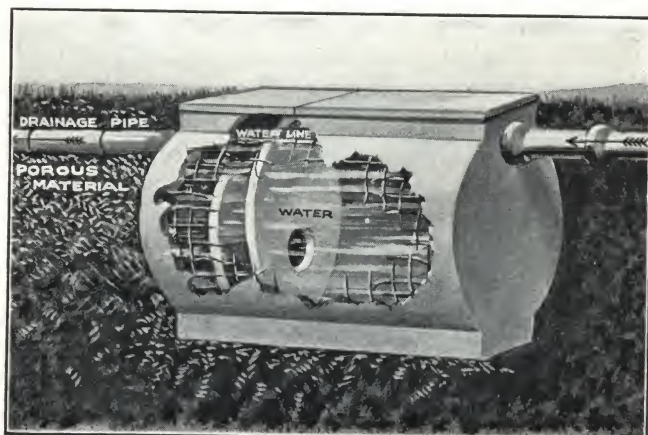
"STANDARD" SEPTIC WATERSEAL TOILETS.

"Standard" Septic Sewage Disposal Systems

A perfect adaptation of the L.R.S. System originated by United States Government engineers.

It is not only a most advanced but also a most economical system designed for suburban homes, factories, public buildings, schools, country clubs, etc. The first cost is low, the maintenance is practically nil and the installation is permanent.

Operation—Proper and extremely active bacterial action and sanitary disposal of the sewage is accomplished effectively and thoroughly through the peculiar construction of the patented "Standard" Tank. Used with care, it is rarely necessary to remove cemented covers from a "Standard" Tank. The practically clear liquid that leaves the tank may be taken care of by soil irrigation, leaching bed, dry well or emptied into storm sewer—the method used being governed by local conditions.



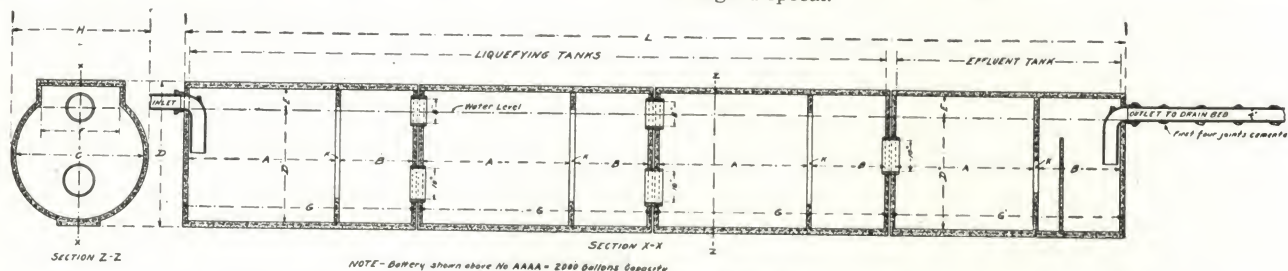
"Standard" Septic Tank

Construction—The tanks are cast of especially prepared concrete, reinforced with steel rods and binding, which construction improves with age. They are thoroughly waterproofed inside and out, making leakage and ground absorption impossible; easily installed—installation being only a matter of leveling up; simple instructions are furnished or we will install plant complete.

Sizes—Sizes to accommodate any number of people. The larger units are so constructed as to permit coupling two or more together—this is known as the "Standard" Septic Battery.

Complete Villages and Smaller Cities Use "Standard" Systems

In addition to the tens of thousands of private installations throughout the country, thousands of "Standard" Systems are now in use by complete villages and small communities who need never worry about the dreaded epidemics so prevalent in unsanitary communities.



"Standard" Septic Batteries make a very practical plant as additional units may be added as the requirements increase, without disturbing the initial installation. Distributing chambers are furnished with batteries of more than four units, also "Standard" sewage siphons, when conditions demand same.

"Standard" Septic Batteries make a very practical plant as additional units may be added as the requirements increase, without disturbing the initial installation. Distributing chambers are furnished with batteries of more than four units, also "Standard" sewage siphons, when conditions demand same.

"Standard" Waterseal Toilets

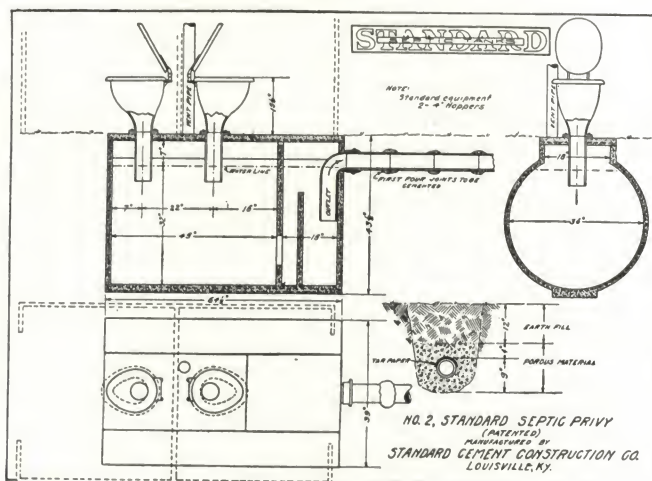
This Waterseal is used where running water is not available, although it can be easily converted into a running water system at any time.

It is very popular with industrial plants, coal collieries, mill and mine villages.

The outfit consists of regular "Standard" Septic Tank, over the large compartment of which is placed a specially designed straight back hopper or commode as shown in the drawing below.

Exclusive with "Standard" outfits is this device which effectively seals the contents of the tank, eliminating odors and making it absolutely sanitary without chemical or maintenance expense.

The Waterseal makes use of a sliding sleeve and drop pipe connection which extends below the water line. All solids pass through it and are completely immersed. It eliminates exposure of the mat of solids to light and air. The Waterseal telescoping pipe also overcomes any inequalities of the ground wherever the installation is made.



More Than Fifty Factories to Serve You

Our central location and more than fifty branch manufacturing plants, combined with our policy of intense application and standardization, enables us to make a very attractive price on "Standard" equipment; either delivered, or delivered and installed.

Engineering and Installation Service

We specialize in sanitation and solicit your inquiries regarding sewage disposal. No contract too large, no installation so small but what the most careful attention is given to it by our engineers.

Detail construction drawings and literature gladly furnished on request.

Profit by our sixteen years' experience and research in sewage disposal.

STROUDSBURG SEPTIC-TANK CO.

312 Main Street, STROUDSBURG, PA.

BRANCH OFFICES

NEW YORK, N. Y., 74 Trinity Place and
110 East 42nd Street
HAZLETON, PA., 312 Hazleton National Bank

BALTIMORE, MD., 423 St. Paul Place
HARRISBURG, PA., 409 Market Street
BOSTON, MASS., 43 South Market Street
PITTSBURGH, PA., 5824 Phillips Avenue

PHILADELPHIA, PA., 328 Chestnut Street
SCRANTON, PA., Board of Trade Building
ALLENTOWN, PA., 816 Chew Street

Products

SEWAGE DISPOSAL SYSTEMS; SEPTIC TANKS;
GREASE TRAPS.

Also manufacturers of Syphon Systems;
Concrete Drain Tile and Reinforced Concrete
Sewer Pipe; Cast Iron Manholes, Covers and
Fittings for sewage disposal systems. Write for
Bulletin No. 101.



TRADE-MARK

building started, it is found almost impossible to properly install the sewage disposal equipment.

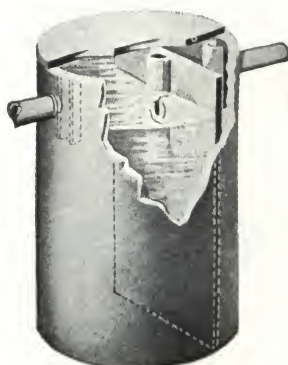
In other words, sewage disposal should be a *primary consideration* and not a secondary one. You can save labor, time, and money by consulting us when planning your project.

We furnish detailed plans and specifications of the sewage disposal plant to the architect and engineer. We also furnish the services of an engineer to supervise installation work.

We manufacture, design and install sewage disposal systems for estates, country clubs, schools, camps, and all other types of institutions.

Many Users—Over 70,000 tanks of this design are now in use.

Sep-Tank Sewage Disposal Systems



Sep-Tank

The Sep-Tank sewage disposal system consists of one or more Sep-Tanks and necessary drain tile and employs the L.R.S. system of sewage disposal devised by the United States Public Health Service. Sep-Tanks have been commended by various State boards of health and other eminent authorities on sanitation.

Sep-Tanks—Sep-Tanks are permanent, made of concrete, thoroughly reinforced by steel fabric to prevent cracking, and waterproofed to prevent leaking and absorption. The best grades of portland cement, selected silica sand and special steel reinforcing are used.

Sep-Tanks are cylindrical in shape and the sides and bottoms are moulded in one piece. With no joints to open after installation, leakage is prevented and sufficient water in the tank is assured at all times to promote septic action. Covers are also made of reinforced concrete, moulded separately and waterproofed. The corrosive action of the acids in the sewage will not affect Sep-Tanks.

Operation—The Sep-Tank has sufficient depth to insure complete digestion of sewage and sufficient area for a proper bacterial mat. Flow of sewage through the Sep-Tank is retarded by curved pipes or baffles, preventing agitation.

Important Information and Engineering Service for Architects and Engineers—When you start plans for a home, school, factory, or any type of building which is to be built in an *unsewered location*, and you desire to use modern sewage disposal equipment, please consult our engineers in regard to recommendation for proper installation of septic tank equipment. Very often after plans and specifications are made and

SINGLE UNIT SEP-TANK SYSTEMS FOR SMALL SINGLE HOUSES

Sep-Tank No.	Size, in.	Capacity, gal.	Number of persons served, etc.	Approx. weight, lb.
20	32x54	200	5 persons; 1 bath	1450
21	38x54	250	7 persons; 1 bath	1600
22	44x54	300	10 persons; 1 bath	1750

*BATTERY SYSTEMS

Battery No.	Number and size of liquefying tank, in.	Number and size of effluent tank, in.	Total cap., gal.	Number of persons served			Approx. weight, lb.
				Residences	Factories	Schools	
12	1-44x52	1-28x42	450	15	30	45	2600
12-S	2-44x52	.....	600	22	35	52	3900
13	2-44x52	1-44x52	900	30	45	60	4650
14	3-44x52	1-44x52	1200	45	67	90	5600
15	4-44x52	1-44x52	1500	60	90	120	7000
16	5-44x52	1-44x52	1800	80	120	160	8400
17	6-44x52	1-44x52	2100	100	150	200	9800
18	7-44x52	1-44x52	2400	125	175	225	11350

*For large installations to accommodate large residences, schools, hotels, factories, etc., where the single units are too small to take care of the sewage. The seven batteries listed above are carried in stock, but we can arrange tanks in batteries up to any number required. We manufacture battery systems with each tank having a capacity of 400 or 1000 gal. The above listed battery units are of 300-gal. capacity each.

Grease Traps of Reinforced Concrete

On all the larger buildings the use of a grease trap with the septic tank system is essential. Kitchen, pantry and laundry wastes should discharge directly into the grease trap before discharging into the septic tank system. Grease clogs sewer lines and hinders the operation of the septic tank system, as it is not subject to liquefaction by bacterial action. Several different sizes of grease traps are available, as follows:

No.	Cap., gal.	Outside, in.		Inlet to bottom, ft. in.	Weight, lb.
		Diam.	Height		
0	50	27	40	2 7	500
1	75	32	44	2 8	750
2	175	36	56	3 7	1300
3	250	42	56	3 7	1450
4	300	48	56	3 7	1600
5	400	53	69	4 4	2800



Battery Set No. 16

AMERICAN FOUNDRY & MFG. CO.

Manufacturers of Seep-proof Floor and Roof Drains, Traps and Swimming Pool Equipment

OFFICE AND FACTORY

Eleventh and Hebert Streets, ST. LOUIS, MO.

Products

SEEP-PROOF FLOOR DRAINS, with and without Traps and Inside Strainers, for cement, tile or other composition floors, shower and urinal stall receptors.

SEEP-PROOF PROMENADE DRAINS.

SEEP-PROOF ROOF DRAINS.

EXPANSION JOINT CONNECTION.

SWIMMING POOL FITTINGS.

Also manufacture all types of Plumbing, Water, Gas and Hardware Specialties, as, Hydrants, Bubble Fountains, Sinks, Grease Traps, Cesspools, Closet Tanks, Grates, Service Boxes, Steam Traps, Valves, etc.

Materials

Cast iron, brass. Adjustable brass heads with removable strainer regularly furnished nickelplated, brass tops regularly furnished polished, unless otherwise specified. Strainer heads chromium plated or white metal at extra cost. Made also in galvanized cast iron or all-brass at extra cost.

Seep-proof Drains and Traps

In the development of these SEEP-PROOF Drains, the method of installation and the principles of sanitation were given careful consideration. Two distinct styles that will fulfill the most exacting requirements are offered.

First Type—The first type is recommended for cement, tile or any composition floor. The surfaces of the drain pan and strainer body are scoriated, the drain body is plain cast iron. This combination, together with the annular groove in the drain pan, when embedded in concrete will make one homogeneous mass, consequently the surrounding material will not contract from the drain, thus eliminating the possibility of seepage.

Second Type—The second type has an adjustable brass flashing connection and is recommended for use with concrete and lead pan work. The surface of the drain pan is flat and affords the proper support to connect the flashing.

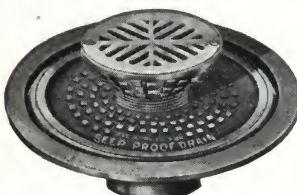
Clamping Device—The adjustable brass flashing connection screws down and clamps flashing to the surface of the drain and in addition it has a finished bevel edge, for tinning, to make a solder joint. It is also removable so that the lead pan can be put into place and hole cut out to exact size of threaded opening in drain body.

Seepage Passages—Drains with seepage passages, although we do not recommend this arrangement, can be furnished without additional cost but should be so specified when wanted.

Types of Drains

No. 30 Floor Drain with-out Trap—Cast iron body and adjustable brass head with removable strainer. Threaded outlet, female iron pipe. Made also in galvanized cast iron body or all brass at extra cost.

No. 40 Floor Drain with-out Trap with Brass Flashing Connection—Cast iron body



No. 30

and adjustable brass head with removable strainer. Threaded outlet, female iron pipe. Made also in galvanized cast iron body or all brass at extra cost



No. 32



No. 40

No. 32 Floor Drain and Trap—Cast iron body and adjustable brass head with removable strainer. Threaded outlet, female iron pipe. No. 33 with hub outlet for soil pipe. Made also in galvanized cast iron body or all brass with deeper seal traps at extra cost.

No. 42 Floor Drain and Trap with Brass Flashing Connection—Cast iron body and adjustable brass head with removable strainer. Threaded outlet, female iron pipe. No. 43 with hub outlet for soil pipe. Made also in galvanized cast iron body or all brass with deeper seal traps at extra cost.



No. 42



No. 34

No. 34 Floor Drain and Trap—Cast iron body and adjustable brass head with removable strainer. Threaded outlet, female iron pipe. No. 35 with hub outlet for soil pipe. Made also in galvanized cast iron body or all brass at extra cost. Strainer heads for porcelain receptors also furnished.

No. 44 Floor Drain and Trap with Brass Flashing Connection—Cast iron body and adjustable brass head with removable strainer. Threaded outlet, female iron pipe. No. 45 with hub outlet for soil pipe. Made also in galvanized cast iron body or all brass at extra cost. Strainer heads for porcelain receptors also furnished.



No. 44



No. 36

No. 36 Shallow Pattern Floor Drain and Trap—Cast iron body and adjustable brass head with removable strainer. Threaded outlet, female iron pipe. No. 37 with hub outlet for soil pipe. Made also in galvanized cast iron body or all brass at extra cost. Strainer heads for porcelain receptors also furnished.

No. 46 Shallow Pattern Floor Drain and Trap with Brass Flashing Connection—Cast iron body and adjustable brass head with removable strainer. Threaded outlet, female iron pipe. No. 47 with hub outlet for soil pipe. Made also in galvanized cast iron body or all brass at extra cost. Strainer heads for porcelain receptors also furnished.



No. 46



No. 31

body and adjustable brass head with removable strainer. Threaded outlet, female iron pipe. Made also in galvanized cast iron body or all brass at extra cost.

No. 31 Floor Drain and Trap with Brass Seal Tube—Cast iron body and adjustable brass head with removable strainer. Threaded outlet, female iron pipe. Made also in galvanized cast iron body or all brass at extra cost.



No. 38

No. 38 Floor Drain and Trap without Seal—Cast iron body and adjustable brass head with removable strainer. Threaded outlet, female iron pipe. Made also in galvanized cast iron body or all brass at extra cost.

Literature

Catalogue S31 mailed upon request.



No. 105

With or without cast iron inside strainer

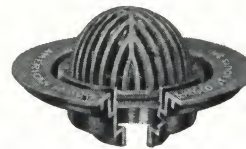


No. 107

With or without cast iron inside strainer



No. 101



No. 103



No. 110

No. 105 Cast Iron Floor Drain—Especially adapted for concrete or tile floor installation where a large area is to be drained. Has an extra heavy cast iron grate. Threaded outlet, female iron pipe. No. 105 has no inside strainer. No. 105B is with inside strainer. Made also in galvanized cast iron or with brass top and hinged brass strainer at extra cost.

No. 107 Cast Iron Floor Drain—This is a larger and heavier construction than No. 105. Threaded outlet, female iron pipe. No. 107 has the inside strainer. No. 107C is without. Made also in galvanized cast iron or with brass top and hinged brass strainer at extra cost.

No. 101 Cast Iron Roof Drain—For concrete roofs, constructed with tar and gravel, tile or composition roofing felts. Threaded outlet, female iron pipe.

The combination retainer ring holds the roofing felts in place against the inside of the drain body, making a permanent joint and eliminating the use of flashing.

Area of inlet openings in dome strainer is more than 150 per cent that of the outlet in drain.

Made also in galvanized cast iron or all brass at extra cost.

No. 103 Cast Iron Roof Drain—For wood roofs, constructed with tar and gravel or composition roofing felts. Threaded outlet, female iron pipe.

The combination retainer ring holds the roofing felts in place against the inside of the drain body, making a permanent

joint and eliminating the use of flashing.

Area of inlet openings in dome strainer is more than 150 per cent that of the outlet in drain.

Made also in galvanized cast iron or all brass at extra cost.

Nos. 101CD and 103WD Cast Iron Promenade Drains—SEEP-PROOF Roof Drain Bodies No. 101 and No. 103 equipped with extension sections having a square top and round flat grate, for use on promenade decks. Threaded outlet, female iron pipe. Made also in galvanized cast iron or cast iron body with cast brass polished top section and strainer at extra cost.

Always state the dimensions (H) top of grate to surface of waterproofing and size of tile if any for dimension (J) as these extension sections can be made to suit any requirement. Otherwise drains will be furnished with standard dimensions as shown in tables.

No. 101 Expansion Joint Connection—The expansion joint is made up in combination with either wrought iron or brass pipe and connection can be made direct to the drain or anywhere in the line.

Wrought pipe or brass pipe nipples to form the expansion traverse is furnished by plumber.

Threaded outlet, male iron pipe. Can be screwed into wrought iron coupling or calked into soil pipe hub.



Fig. 190

Adjustable head with flat strainer regularly furnished. Can be equipped with convex or concave strainer



Fig. A

Strainer head for porcelain receptors having 4 1/2-in. diameter counterbore, and 3 1/2-in. diameter outlet



Fig. B

Strainer head for porcelain receptors having taper counterbore from 4 3/4-in. diameter to 3 1/2-in. diameter outlet



Brass Top and Hinged Strainer

For Nos. 105 and 107 drains. Made also with solid cover and hinged strainer

Swimming Pool Fittings

We manufacture a line of cast iron and brass swimming pool fittings. These fittings include overflow gutter drains, recirculating inlets, bottom drain outlets, side drain outlets, etc. All strainers are of polished brass and furnished with countersunk brass screws for attaching to the body of the fitting. The bodies are of cast iron and painted.

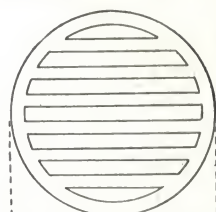
No. 196 Overflow Gutter Drain—Extra heavy cast iron body, painted, 2-in. iron pipe outlet connection, 2 3/8 x 4-in. heavy polished brass strainer attached to body with countersunk brass screws. Price, each, \$4.00.

No. 197 Recirculating Inlet—Extra heavy cast iron body, painted, 2-in. hub for soil pipe connection,

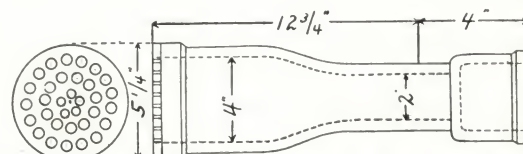
5 1/4-in. diameter, heavy polished brass strainer attached to body with countersunk brass screws. Price, each, \$9.50.

No. 198 Bottom Drain Outlet—Extra heavy cast iron body, painted, 6-in. spigot outlet for soil pipe connection, 13 1/4-in. heavy polished brass strainer attached to body with countersunk brass screws. Price, each, \$40.00.

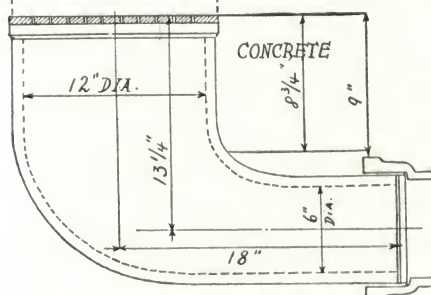
No. 199 Side Drain Outlet—Extra heavy cast iron body, painted, 5-in. hub outlet for soil pipe connection, 6 1/2 x 12-in. heavy polished brass strainer attached to body with countersunk brass screws. Price, each, \$13.50.



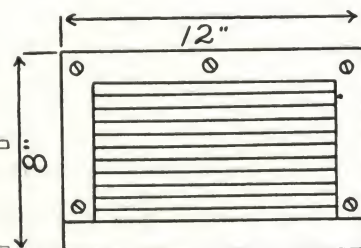
No. 196 Overflow Gutter Drain



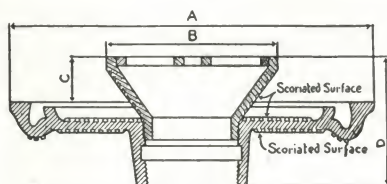
No. 197 Recirculating Inlet



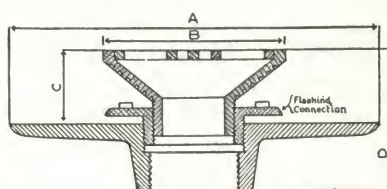
No. 198 Bottom Drain Outlet



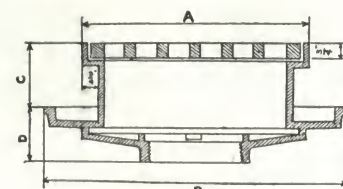
No. 199 Side Drain Outlet



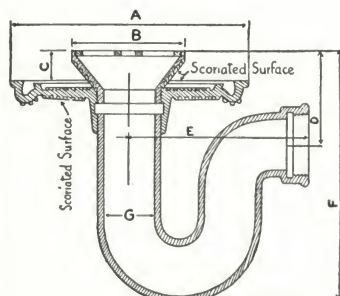
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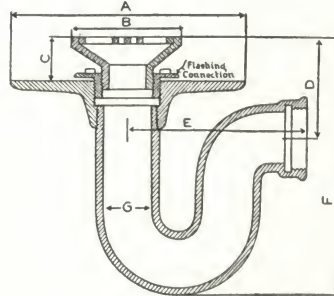
No. 40



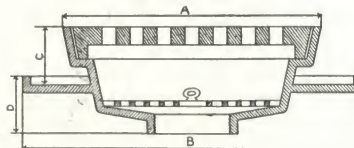
No. 105



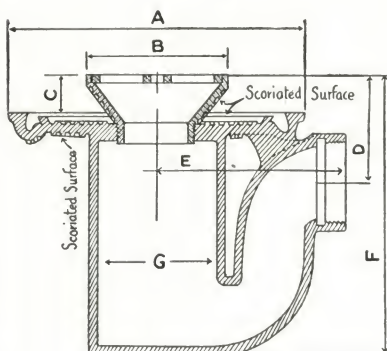
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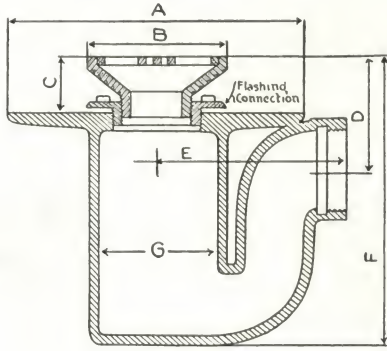
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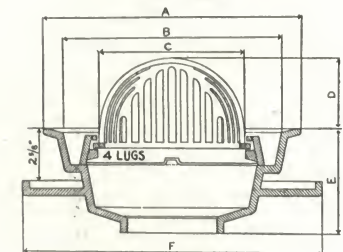
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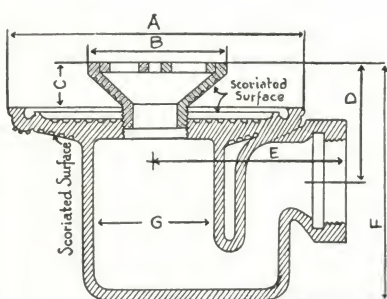
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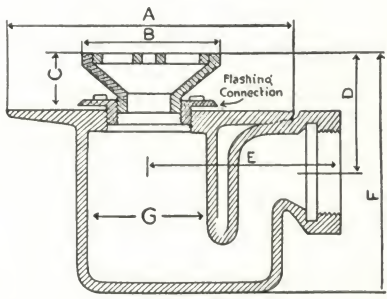
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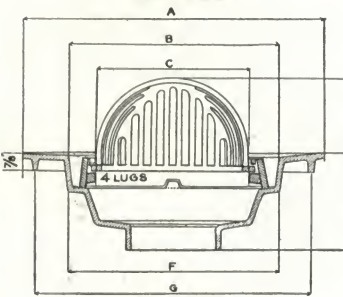
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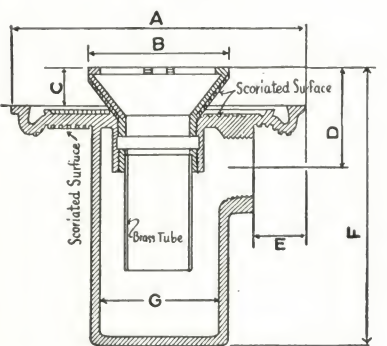
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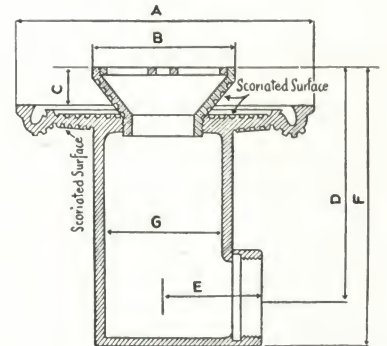
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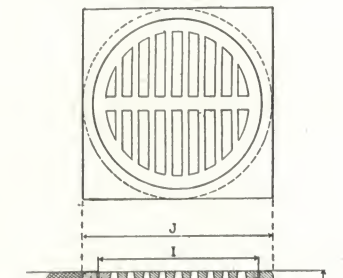
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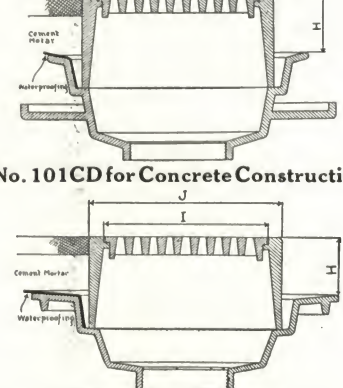
No. 31



No. 38



No. 101CD for Concrete Construction



No. 103WD for Wood Construction

CROSS-SECTION DIAGRAMS OF SEEP-PROOF DRAINS

SEEP-PROOF FLOOR DRAINS AND TRAPS

No.	Outlet, inches	N. P. strainer, inches	Dimensions, inches, see each diagram							Price, each
			A	B	C	D	E	F	G	
30	1½	3	7½	3¼	1½	3½				\$ 4.00
30	2	4	9	4¼	1½	3½				5.50
30	3	5	10½	5¼	1½	3½				7.50
30	4	6	11½	6¼	1½	3½				9.00
40	1½	3	7	3¼	1¾	3¾				5.00
40	2	4	8½	4¼	1¾	3¾				6.50
40	3	5	10	5¼	1¾	3¾				8.50
40	4	6	11	6¼	1¾	3¾				10.00
32	1½	3	7½	3¼	1½	5	6¾	10½	1½	6.00
32	2	4	9	4¼	1½	5½	7	11	2	8.00
32	3	5	10½	5¼	1½	5¾	8¾	11½	3	11.00
32	4	6	11½	6¼	1½	4¾	9¾	13¼	4	13.50
42	1½	3	7	3¼	1¾	5¼	6¾	10¾	1½	7.00
42	2	4	8½	4¼	1¾	5½	7	11¼	2	9.00
42	3	5	10	5¼	1¾	4¾	8¾	11¾	3	12.00
42	4	6	11	6¼	1¾	4¾	9¾	13¼	4	14.50
34	1½	4	9	4¼	1¾	2¾	5½	8¼	4	10.00
34	1½	5	9	5¼	1¾	2¾	5½	8¼	4	11.00
34	1½	6	9	6¼	1¾	2¾	5½	8¼	4	12.00
34	2	4	9	4¼	1¾	2¾	5¾	8¾	4	10.50
34	2	5	9	5¼	1¾	2¾	5¾	8¾	4	11.50
34	2	6	9	6¼	1¾	2¾	5¾	8¾	4	12.50
34	3	5	9	5¼	1¾	3¾	7¾	10	4	14.50
34	3	6	9	6¼	1¾	3¾	7¾	10	4	15.50
34	3	7	9	7¼	1¾	3¾	7¾	10	4	16.50
34	4	6	10½	6¼	1¾	4¾	10½	12	4	18.50
34	4	7	10½	7¼	1¾	4¾	10½	12	4	20.50
34	4	8	10½	8¼	1¾	4¾	10½	12	4	22.50
44	1½	4	8½	4¼	1¾	3½	5½	8¼	4	11.00
44	1½	5	8½	5¼	1¾	3½	5½	8¼	4	12.00
44	1½	6	8½	6¼	1¾	3½	5½	8¼	4	13.00
44	2	4	8½	4¼	1¾	3½	5¾	9¼	4	11.50
44	2	5	8½	5¼	1¾	3½	5¾	9¼	4	12.50
44	2	6	8½	6¼	1¾	3½	5¾	9¼	4	13.50
44	3	5	8½	5¼	1¾	4¾	7¾	11¼	4	15.50
44	3	6	8½	6¼	1¾	4¾	7¾	11¼	4	16.50
44	3	7	8½	7¼	1¾	4¾	7¾	11¼	4	17.50
44	4	6	10	6¼	1¾	5	10½	12	4	19.50
44	4	7	10	7¼	1¾	5	10½	12	4	21.50
44	4	8	10	8¼	1¾	5	10½	12	4	23.50
36	2	4	9	4¼	1¾	2½	6½	6¾	4	10.50
36	2	5	9	5¼	1¾	2½	6½	6¾	4	11.50
36	2	6	9	6¼	1¾	2½	6½	6¾	4	12.50
36	3	5	9	5¼	1¾	3¾	8¼	7¾	4	14.50
36	3	6	9	6¼	1¾	3¾	8¼	7¾	4	15.50
46	2	4	8½	4¼	1¾	3¾	6½	7¾	4	11.50
46	2	5	8½	5¼	1¾	3¾	6½	7¾	4	12.50
46	2	6	8½	6¼	1¾	3¾	6½	7¾	4	13.50
46	3	5	8½	5¼	1¾	4	8¼	8¾	4	15.50
46	3	6	8½	6¼	1¾	4	8¼	8¾	4	16.50
31	1½	4	9	4¼	1¾	3	1¾	8¾	4	10.00
31	2	4	9	4¼	1¾	3¼	1¾	8¾	4	10.50
38	1½	4	9	4¼	1¾	6¾	3	9	4	10.00
38	1½	5	9	5¼	1¾	6¾	3	9	4	11.00
38	1½	6	9	6¼	1¾	6¾	3	9	4	12.00
38	2	4	9	4¼	1¾	6¾	3	9	4	10.50
38	2	5	9	5¼	1¾	6¾	3	9	4	11.50
38	2	6	9	6¼	1¾	6¾	3	9	4	12.50
105	2-3-4	9¾*	10½	14	3	2½				6.00
105	5	12¾*	13¼	16½	3	2½				9.00
105	6	12¾*	13¼	16½	3	2½				9.00
107	2-3-4	10½*	12	15¼	2½	3				9.00
107	5	13	*14	17½	2½	3				12.00
107	6	13	*14	17½	2½	3				13.00
107	8	13	*14	17½	2½	3				15.00

No. 105B Add for inside strainer \$1.00.
No. 107C Deduct for inside strainer \$1.00.
*Diameter in., of grate.

Seep-proof Roof Drains

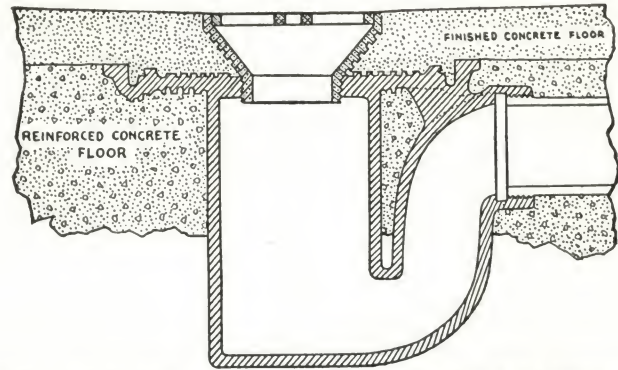
No.	Outlet, inches	Inlet, inches	H	I	J	For other dimensions See Nos. 101 and 103 above	Price, each
101	2-3-4	8½	13	11	8	3¾ 4¾ 15¼	\$12.00
101	5	10½	15	13	10	4¾ 5¾ 17½	14.00
101	6	10½	15	13	10	4¾ 5¾ 17½	16.00
101	8	10½	15	13	10	4¾ 5¾ 17½	18.00
103	2-3-4	8½	16	11	8	3¾ 5 11 14½	13.00
103	5	10½	18	13	10	4¾ 5¾ 13¼ 16¾	15.00
103	6	10½	18	13	10	4¾ 5¾ 13¼ 16¾	17.00
103	8	10½	18	13	10	4¾ 5¾ 13¼ 16¾	19.00

PROMENADE DRAINS

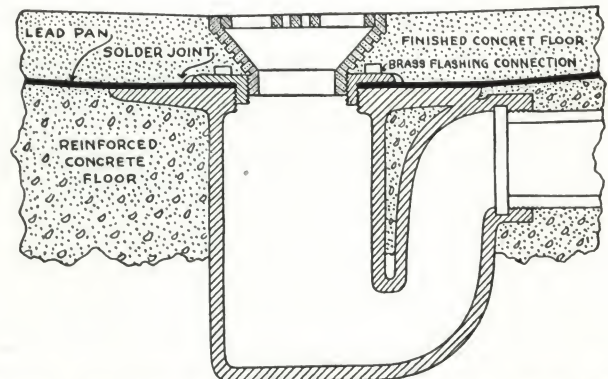
No.	Outlet, inches	Inlet, inches	H	I	J	For other dimensions See Nos. 101 and 103 above	Price, each
101CD	2-3-4	8	2½	8¾	10	Note: Prices listed in tables apply to regular drains as described under their respective numbers.	\$13.00
101CD	5	10	2½	10¾	12		15.00
101CD	6	10	2½	10¾	12		17.00
101CD	8	10	2½	10¾	12		19.00
103WD	2-3-4	8	2½	8¾	10	Drains made up with Galvanized Cast Iron Body. All Brass, White Metal, or Chromium Plated Strainer Heads, at extra cost.	14.00
103WD	5	10	2½	10¾	12		16.00
103WD	6	10	2½	10¾	12		18.00
103WD	8	10	2½	10¾	12		20.00

EXPANSION JOINT CONNECTIONS

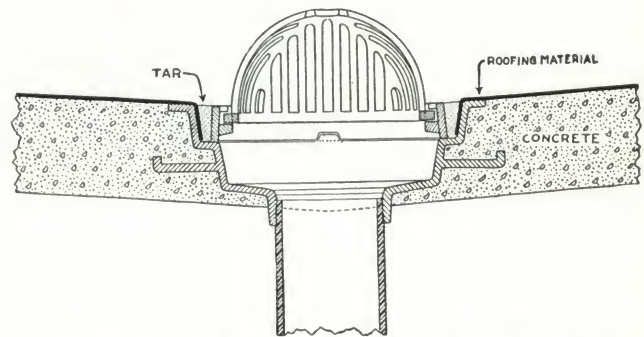
No.	Outlet, inches	A	B	C	D	Each
110	3	5½	3	4¾	7¾	Wrought pipe or Brass pipe Nipples for attaching expansion joint to drains to form the expansion traverse is furnished by plumber.
110	4	5½	4	5¾	8¾	
110	5	6	5	6¾	9¾	
110	6	6¾	6	7¾	10¾	
110	8	6¾	8	10	13	



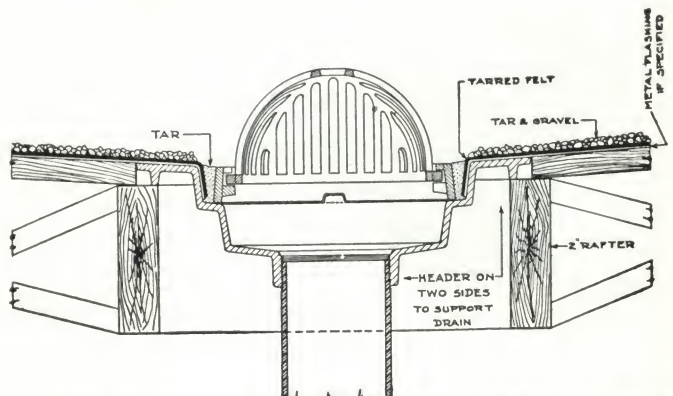
Method of Installing Seep-proof Drain with Scoriated Surfaces, in General Concrete Floor Construction



Method of Installing New Type Seep-proof Drain with Brass Flashing Connection, Under Shower and Urinal Stalls, or in Concrete Floor Construction Where Lead Pans or Lead Flashing Is Used



Proper Type of Drain and Method of Installation in Concrete Roofs



Correct Method and Type of Drain for Installation in Wood Roofs

NORMAN BOOSEY MFG. CO.

Drainage Specialties

5140 Hamilton Avenue, DETROIT, MICH.

PRODUCTS

AREAWAY and FACTORY DRAINS.
BACKWATER DRAINAGE CONTROL VALVES (auto-
matic and manually operated).
BACKWATER FLOOR DRAINS.
BACKWATER PLENUM CHAMBER DRAINS.
BACKWATER TILE DRAIN SUMPS.
DECK and GUTTER DRAINS.

FACTORY SERVICE COVERS.
FLOOR, DRINKING FOUNTAIN and URINAL DRAINS.
GARAGE SUMPS.
RAMP GARAGE DRAINS.
ROOF SUMPS.
SEEPAGE DRAINS.
SHOWER DRAINS.

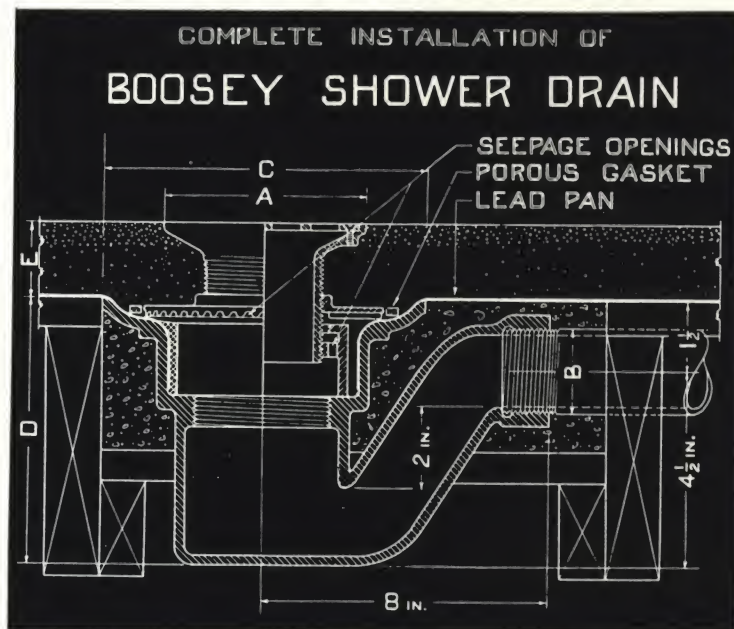
SEEPAGE SHOWER DRAINS

The New Boosey Shower Drain alone combines these four desirable features:

The seepage openings are covered to prevent filling with cement when the floor is poured.

The lead pan connects to trap body by means of a lead caulked joint, guaranteeing an economical and water-tight connection.

The lead pan can be thoroughly tested by screwing a plug into trap inlet and filling pan with water.



For the rough test the trap body is tapped inside for plug during construction.

The Boosey shower drain embraces all the desirable features in shower trap construction.

Body of trap is cast iron, painted or galvanized or all brass, with adjustable strainers of several designs and of different inlet areas.

Depth of 2-in. trap body 6 in. Depth of 3-in. trap body 8 in.

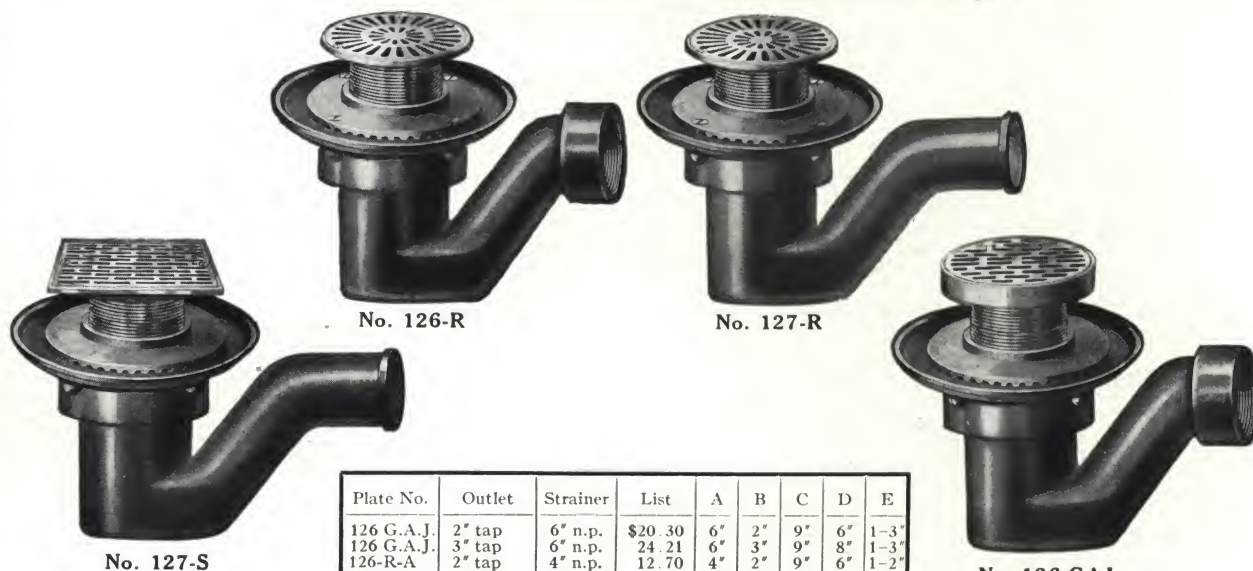


Plate No.	Outlet	Strainer	List	A	B	C	D	E
126 G.A.J.	2" tap	6" n.p.	\$20.30	6"	2"	9"	6"	1-3"
126 G.A.J.	3" tap	6" n.p.	24.21	6"	3"	9"	8"	1-3"
126-R-A	2" tap	4" n.p.	12.70	4"	2"	9"	6"	1-2"
126-R-B	2" tap	5" n.p.	13.27	5"	2"	9"	6"	1-2"
126-R	2" tap	6" n.p.	14.46	6"	2"	9"	6"	1-2"
126-R	3" tap	6" n.p.	17.69	6"	3"	9"	8"	1-2"
127-R-A	2" spigot	4" n.p.	12.70	4"	2"	9"	6"	1-2"
127-R-B	2" spigot	5" n.p.	13.28	5"	2"	9"	6"	1-2"
127-R	2" spigot	6" n.p.	14.46	6"	2"	9"	6"	1-2"

BOOSEY'S BACK PRESSURE SHOWER DRAIN

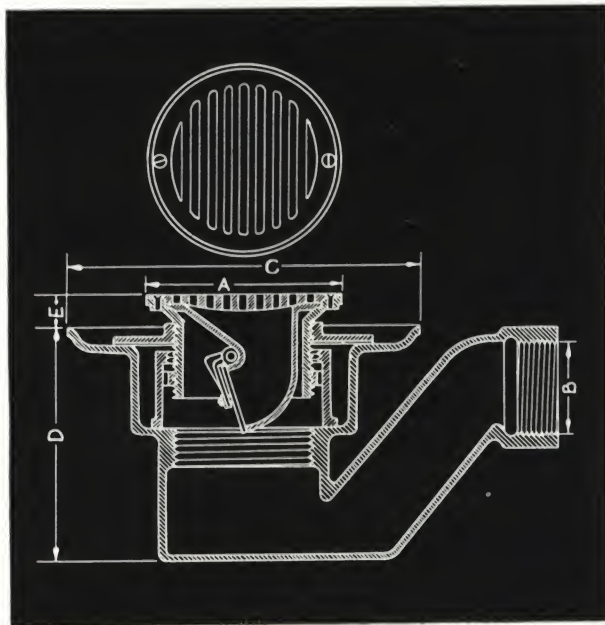
Showers in club houses and schools because of intermittent use, often (for weeks) lose their trap seal due to evaporation, then sewer air flows from drainage system into building.

To overcome this condition is the reason for Boosey's back pressure shower trap. It is the same as the No. 126-R with the additional feature of

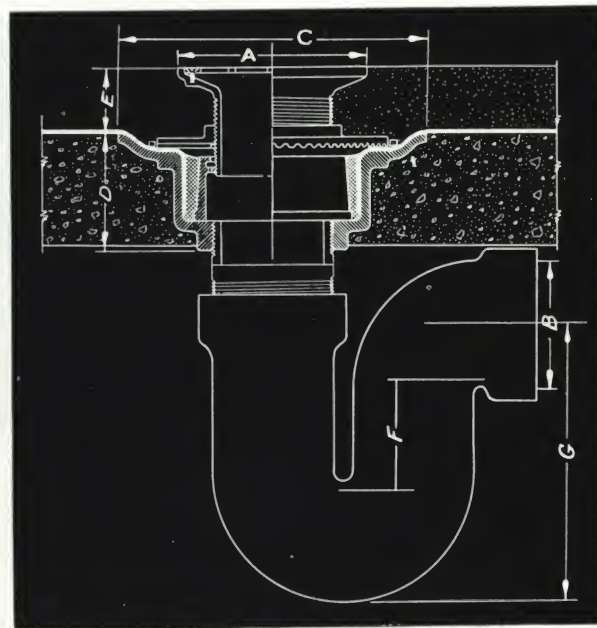
having a removable bronze metal vertical swing valve placed just below strainer, above trap seal where it is always accessible.

The automatic swing valve operates in a vertical position and is therefore always closed against back pressure.

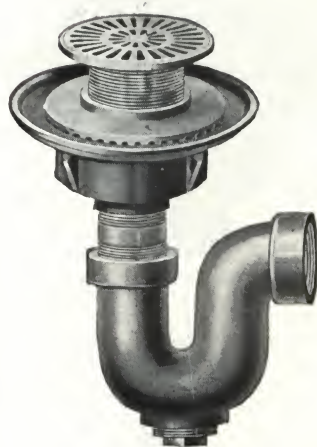
Made in two sizes. Outlet either 2 or 3 in.



No. 126-R-B. P.



No. 130-R-70



No. 130-R-70

The No. 130-R-70 shower trap contains all the patented features of the No. 126-R (see page 1) and can be furnished with either 2, 3 or 4 in. tapped outlet.

Strainers can be furnished round or square in polished brass, nickel or chromium plated.



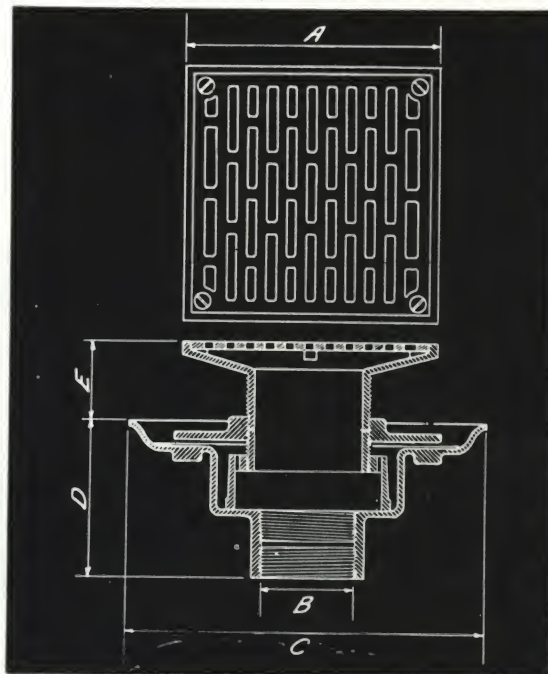
No. 130-G. A. J.-70

Plate No.	Outlet	Strainer diameter	List	Dimensions						
				A	B	C	D	E	F	G
126 R.B.P.	2" tap	6" n.p.	\$19.36	6"	2"	9"	6"	1-2"		
126 R.B.P.	3" tap	6" n.p.	24.12	6"	3"	9"	8"	1-2"		
130 G.A.J.-70	2" tap	6" n.p.	17.80	6"	2"	9"	4 1/2"	1-3"	2"	5"
130 G.A.J.-70	3" tap	6" n.p.	21.00	6"	3"	9"	4 1/2"	1-3"	3"	8"
130-R A-70	2" tap	4" n.p.	8.21	4"	2"	9"	4 1/2"	1-2"	2"	5"
130-R B-70	2" tap	5" n.p.	9.61	5"	2"	9"	4 1/2"	1-2"	3"	8"
130-R A-70	3" tap	4" n.p.	11.61	4"	3"	9"	4 1/2"	1-2"	3"	8"
130-R B-70	3" tap	5" n.p.	13.19	5"	3"	9"	4 1/2"	1-2"	3"	8"
130-R-70	3" tap	6" n.p.	14.22	6"	3"	9"	4 1/2"	1-2"	4"	10"
130-R A-70	4" tap	4" n.p.	14.49	4"	4"	11"	4 1/2"	1-2"	4"	10"
130-R B-70	4" tap	5" n.p.	16.33	5"	4"	11"	4 1/2"	1-2"	4"	10"
130-R-70	4" tap	6" n.p.	16.84	6"	4"	11"	4 1/2"	1-3"	4"	8"
130-X-70	2" tap	4" n.p.	7.15	4"	2"	6"	4 1/2"	1-3"		

DRAIN HEADS, SERIES NO. 130

All have seepage flange cast to body of drain to conduct seepage, from around the strainer, into waste line. Often it is desirable to provide additional area for this purpose and this series of drain heads is especially designed to meet such a condition. A lead or copper pan, of the desired area, can be

secured to this drain with a calked joint, thereby making a positively water-tight connection at the junction of the pan to drain head—which may also be tested for leaks by filling pan with water. Bodies are cast iron, painted or galvanized, or all-brass. Waste outlets tapped 2, 3 or 4 in.



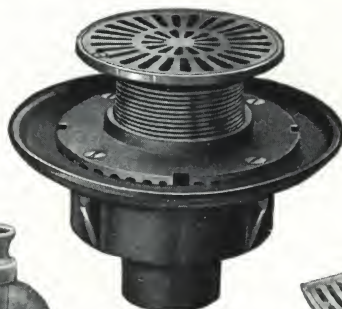
No. 130-S



No. 130-GAJ



No. 130-UR



No. 130-R



No. 970



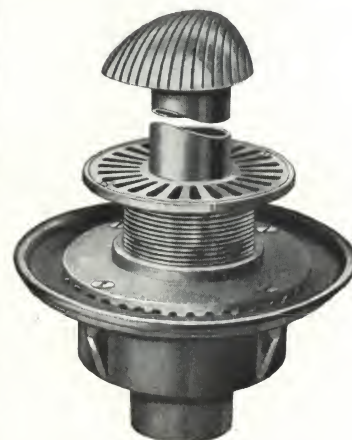
No. 130-G



No. 130-S



No. 130-F. O.



No. 130-F

Plate No.	Outlet	Strainer diameter	List	Dimensions				
				A	B	C	D	E
130-F	2" tap	Length of over-flow 18" brass	\$30.32	6"	2"	9"	4 1/2"	1-2"
130-F	3" tap	Length of over-flow 18" brass	30.82	6"	3"	9"	4 1/2"	1-2"
130-F.O.	3" tap	Length of over-flow 18" iron	17.00	4 3/4"	3"	9"	4 1/2"	2 1/4"
130-F.O.	4" tap	Length of over-flow 18" iron	17.88	4 3/4"	4"	11"	4 1/2"	2 1/4"
130-G	2" tap	7" p. brass	11.76	2"	2"	9"	2 1/4"	2 1/4"
130-G	3" tap	7" p. brass	12.02	3"	3"	9"	2 1/4"	2 1/4"
130-G	3" tap	9" p. brass	14.68	3"	3"	11"	2 1/4"	2 1/4"
130-G	4" tap	9" p. brass	15.28	4"	4"	11"	3"	2 1/4"
130-G.A.J.	2" tap	6" n.p.	15.76	6"	2"	9"	4 1/2"	1-2"
130-G.A.J.	3" tap	6" n.p.	16.02	6"	3"	9"	4 1/2"	1-2"
130-G.A.J.	4" tap	6" n.p.	16.52	6"	4"	11"	4 1/2"	1-2"
130-R-A	2" tap	4" n.p.	6.64	4"	2"	9"	4 1/2"	1-2"
130-R-B	2" tap	5" n.p.	8.04	5"	2"	9"	4 1/2"	1-2"
130-R-A	3" tap	4" n.p.	7.36	4"	3"	9"	4 1/2"	1-2"
130-R-B	3" tap	5" n.p.	8.94	5"	3"	9"	4 1/2"	1-2"
130-R	3" tap	6" n.p.	9.97	6"	3"	9"	4 1/2"	1-2"
130-R-A	4" tap	4" n.p.	8.36	4"	4"	11"	4 1/2"	1-2"
130-R-B	4" tap	5" n.p.	10.20	5"	4"	11"	4 1/2"	1-2"
130-R	4" tap	6" n.p.	10.71	6"	4"	11"	4 1/2"	1-2"
130-S	2" tap	6" n.p.	13.96	6"	2"	9"	4 1/2"	1-2"
130-S	3" tap	6" n.p.	14.46	6"	3"	9"	4 1/2"	1-2"
130-S	4" tap	6" n.p.	14.72	6"	4"	9"	4 1/2"	1-2"
130-X	2" tap	4" n.p.	5.56	4"	2"	9"	4 1/2"	1-2"

DRAIN HEADS, SERIES NO. 133

The drain bodies are shallow, to permit their use in concrete slabs as shallow as 3 in. The seepage flange, cast to the lower part of drain, forms an anchor securely holding the drain in the concrete. The upper portion of drain to which strainer is attached is grooved on the underside, for seepage, and secured to the lower section with brass bolts.

Seepage around strainer passes down to the seepage pan and enters waste line by passing through the grooves. These drains are recommended for lobbies, corridors, or areaways, where the use of a lead or copper pan is unnecessary. Bodies are cast iron; painted or galvanized, or all-brass. Waste outlets tapped 2, 3, 4 or 6 in.



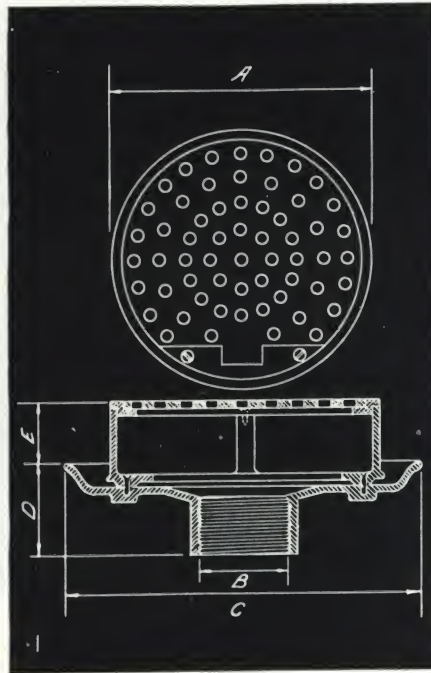
No. 133-CI



No. 133-G



No. 133-H



No. 133-G



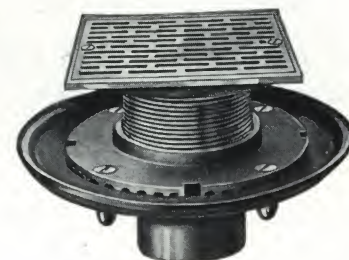
Any drain can be furnished with iron or brass intermediate strainers at additional cost



No. 133-D



No. 133-R



No. 133-S

Plate No.	Outlet	Strainer diameter	List		Dimensions				
			Iron strainer	Polished brass strainer	A	B	C	D	E
133-CI	2" tap	7"	\$ 4.84	\$16.72	7"	2"	9"	2 1/4"	2"
133-CI	3" tap	7"	5.38	17.26	7"	3"	9"	2 1/4"	2"
133-CI	3" tap	9"	6.80	23.48	9"	3"	11"	2 1/4"	2"
133-CI	4" tap	9"	7.60	24.28	9"	4"	11"	3"	2"
133-CI	4" tap	12"	17.16	47.48	12"	4"	15"	3"	2"
133-CI	6" tap	15"	20.08	64.48	15"	6"	18"	3"	2"
133-D	2" tap	7"		9.60	7"	2"	9"	2 1/4"	2 1/4"
133-D	3" tap	7"		10.10	7"	3"	9"	2 1/4"	2 1/4"
133-D	3" tap	9"		13.48	9"	3"	11"	2 1/4"	2 1/4"
133-D	4" tap	9"		14.28	9"	4"	11"	3"	2 1/4"
133-D	4" tap	7"		10.48	7"	2"	9"	2 1/4"	2 1/4"
133-G	2" tap	7"		10.98	7"	3"	9"	2 1/4"	2 1/4"
133-G	3" tap	7"		13.72	7"	3"	11"	2 1/4"	2 1/4"
133-G	3" tap	9"		14.52	9"	4"	11"	3"	2 1/4"
133-G	4" tap	9"		31.40	12"	4"	15"	3"	2 1/4"
133-G	4" tap	12"		16.04	7"	2"	9"	2 1/4"	2 1/4"
133-H	2" tap	7"	5.72	16.58	7"	3"	9"	2 1/4"	2 1/4"
133-H	3" tap	7"	6.26	23.12	9"	3"	11"	2 1/4"	2 1/4"
133-H	3" tap	9"	7.16	23.92	9"	4"	11"	3"	2 1/4"
133-H	4" tap	9"	7.96	6.48	4"	2"	9"	2 1/4"	1-2"
133-R-A	2" tap	4" n.p.		6.92	5"	2"	9"	2 1/4"	1-2"
133-R-B	2" tap	5" n.p.		6.52	4"	3"	9"	2 1/4"	1-2"
133-R-A	3" tap	4" n.p.		7.74	5"	3"	9"	2 1/4"	1-2"
133-R-B	3" tap	5" n.p.		9.90	6"	3"	9"	2 1/4"	1-2"
133-R	3" tap	6" n.p.		8.20	5"	4"	11"	3"	1-2"
133-R-B	4" tap	5" n.p.		10.50	6"	4"	11"	3"	1-2"
133-R	4" tap	6" n.p.		12.92	6"	2"	9"	2 1/4"	1-2"
133-S	2" tap	6" n.p.		13.46	6"	3"	9"	2 1/4"	1-2"
133-S	3" tap	6" n.p.		14.00	6"	4"	11"	3"	1-2"
133-S	4" tap	6" n.p.							

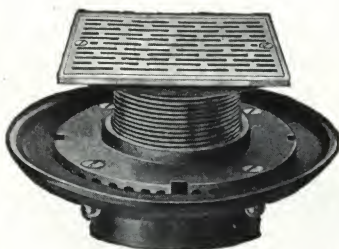
DRAIN HEADS, SERIES NO. 134

With hub outlet and seepage waste. This floor drain is readily adaptable to meet various construction conditions, having a cast hub outlet, that may be calked to either cast or wrought pipe. Waste

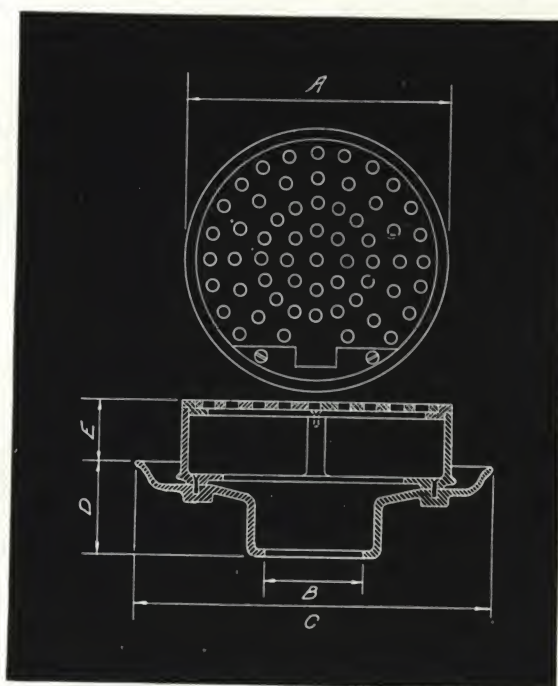
connections to this drain vary from 2 to 8 in. Strainers are cast iron, painted, or brass, polished, nickel, or chromium plated. Drain bodies are cast iron; painted or galvanized



No. 134-G



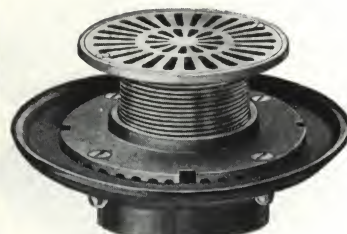
No. 134-S



No. 134-G



No. 134-E



No. 134-R



No. 134-CI



Any drain can be furnished with iron or brass intermediate strainers at additional cost



No. 136-CI

Plate No.	Outlet	Strainer diameter	List		Dimensions			
			Iron strainer	Polished brass strainer	A	B	C	D
134-CI	2" hub	7"	\$ 4.92	\$16.80	7"	2"	9"	2 1/4"
134-CI	3" hub	7"	5.42	17.10	7"	3"	9"	3"
134-CI	3" hub	9"	6.84	23.52	9"	3"	11"	3 1/4"
134-CI	4" hub	9"	7.34	24.02	9"	4"	11"	3 1/4"
134-CI	4" hub	12"	12.96	47.04	12"	4"	15"	3 1/4"
134-CI	6" hub	12"	15.36	47.54	12"	6"	18"	3 1/4"
134-CI	6" hub	15"	18.28	62.68	15"	6"	18"	3 1/4"
134-CI	8" hub	15"	18.78	62.98	15"	8"	18"	3 1/4"
134-E	2" hub	7"		9.68	7"	2"	9"	2 1/4"
134-E	3" hub	7"		10.18	7"	3"	9"	3"
134-E	3" hub	9"		13.52	9"	3"	11"	3"
134-E	4" hub	9"		14.02	9"	4"	11"	3 1/4"
134-G	2" hub	7"		10.56	7"	2"	9"	2 1/4"
134-G	3" hub	7"		11.06	7"	3"	9"	3"
134-G	3" hub	9"		13.75	9"	3"	11"	3"
134-G	4" hub	9"		14.26	9"	4"	11"	3 1/4"
134-G	4" hub	12"		31.20	12"	4"	15"	3 1/4"
134-H	2" hub	7"	5.80	16.12	7"	2"	9"	2 1/4"
134-H	3" hub	7"	6.30	16.62	7"	3"	9"	3"
134-H	3" hub	9"	7.20	23.16	9"	3"	11"	3"
134-H	4" hub	9"	7.70	23.66	9"	4"	11"	3 1/4"
134-R-A	2" hub	4"		6.64	4"	2"	9"	2 1/4"
134-R-B	2" hub	5"		8.04	5"	2"	9"	2 1/4"
134-R-A	3" hub	4"		7.36	4"	3"	9"	3"
134-R-B	3" hub	5"		8.94	5"	3"	9"	3"
134-R	3" hub	6"		9.97	6"	3"	9"	3"
134-R-A	4" hub	4"		8.36	4"	4"	11"	3 1/4"
134-R-B	4" hub	5"		10.20	5"	4"	11"	3 1/4"
134-R	4" hub	6"		10.71	6"	4"	11"	3 1/4"
134-S	2" hub	6"		13.00	6"	2"	9"	2 1/4"
134-S	3" hub	6"		13.50	6"	3"	9"	3"
134-S	4" hub	6"		14.00	6"	4"	11"	3 1/4"
136-CI	3" hub		6.60	18.48	7"	3"	11"	5 1/2"
136-CI	3" hub	9"	8.08	24.76	9"	3"	11"	5 1/2"
136-CI	4" hub	9"	8.56	25.24	9"	4"	11"	6 1/2"



No. 134-H

DRAIN HEADS WITH TRAPS

Series No. 133-70—These drain heads are identical with Series No. 133, and therefore have the same advantages of installation.

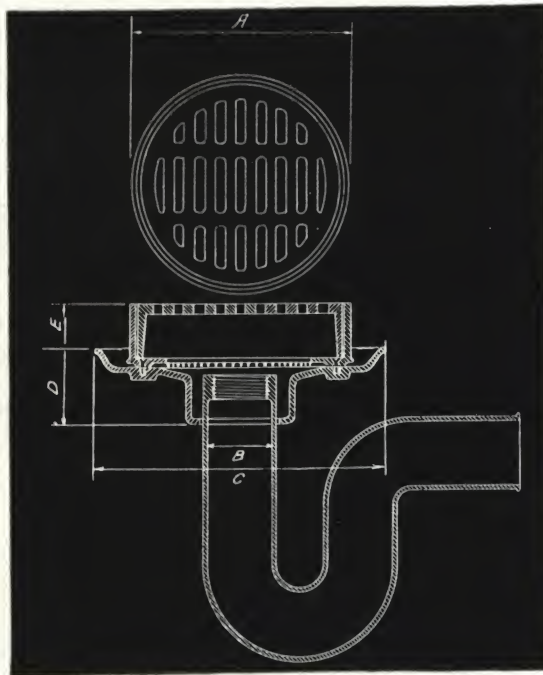
The traps are cast iron, and furnished with or with-

out cleanouts. Waste outlets, tapped 2, 3 and 4 in.

Series No. 134-106—Similar to Series No. 133-70, except that connection to trap and drain head is a calked joint and has spigot outlet 2, 3 or 4 in.



No. 133-G-70



No. 134-CI-106



No. 133-CI-70



No. 134-D-106

Any drain can be furnished with iron or brass intermediate strainers at additional cost



No. 134-G-106



No. 134-CI-106

Plate No.	Outlet	Strainer diameter	List		Dimensions				
			Iron painted	Polished brass	A	B	C	D	E
133-CI-70	2" tap	7"	\$ 6.41	\$18.29	7"	2"	9"	2 1/4"	2"
133-CI-70	3" tap	7"	9.63	21.45	7"	3"	9"	2 1/4"	2"
133-CI-70	3" tap	9"	11.05	27.73	9"	3"	11"	2 1/4"	2"
133-CI-70	4" tap	9"	13.73	30.41	9"	4"	11"	3"	2"
133-CI-70	4" tap	12"	23.29	53.61	12"	4"	15"	3"	2"
133-G-70	2" tap	7"		12.05	7"	2"	9"	2 1/4"	2 1/4"
133-G-70	3" tap	7"		15.23	7"	3"	9"	2 1/4"	2 1/4"
133-G-70	3" tap	9"		17.97	9"	3"	11"	2 1/4"	2 1/4"
133-G-70	3" tap	9"		20.65	9"	4"	11"	3"	2 1/4"
133-G-70	4" tap	9"		37.53	12"	4"	15"	3"	2 1/4"
133-G-70	4" tap	12"		19.23	7"	2"	9"	2 1/4"	2"
134-CI-106	2" spigot	7"	7.35	20.59	7"	3"	9"	3"	2"
134-CI-106	3" spigot	7"	8.91	27.01	9"	3"	11"	3"	2"
134-CI-106	3" spigot	9"	10.33	30.97	9"	4"	11"	3 1/4"	2"
134-CI-106	4" spigot	9"	14.29	53.99	12"	4"	15"	3 1/4"	2"
134-CI-106	4" spigot	12"	19.91	12.11	7"	2"	9"	3"	2 1/4"
134-D-106	2" spigot	7"		13.67	7"	3"	9"	3"	2 1/4"
134-D-106	3" spigot	7"		17.11	9"	3"	11"	3 1/4"	2 1/4"
134-D-106	3" spigot	9"		20.97	9"	4"	11"	3 1/4"	2 1/4"
134-D-106	4" spigot	9"		12.99	7"	2"	9"	2 1/4"	2 1/4"
134-G-106	2" spigot	7"		14.55	7"	3"	9"	3"	2 1/4"
134-G-106	3" spigot	7"		17.25	9"	3"	11"	3"	2 1/4"
134-G-106	3" spigot	9"		21.21	9"	4"	11"	3 1/4"	2 1/4"
134-G-106	4" spigot	9"		38.15	12"	4"	11"	3 1/4"	2 1/4"
134-G-106	4" spigot	12"							

URINAL DRAINS

Boosey's Adjustable Seepage Urinal Drain solves the waste connection problem of installation.

The waste connection is adjustable both vertically and horizontally. The vertical adjustment is by means of the thread cut on tail piece. The horizontal adjustment is even more simple, it is merely a slide adjustment of $1\frac{1}{2}$ in. for centering tail piece.

The lead pan connection is made by means of a raglet, formed around the upper portion of drain and into which the lead pan is caulked; the lead pan should extend at least 2 in. beyond the urinal base for it is at the junction of the urinal to the cement that a crack occurs, caused from contraction of the cement.

The seepage openings are formed by grooves being cast in the upper and lower side of the horizontal adjustment plate; each groove leads direct to waste above the trap seal.

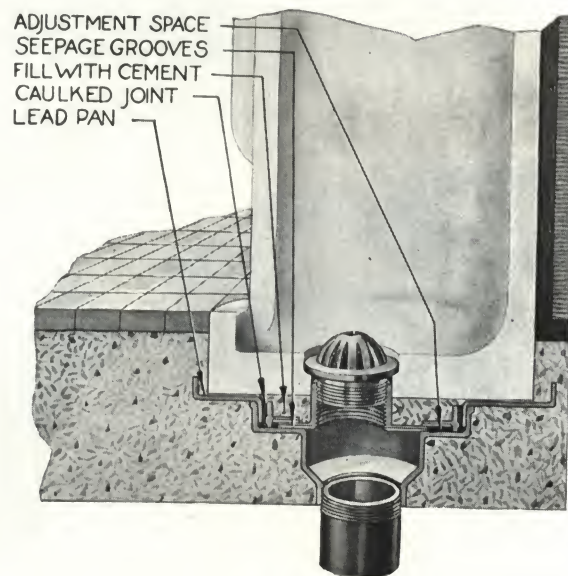
The drain is made in two styles, the No. 135 a drainhead, and the No. 135-A is combined with a trap. Waste connection tapped either 2 in. or 3 in. The No. 135 drain is also furnished with 3 in. hub outlet. The body of drain is cast iron, painted or galvanized. The tail piece and seepage plate, brass. Strainers brass, nickel or chromium plated, or vitreous china.

Furnished with 3 in. hub inlet for auxiliary drain, also with all brass top, polished, nickel or chromium plated, at additional cost.

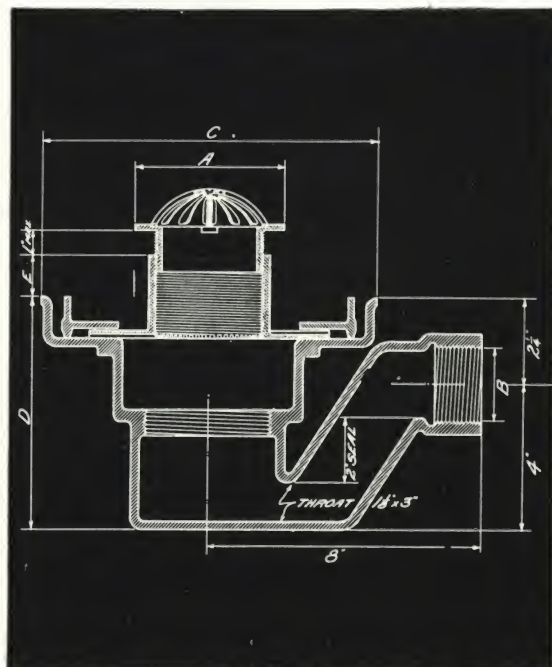
Plate No.	Outlet	Strainer diameter	List	Dimensions				
				A	B	C	D	E
135	3" tap	$4\frac{1}{2}$ " n.p.	\$12.96	$4\frac{1}{2}$ "	3"	10"	5"	$1\frac{1}{4}$ "
135	3" hub	$4\frac{1}{2}$ " n.p.	13.00	$4\frac{1}{2}$ "	3"	10"	5"	$1\frac{1}{4}$ "
135-A	2" tap	$4\frac{1}{2}$ " n.p.	16.88	$4\frac{1}{2}$ "	2"	10"	7"	$1\frac{1}{4}$ "
135-A	3" tap	$4\frac{1}{2}$ " n.p.	20.36	$4\frac{1}{2}$ "	3"	10"	7"	$1\frac{1}{4}$ "



No. 135



No. 135



No. 135-A



No. 135-A

FACTORY DRINKING FOUNTAIN DRAIN

No. 870

An unusual type of drain, for, when used with a drinking fountain in factory service, it not only acts as a floor drain and receptacle for chewing tobacco, cigars and cigarette butts, but on account of bubble waste entering drain above strainer, it is self-cleaning, carrying all refuse down into waste line, greatly improving the sanitary appearance of a factory drinking fountain surroundings.

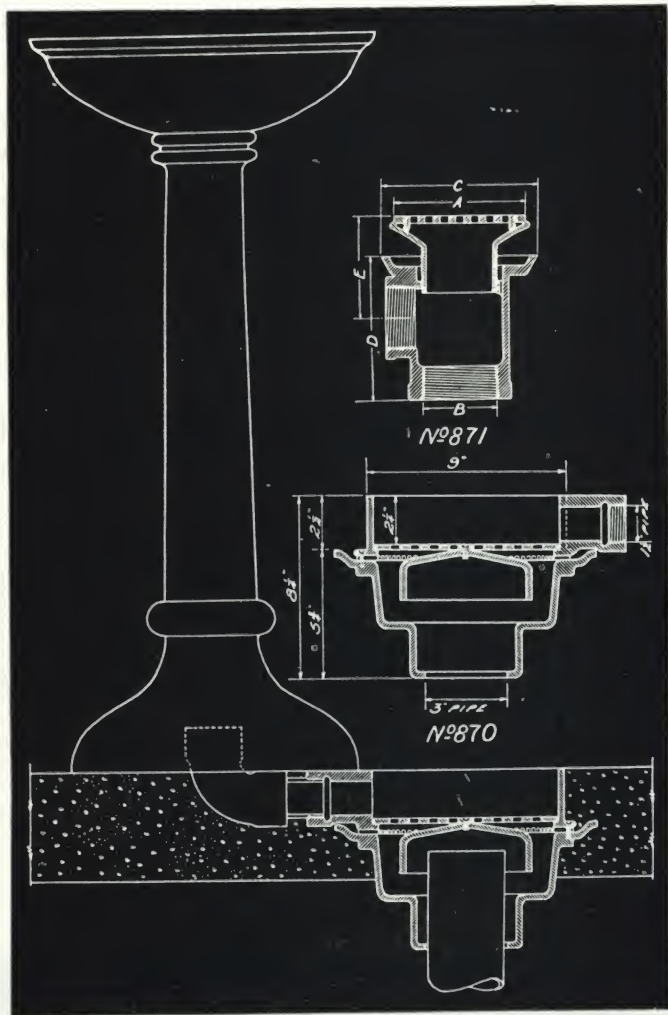
The body of drain is cast iron with intermediate strainer and bell trap for connection to storm water waste line. Where otherwise connected use a deep seal trap.

DRINKING FOUNTAIN DRAIN

No. 871

Cast iron body, adjustable brass N. P. strainer with openings around inlet for seepage. The side opening, tapped $1\frac{1}{2}$ in., makes it adaptable for either wall or floor waste connections. Strainer opening 2 in. and outlet opening 2 in. connecting with a nipple to trap in waste line.

Made in one size only, 2 in. outlet, diameter of strainer 4 in.



BRASS FLUSHING RIM FLOOR DRAIN

No. 130K

Floor drain with brass flushing rim for hospitals, sanitariums, operating rooms, morgues and laboratories. May be used with or without lead pan, depending upon the installation requirements.

The hinged strainer and flushed surface of drain are polished brass and easily accessible for cleaning.



No. 130-K-70

Plate No.	Outlet	Diam.	List	Dimensions						
				A	B	C	D	E	F	G
130-K	3"	10 $\frac{1}{2}$ "	\$33.50	8"	3"	11"	4"	1-2"		10 $\frac{1}{2}$ "
130-K	4"	10 $\frac{1}{2}$ "	35.50	8"	4"	11"	4"	1-2"		10 $\frac{1}{2}$ "
130-K-70	3"	10 $\frac{1}{2}$ "	37.75	8"	3"	11"		1-2"	3"	10 $\frac{1}{2}$ "
130-K-70	4"	10 $\frac{1}{2}$ "	41.63	8"	4"	11"		1-2"	4"	10 $\frac{1}{2}$ "
870	3"	9"	9.93	9"	3"		7"	3"		
871	2"	4"	5.29	4"	2"		4"	1-2"		

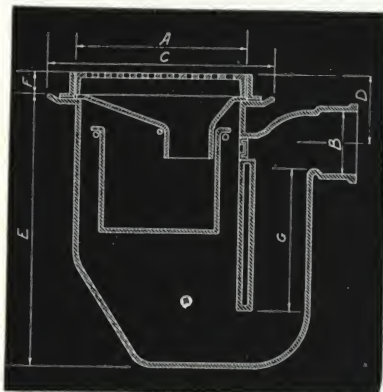
SEDIMENT DRAINS

No. 160. Heavy duty floor drain with hub or tapped outlets, 3, 4 and 6 in. Carrying capacity approximately 20 tons.

No. 161. Same as No. 160 with the addition of 2 in. tapped opening for motor exhaust connections.

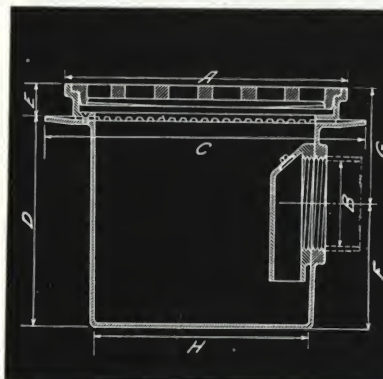
Nos. 181, 183, 184 and 185. Accessible sediment drains. X. H. cast iron with integral, lateral flange for seepage with non-tilting strainer. Waste openings, hub, spigot or screwed pipe connection. Furnished regularly as shown, but basket or back pressure valve omitted, if desired. These drains can be safely installed in a cement slab as shallow as 4 in. and have an approximate carrying capacity of 5 tons. Can be furnished with all brass top, polished, nickel or chromium plated at additional cost.

No. 188. Deep seal floor drain and with removable sand basket. Especially adapted for use where a floor drain having a deep seal trap and accessible dirt arrester are desired. X. H. cast iron with integral, lateral flange for anchoring, and supporting non-tilting strainer, having an approximate carrying capacity of 5 tons. Outlet, 4 in. hub only.

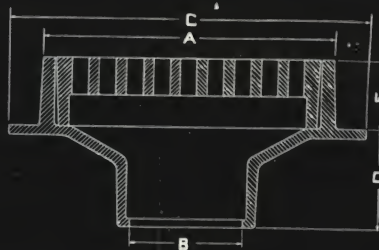


No. 188

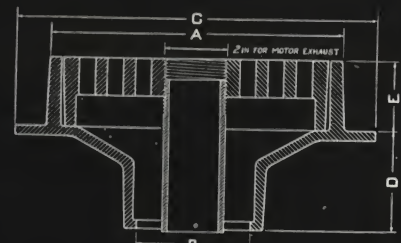
Plate No.	Outlet	Strainer diameter	List	Dimensions							
				A	B	C	D	E	F	G	H
160	3" tap	12"	\$8.21	12"	3"	6 1/2"	3 1/2"	3"			
160	3" hub	12"	7.86	12"	3"	6 1/2"	3 1/2"	3"			
160	4" tap	12"	8.31	12"	4"	6 1/2"	3 1/2"	3"			
160	4" hub	12"	7.96	12"	4"	6 1/2"	3 1/2"	3"			
160	6" tap	12"	9.35	12"	6"	6 1/2"	3 1/2"	3"			
160	6" hub	12"	9.00	12"	6"	6 1/2"	3 1/2"	3"			
161	3" tap	12"	8.46	12"	3"	6 1/2"	3 1/2"	3"			
161	3" hub	12"	8.11	12"	3"	6 1/2"	3 1/2"	3"			
161	4" tap	12"	8.56	12"	4"	6 1/2"	3 1/2"	3"			
161	4" hub	12"	8.21	12"	4"	6 1/2"	3 1/2"	3"			
161	6" tap	12"	9.60	12"	6"	6 1/2"	3 1/2"	3"			
161	6" hub	12"	9.25	12"	6"	6 1/2"	3 1/2"	3"			
181	3" tap	12x14"	27.36	12-14"	3"	16-18"	9 1/2"	2 1/2"			9-11"
181	3" hub	12x14"	26.43	12-14"	3"	16-18"	9 1/2"	2 1/2"			9-11"
181	3" spigot	12x14"	28.96	12-14"	3"	16-18"	9 1/2"	2 1/2"			9-11"
181	4" tap	12x14"	27.72	12-14"	4"	16-18"	9 1/2"	2 1/2"			9-11"
181	4" hub	12x14"	26.79	12-14"	4"	16-18"	9 1/2"	2 1/2"			9-11"
181	4" spigot	12x14"	30.24	12-14"	4"	16-18"	9 1/2"	2 1/2"			9-11"
183	3" tap	12x14"	34.11	12-14"	3"	16-18"	9 1/2"	2 1/2"	6"	6"	9-11"
183	3" hub	12x14"	33.86	12-14"	3"	16-18"	9 1/2"	2 1/2"	6"	6"	9-11"
183	3" spigot	12x14"	36.39	12-14"	3"	16-18"	9 1/2"	2 1/2"	6"	6"	9-11"
183	4" tap	12x14"	34.85	12-14"	4"	16-18"	9 1/2"	2 1/2"	6"	6"	9-11"
183	4" hub	12x14"	34.71	12-14"	4"	16-18"	9 1/2"	2 1/2"	6"	6"	9-11"
183	4" spigot	12x14"	37.67	12-14"	4"	16-18"	9 1/2"	2 1/2"	6"	6"	9-11"
184	3" tap	12x14"	38.64	12-14"	3"	16-18"	9 1/2"	2 1/2"	7"	5"	9-11"
184	3" hub	12x14"	38.14	12-14"	3"	16-18"	9 1/2"	2 1/2"	7"	5"	9-11"
184	3" spigot	12x14"	40.67	12-14"	3"	16-18"	9 1/2"	2 1/2"	7"	5"	9-11"
184	4" tap	12x14"	39.00	12-14"	4"	16-18"	9 1/2"	2 1/2"	7"	5"	9-11"
184	4" hub	12x14"	38.50	12-14"	4"	16-18"	9 1/2"	2 1/2"	7"	5"	9-11"
184	4" spigot	12x14"	41.95	12-14"	4"	16-18"	9 1/2"	2 1/2"	7"	5"	9-11"
185	4" tap	20x20"	63.07	12-14"	4"	16-18"	14"	3"	9"	8"	16-16"
185	4" hub	20x20"	62.57	12-14"	4"	16-18"	14"	3"	9"	8"	16-16"
185	4" spigot	20x20"	65.10	12-14"	4"	16-18"	14"	3"	9"	8"	16-16"
185	6" tap	20x20"	63.71	20-20"	6"	22-22"	14"	3"	9"	8"	16-16"
185	6" hub	20x20"	63.21	20-20"	6"	22-22"	14"	3"	9"	8"	16-16"
185	6" spigot	20x20"	66.65	20-20"	6"	22-22"	14"	3"	9"	8"	16-16"
188	4" hub	12x14"	50.36	12-14"	4"	18"	5"	22"	2"	10"	16-16"



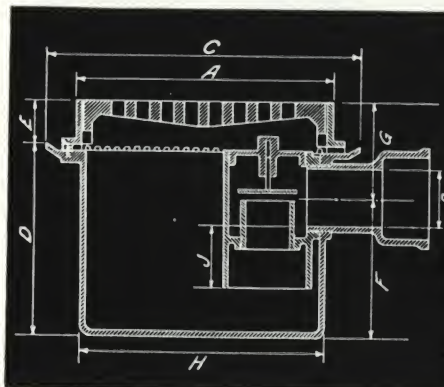
No. 185



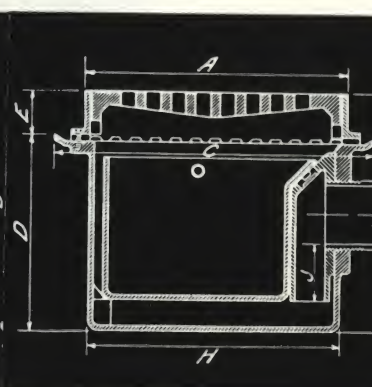
No. 160



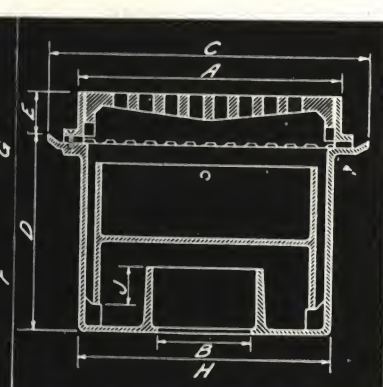
No. 161



No. 184



No. 183



No. 181

SLOP SINKS

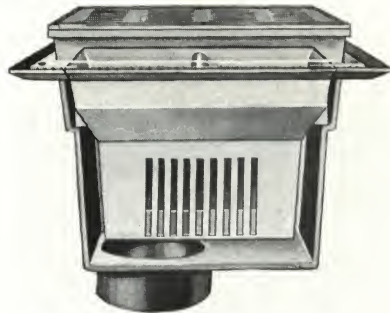
We have standardized on one size, embodying in compact form the results of practically every request, for various forms of construction suggested during the past ten years. The diameter of frame is 14x14 in. Grate opening 12x12 in.

Modern stores and office buildings include provisions for restaurants, tea rooms, coffee and sandwich shops and soda fountains, and because of limited space slop sinks are necessary. Where and how they are used depends upon their construction.

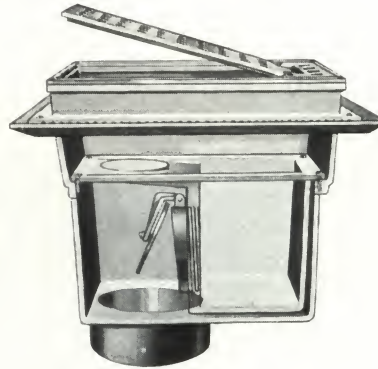
Slop sinks of the Boosey line can be furnished with cast iron body, cast iron body and brass rim with open top, or with a removable intermediate strainer, brass or iron. Also furnished with back pressure valve or with removable aluminum basket.

Waste connections 3 or 4 in. for screwed connections hub or spigot.

Deep seal traps to correspond with the outlet of the slop sink can also be furnished, at additional cost.



No. 195



No. 193-G



No. 196

No. 195

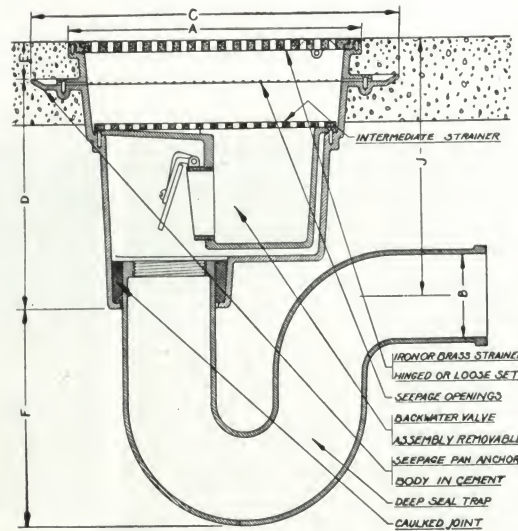
Slop sink with removable aluminum basket, open top with polished brass rim. Can also be furnished with strainer.

No. 193-G

Slop sink with B. W. valve and brass hinged strainer.

No. 196

Slop sink with open top, brass rim and intermediate iron strainer.



Slop Sink and Trap Assembly

Plate No.	Outlet	Strainer diameter	List	Dimensions				
				A	B	C	D	E
Slop Sink with	Back Water Valve	and Hinged Brass Strainer:						
193-G	3" tap	14"	\$67.04	14"	3"	18"	11"	13 3/4"
193-G	3" hub	14"	66.80	14"	3"	18"	11"	13 3/4"
193-G	3" spigot	14"	70.00	14"	3"	18"	11"	13 3/4"
193-G	4" tap	14"	67.24	14"	4"	18"	11"	13 3/4"
193-G	4" hub	14"	66.99	14"	4"	18"	11"	13 3/4"
193-G	4" spigot	14"	70.96	14"	4"	18"	11"	13 3/4"
Slop Sink with	Removable Aluminum Basket, Brass Rim and Open Top:							
195	3" tap	14"	60.12	14"	3"	18"	11"	13 3/4"
195	3" hub	14"	59.88	14"	3"	18"	11"	13 3/4"
195	3" spigot	14"	63.08	14"	3"	18"	11"	13 3/4"
195	4" tap	14"	60.32	14"	4"	18"	11"	13 3/4"
195	4" hub	14"	60.07	14"	4"	18"	11"	13 3/4"
195	4" spigot	14"	64.04	14"	4"	18"	11"	13 3/4"
Slop Sink with	Brass Rim and Intermediate Iron Strainer:							
196	3" tap	14"	33.68	14"	3"	18"	11"	13 3/4"
196	3" hub	14"	33.44	14"	3"	18"	11"	13 3/4"
196	3" spigot	14"	36.64	14"	3"	18"	11"	13 3/4"
196	4" tap	14"	33.88	14"	4"	18"	11"	13 3/4"
196	4" hub	14"	33.64	14"	4"	18"	11"	13 3/4"
196	4" spigot	14"	37.60	14"	4"	18"	11"	13 3/4"

NO. 109 FLOOD CONTROL DRAINAGE VALVES

Having the features of a manually operated gate valve with the additional automatic features included in a self-closing swing valve, and combining into one unit the features of both valves with the additional feature of being accessible from floor line, providing drainage construction that gives reliable protection to building.

The valve body is cast iron with removable head set flush with floor. The manually operated gate valve with non-rising stem is bronze metal of special design, made spade shaped, the lower part of gate forming an edge in order to cut through sewage if necessary when closing.

The bronze metal automatic swing valve opens inwardly into valve body, and being placed 2 in. above flow line through the valve there is plenty of lip clearance for closing. Its operation may be observed by removing valve cover.

The 3 and 4-in. valves are made standard in two lengths, 12 or 18 in. from center of outlet to floor line, and can be furnished any length from 18 to 36 in.

The 5 and 6-in. valves are made standard in two lengths, 14 and 20 in. from center of outlet to floor line, but can be furnished any length from 20 to 36 in. Where valves of addi-

tional length are required, they can be extended with soil pipe using the valve body and 12-in. gland head. In ordering, when valve length is not given, the short length will be shipped.

Made in four sizes, 3, 4, 5 and 6 in.

No. 113 backwater horizontal end opening drain. Designed for draining manholes, meter and elevator pits. Body and strainer cast iron, automatic valve bronze metal.

Note the lip clearance at valve outlet, providing additional valve clearance when opening and closing.

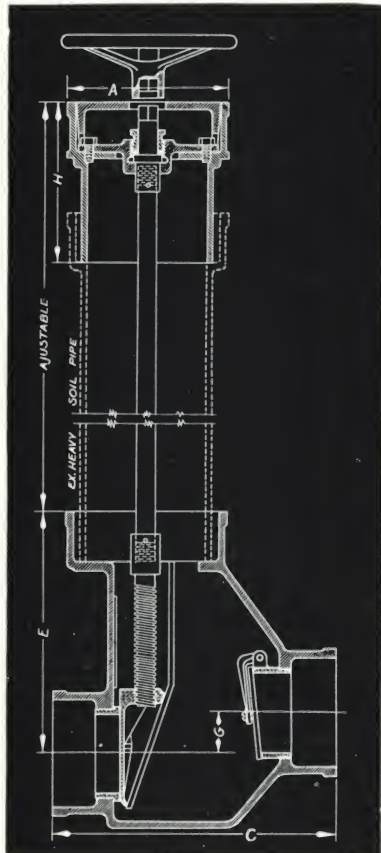
Made in two sizes, 4 and 6 in.

No. 116—A horizontal back water valve for hard service. The valve body is extra heavy cast iron with tee hub opening directly over swing valve, providing an accessible inspection opening that can be easily extended up to floor line with soil pipe, with hub end to receive cleanout with special flush brass plug furnished with valve.

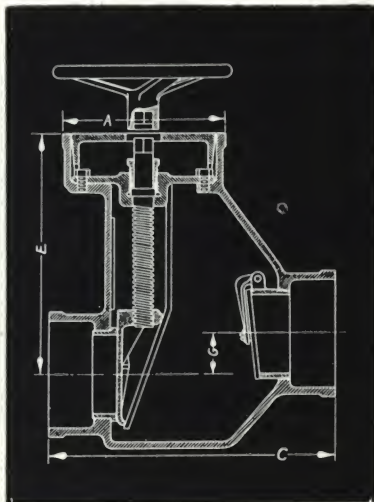
The automatic valve is set with sufficient lip clearance to prevent lodging of foreign substance under the swing check.

Made in three sizes —3, 4 and 6 in.

Plate No.	Outlet size	Floorline to center of outlet	List	Dimensions					
				A	B	C	D	E	G
109	3"	12"	\$50.68	8"	3"	14"		12"	2"
109	3"	18"	65.48	8"	3"	14"		18"	2"
109	3"	24"	69.12	8"	3"	14"		24"	2"
109	3"	30"	72.76	8"	3"	14"		30"	2"
109	3"	36"	76.40	8"	3"	14"		36"	2"
109	4"	12"	52.68	8"	4"	14"		12"	2"
109	4"	18"	67.48	8"	4"	14"		18"	2"
109	4"	24"	71.12	8"	4"	14"		24"	2"
109	4"	30"	74.76	8"	4"	14"		30"	2"
109	4"	36"	78.40	8"	4"	14"		36"	2"
109	5"	15"	85.76	10 1/2"	5"	16"		12"	2"
109	5"	20"	109.44	10 1/2"	5"	16"		18"	2"
109	5"	24"	110.08	10 1/2"	5"	16"		24"	2"
109	5"	30"	110.72	10 1/2"	5"	16"		30"	2"
109	5"	36"	111.36	10 1/2"	5"	16"		36"	2"
109	6"	15"	87.76	10 1/2"	6"	16"		12"	2"
109	6"	20"	111.44	10 1/2"	6"	16"		18"	2"
109	6"	24"	112.08	10 1/2"	6"	16"		24"	2"
109	6"	30"	112.72	10 1/2"	6"	16"		30"	2"
109	6"	36"	113.36	10 1/2"	6"	16"		36"	2"
113	4"		16.52	7"	4"	13"		3"	9"
113	6"		22.00	8 1/2"	6"	13"		3"	11"
116	3"		11.45	6"	0"	10"	7 1/4"	7 1/4"	
116	4"		13.80	7"	0"	10"	7 1/4"	6 1/2"	
116	6"		28.64	9"	0"	11"	10"	8"	



No. 109

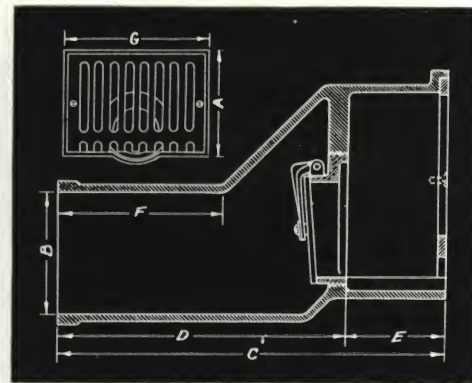


No. 109

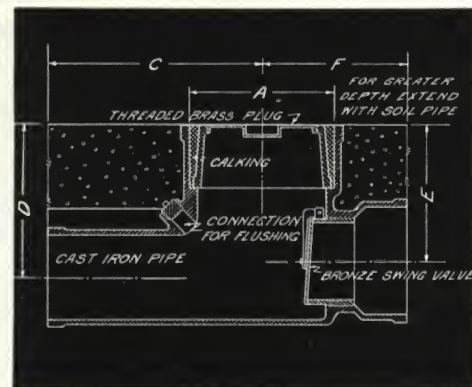
At Left

No. 109 showing valve body with gland head extended to floor line with soil pipe, and doing away with the necessity of valve pit entirely.

When ordering valve for soil pipe extension, use the 24-in. length list.



No. 113



No. 116

SEEPAGE BACK PRESSURE DRAINS

For sub-basements. Constructed to resist back pressure and prevent water oozing up around the drain, after it is set, in the concrete floor.

No. 1115A drain consists of a cast iron cylinder, the upper end of which is threaded and into this opening is screwed an all cast brass trap with a brass lift check. The slip hub around cylinder forms a raglet, into which a lead or copper flashing is caulked. Diameter of brass strainer is 4 in., with waste openings sufficient to drain a ½-in. stream of water, under city pressure. Made in one size only, to caulk into 4-in. soil pipe hub.

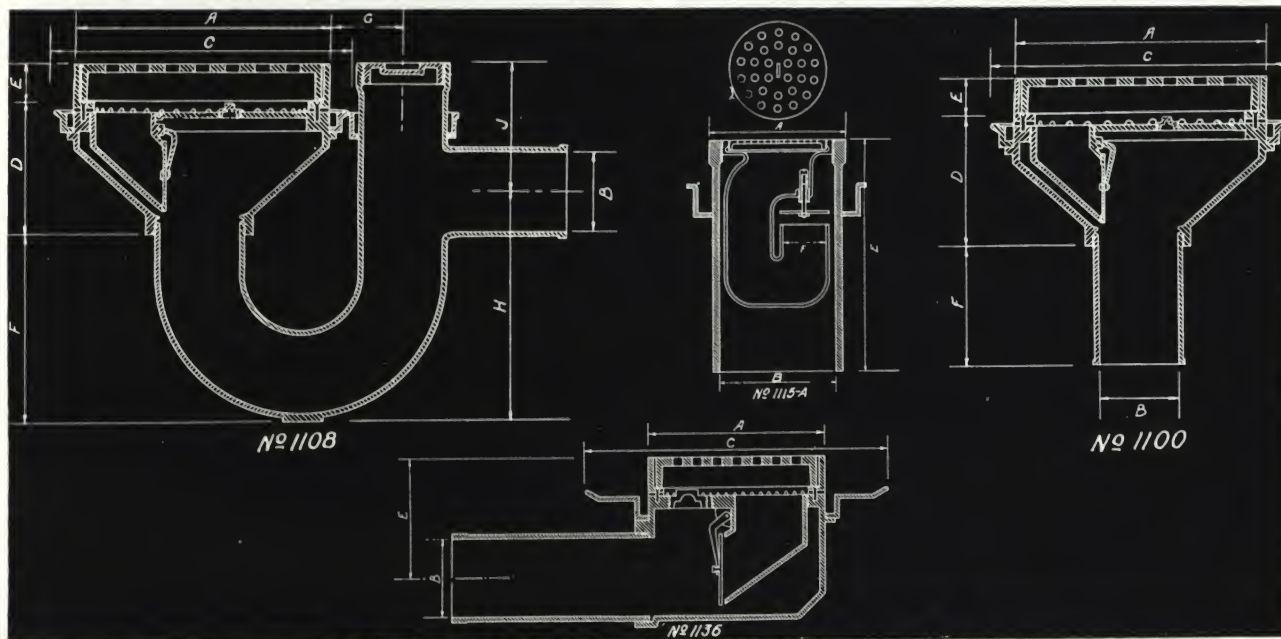
No. 1100 floor drain, body cast iron, painted or galvanized, with strainer, either brass hinged, or deep set removable iron. Circling the drain head two inches below floor line is a cast iron flange, with raglet, into which is caulked a lead or copper flashing. Made in two sizes, 3 or 4-in. Diameter of strainer, 9 in.

into which is caulked the sheet lead or copper flashing. Made in two sizes, 3 or 4-in. Diameter of strainer 9 in.

No. 1108 back pressure seepage floor drain with trap. Body cast iron, painted or galvanized, with either brass hinged or deep set removable iron strainer. Circling the drain head two inches below floor line is a cast iron flange, with raglet, into which is caulked a lead or copper flashing. Made in two sizes, 3 or 4-in. Diameter of strainer, 9 in.

No. 1136 back pressure seepage floor drain with side waste opening. Body cast iron, painted or galvanized, with either a brass hinged or deep set removable iron strainer. Circling drain head and two inches below floor line is a cast iron flange, with raglet, into which is caulked a lead or copper flashing. Made in two sizes, 3 or 4-in. Diameter of strainer, 9 in.

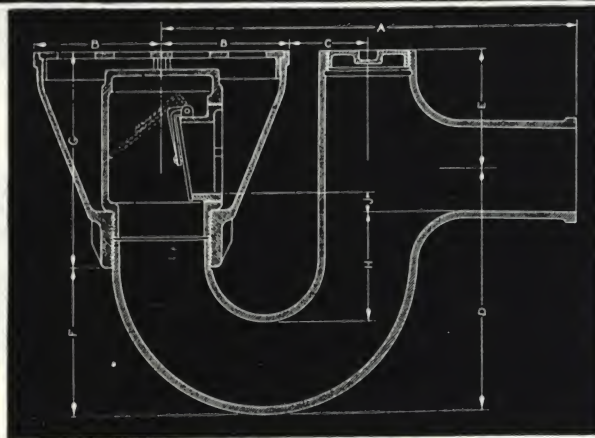
Plate No.	Outlet	Strainer diameter	List		Dimensions						
			Iron painted	Polished brass	A	B	C	D	E	F	
1100	3"	9"	\$26.20	\$42.88	9"	3"	15"	6½"	2"		
1100	4"	9"	27.00	43.68	9"	4"	15"	6½"	2"		
1108	3"	9"	32.08		9"	4"	15"	6½"	2"		
1108	4"	9"	34.92		9"	4"	15"	6½"	2"		
1115-A	4"	4½"		9.00	4½"	4"			8"	1½"	
1136	3"	9"	25.64		9"	3"	15"	6"	6"		
1136	4"	9"	26.04		9"	4"	15"	6"	6"		



BACK PRESSURE FLOOR DRAIN NO. 108

A new idea in back water floor drain construction, that in comparison with other drains is giving unbelievable results.

The reason for this unusual dependable performance is that the sensitive automatic valve is located above the water line in a removable



iron cylinder where it is permanently protected.

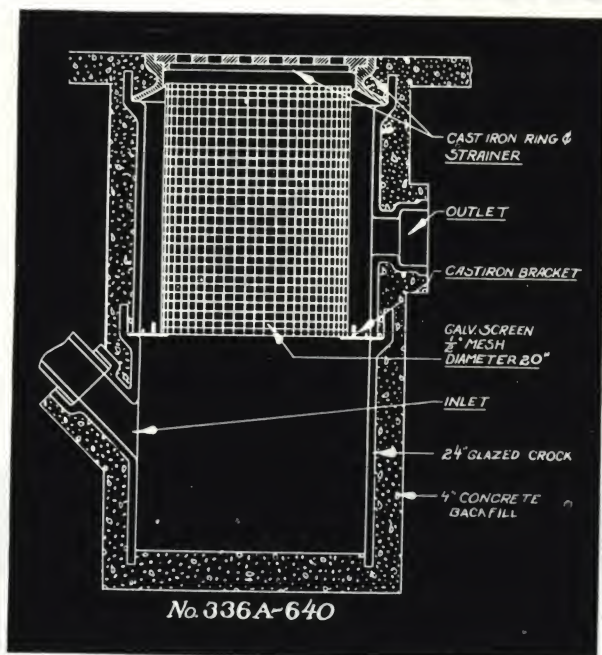
The valve is located on the inlet side of trap where it is accessible for cleaning or inspection by simply removing the strainer (no tools are required).

Boosey's back water valves are protecting millions of dollars in property investment operating constantly and so absolutely without maintenance cost that their owners have forgotten their existence.

Made in three sizes, 2, 3 and 4 in.

Plate No.	Outlet	Strainer diameter	Valve	Cleanout	List	Dimensions						
						A	B	C	D	E	F	G
108	2"	9" Iron	2"	1½"	\$ 9.07	12"	4½"	1½"	6½"	4"	4"	6½"
108	2"	9" P.B.	2"	1½"	16.52	12"	4½"	1½"	6½"	4"	4"	6½"
108	3"	9" Iron	2"	1½"	12.80	14"	4½"	3"	9"	4"	6"	6½"
108	3"	9" P.B.	2"	1½"	28.57	14"	4½"	3"	9"	4"	6"	6½"
108-W	3"	9" Iron	3"	3"	15.64	14"	4½"	3"	9"	4"	6"	6½"
108-W	3"	9" P.B.	3"	3"	26.72	14"	4½"	3"	9"	4"	6"	6½"
108	4"	12" Iron	4"	1½"	19.03	16"	6½"	2"	11"	5"	5"	9"
108	4"	12" P.B.	4"	1½"	36.86	16"	6½"	2"	11"	5"	5"	9"

MISCELLANEOUS SUMPS



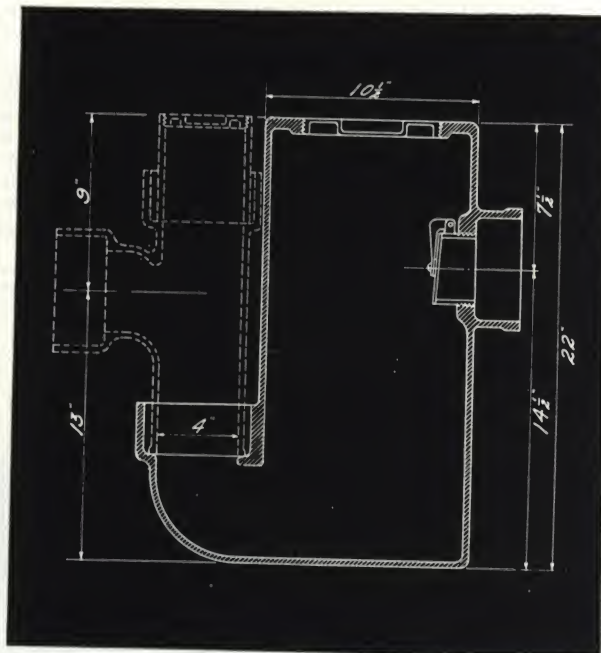
No. 336-A-640

Intercepting Sump Assembly No. 336A-640

To prevent foreign substances entering public sewer. It is often used in laundries, the discharge from all floor drains and washing machines passing through it.

The construction of sump consists of two or more lengths of glazed crock, back filled with four inches of concrete. The base of the top section rests on a round cast iron bracket placed in the hub of the lower section and on which is supported a galvanized iron removable screen.

Placed in hub, flush with the floor is a cast iron ring and cover with a carrying capacity of approxi-



No. 117

mately five tons. The ring is concave in shape, the concrete anchoring in to the side of ring to support the weight of traffic passing over cover. List \$69.46.

Tile Drain Sump

No. 117 illustrates an efficient back water, cast iron, tile drain sump and sand trap, installed to prevent sewage back flowing into the seepage tile around basement walls and filling the cinder bed under basement floor with raw sewage. In so doing it prevents foul odors and wet floor in basement.

Made in one size with 4-in. hub openings. List \$25.64.

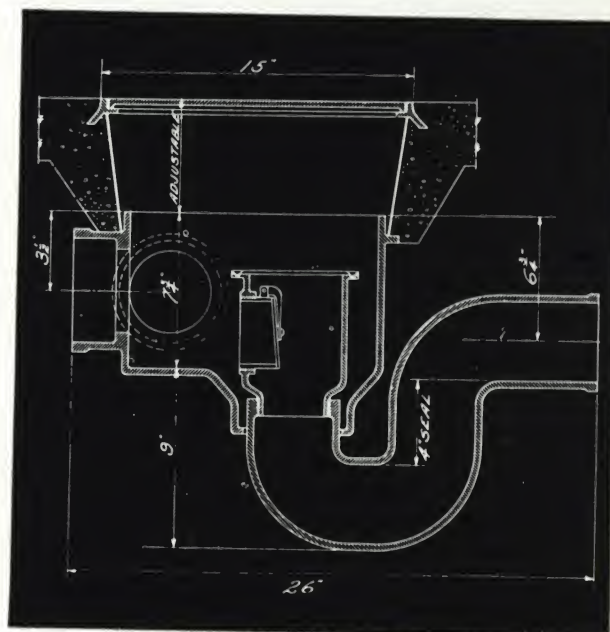
Multiple Drain Sump No. 119

For the preventing of sewage back flowing into the seepage drainage system or up through floor drains.

Construction of sump is cast iron with bronze metal removable back water drainage valve connected to sump outlet.

Discharging into the iron cylinder of sump are three 4-inch hub openings providing either side or end waste inlet openings, above the waste outlet from sump.

The extension from sump to floor line is



No. 119

made with a metal form, back filled with concrete to floor line and covered with a cast iron ring with a removable cover.

Floor drains and seepage drains around wall should never be cross connected. Therefore, where both seepage and floor drain protection from back flowing sewage is required, they should drain into separate sumps. One for basement floor drains only, the other for seepage.

Made in one size, outlet 4 inch. List \$29.93.

FACTORY SERVICE COVERS

The number of sizes necessary to be carried in stock, the limited size of orders and slow turn-over on investment, is the reason so few drainage manufacturers care to invest their capital in permanent pattern equipment.

The result is the iron cover business is often turned over to local jobbing foundries who, not knowing the requirements, standard sizes, or conditions, make a few covers of uncertain design.

The result of this condition is plainly vis-

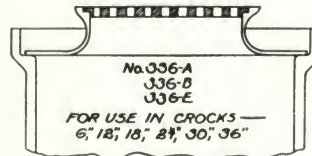
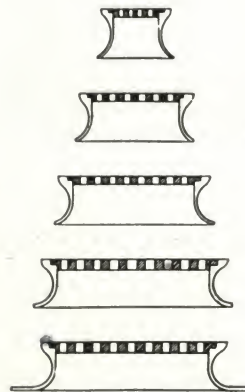
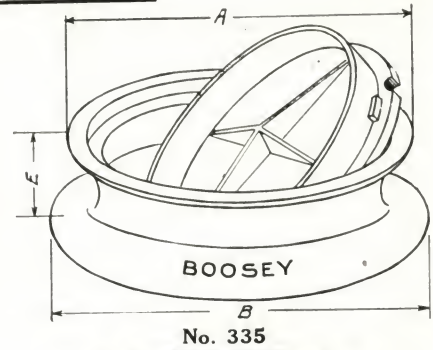
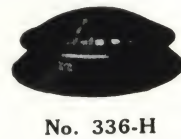
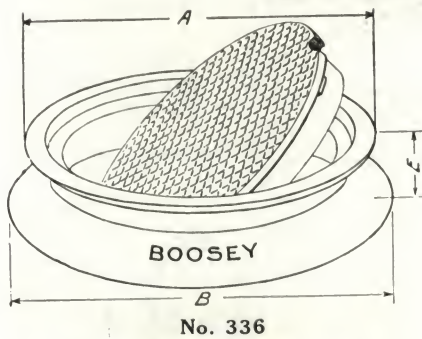
Plate No.	Diameter of top	Diameter of base	Height	Approximate carrying loads	List
334-A	28"	43"	10"	20 tons	Application
334-B	31"	46"	10"	20 tons	Application
334-C	34"	48"	12"	20 tons	Application
335-A	24"	29"	7 1/2"	20 tons	\$36.74
335-B	24"	29"	7 1/2"	20 tons	36.74
335-E	24"	29"	7 1/2"	20 tons	36.03
335-F	24"	29"	7 1/2"	20 tons	45.71
336-A	6"	8"	5"	10 tons	3.00
336-A	12"	14"	5"	10 tons	7.86
336-A	18"	21"	5"	10 tons	17.79
336-A	24"	27"	5"	10 tons	27.50
336-A	24"	34"	5"	7 tons	41.99
336-A	24"	40"	5"	5 tons	53.10
336-B	6"	8"	5"	10 tons	3.00
336-B	12"	14"	5"	10 tons	7.86
336-B	18"	21"	5"	10 tons	17.79
336-B	24"	27"	5"	10 tons	27.50
336-B	24"	34"	5"	7 tons	41.99
336-B	24"	40"	5"	5 tons	53.10
336-E	6"	8"	5"	10 tons	2.79
336-E	12"	14"	5"	10 tons	7.29
336-E	18" med.	21"	5"	10 tons	16.07
336-E	18" x.h.	21"	5"	20 tons	20.93
336-E	24" light	27"	5"	5 tons	18.43
336-E	24" med.	27"	5"	7 tons	20.43
336-E	24" x.h.	27"	5"	10 tons	26.79
336-E	24"	34"	5"	7 tons	41.27
336-E	24"	40"	5"	5 tons	52.39
336-H	24"	27"	5"		21.00
336-H	24"	34"	5"		35.49
336-H	24"	40"	5"		46.60
609	18"	21"	5"	10 tons	23.50
609	24"	27"	5"	10 tons	34.29
609	24"	34"	5"	7 tons	48.77
609	24"	40"	5"	5 tons	59.90

ible around many manufacturing plants by the lack of uniformity in cover design, the loose fit and clatter of covers, wrongly designed cover frames and a disregard of carrying capacity, resulting in sunken frames, broken covers and cement around the cover frame.

Practically our entire business consists in supplying architects' specifications; for this reason the above covers are of uniform design.

Carrying capacities are the result of laboratory tests.

These covers are made for various uses and can be furnished in cast iron painted, galvanized iron or brass.



ROOF DECK DRAINS

The construction of this drain is carefully planned for high class roof construction of tile, slate, asphalt or granolithic and is furnished in several strainer designs, round, square or dome, hinged or plain; in either iron or brass.

The body of drain is either cast iron, painted or galvanized; or all brass, with raglet cast around the tapped waste outlet. Into this raglet a metal flashing, either sheet lead or copper, is secured permanently to the drain with a lead caulked joint. Over the raglet is placed the seepage plate and it is secured to the drain body with brass bolts. To the seepage plate is secured the strainer frame, into which the strainer is fitted. Made in four outlet sizes—tapped 3, 4, 5 and 6 in.

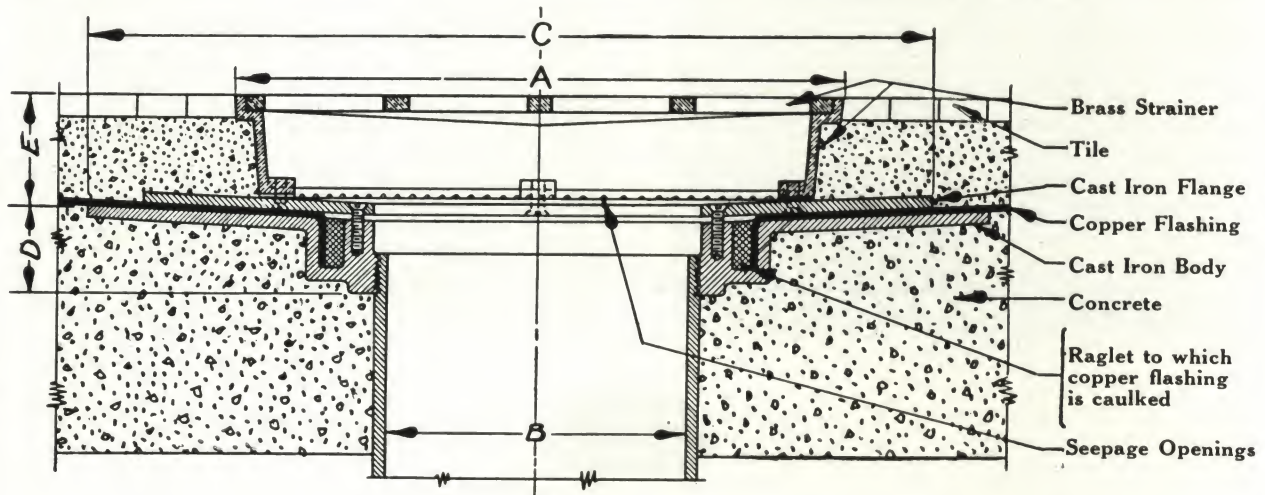
No. 149 C. I. Deck Drain. Loose set XH strainer in either iron or brass. Diameter of top 9, 12 and 15 in. Outlet tapped 3, 4, 5 and 6 in.

No. 149-G Deck Drain with round hinged strainer. Diameter 9 or 12 in. Outlet tapped 3, 4, 5 and 6 in.

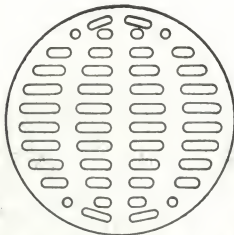
No. 149-146 Deck Drain. Dome strainer, iron or brass. Diameter of top 12 in. Outlet tapped 3, 4, 5 and 6 in.

No. 149-950 Deck Drain. Square brass frame and strainer. Diameter of top 12x12 in. Outlet tapped 3, 4, 5 and 6 in.

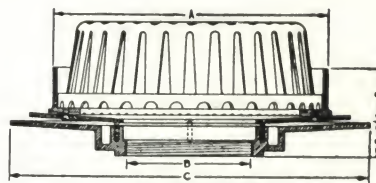
No. 149-1143 Deck Drain. Iron or brass beehive strainer. Outlet tapped 3, 4, 5 and 6 in.



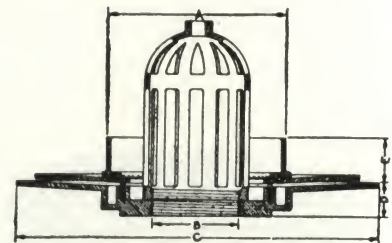
No. 149-950



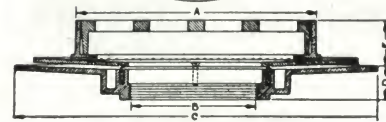
No. 149-C. I.



No. 149-146



No. 149-1143



No. 149-G

Plate No.	Outlet	Strainer diam.	Grate opening, sq. in.	List		Dimensions				
				Iron painted	Polished brass	A	B	C	D	E
149-CI	3" tap	9"	12	\$18.64	\$35.32	9"	3"	18"	13 1/2"	2"
149-CI	3" tap	12"	20	21.04	53.04	12"	3"	18"	13 1/2"	2"
149-CI	3" tap	15"	52	22.48	69.32	15"	3"	18"	13 1/2"	2"
149-CI	4" tap	9"	12	18.84	35.52	9"	4"	18"	13 1/2"	2"
149-CI	4" tap	12"	20	21.24	53.24	12"	4"	18"	13 1/2"	2"
149-CI	4" tap	15"	52	22.68	69.52	15"	4"	18"	13 1/2"	2"
149-CI	5" tap	9"	12	19.04	35.72	9"	5"	18"	13 1/2"	2"
149-CI	5" tap	12"	20	21.44	53.44	12"	5"	18"	13 1/2"	2"
149-CI	5" tap	15"	52	22.88	69.72	15"	5"	18"	13 1/2"	2"
149-CI	6" tap	9"	12	19.44	36.12	9"	6"	18"	13 1/2"	2"
149-CI	6" tap	12"	20	21.84	53.84	12"	6"	18"	13 1/2"	2"
149-CI	6" tap	15"	52	23.28	70.12	15"	6"	18"	13 1/2"	2"
149-G	3" tap	9"	11		25.56	9"	3"	18"	13 1/2"	2"
149-G	3" tap	12"	34		40.36	12"	3"	18"	13 1/2"	2"
149-G	4" tap	9"	11		25.76	9"	4"	18"	13 1/2"	2"
149-G	4" tap	12"	34		40.56	12"	4"	18"	13 1/2"	2"
149-G	5" tap	9"	11		25.96	9"	5"	18"	13 1/2"	2"
149-G	5" tap	12"	34		40.76	12"	5"	18"	13 1/2"	2"
149-G	6" tap	9"	11		26.36	9"	6"	18"	13 1/2"	2"
149-G	6" tap	12"	34		41.16	12"	6"	18"	13 1/2"	2"
149-146	3" tap	9"	30	19.00	34.96	9"	3"	18"	13 1/2"	2"
149-146	3" tap	13 1/2"	70	25.24	56.64	12"	3"	18"	13 1/2"	2"
149-146	4" tap	9"	30	19.20	35.16	9"	4"	18"	13 1/2"	2"
149-146	4" tap	13 1/2"	70	25.44	56.84	12"	4"	18"	13 1/2"	2"
149-146	5" tap	9"	30	19.40	35.36	9"	5"	18"	13 1/2"	2"
149-146	5" tap	13 1/2"	70	25.64	57.04	12"	5"	18"	13 1/2"	2"
149-146	6" tap	9"	30	19.80	35.76	9"	6"	18"	13 1/2"	2"
149-146	6" tap	13 1/2"	70	26.04	57.44	12"	6"	18"	13 1/2"	2"
149-950	3" tap	12"	60	24.76	42.36	12"	3"	18"	13 1/2"	2 1/8"
149-950	4" tap	12"	60	24.96	42.5	12"	4"	18"	13 1/2"	2 1/8"
149-950	5" tap	12"	60	25.16	42.76	12"	5"	18"	13 1/2"	2 1/8"
149-950	6" tap	12"	60	25.56	43.16	12"	6"	18"	13 1/2"	2 1/8"
149-1143	3" tap	4"	27	18.60	29.88	9"	3"	18"	13 1/2"	2"
149-1143	4" tap	5 1/2"	54	19.68	34.00	9"	4"	18"	13 1/2"	2"

ROOF SUMPS FOR METAL FLASHING

Roof Drains Nos. 141-146

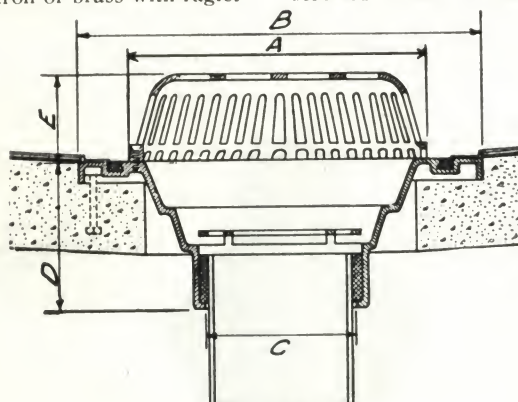
A cast iron or brass roof sump for the better class of buildings. All connections are visible, convenient to inspect and permanently water tight under all weather conditions. The body and strainer are cast iron or brass with raglet

cast around outlet to which is caulked a copper or lead flashing for connecting to roofing felts.

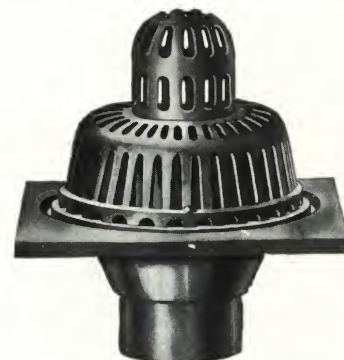
Made in 5 outlet sizes, 3, 4, 5, 6 and 8 in. Either screwed thread or hub outlet.



No. 146



No. 146



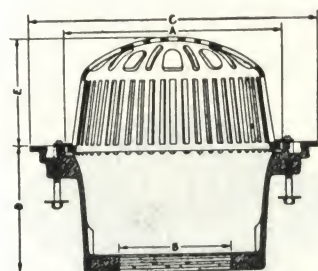
No. 141

Roof Drain No. 1143

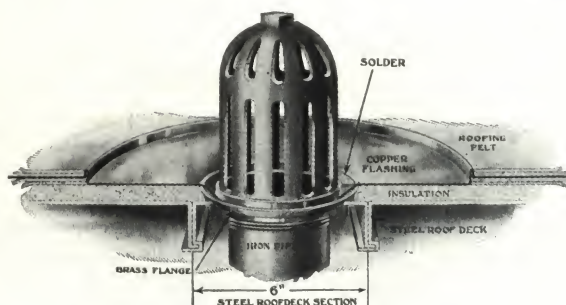
Cast iron or brass strainer with brass body. This construction requires the least possible space.

Made in four sizes with outlets 2, 3, 4 or 6 in. For

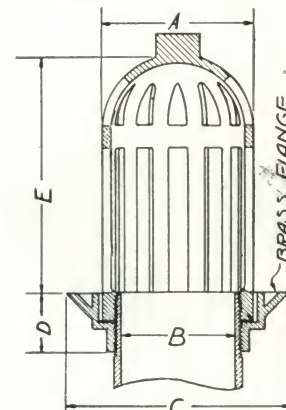
securing the copper or lead flashing to roof drain, a raglet is cast around outlet opening to which the flashing is soldered. Where side openings are required an elbow screwed to nipple is all that is necessary.



No. 1146



No. 1143



No. 1143

Roof Drains Nos. 143 and 1146

No. 1146. Cast iron roof sump, the outstanding features of which are ease of installation, permanence, and weather tightness.

An economical roof drain with all connections exposed for inspection. The copper flange which also forms the gravel stop, connects to sump by caulking the metal into the raglet surrounding the drainhead.

All measurements shown on dimension chart.

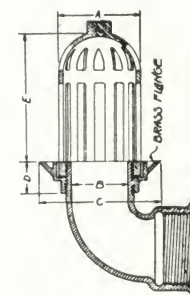
Made in four outlet sizes, tapped 3, 4, 5 and 6 in.

No. 143. Valley, gutter or porch drain with caulking raglet to which the metal flashing connects.

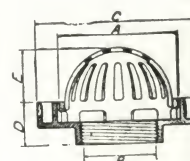
Measurements shown on dimension chart. Body and strainer cast iron, or cast iron body and brass strainer, or body and strainer all brass.

Outlet tapped 2, 2½ or 3 in.

Plate No.	Outlet	Strainer diam.	Grate opening sq. in.	List		Dimensions				
				Iron painted	Polished brass	A	B	C	D	E
141	3" tap	13 1/2"	90	\$24.28	\$48.60	4 3/4"	15"	3"	6 1/2"	4 1/2"
141	3" hub	13 1/2"	90	24.00	48.32	4 3/4"	15"	3"	6 1/2"	4 1/2"
141	4" tap	13 1/2"	90	24.78	48.80	4 3/4"	15"	4"	6 1/2"	4 1/2"
141	4" hub	13 1/2"	90	24.48	48.60	4 3/4"	15"	4"	6 1/2"	4 1/2"
141	5" tap	13 1/2"	90	26.48	50.80	4 3/4"	15"	5"	6 1/2"	4 1/2"
141	5" hub	13 1/2"	90	26.28	50.60	4 3/4"	15"	5"	6 1/2"	4 1/2"
141	6" tap	13 1/2"	90	26.88	51.20	4 3/4"	15"	6"	6 1/2"	4 1/2"
141	6" hub	13 1/2"	90	26.28	50.80	4 3/4"	15"	6"	6 1/2"	4 1/2"
141	8" tap	13 1/2"	90	32.48	56.80	4 3/4"	15"	8"	6 1/2"	4 1/2"
141	8" hub	13 1/2"	90	30.08	54.40	4 3/4"	15"	8"	6 1/2"	4 1/2"
143	2" tap	4 1/2"	8	2.40	4.56	4 1/2"	2 1/2"	6"	1 3/4"	2 1/2"
143	2 1/2" tap	4 1/2"	8	2.56	4.72	4 1/2"	3"	6"	1 3/4"	3"
143	3" tap	4 1/2"	8	2.80	4.96	4 1/2"	3 1/2"	6"	1 3/4"	3 1/2"
146	3" tap	13 1/2"	77	17.15	37.36	13 1/2"	18"	3"	6 1/2"	4 1/2"
146	3" hub	13 1/2"	77	15.64	37.08	13 1/2"	18"	3"	6 1/2"	4 1/2"
146	4" tap	13 1/2"	77	17.86	37.56	13 1/2"	18"	4"	6 1/2"	4 1/2"
146	4" hub	13 1/2"	77	16.57	36.56	13 1/2"	18"	4"	6 1/2"	4 1/2"
146	5" tap	13 1/2"	77	18.57	38.56	13 1/2"	18"	5"	6 1/2"	4 1/2"
146	5" hub	13 1/2"	77	18.00	38.06	13 1/2"	18"	5"	6 1/2"	4 1/2"
146	6" tap	13 1/2"	77	19.20	38.96	13 1/2"	18"	6"	6 1/2"	4 1/2"
146	6" hub	13 1/2"	77	18.50	37.36	13 1/2"	18"	6"	6 1/2"	4 1/2"
146	8" tap	13 1/2"	77	24.07	41.60	13 1/2"	18"	8"	6 1/2"	4 1/2"
146	8" hub	13 1/2"	77	20.36	35.20	13 1/2"	18"	8"	6 1/2"	4 1/2"
147-H	3" tap	9"	30	10.84	24.80	9"	3"	14"	5"	2 1/2"
147-H	3" hub	9"	30	10.72	24.68	9"	3"	14"	5"	2 1/2"
147-H	4" tap	9"	30	11.12	25.08	9"	4"	14"	5"	2 1/2"
147-H	4" hub	9"	30	11.00	24.96	9"	4"	14"	5"	2 1/2"
1143	2" tap	3"	13	2.52	4.80	3"	2"	4 1/2"	1"	4"
1143	3" tap	4"	27	3.84	7.88	4"	3"	5 3/4"	1 1/4"	6"
1143	4" tap	5 1/2"	54	6.32	13.88	5 1/2"	4"	7 1/2"	1 1/4"	8"
1143	6" tap	7 3/4"	115	13.08	33.52	7 3/4"	6"	10"	1 1/4"	12"
1143-ST										
1146	3" tap	9"	45	12.12		9"	3"	12"	5 1/4"	5"
1146	4" tap	9"	45	12.32		9"	4"	12"	5 1/4"	5"
1146	5" tap	9"	45	12.52		9"	5"	12"	5 1/4"	5"
1146	6" tap	9"	45	12.92		9"	6"	12"	5 1/4"	5"



No. 1143 S. T.



No. 143

ROOF SUMP FOR FELT FLASHING

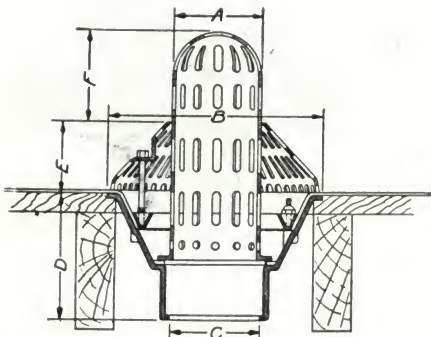
Cast Iron Roof Drains Nos. 140 and 148

Safe, economical and easily connected. The roofing felts clamp to the drain head.

(Omit metal flashing—Roofing felts only are compressible enough to make water-tight compression joint.)

Where metal flashings are specified use drain with raglet, into which the metal flashing is calked.

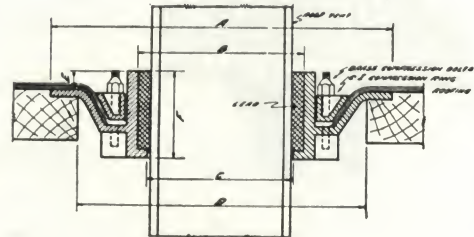
No. 140 and 148 furnished in sizes 3, 4, 5 and 6 in., with either hub or tapped outlets.



No. 140



No. 140



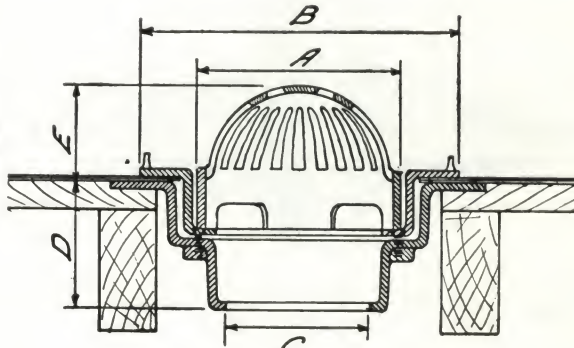
No. 145

Roof Flange

No. 145. Soil pipe stack roof flange, four sizes, 3, 4, 5 and 6 in.



No. 148-A



No. 148



No. 148

Plate No.	Outlet	Strainer diam.	Grate opening, sq. in.	List		Dimensions					
				Iron painted	Polished brass	A	B	C	D	E	F
140	3" tap	11"	47	\$11.72		4 1/2"	11"	3 3/4"	6 1/2"	4"	4 3/4"
140	3" hub	11"	47	11.44		4 1/2"	11"	3 3/4"	6 1/2"	4"	4 3/4"
140	4" tap	11"	47	11.92		4 1/2"	11"	4 3/4"	6 1/2"	4"	4 3/4"
140	4" hub	11"	47	11.74		4 1/2"	11"	4 3/4"	6 1/2"	4"	4 3/4"
140	5" tap	13"	62	15.56		4 1/2"	13 1/2"	5 3/4"	6 1/2"	4"	4 1/2"
140	5" hub	13"	62	15.36		4 1/2"	13 1/2"	5 3/4"	6 1/2"	4"	4 1/2"
140	6" tap	13"	62	15.96		4 1/2"	13 1/2"	6 3/4"	6 1/2"	4"	4 1/2"
140	6" hub	13"	62	15.76		4 1/2"	13 1/2"	6 3/4"	6 1/2"	4"	4 1/2"
145	3" hub			4.80		11"	4 1/2"	4 3/4"	9"	2 3/4"	
145	4" hub			5.36		11"	5 1/2"	4 3/4"	9"	2 3/4"	
145	5" hub			5.68		13"	6 1/2"	6 3/4"	11"	3 3/4"	
145	6" hub			6.72		13"	7 1/2"	6 3/4"	11"	3"	
148	3" tap	6 1/2"	18	7.52	\$19.12	6 1/2"	9 1/2"	3"	4"	3"	
148	3" hub	6 1/2"	18	7.24	18.84	6 1/2"	9 1/2"	3"	4"	3"	
148	4" tap	6 1/2"	18	7.72	19.32	6 1/2"	9 1/2"	4"	4"	3"	
148	4" hub	6 1/2"	18	7.32	18.92	6 1/2"	9 1/2"	4"	4"	3"	
148	5" tap	8"	30	8.44	25.56	8"	10 1/2"	5"	4"	4"	
148	5" hub	8"	30	8.24	25.36	8"	10 1/2"	5"	4"	4"	
148	6" tap	8"	30	8.84	25.96	8"	10 1/2"	6"	4"	4"	
148	6" hub	8"	30	8.49	25.61	8"	10 1/2"	6"	4"	4"	
148-A	3" tap	6 1/2"	9	6.68	20.40	6 1/2"	9 1/2"	3"	4"		
148-A	3" hub	6 1/2"	9	6.44	20.12	6 1/2"	9 1/2"	3"	4"		
148-A	4" tap	6 1/2"	9	6.88	20.60	6 1/2"	9 1/2"	4"	4"		
148-A	4" hub	6 1/2"	9	6.78	20.60	6 1/2"	9 1/2"	4"	4"		
148-A	5" tap	8 1/2"	12	8.08	26.52	8"	10 1/2"	5"	4"		
148-A	5" hub	8 1/2"	12	7.88	26.32	8"	10 1/2"	5"	4"		
148-A	6" tap	8 1/2"	12	8.48	26.92	8"	10 1/2"	6"	4"		
148-A	6" hub	8 1/2"	12	8.10	26.82	8"	10 1/2"	6"	4"		
665	3"			3.93							
665	4"			4.71							
665	5"			5.93							
665	6"			7.50							

Expansion Joint

No. 665. Expansion joint for wrought iron conductor lines, four sizes, 3, 4, 5 and 6 in.



No. 665

THE BARRETT COMPANY

Roof Leaders and Roof Vent Connections

40 Rector Street, NEW YORK, N. Y.

For Branch Offices, see page on Roofing Materials

Products

HOLT ROOF LEADER and ROOF VENT CONNECTIONS (Patented).

For Roofing, and for Flashing for Brick and Concrete Walls, see Manufacturers' Index. For detailed description and specifications see Volume IV, Barrett Architects' and Engineers' Built-up Roofing Reference Series.

Holt Roof Connections

Holt Roof Connections, with their air-tight watertight expansion joint, overcome all the defects of both rigid and loose joint leader connections. They never tear away the roofing around the intake, never flood a building if the leader pipe stops up.

These connections are made for roofs of every type. They come complete—flashing flanges, expansion joint, gravel stop and attachment—everything all ready to install. There are no extras or waste time in soldering parts of the job.

The connections designed to meet the varying conditions presented by flat roof decks are:

Types 1-LG, 1-LS, 1-LT and 1-LM.

Types 6-LG, 6-LS, 6-LT and 6-LM.

Types 5-LG, 5-LS and 5-LM.

Types 1-VG, 1-VS, 1-VT and 1-VM.

Types 6-VG, 6-VS, 6-VT and 6-VM.

Types 2-LG and 2-LS are especially designed for use with sloping roofs, and have a wide field in connection with sawtooth construction, and wherever valleys or parapet wall gutters are so narrow that a specially designed connection is required. It is adjustable to varying inclines.

For types 1-LG, 1-LS and 1-LT and types 1-VG, 1-VS and 1-VT, a wide copper flashing flange is fused

to each of these connections. Fusing joints requires intense heat and extreme care in workmanship. It is a factory job and is a necessary operation to provide a permanent watertight connection.

For types 2-LG and 2-LS, types 6-LG, 6-LS and 6-LT, and 5-LG and 5-LS a wide copper flashing flange is furnished with each of these connections. All necessary parts are provided to bolt the flashing flange to the connection. This is the only dependable method of creating a watertight flashing joint, where a field operation is necessary, and types 2-LG and 2-LS, types 6-LG, 6-LS and 6-LT, and 5-LG and 5-LS come under this classification.

Specifications

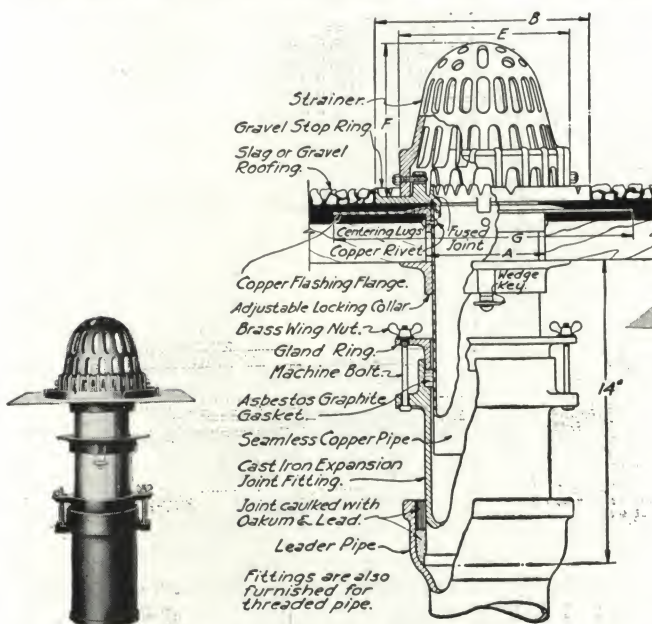
For detailed specifications see Volume IV, Barrett Architects' and Engineers' Built-Up Roofing Reference Series.

Barrett's Free Roof Examination Service

For years, at the request of men interested in the maintenance of large buildings, highly trained Barrett Inspectors have made careful surveys of the roofs of all these buildings and rendered detailed reports.

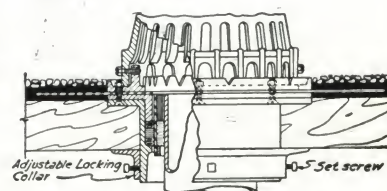
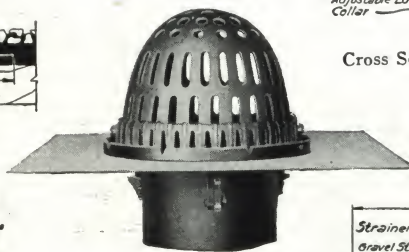
In many instances such examinations have resulted in large savings in building maintenance.

On request, one of our inspectors will make a careful survey of your roof, flashings, walls, coping, etc., on all your plants in conjunction with your superintendent or your master mechanic. (This service is available for big buildings, structures with roof areas of 5,000 sq. ft. or more that are located east of the Rocky Mountains.) Address Barrett Roof Examination Service, THE BARRETT COMPANY, 40 Rector Street, New York, N. Y. In Canada, write to THE BARRETT COMPANY, LIMITED, 5551 St. Hubert Street, Montreal, Quebec.

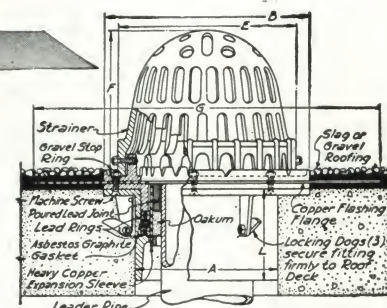


Type 1-LG, Holt Roof Connection

Exterior and cross-section views. To connect with leader lines—flat surface



Cross Section of Fitting with Sliding Lock Collar for Wood Roof



For Use in Concrete, Gypsum, etc., Decks Over 3 in. Thick Provided with Brass Locking-dogs

Type 6-LG, Holt Roof Connection

To connect with leader lines—flat surface

THE H. W. COVERT COMPANY

Manufacturers of Drains

229 East 37th Street
NEW YORK, N. Y.

Product

ANTI-CLOG FLOOR DRAINS for use in factories, garages, dairies, stables, areas, etc.

For our pages on Fireplace Dampers and Smoke Chambers, see Manufacturers' Index.

Advantages of Removable Dirt Box

The dirt box set inside the drain body catches all dirt, sand and debris, which, if allowed to reach the soil pipe, would cause a stoppage in the drain pipe. The dirt box is equipped with a handle to facilitate removal when it is to be emptied and also has seepage holes to allow no water to remain in the box to stagnate or freeze.

Construction

Anti-clog Drains are made of heavy cast iron,

ANTI-CLOG FLOOR DRAINS

with either bottom or side outlet. The body is of one piece, there being no joints to loosen and allow seepage into the floor.

These drains may be provided with lead flashings which are worked into the waterproofing section and render the floor around the drain watertight.

Anti-clog Drains are caulked from the inside which makes it simple for the plumber to accomplish a satisfactory, watertight connection.

When it is required to have the trap within the drain, we can furnish a bell trap and replace the dirt box with a strainer plate.

No. 16 Drain Construction—The No. 16 drain has a very deep body providing a deep and capacious sediment box.

Especially designed for garage washstands where much sand and dirt is washed off the cars.

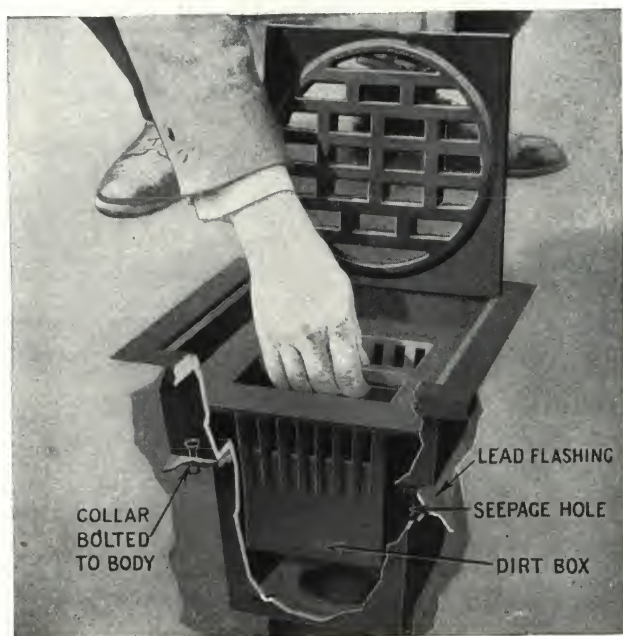
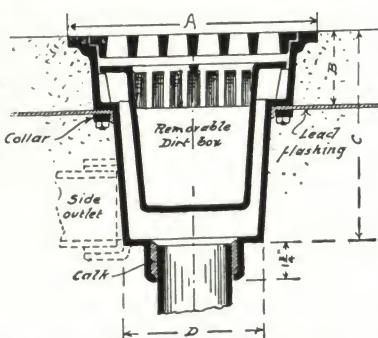
A large number of these drains are used in the Wawa Dairy Farms, Wawa, Pennsylvania.

Specification

Furnish and install as shown on plans Covert Anti-clog Drains with removable dirt boxes [with] [without] lead flashings with [side] [bottom] outlet, made by THE H. W. COVERT COMPANY, 229 East 37th Street, New York, N. Y.

CROSS SECTION AND DIMENSIONS OF ANTI-CLOG DRAIN WITH REMOVABLE DIRT BOX

No.	A	B	C	D	Size outlet, in.
9	9	1¼	6	5	3
10	10	3½	8¾	6	3
12	12	3¾	10	6	3 or 4
15½	15½	3¾	9¼	8¾	4, 5 or 6
16	15½	3¾	13	8	4, 5 or 6
24	24	3¾	12½	15¼	4, 5 or 6



All Dirt Is Retained in the Dirt Box

Anti-clog Floor Drain with Removable Dirt Box



Dirt Easily Removed from Dirt Box

COMPOUND INJECTOR & SPECIALTY CO.

Manufacturers of Floor Drains and Grease Traps

LONG DISTANCE TELEPHONE 419-421 North Laramie Avenue
AUSTIN 1861, 1862 CHICAGO, ILL.

CABLE ADDRESS
"COMPOUND"

Products

GARAGE, LAUNDRY, STABLE, RESIDENCE and PUBLIC BUILDING FLOOR DRAINS; HYGIENIC and "ACME" GREASE TRAPS, with and without Water Coolers; DEHN'S AUTOMATIC WATER SOFTENING and SCALE REMOVING DEVICES.

"ACME"
FLOOR DRAINS

"KOMPOST"
BRICKS



All our TRADE-MARKS are Registered U. S. Patent Office

Section 1: It shall be unlawful to use or attach any garage, dye, cleaning or other establishment with the public sewers where

"DEEP SEAL"
FLOOR DRAINS

"PEERLESS"
WATER SOFTENER

gasoline, oils or other inflammable materials are used or stored, unless a system of mud, gas and oil basin (cast iron) is installed. Garages shall be classified

Also manufacturers of "ACME" Adjustable Floor Drains, with and without Automatic Backwater Valves; "PEERLESS" Garage Drains and "PEERLESS" Floor Drains, with and without Automatic Backwater Valves; "PEERLESS" Water Softener, "KOMPOST" Bricks, "ACME" Iron Closed-end Adjustable Closet Bends and Extensions; Iron Drum Traps, Clean-out Tees, End Ferrules, Refrigerator Drains; Blow-off, Catch and Gravel Basins; and other accessories to make a complete, perfectly sanitary plumbing drainage system.

How to Specify

Architects and Engineers should refer to figure number, size, outlets and the letter designation for the finish desired, when specifying the articles of our manufacture.

Sanitary Safeguards

Architects, sanitary engineers and contractors will safeguard the health and property of their clients by specifying this company's sanitary devices. As the trade-names "ACME" and "PEERLESS" imply, they are unexcelled in design and operation. They are durable in make and in every way reliable; no other devices on the market may be substituted without risk for this company's line as being "equally as good." The essential parts of these devices are patented.

This company manufactures the largest and most complete line of sanitary plumbing drainage specialties in the United States.

Garage Floor Drains

The following regulations governing drainage from garages and other establishments, where gasoline, oils or other inflammable materials are used or stored, have been adopted by a great many cities throughout the United States:

Garage floor drains (cast iron) shall be installed to avoid explosions, choked sewers, prevent accidents from formation of gases, and other complaints and nuisances common in automobile garages and other establishments.

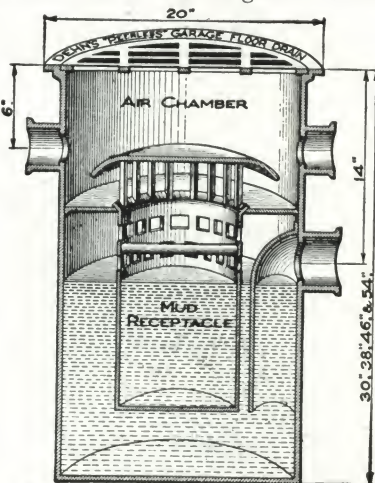


Fig. 62. Dehn's "Peerless" Garage Floor Drain (Patented)

"A," Class "B," Class "C," Class "D," Class "E" and Class "F." Other establishments shall be classified according to the construction, size of the building, and number of persons employed on the premises.

Schedule of Capacity—The following schedule of capacities of "PEERLESS" Garage Floor Drains must be according to the following specifications here described and referred to as authority:

Every garage housing automobiles, hereafter constructed in the city of —, shall install a system of drainage basin (cast iron) to be provided with a removable receptacle (cast iron) inside of the basin to receive the mud and other material washed into the basin. The basin must be provided with an air chamber in the receiver, with a separate compartment constructed in such a manner that the direct discharge of water and other material can not come in direct contact with the fluid in the basin. The inlet of the receptacle in the basin must be provided with a guard (cast iron), having a solid top of sufficient size to entirely conceal the opening of the receptacle when discharging water or other material into the basin. The air chamber compartment must be provided with one 2-in. and one 4-in. vent hub connection. Top of basin to be provided with bar grate (cast iron). One 2-in. and one 4-in. vent stack must be connected with the air chamber. The 2-in. vent stack must be extended outside of the building at least 8 ft. from the lot level, and the 4-in. vent stack must be extended through the roof.

Class "A"—Where not more than one automobile is housed, one 12-in. diameter of top and 14 in. deep "PEERLESS" Garage Floor Drain shall be installed.

Class "B"—Where more than one and less than five automobiles are housed, one 15 in. diameter of top and 22 in. deep "PEERLESS" Garage Floor Drain shall be installed.

Class "C"—Where from five to ten automobiles are housed, one 20 in. diameter of top and 30 in. deep "PEERLESS" Garage Floor Drain shall be installed.

Class "D"—Where from ten to twenty-five automobiles are housed, one 20 in. diameter of top and not less than 38 in. deep "PEERLESS" Garage Floor Drain shall be installed.

Class "E"—Where from twenty-five to fifty automobiles are housed, two 20 in. diameter of top and not less than 38 in. deep "PEERLESS" Garage Floor Drains shall be installed.

Class "F"—Other establishments shall be classified by the Fire Prevention Board according to the construction and size of the building and number of persons employed on the premises, and such drainage shall be installed as may be approved by one in authority.

FIG. 62. DIMENSIONS AND PRICES, GARAGE FLOOR DRAINS

Diameter of top,.....in.	20	20	20	20
Waste outlet,.....in.	4	4	4	4
Depth over all,.....in.	30	38	46	54
Two vent hub connections,.....	One 2 in., one 4 in.			
Approximate weight,.....lbs.	400	500	600	700
Price, iron top and strainer,.....each	\$75.00	95.00	110.00	125.00

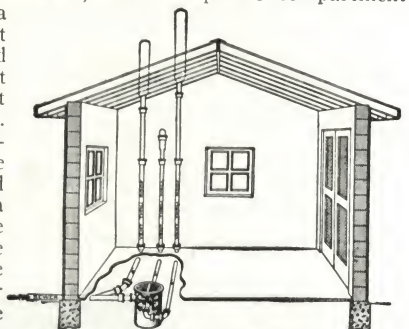


Fig. 62. (Patented) Showing Installation of Dehn's "Peerless" Garage Drainage System

Dehn's "Acme" Grease Traps

Designed to keep the water in the basin at a low temperature. By connecting the cold water supply pipe leading to the kitchen sink, range boiler and other fixtures with the water jacket in the basin, the water in the basin will be continually chilled to a very low temperature.

As soon as the greasy water enters the basin, the grease congeals and floats to the top of the water. The grease can be very easily removed by any one. The handhole is provided with a malleable iron saddle and heavy thumbscrew.

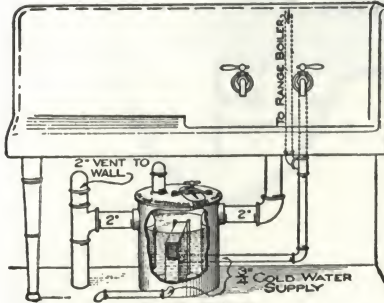


FIG. 113, PATENTED
Dehn's "Acme" Grease Trap Properly Installed in Kitchen

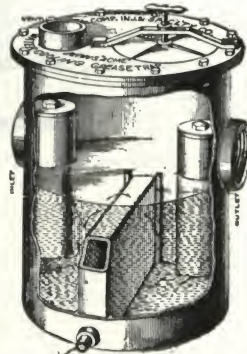


Fig. 113. Dehn's "Acme" Double Trapped Water Cooling Grease Trap (Patented)

Schedule of Capacity—The following schedule of capacity applies to Dehn's "Acme" Water Cooling Grease Traps when installed in residences, restaurants, hotels, boarding houses, large and public institutions.

No. 15-1—12 in. diameter of top, 15 in. deep, double trapped water cooling grease trap will fill the requirements when supplying from 1 to 25 people with 3 meals each day.

No. 18-1—12 in. diameter of top, 18 in. deep, double trapped water cooling grease trap will fill the requirements when supplying from 1 to 35 people with 3 meals each day.

No. 24-1—20 in. diameter of top, 24 in. deep, double trapped water cooling grease trap will fill the requirements when supplying from 1 to 150 people with 3 meals each day.

No. 30-1—20 in. diameter of top, 30 in. deep, double trapped water cooling grease trap will fill the requirements when supplying from 1 to 100 people with 3 meals each day.

No. 36-1—20 in. diameter of top, 36 in. deep, double trapped water cooling grease trap will fill the requirements when supplying from 1 to 150 people with 3 meals each day.

No. 24-2—24 in. diameter of top, 24 in. deep, double trapped water cooling grease trap will fill the requirements when supplying from 1 to 100 people with 3 meals each day.

No. 30-2—24 in. diameter of top, 30 in. deep, double trapped water cooling grease trap will fill the requirements when supplying from 1 to 150 people with 3 meals each day.

No. 36-2—24 in. diameter at top, 36 in. deep, double trapped water cooling grease trap will fill the requirements when supplying from 1 to 200 people with 3 meals each day.

Suggestion for Grease Trap Installation—For large institutions, it is suggested that a grease trap be installed for each individual sink, dishwasher, etc. For such installations, the minimum capacity of grease trap should be installed.

Note: Another new and improved water cooling grease trap is now under construction and will be placed on the market in the very near future.

FIG. 113. DIMENSIONS AND PRICES, GREASE TRAPS

No.	15-1	18-1	24-1	30-1	36-1	24-2	30-2	36-2
Diameter of top, in.	12	12	20	20	20	24	24	24
Depth over all, in.	15	18	24	30	36	24	30	36
Waste inlet connection, in.	2	2	4	4	4	4	4	4
Waste outlet connection, in.	2	2	4	4	4	4	4	4
Vent hub connection, in.	1½	1½	2	2	2	2	2	2
Water supply connection, in.	3-4	3-4	1	1	1	1	1	1
Price, finish A.	\$35.00	40.00	65.00	75.00	90.00	80.00	95.00	110.00

Finishes: A, painted inside and outside (price quoted above); B, enameled inside and painted outside; C, enameled outside and painted inside; D, enameled inside and outside; prices on application.

When Dehn's "Acme" Double Trapped Water Cooling Grease Traps are installed and properly connected—i. e., the main cold water supply pipe connected with the inlet of the water cooler in the grease trap and the outlet of the water cooler with the cold water supply to range boiler or storage tank, and also with all the cold water faucets on the premises, including the cold water supply pipes to the closet tanks—the installation will permit the continuous circulation of cold water through the water cooler in the grease trap; hence, the grease accumulating in the grease trap will be congealed where it can easily be removed by any one.

Not a particle of grease can find its way out of the basin through the outlet into the sewer when Dehn's "Acme" Double Trapped Water Cooling Grease Traps are installed and connected according to these directions. (See illustration.)

When the grease traps are installed in restaurants, hotels, large and public institutions, the grease should be removed from the grease trap at least three times each week.

From this it will be readily understood that the results to be obtained from the grease traps depend largely upon the plumbing contractor who has the supervision of the installation of the grease traps, and the owner whose duty it is to appoint or elect some one to give the grease traps the required attention.

Dehn's Automatic Water Softening and Scale Removing Device

Dehn's Automatic Water Softening and Scale Removing Devices will overcome the accumulation of lime, magnesia and other incrusting minerals in waterbacks, coils in ranges, furnaces and heaters, tank, laundry or automatic instantaneous heaters, boilers and wherever these difficulties are experienced.

The Compound Injector is connected to the cold water supply leading to range boiler or storage tank. This will allow the minerals separated from the water to precipitate to the bottom of range boiler or storage tank, where they can be drawn off at sediment cock. More than twenty-five years in universal use. For every type of installation.

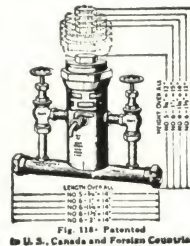
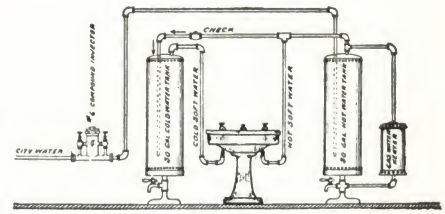


Fig. 114. Patented
in U. S., Canada and Foreign Countries



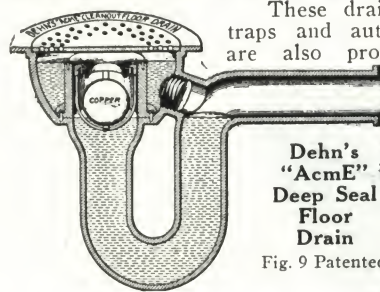
Beauty and Tonsorial Parlor Hot and Cold Soft Water Installation
Plate 20 Copyright

No. 5—¾ in.	each	\$20.00
No. 6—1 in.	each	25.00
No. 6—1¼ in.	each	30.00
No. 6—1½ in.	each	35.00
No. 6—2 in.	each	40.00
Kompost bricks for No. 5.	dozen	6.00
Kompost bricks for No. 6.	dozen	9.00

Instructions for installation for various conditions sent on application. For large institutions where a large volume of water is consumed daily; for general, domestic or high pressure steam purposes, where the water supply pipes are larger than 2 in. and it is desired to neutralize the water; in such institutions, it is recommended to install the Compound Injectors in batteries on the by-pass principle, similar to plate 15, as illustrated.

The water can be used for the same purposes after these devices are installed as it was before.

Dehn's "Acme" Deep Seal Floor Drains



Dehn's
"Acme"
Deep Seal
Floor
Drain
Fig. 9 Patented

These drains, with continuous pipe traps and automatic backwater valves, are also provided with large brass taper-threaded clean-out plugs and seamless metal ball floats.

These floats prevent flooding of cellars; can not get down into trap outlets and become air-bound, and can be easily removed with cage by unscrewing the four brass screws.

DIMENSIONS AND PRICES, DEEP SEAL FLOOR DRAINS WITH AUTOMATIC BACKWATER VALVE AND CLEANOUT, FIG. 9

Size of outlet, in.	Depth of water seal, in.	Diameter of top, in.	Depth over all, in.	Length over all, in.	Receiver above outlet of trap, in.	Average weight, lb.	Price, each		
							Finishes		
							A	B	C
							Iron top and strainer	Brass top and strainer	N. P. brass top and strainer
2	4	9	11	18	2	30	\$ 7.50	\$13.50	\$15.50
3	4	10	13	20	2	40	10.00	17.00	19.00
4	4	12	15	22	2	65	14.00	22.00	25.00

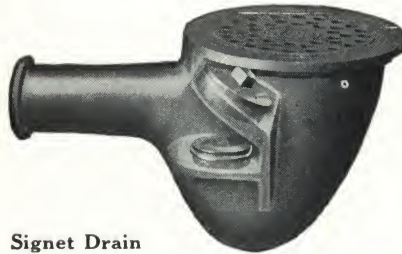
CRAMPTON-FARLEY BRASS CO.

Manufacturers of Plumbers' Specialties

KANSAS CITY, MO.

Products

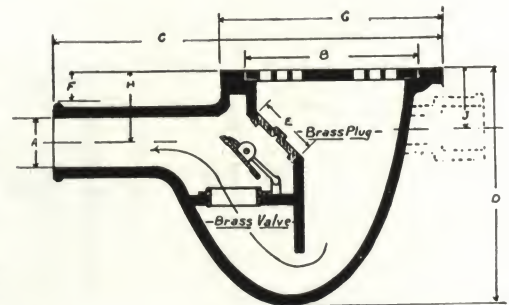
FLOOR, SHOWER, URINAL and AREAWAY DRAINS.

**Signet Drain****Signet Drains**

Signet floor drains have heavy cast iron bodies with clean-out opening affording easy access to valve and sewer. They are equipped with cast brass backwater valves, which work automatically by gravity. The valves being submerged, work easily, the grease, lint, etc., come to the surface, insuring a clean seat and a positive seal.

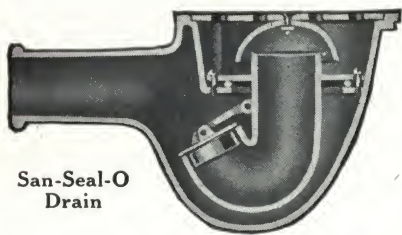
These drains are a positive insurance against backwater or sewer gas, wet or dry. Now furnished with brass clean-out plug.

Chromium plated brass tops at extra cost.

**LIST PRICES AND DIMENSIONS, SIGNET DRAINS**

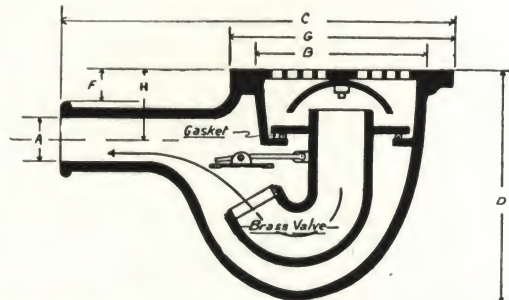
No.	Weight, lb.	Style outlet	Back inlet, in.	A in.	B in.	C in.	D in.	E in. I. P.	F in.	G in.	H in.	J in.	Iron top	Polished brass top
2	20	S. P.		2	6 $\frac{5}{8}$	13 $\frac{3}{8}$	7 $\frac{3}{4}$	2 $\frac{1}{2}$	1 $\frac{5}{16}$	7 $\frac{3}{4}$	2 $\frac{1}{16}$		\$ 6.00	\$ 8.50
3	50	S. P.		3	11 $\frac{3}{8}$	21 $\frac{1}{2}$	12	3 $\frac{1}{4}$	2	13	4		13.00	19.00
4	65	S. P.		4	13	24 $\frac{1}{4}$	14	4	2	14 $\frac{3}{4}$	4 $\frac{3}{8}$		18.00	28.00
D-2	19	I. P.		2	6 $\frac{5}{8}$	11 $\frac{3}{8}$	7 $\frac{3}{4}$	2 $\frac{1}{2}$	1	7 $\frac{3}{4}$	2 $\frac{1}{2}$		6.50	9.00
D-2-R	22	I. P.	1 $\frac{1}{2}$ I. P.	2	6 $\frac{5}{8}$	11 $\frac{3}{8}$	7 $\frac{3}{4}$	2 $\frac{1}{2}$	1	7 $\frac{3}{4}$	2 $\frac{1}{2}$	1 $\frac{3}{4}$	7.50	10.00
2-R	22	S. P.	1 $\frac{1}{2}$ I. P.	2	6 $\frac{5}{8}$	13 $\frac{3}{8}$	7 $\frac{3}{4}$	2 $\frac{1}{2}$	1 $\frac{5}{16}$	7 $\frac{3}{4}$	2 $\frac{1}{16}$	1 $\frac{3}{8}$	7.00	9.50
3-H	55	S. P.	2 S. P.	3	11 $\frac{3}{8}$	21 $\frac{1}{2}$	12	3 $\frac{1}{4}$	2	13	4	2 $\frac{3}{4}$	14.00	20.00
4-H	70	S. P.	2 S. P.	4	13	24 $\frac{1}{4}$	14	4	2	14 $\frac{3}{4}$	4 $\frac{3}{8}$	2 $\frac{3}{4}$	19.00	29.00

For extra heavy iron strainers, add to list as follows: 2 in., \$1.00; 3 in., \$2.00; 4 in., \$2.50.
For nickelplated brass tops, add to list as follows: 2 in., \$0.50; 3 in., \$0.70; 4 in., \$0.80.

**San-Seal-O Drain****San-Seal-O Drains**

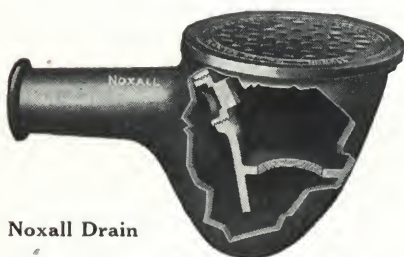
Drains have heavy cast iron parts, and are made with brass backwater valves and also (plain) without valves. Unless definitely specified, we ship drains with valves. Body of drain is made in one piece with flange on inside to support the J-shaped inner, which is held in place by 4 brass screws. A rubber cord gasket forms the joint. Access to valve and sewer is obtained by removing the J-shaped inner.

Chromium plated brass tops at extra cost.

**LIST PRICES AND DIMENSIONS, SAN-SEAL-O FLOOR DRAINS**

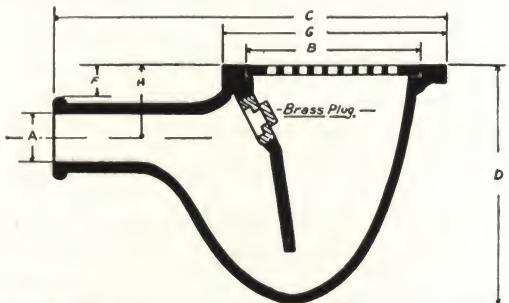
No.	Weight, lb.	Style outlet	A in.	B in.	C in.	D in.	F in.	G in.	H in.	Back water trap drains		Plain drains	
										Iron top	Polished brass top	Iron top	Polished brass top
0	22	I. P.	1 $\frac{1}{2}$	6 $\frac{5}{8}$	11 $\frac{3}{8}$	8 $\frac{1}{2}$	1 $\frac{1}{2}$	7 $\frac{3}{4}$	2 $\frac{1}{2}$	\$ 6.25	\$ 8.75	\$ 4.00	\$ 6.50
00	24	I. P.	2	6 $\frac{5}{8}$	11 $\frac{3}{8}$	8 $\frac{1}{2}$	1	7 $\frac{3}{4}$	2 $\frac{1}{2}$	6.50	9.00	4.25	6.75
1	24	S. P.	2	6 $\frac{5}{8}$	13 $\frac{1}{2}$	8 $\frac{1}{2}$	1 $\frac{1}{4}$	7 $\frac{3}{4}$	2 $\frac{1}{2}$	6.00	8.50	3.75	6.25
2	35	S. P.	2	9 $\frac{3}{8}$	18 $\frac{3}{8}$	8 $\frac{1}{2}$	1 $\frac{1}{4}$	10 $\frac{3}{8}$	2 $\frac{1}{2}$	8.00	13.00	5.00	10.00
3	60	S. P.	3	11 $\frac{3}{8}$	21 $\frac{1}{2}$	12	2	13	4	13.00	19.00	9.00	15.00
4	85	S. P.	4	13	24	14 $\frac{1}{2}$	1 $\frac{1}{8}$	14 $\frac{1}{2}$	3 $\frac{1}{2}$	18.00	28.00	13.00	23.50

For extra heavy iron strainers, add to list as follows: Nos. 0, 00 and 1, \$1.00; No. 2, \$1.50; No. 3, \$2.00; No. 4, \$2.50.
For nickelplated brass tops, add to list as follows: Nos. 0, 00 and 1, \$0.50; No. 2, \$0.60; No. 3, \$0.70; No. 4, \$0.80.

**Noxall Drain****Noxall Drains**

Noxall floor drains are made of heavy cast iron with 2-in. brass cleanout plug, very compact, and have large water seal and high outlet.

Chromium plated brass tops at extra cost.

**LIST PRICES AND DIMENSIONS, NOXALL DRAINS**

No.	Weight, lb.	Style outlet	Back inlet, in.	A in.	B in.	C in.	D in.	F in.	G in.	H in.	Iron top	Polished brass top
2	16	S. P.		2	6 $\frac{5}{8}$	13 $\frac{3}{8}$	7 $\frac{3}{4}$	1 $\frac{1}{8}$	7 $\frac{3}{4}$	2 $\frac{1}{2}$	\$2.25	\$ 5.00
3	35	S. P.		3	10 $\frac{1}{8}$	20	11 $\frac{1}{2}$	2	11 $\frac{3}{8}$	4	6.00	12.00
4	45	S. P.		4	11 $\frac{3}{8}$	21 $\frac{1}{2}$	13 $\frac{1}{2}$	2	13	4 $\frac{3}{8}$	8.00	16.00
*2-A	16	S. P.		2	6 $\frac{5}{8}$	13 $\frac{3}{8}$	7 $\frac{3}{4}$	1 $\frac{1}{8}$	7 $\frac{3}{4}$	2 $\frac{1}{2}$	2.25	5.00
D-2	16	I. P.		2	6 $\frac{5}{8}$	11 $\frac{3}{8}$	7 $\frac{3}{4}$	1	7 $\frac{3}{4}$	2 $\frac{1}{2}$	2.75	5.50
2-R	16	S. P.	1 $\frac{1}{2}$ I. P.	2	6 $\frac{5}{8}$	13 $\frac{3}{8}$	7 $\frac{3}{4}$	1 $\frac{1}{8}$	7 $\frac{3}{4}$	2 $\frac{1}{2}$	2.75	5.50

*For No. 2 tapped for 2-in. test plug, specify No. 2-A.

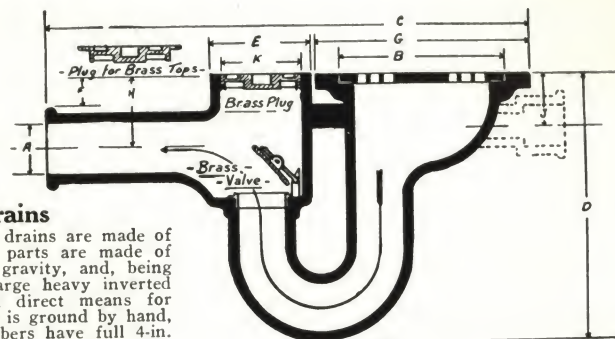
For extra heavy iron strainers add to list as follows: 2 in., \$1.00; 3 in., \$1.50; 4 in., \$2.00.

For nickelplated brass tops, add to list as follows: 2 in., \$0.50; 3 in., \$0.70; 4 in., \$0.80.



Gateway Drain

Patent applied for



Gateway Drains

All parts of gateway floor drains are made of heavy cast metal. The valve parts are made of brass, work automatically by gravity, and, being submerged, work easily. A large heavy inverted brass plug affords quick and direct means for cleaning out. Backwater valve is ground by hand, making perfect seal. All numbers have full 4-in. seal. Chromium plated brass tops at extra cost.

LIST PRICES AND DIMENSIONS, GATEWAY DRAINS

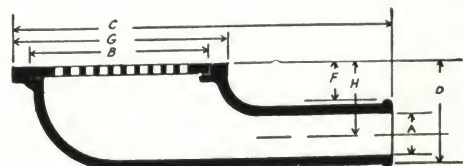
No.	Weight, lb.	Style outlet	Back inlet, in.	A in.	B in.	C in.	D in.	E in.	F in.	G in.	H in.	J in.	K in.	Iron top	Polished brass top
2	22	S. P.		2	6 $\frac{5}{8}$	17 $\frac{1}{2}$	10 $\frac{3}{16}$	4 $\frac{1}{2}$	1 $\frac{1}{2}$	7 $\frac{7}{8}$	2 $\frac{7}{8}$		3 $\frac{1}{4}$	\$ 7.50	\$10.00
3	55	S. P.		3	9 $\frac{5}{8}$	24 $\frac{5}{8}$	13	5 $\frac{1}{2}$	2 $\frac{1}{16}$	10 $\frac{5}{8}$	3 $\frac{13}{16}$		3 $\frac{3}{4}$	14.20	21.00
4	65	S. P.		4	11 $\frac{1}{2}$	28	14 $\frac{1}{2}$	6 $\frac{3}{8}$	2	13	4 $\frac{5}{8}$		4	19.30	31.00
D-2	22	I. P.		2	6 $\frac{5}{8}$	15 $\frac{5}{8}$	10 $\frac{3}{16}$	4 $\frac{1}{2}$	1 $\frac{1}{2}$	7 $\frac{7}{8}$	2 $\frac{7}{8}$		3 $\frac{1}{4}$	8.00	10.50
2-R	24	S. P.	1 $\frac{1}{2}$ I. P.	2	6 $\frac{5}{8}$	17 $\frac{1}{2}$	10 $\frac{3}{16}$	4 $\frac{1}{2}$	1 $\frac{1}{2}$	7 $\frac{7}{8}$	2 $\frac{7}{8}$	1 $\frac{15}{16}$	3 $\frac{1}{4}$	8.50	11.00
3-H	60	S. P.	2 S. P.	3	9 $\frac{5}{8}$	24 $\frac{5}{8}$	13	5 $\frac{1}{2}$	2 $\frac{1}{16}$	10 $\frac{5}{8}$	3 $\frac{13}{16}$	2 $\frac{7}{8}$	3 $\frac{3}{4}$	15.20	22.00
4-H	70	S. P.	2 S. P.	4	11 $\frac{1}{2}$	28	14 $\frac{1}{2}$	6 $\frac{3}{8}$	2	13	4 $\frac{5}{8}$	2 $\frac{7}{8}$	4	20.30	32.00

For extra heavy iron strainers, add to list as follows: 2 in., \$1.00; 3 in., \$2.00; 4 in., \$2.50.
For nickelplated brass tops, add to list as follows: 2 in., \$0.60; 3 in., \$0.70; 4 in., \$0.80.
Flanged c.o. plugs are furnished when ordering drains with brass tops.



K. C. Areaway Drains

Areaway drains are designed to take care of a demand for a drain without a water seal to be used in areaways, garages and other places where water would normally freeze. The parts are of heavy cast iron. Chromium plated brass tops at extra cost.

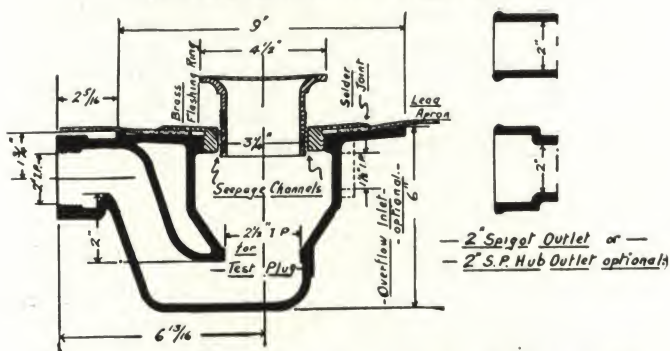


LIST PRICES AND DIMENSIONS, K. C. AREAWAY DRAINS

No.	Weight, lb.	Style outlet	A in.	B in.	C in.	D in.	F in.	G in.	H in.	Iron top	Polished brass top
2	11	S. P.	2	6 $\frac{5}{8}$	14 $\frac{1}{2}$	4	1 $\frac{1}{2}$	7 $\frac{7}{8}$	2 $\frac{7}{8}$	\$1.50	\$4.25
3	20	S. P.	3	9 $\frac{5}{8}$	18	5	1 $\frac{3}{4}$	10 $\frac{3}{4}$	3 $\frac{5}{8}$	3.75	9.00
4	35	S. P.	4	11 $\frac{1}{2}$	21	7	3 $\frac{3}{8}$	13	5 $\frac{1}{2}$	6.00	13.00

For nickelplated brass tops, add to list as follows: No. 2, \$0.50; No. 3, \$0.60; No. 4, \$0.80.

Minoka Shower or Urinal Drain



Minoka Shower Drains can be furnished with overflow inlet. Head adjustment, 1 $\frac{1}{4}$ to 2 $\frac{3}{4}$ in. Weight, 17 lb.

No.	With nickelplated brass tops (double seepage)	List price
90	With flashing ring	\$10.30
91	Without flashing ring (plain)	8.80
90-8	With flashing ring and back inlet	11.30
91-8	Without flashing ring and with back inlet	9.80

For chromium plated tops, add to list \$0.60.

For 2-in. spigot or 2-in. s.p. hub attachment, add to list \$0.60.

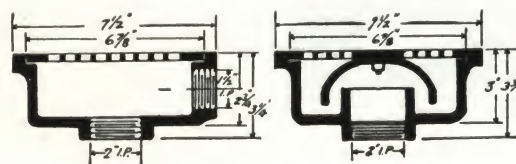
Made in 2-in. size. Can furnish 1 $\frac{1}{2}$ -in. I. P. bushing at no extra cost.

No. 60 Areaway Drains

Weight, lb.	Iron top	Polished brass top
8	\$2.00	\$4.50

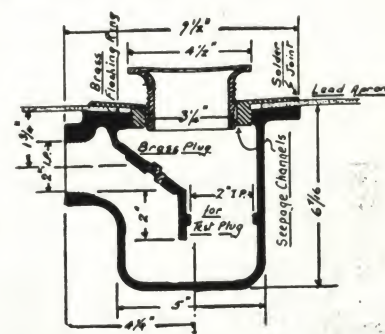
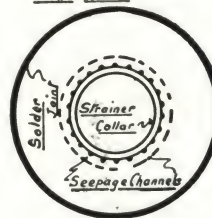
For nickelplated brass tops, add to list \$0.50.

Chromium plated brass tops at extra cost.



Noxall Shower or Urinal Drain

Sectional View of Flashing Ring and Double Seepage Feature for Noxall and Minoka Shower Drains



Noxall Shower Drains are provided with brass clean-out plug. Head adjustment, 1 to 2 $\frac{1}{8}$ in. Weight, 14 lb.

No.	With nickelplated brass tops (double seepage)	List price
39	With flashing ring	\$8.00
39-A	Without flashing ring (plain)	6.50

For chromium plated tops, add to list \$0.60.

For 2-in. spigot or 2-in. s.p. hub attachment add to list \$0.60.

No. 61 Bell Trap

Weight, lb.	Iron top	Polished brass top
11	\$2.00	\$4.50

For nickelplated brass tops, add to list \$0.50.

Chromium plated brass tops at extra cost.

JOHN J. DONOVAN

Manufacturers of Plumbing Specialties

22 Church Street, BOSTON 11, MASS.

SOLD BY ALL DEALERS IN PLUMBING MATERIAL

CABLE ADDRESS
"DONOVAN BOSTON"

Products

"ECLIPSE" FLOOR DRAIN TRAP, REMOVABLE SAND CHAMBER and BACKWATER VALVE; DONOVAN GREASE TRAP; DONOVAN SELF-REGULATING SIDE STREAM BUBBLE DRINKING FOUNTAIN.

Also Non-siphon Trap.

Experience

Many years' experience as practical plumbers, fifteen of which John J. Donovan was inspector for the city of Boston, warrants the assumption that we are conversant with the best practice in plumbing construction. To maintain such a reputation, we present only products of lasting quality, suitable for the different purposes for which they are designed. Conforming to the most exacting code, their cost is ultimately cheaper than many made for the purpose but constructed to meet the lowest competitive price without regard to quality or efficiency.

"Eclipse" Floor Drain Trap, Removable Sand Chamber, and with or without Backwater Valve

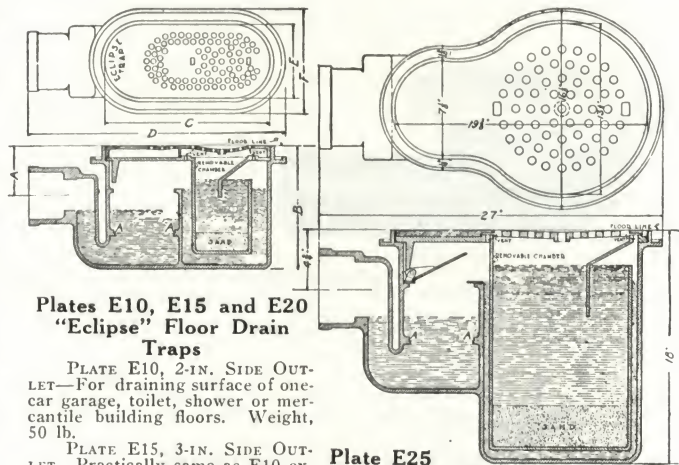
These features all embodied in one casting. Only one opening required in the floor. The "Eclipse" floor drain trap relieves surface quickly and prevents sand or sediment from entering and clogging drainage system. It retains all heavy matter in a removable chamber, easily emptied. A valve operated by inner chamber is always furnished on E20 and E25 traps. This compels immediate return of inner chamber when it has been removed for cleaning. Traps furnished in plain cast iron. Strainers regularly furnished in iron, or, when specified, in polished or nickelplated brass. To prevent breakage of strainers where heavy trucks pass over them a special steel strainer can be furnished when specified.

Satisfaction—A pleased client is your reward for having specified material which has stood the test of time.

Why experiment with floor drain traps which, when not satisfactory, must be removed from concrete, causing dissatisfaction and expense?

The "Eclipse" floor drain trap and sand arrester, with or without a backwater valve, after the severest test in the past ten years, can be depended upon to accomplish all that is claimed for it in draining floors in garages, powerhouses, boiler rooms, laundries, creameries, kitchens, showers, school toilet rooms and mercantile buildings of all kinds.

How to Specify—Floor drain traps to be "Eclipse" Plate No. E (insert number) with iron [polished brass] [nickel-plated brass] strainer and with [without] backwater valve, as manufactured by JOHN J. DONOVAN, Plumbing Specialties, Boston 11, Mass.



Plates E10, E15 and E20
"Eclipse" Floor Drain Traps

PLATE E10, 2-IN. SIDE OUTLET—For draining surface of one-car garage, toilet, shower or mercantile building floors. Weight, 50 lb.

PLATE E15, 3-IN. SIDE OUTLET—Practically same as E10 except that it has 3-in. outlet to conform to codes requiring this size. Weight, 55 lb.

PLATE E20, SPECIAL, 3-IN. SIDE OUTLET—Intended for garages where not more than 5 cars are housed and washed. Weight, 80 lb.

Plate E25
"Eclipse" Floor Drain Trap

Has 4-in. side outlet. The most practical for garages of any size, but more particularly for those having washstands in almost continuous use; also for boiler room, dairy and laundry floors or wherever much sand or sediment is anticipated. Weight, 225 lb.

"ECLIPSE" PLATES E10, E15 AND E20 FLOOR DRAIN TRAPS

Plate	Dimensions, in.						
	Outlet	A	B	C	D	E	F
E10	2	3 1/2	8 1/4	10 1/2	13	5	7 1/4
E15	3	4	9 1/4	10 1/2	13	5	7 1/4
E20	3 Special	4 1/4	10	12		6 1/8	8 5/8

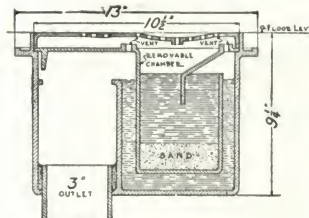
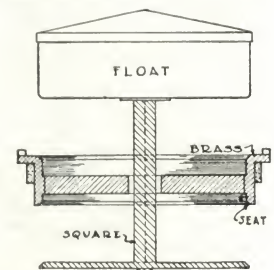


Plate E30 "Eclipse" Floor Drain
(Patented)

Has 3-in. bottom outlet. Same as E15 except that trap to exclude sewer gas is omitted. If trap is required it may be placed on outlet below drain. Drain is intended for draining floors into sump or open waterway where trap is not required. Its main purpose is to prevent sand or sediment from clogging drain or entering sump chamber and injuring pump or ejector. Weight, 50 lb.



Backwater Valve for "Eclipse" Traps
(Patented)

One-third actual size. Can be furnished in all traps except E30, when specified. May be placed in position at A-A after trap is installed if found necessary. Accessible by removing strainer and inner chamber



Removing to Empty

Emptying Refuse

"Eclipse" Floor Drain

The chamber comes out and the sand with it

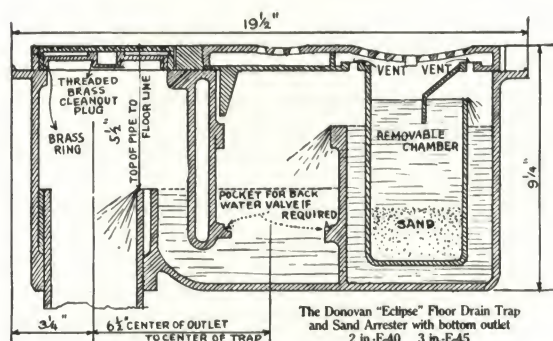
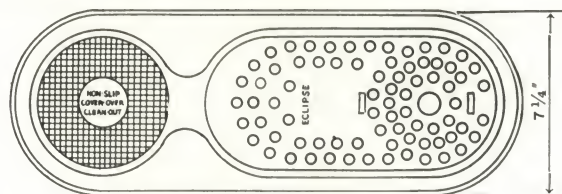


Plate E40 and E45 "Eclipse" Floor Drain with Bottom Outlet and Removable Sand Chamber

"Eclipse" with bottom outlet, including trap against sewer air, sand chamber and brass cleanout plug; backwater valve furnished also if required. These features distinguish this trap from E30 which has no trap against sewer air and is only used for special purposes as described.

It can be set in place before concrete is poured and afterwards connected to drain. This eliminates the necessity of sleeves through concrete and danger of their being displaced—it is never necessary to break out the concrete.

Two sizes: Plate E40, 2-in. bottom outlet; Plate E45, 3-in. bottom outlet

A Few of Many Thousand Installations of "Eclipse" Traps

Dennison Mfg. Co., Framingham, Mass.
Borden Mills Inc., Kingsport, Tenn.
Hood Rubber Co., Watertown, Mass.
East Coast Air Port, East Boston, Mass.
Delaware, Lackawanna & Western R. R. Warehouse, Hoboken, N. J.

U. S. Government Garages, Boston, Mass.
U. S. Government Victory Plant, Squantum, Mass.
Childs' Restaurants throughout United States
Stone & Webster Inc.:

Western Union Gas & Electric Powerhouse, Aurora, Ill.
Montaup Electric Co. Powerhouse, Fall River, Mass.
Baton Rouge Electric Powerhouse, Baton Rouge, La.
Haverhill Gas & Electric Co., Haverhill, Mass.
Virginia Electric Power Co., Norfolk, Va.
Franklin Sugar Refinery Co., Philadelphia, Pa.

City of Boston Garage, Boston, Mass.
Massachusetts Institute of Technology Garage, Cambridge, Mass.

Connecticut Railway Car House, Waterbury, Conn.
First National Stores Warehouse, Somerville, Mass.
Eliot Garage, Boston, Mass.
Platt-Woolworth Building, Scranton, Pa.
Chamber of Commerce Building, Boston, Mass.
Reardon & Woodward Service Station, Boston, Mass.
United Cigar Stores, New England
Beaumont Garage, Jamaica Plain, Mass.
Eager Garage, Boston, Mass.
Northampton High School, Northampton, Mass.
Portland Street Garage, Boston, Mass.
Boston Elevated Bus Garages, Boston and vicinity
Kendall Square Garage, Cambridge, Mass.
Harvard Medical School Animal House, Boston, Mass.
H. B. Church Co. Garage, Boston, Mass.
Pittsfield High School, Pittsfield, Mass.
American Printing Co., Fall River, Mass.
Liggett Drug Stores throughout New England
Boston Elevated R. R. Car Houses, Boston and Medford, Mass.

Hotel Bellevue, Boston, Mass.
Chamberlain Garage, Boston, Mass.
Hopkins Restaurant, Boston, Mass.
Elks Hotel, Boston, Mass.
Hupmobile Building, Boston, Mass.

Donovan Side Stream Drinking Fountain Heads (Patented)

B140 N.P. is for use where pressure fluctuates. Maintains fixed stream under varying pressures for high buildings where draft on supply from lower floors is liable to reduce pressure. Maintains same drinking



Plate B140 Donovan Self-regulating Side Stream Drinking Fountain Head

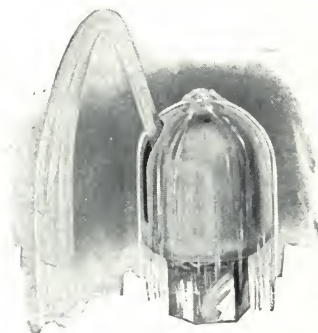


Plate B135 Donovan Side Stream Drinking Fountain Head (Not Self-regulating)

stream with pressure reduced from 100 to 5 lb. For $\frac{3}{8}$ -in. iron pipe size.

B135 N.P. fountain head is for use where there is only slight fluctuation in pressure. Used by school commission, city of Boston, Mass., and many cities and towns in the United States. Bubbler and connections regularly furnished in nickelplated brass. Chromium plate when specified. For $\frac{3}{8}$ -in. iron size pipe.

Donovan Combination Drinking Fountain

B155 is a combination drinking fountain and self-closing basin cock. Can be furnished with either B135 or B140 fountain heads and may be attached to any lavatory. Desirable in office buildings, gasoline service stations, etc.

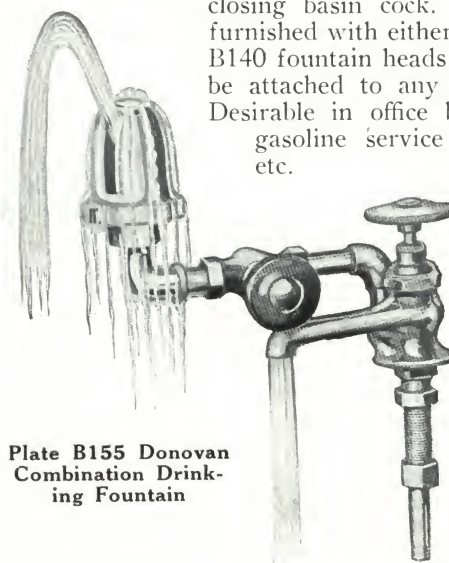


Plate B155 Donovan Combination Drinking Fountain

Donovan Grease Trap with Water Sealed Cover and Baffle Plates

Size, 12x12x10 in. with two 2-in. inlets and 2-in. outlet. Plate G10, made in cast iron, painted black. Floor to center of outlet, 9 1/2 in. Prevents grease, plaster of paris from dental laboratories, sand from optical grinding, and hair from passing into drain. Water sealed cover prevents the odor of grease escaping into building.



Plate G10 Grease Trap—Two Inlets

THE R. V. HARTY COMPANY

Manufacturers of Harco Premium Roof Sumps

1316 Maple Street
DETROIT, MICH.

Harco Premier Roof Sump

The Harco Premier Roof Sump is not the result of a sudden inspiration but the result of many years of experience with all the various kinds of roof drainage devices and careful study of their construction, their applicability to flat or pitched roofs, roof construction, roofing materials, flashings and how they function when subjected to flood conditions, refuse deposits, extreme temperatures, and particularly freezing conditions.

The Harco Premier Roof Sump was designed to meet all of these conditions and all these requirements and still maintain a rugged construction and low installation cost. It is fundamentally different from an ordinary sump with the perforated, smooth surfaces, domes and strainers, through which the water must trickle instead of flow.

Construction

The superstructure of the Harco Premier Roof Sump is composed of high-speed openings; the capacity of which is many times that sufficient for a full conductor pipe load under a siphon action.

A roof conductor delivers a maximum capacity of water only under a siphon action produced by the suction of a full or solid conductor load. The capacity of the high-speed openings, the spacious base bowl, and the non-stoppage features of the Harco Premier Sump produce and guarantee this action.

Flood and cloud-burst roof loads demand maximum conductor loads for relief guaranteed by the Harco Premier Sump. The failure of the ordinary trickle type roof sump is obvious during such periods of emergency.

Outstanding Features

Elimination of expensive copper flashing and lead calking, which usually results in humps and ridges around the sump.

No bolts to crack or break casting.

Easily and quickly installed and absolutely permanent.

Top or cover always removable for cleaning.

Top can be covered with overhanging steel plate, when the roof is subjected to heavy deposits of sand or cinders, as in foundries.

Sump sets down below the level of the surrounding roof surface, without the usual flashing and calking hump, thereby being adaptable to flat or level roofs.

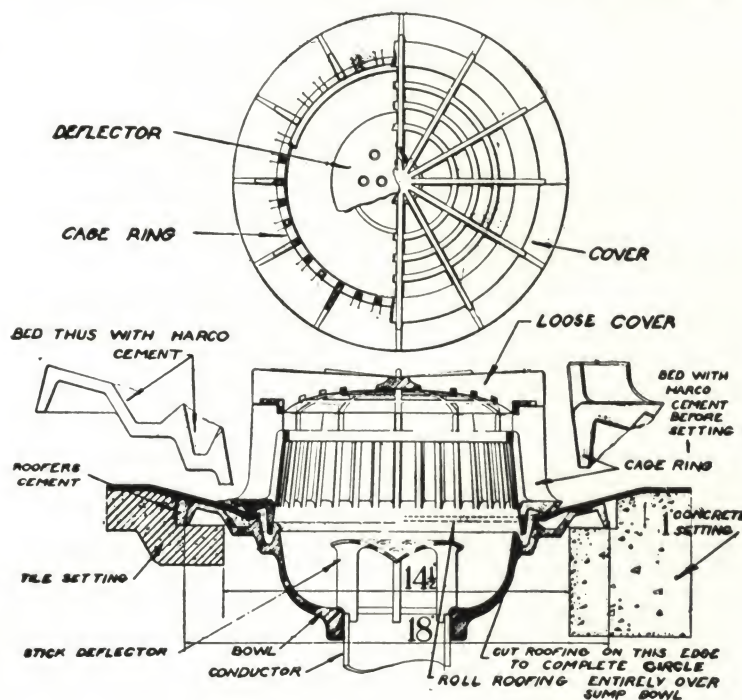
Shallow self-cleaning bowl will not collect and hold the dirt, which should be washed down with the flow of the water.

Sump bowl, due to its special design, is crackproof even when frozen solid.

Maximum ceiling clearance, due to shallowness of bowl.

Sump bowl can be set in place or can be set in roof depression and connected, before any roofing is laid, thereby allowing the building to become floor-free sooner than with other sumps.

Roofing material can be laid later without disturbing the sump.



Short Specifications

At all points marked "roof sump" on plans, furnish and install Harco Premier Roof Sumps of sizes shown. Sumps shall be set using Harco Everlasting Plastic Cement as supplied with the sump and as directed by the manufacturer.

How to Install Harco Premier Roof Sumps

Prepare opening in the roof. Drop in the sump and connect to the conductor.

(Your roof is now floodtight.) No waiting for a layer of roofing, which is necessary, under all copper flashed sumps. Fill groove of bowl with Harco Elastic Cement. (Furnished with sump.) Lay roofing, regardless of sump location, over the entire roof. Cut hole in virgin sheet, at each sump. Set the cage ring (grooves of which have been filled with Harco Elastic Cement) in the corrugation of bowl. Place the deflector and top.

Harco Elastic Cement is the highest grade of cement on the market and is made from non-drying fish and linseed oil with an asbestos fibre and will immediately stand a tremendous head of water and will outlast any type of roofing material.

OPENING FLOW AREA OF HARCO PREMIER ROOF SUMPS

Conductor size, in.	Conductor area, sq. in.	Sump inlet area, sq. in.	Inlet area capacity over conductor capacity, times
3	7.068	112.00	15.8
4	12.566	112.00	8.9
5	19.635	112.00	5.5
6	28.274	112.00	3.0
8	50.265	112.00	2.2

THE R. C. MAHON COMPANY

Manufacturers of Cast Iron Roof Sumps

DETROIT, MICH.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

Products

MAHON CAST IRON ROOF SUMPS.

For Mahon Permanent Steel Floor Forms, Steel Roof Deck, Kalamein and Tin Clad Doors and Rolling Steel Doors, see page numbers in Manufacturers' Index.



Mahon Cast Iron Roof Sumps

The Mahon Cast Iron Roof Sump has been designed for absolute weathertightness, permanence, and greatest ease of installation. It is the result of many years of roofing experience, and is thoroughly practical to meet the need for a permanent, economical roof drain.

Manufactured in durable cast iron, the Mahon Sump is free from springs, bolts or loose rings and requires no elastic cement or solder for installation. The dome strainer locks in place by a simple turn and may be easily removed without disturbing either the sump or surrounding roofing. The sump bowl is fitted permanently into the roof deck and a copper apron, furnished with or without gravel stop, is calked into a raglet in the sump casting provided for the purpose. When used on gravel top roofs this gravel stop and the extremely narrow openings in the side of the dome strainer, provide a double protection for the drain.

Connection to the conductor pipe is made by means of threaded joint which is a standard pipe thread and

makes a perfect watertight connection.

Mahon Sumps never cause water to back up or lie on the roof—the strainer openings being equal to three times the area of the conductor pipe for which the sump is tapped. Mahon Cast Iron Sumps may be furnished tapped to fit 3, 4, 5 or 6-in. standard wrought iron pipe thread. Quantity production on this product permits an unusually low price.

Outstanding Features

(1) Sump is available tapped to fit either 3, 4, 5 or 6-in. standard wrought iron pipe. If cast iron conductors are used, a short piece of wrought iron pipe is screwed into the sump and calked into the hub of the cast iron pipe.

(2) A 16-oz. copper apron with or without gravel stop is furnished to be calked into a circular raglet in the sump bowl with lead, thereby making a perfect watertight connection with roofing material.

(3) Dome strainer may be removed without disturbing sump bowl or surrounding roofing.

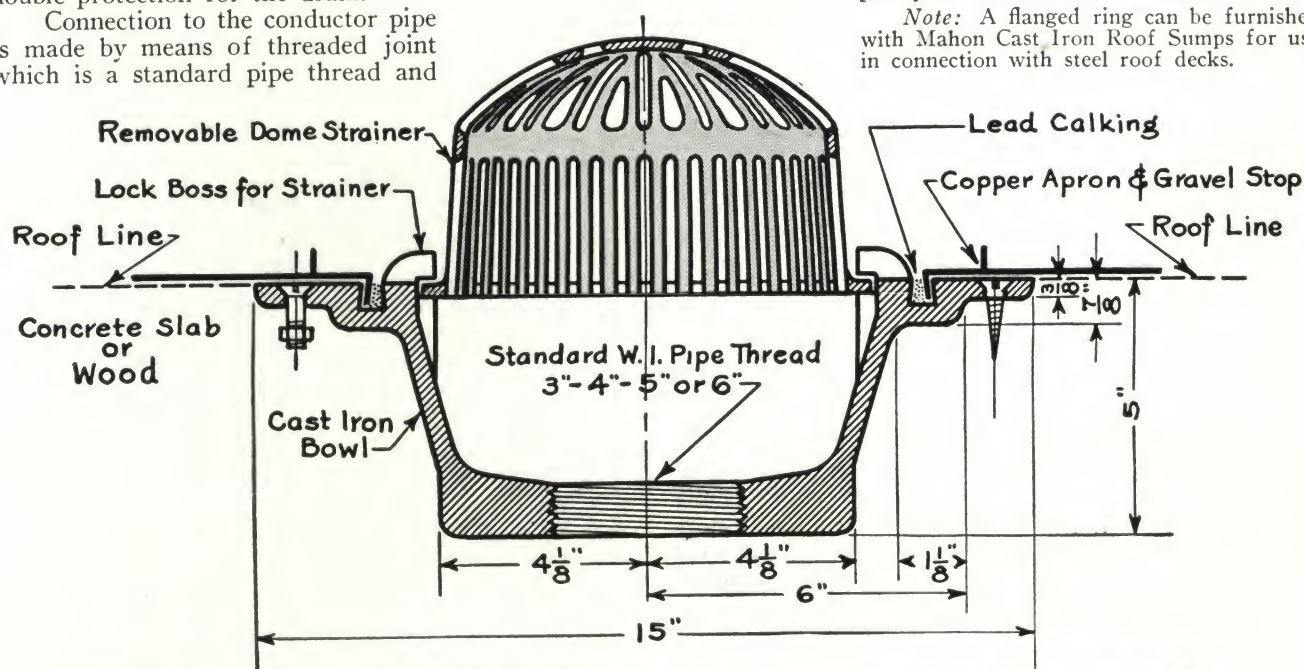
A simple turn engages four cast iron lugs which lock the dome strainer securely in place.

(4) Openings in dome strainer are equal to three times the area of the conductor pipe, insuring full capacity of the drain at all times.

Note: A flanged ring can be furnished with Mahon Cast Iron Roof Sumps for use in connection with steel roof decks.



Mahon Cast Iron Roof Sump



Cross Section of Mahon Cast Iron Roof Sump Showing Dome Locking Feature and Installation Data

JOSAM MANUFACTURING CO.

Manufacturers of Josam Floor and Roof Drains, Josam-Marsh Interceptors, Josam Swimming Pool Equipment and Other Josam Products

MAIN SALES OFFICE
4900 Euclid Building
CLEVELAND, OHIO

FACTORY AND FOUNDRY
Corymbo Road
MICHIGAN CITY, IND.

DISTRICT BRANCH OFFICES

NEW YORK, N. Y., 215 East 37th Street
CLEVELAND, OHIO, 4900 Euclid Building

CHICAGO, ILL., 307 North Michigan Boulevard
ATLANTA, GA., 84 Edgewood Avenue, N. E.

REPRESENTATIVES IN ALL PRINCIPAL CITIES IN UNITED STATES AND CANADA

Products

JOSAM FLOOR and ROOF DRAINS with and without the Josam Double Drainage feature; FLOOR DRAINS with and without traps, for showers, urinal stalls, garages, hospitals, roadways and wherever drains are required; Oil Retention drains; Non-Clog drains.

ROOF, SAWTOOTH, PROMENADE and GUTTER DRAINS with and without the Josam Double Drainage feature, all having the Josam Exclusive Removable Combined Dome Strainer and Sediment Cup, easily removed for cleaning without the aid of tools.

VENT STACK FLASHING SLEEVES; ADJUSTABLE CLOSET OUTLET CONNECTIONS and BENDS, Water-tight and Gas-tight.

OPEN SEAT BACKWATER SEWER VALVES; OPEN SEAT SWING CHECK VALVES; SHOCK ABSORBERS.

JOSAM-MARSH GREASE, PLASTER SINK, DENTAL-SURGICAL, HAIR and SEDIMENT INTERCEPTORS; OIL RECLAIMERS.



STANDARD
OF AMERICA

Also Scuppers for roof overflow; Pylon, Cornice and Sill Drains; Expansion Joints for Roof and Floor Drains; Combination Drain and Backwater Deep Seal Traps; Adjustable Double Eccentric Flange Unions; Adjustable Heavy Duty Concrete Inserts in sizes to take standard bolt sizes; Eccentric Refrigerator Drains; Flap Valves; Instant Copper Tube Steam Water Heaters; Josam-Graver Floor-fed, and Door-fed, Gas-fired Incinerators.

For Josam Swimming Pool Equipment, see Manufacturers' Index.

Service

When requesting information or recommendations, consult our Engineering Department at Cleveland, sending sketch of conditions to be met.

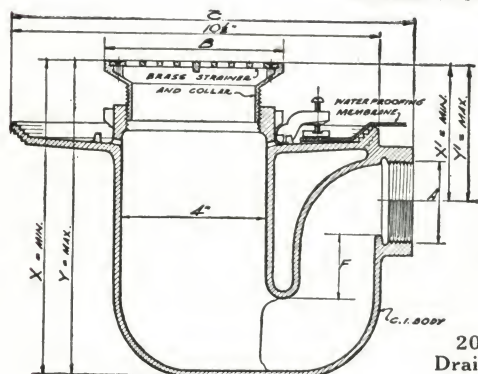
JOSAM FLOOR, SHOWER AND URINAL DRAINS

Materials

Cast iron, "Duriron," "Everdur," brass, nickel, white metal. Galvanized cast iron, "Duriron," "Everdur," or all-brass drains at extra cost. Adjustable brass strainers regularly furnished nickelplated, brass grates regularly furnished polished, unless otherwise specified. Brass strainers and grates chromium plated at extra cost.

Josam Double Drainage Feature

Description—The double drainage feature is exclusive in Josam drains and positively prevents water seepage around drain through floor to ceiling beneath, thus providing *leakproof* protection. Specified by leading engineers and architects.



Josam Double Drainage Combined Trap and Drain

200A Series
—Heavy cast iron body with adjustable brass strainer to suit floor thickness variations. Strainers for porcelain shower receptors also furnished.

200A Series
Drain and Trap

Dimensions in Inches

No.*	No.†	A	B	C	F	X	Y	X ¹	Y ¹	Wt., lb.	Price*	Price†
241½AC	241½A	1½	4	12	2½	8½	9½	3½	4½	20	\$11.85	\$10.85
251½AC	251½A	1½	5	12	2½	8½	9½	3½	4½	20	12.35	11.35
242AC	242A	2	4	11½	2½	8½	9½	3½	4½	20	12.85	11.85
252AC	252A	2	5	11½	2½	8½	9½	3½	4½	20	13.35	12.35
261½AC	261½A	1½	6	12	2½	8½	9½	3½	4½	20½	13.50	12.50
262AC	262A	2	6	11½	2½	8½	9½	3½	4½	20½	14.50	13.50
253AC	253A	3	5	12½	2½	9½	10½	3½	4½	23½	16.35	15.35
263AC	263A	3	6	12½	2½	10½	11½	4½	5½	24	17.50	16.50
264AC	264A	4	6	15½	2½	11½	12½	4½	5½	36	20.50	19.50
274AC	274A	4	7	15½	2½	11½	12½	4½	5½	37	21.65	20.65
284AC	284A	4	8	15½	2½	11½	12½	4½	5½	38	22.80	21.80

*With clamping device.

†Without clamping device.

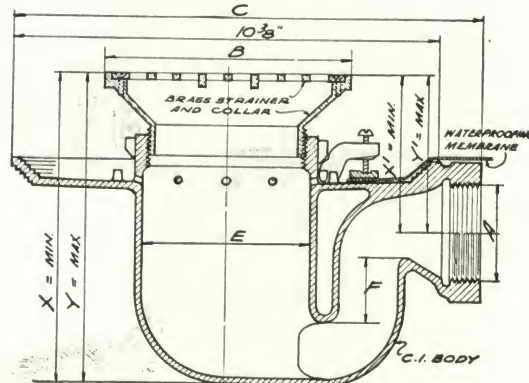
Josam Catalogue "G"

Catalogue "G," showing complete line of products or a folder descriptive of any specific Josam product will be sent upon request.

Josam Positive Clamping Device

Insures an absolute watertight connection between roof and drain body, or between the floor and drain, by securely holding the roofing or waterproofing membrane to the inner surface of roof drain or flanged cup of floor drain.

Any Josam Drain having flanged cup can be furnished with clamping device at \$1.00 extra.



2000A Series Special Shallow Type Drain and Trap
Dimensions in Inches

No.	A	B	C	E	F	X	Y	X ¹	Y ¹	Wt., lb.	Price
2042A	2	4½	12	4	1½	6½	9	3	5¼	20½	\$14.35
2052A	2	5	12	4	1½	6½	7½	3	3¾	19	14.35
2062A	2	6	12	4	1½	7½	8	3½	4¼	20	15.50
2043A	3	4½	14½	5	2	8¼	10½	4	6¼	29½	17.35
2053A	3	5	14½	5	2	8¼	9	4	4¾	28	17.35
2063A	3	6	14½	5	2	8¼	9½	4½	5¼	29	18.50

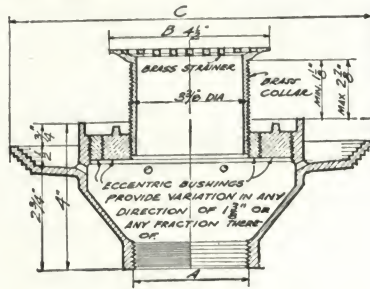
JOSAM FLOOR, SHOWER AND URINAL DRAINS (Continued)

Josam Double Drainage Drain without Trap for Shower Receptors and Urinals

3000 Series—

Equipped with brass strainer—especially recommended for stall urinals and shower receptors. Equipped with adjustable double eccentric brass bushings, which will compensate for inaccuracies in roughing-in up to 1½ in. in any direction.

300C Series—For shower stalls. Body, cast iron; strainer, nickelplated or polished brass. Can be installed in connection with independent trap. Various types of strainers furnished, all adjustable to meet varying floor thicknesses. Equipped with flashing ring and clamping device which firmly holds waterproofing membrane in place. Also furnished without clamping device. This 300C Series can also be furnished with side outlet in the 1½, 2, and 3-in. size outlet where for any reason a drain with side outlet is preferable or necessary. (See table below for 300R Series.) With or without clamping device.

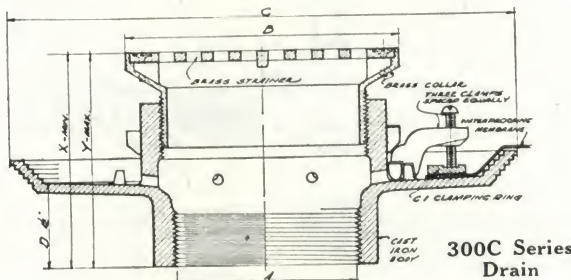


3000 Series Drain

The 3000 Series with trap is our 2800A Series
Dimensions in Inches

No.	A	B	C	Wt., lb.	Price
3042	2	4 1/2	10 3/4	15	\$ 9.35
3043	3	4 1/2	10 3/4	16	10.35

Either drain with 2-in. local vent (add suffix "A") \$1.00 additional.



300C Series Drain

Dimensions in Inches

No.*	No.†	A	B	C	D	X	Y	Wt., lb.	Price*	Price†
341 1/2 C	341 1/2	1 1/2	4	7 3/4	1 1/2	3 1/4	3 3/8	7	\$ 6.70	\$ 5.70
342 C	342	2	4	7 3/4	1 1/2	3 1/4	3 3/8	7	7.20	6.20
353 C	353	3	5	9 1/4	1 1/2	3 1/4	4	9	9.35	8.35
364 C	364	4	6	10 1/4	1 1/2	3 3/4	4 1/2	11 1/2	11.00	10.00

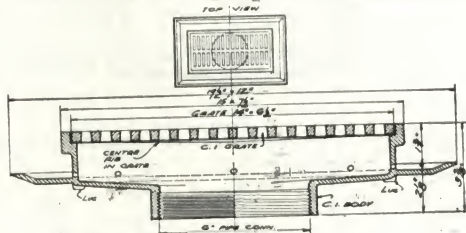
*With clamping device. †Without clamping device.

300R SERIES (SIDE OUTLET)

Dimensions in Inches

No.		Outlet	Strainer	Wgt., lb.	Price	
Without clamping device	With clamping device				Without clamping device	With clamping device
341 1/2 R	341 1/2 RC	1 1/2	4	8	\$6.70	\$7.70
342 R	342 RC	2	4	8	6.70	7.70
353 R	353 RC	3	5	10	9.35	10.35

1506 Series—This double drainage drain is recommended for narrow gutters in terrace or balcony floors or in warehouses and laundries where a drain with large waterway is required. Heavy cast iron construction throughout.



1506 Series Drain

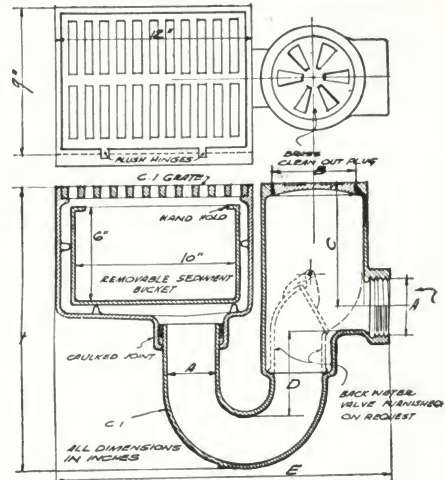
Dimensions in Inches

No.	Outlet	Wt., lb.	Price
1506	6	35	\$12.00

Josam Combined Drain and Trap with Removable Sand Bucket—Open Deep Seal Type

710A Series—

A new type, of which the body, trap, rectangular hinged grate and removable sediment bucket are cast iron. Has a threaded brass cleanout plug, flush with floor, 2 in. larger in diameter than the trap outlet. Furnished with or without all-brass gravity action backwater valve. Trap is open seal type. This type is of moderate size and price, is recommended for small garages, boiler rooms or in places where a drain with removable sediment bucket is required. Furnished with threaded, hub or spigot outlet.



710A Series Drain and Trap

No.	712A	713A	714A
A.....in.	2	3	4
B.....in.	4	5	6
C.....in.	7 1/4	7	6 3/4
D.....in.	4	5	5
E.....in.	19	20	21
F.....in.	14 1/2	17	18
Weight.....lb.	88	97	108
Price.....	\$20.00	22.00	25.00

760B Series—This drain is the box, hinged grate and sediment bucket of Series 710A described above, but without trap and cleanout.

This drain is made with bottom outlet for inside calking or with side hub outlet.

Dimensions in Inches

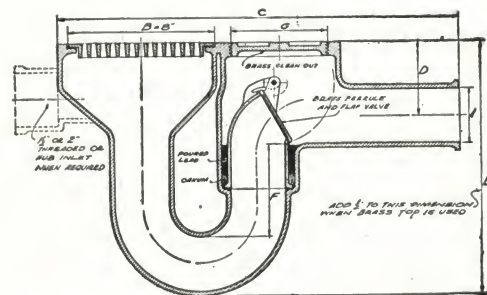
No.	Outlet	Wt., lb.	Price
762B	2	60	\$14.00
763B	3	60	14.00
764B	4	60	14.00

Note: When this Series is desired with side outlet, add "R" after "B" and mention on what side the outlet is required.

Josam Combined Drain and Deep Seal Trap with Backwater Valve and Threaded Brass Cleanout

750A Series—Where it is desired to install a combined drain and deep seal trap with cleanout this series drain will meet all necessary requirements. The brass cleanout plug on outlet end to trap is flush with the floor and of handhole size, and the trap itself is self-cleansing. The backwater valve flap is the same size as the sewer outlet, maintaining full waterway from the drain to the line.

Trap has spigot end outlet, but can be furnished threaded when so ordered.



750A Series Combined Drain and Deep Seal Trap

Dimensions in Inches

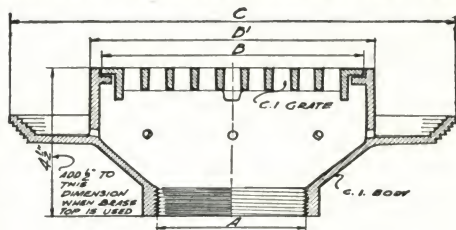
No.	A	C	D	E	F	G	Wt., lb.	Price
752A	2	20 3/4	4 1/4	11	4	4	40	\$13.00
753A	3	21 3/4	4 1/4	14	5	5	52	15.00
754A	4	23 3/4	4 1/2	16	5	6	70	20.00

JOSAM FLOOR, SHOWER AND URINAL DRAINS (Continued)

Josam Double Drainage Drain or Cesspool

510 Series—

For warehouse, factory, dairy or laundry floors. Made of cast iron with anti-tilting cast iron grate. Brass top and grate at additional cost.

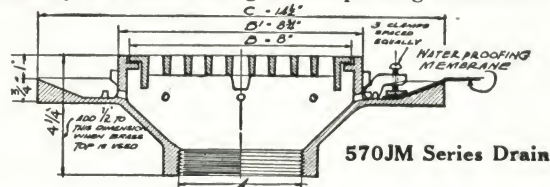


510 Series Drain

This Series can also be furnished with side outlet in the 2, 3, 4, 5 and 6-in. outlet, when for any reason a drain with side outlet is preferable. With or without clamping device.

510 SERIES (BOTTOM OUTLET)						Dimensions in Inches		550R SERIES (SIDE OUTLET)			
No.	A	B	B ¹	C	Wt., lb.	Price	No.	Out- let	Grate	Wt., lb.	Price
512	2	8	8 3/4	13 1/2	18	\$6.00	552R	2	8	30	\$ 7.00
513	3	8	8 3/4	13 1/2	18	6.00	553R	3	8	30	7.00
514	4	8	8 3/4	13 1/2	18	6.00	554R	4	8	33	8.00
524	4	11	12 3/4	17	40	9.00	555R	5	11	55	11.00
525	5	11	12 3/4	17	40	9.00	556R	6	11	55	11.00
526	6	11	12 3/4	17	40	9.00					

570JM Series—Of same design as 510 Series, but its use is primarily for floors having a waterproofing membrane. This

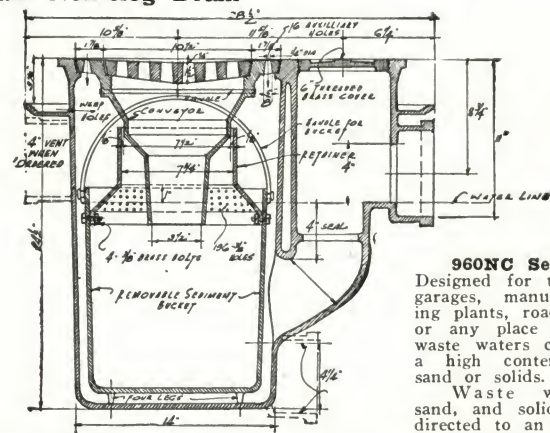


570JM Series Drain

drain is used extensively where new mastic floors are placed over present floors in old buildings. With or without clamping device.

Dimensions in Inches				
No.	A outlet	Grate	Wt., lb.	Price
572JM	2	8	24	\$9.00
573JM	3	8	24	9.00
574JM	4	8	24	9.00

Josam Non-clog Drain



960NC Series—

Designed for use in garages, manufacturing plants, roadways, or any place where waste waters contain a high content of sand or solids.

Waste water, sand, and solids are directed to an ample size, easily removed

sediment bucket through means of conveyor, which is directly below grate surface, and a high neck retainer guards against rise or surge of incoming waste waters, so that all floatage and solids are retained in sediment bucket and prevented from entering waste lines.

Grate used is a new departure in grate design, in that auxiliary means are provided in the grate that allow floor drainage at all times (preventing flooded floors), if for any reason main outlet becomes clogged. This drain can also be provided with means of intercepting and retaining oil from waste waters within the drain (Series 970NC), preventing entrance into sewer of the oil and its consequent volatile gases.

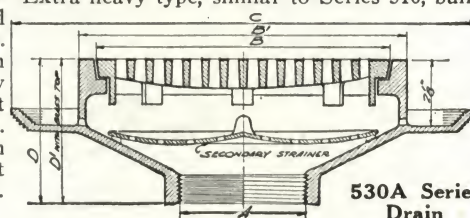
Extra heavy japanned cast iron construction throughout; 4-in. seal; 4-in. hub outlet connection. Brass backwater valve can be provided and caulked in when so ordered. Made with or without additional auxiliary vent at no extra cost.

Dimensions in Inches						Price	
No.	Grate	Outlet	Brass cleanout plug	Wt., lb.		Japanned	Galvanized
960NC	14	4	6	250		\$85.00	\$110.00
970NC	14	4	6	260		88.00	114.00

Josam Double Drainage Drain or Cesspool

530A Series—Extra heavy type, similar to Series 510, built

to withstand heavy trucking. Equipped with supplementary grate to prevent sewer stoppage. Furnished with extra heavy cast iron grate 1 in. thick.



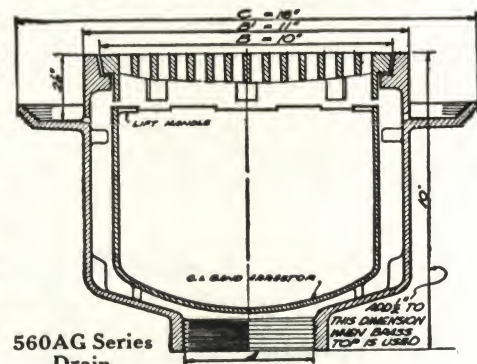
530A Series Drain

Dimensions in Inches

No.	A	B	B ¹	C	D	D ¹	Wt., lb.	Price
532A	2	10	11	15 3/4	5	5 1/2	40	\$10.00
533A	3	10	11	15 3/4	5	5 1/2	40	10.00
534A	4	10	11	15 3/4	5	5 1/2	40	10.50
544A	4	14	15 1/4	19 1/4	5	5 5/8	68	14.00
545A	5	14	15 1/4	19 1/4	5	5 5/8	70	15.00
546A	6	14	15 1/4	19 1/4	5	5 5/8	70	16.00
548A	8	14	15 1/4	19 1/4	5 1/4	5 7/8	75	18.00

Josam Double Drainage Extra Heavy Floor Drain with Removable Sediment Bucket

560AG Series—This drain is recommended where large drainage facilities are required and where waste waters contain quantities of sediment, in floors, such as of boiler rooms, coal rooms, ash pits, garages, etc. Has large area anti-tilting extra heavy grate with easily removed sediment bucket.



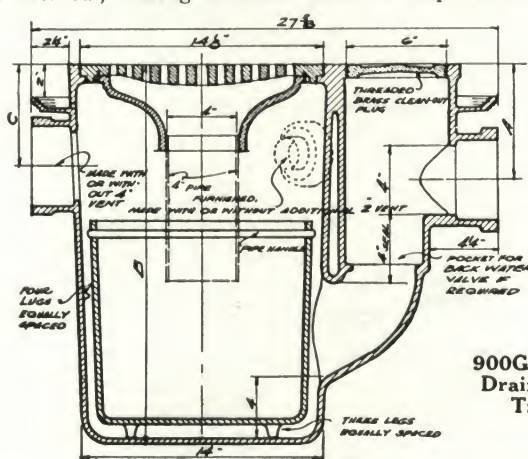
560AG Series Drain

Dimensions in Inches

No.	A outlet	Wt., lb.	Price
562AG	2	59	\$15.00
563AG	3	59	15.00
564AG	4	59	15.00

Josam Garage and Industrial Plant Floor Drain

900G Series—For floors subjected to large water flow and heavy dirt and grease deposits. Heavy special anti-tilting grate lifts out, making sediment basin of trap accessible for



900G Series Drain and Trap

Dimensions in Inches

No.	Slab, in.	A	B	C	Wt., lb.	Price
910G	4	6 3/4	22 1/4	6	255	\$58.00
920G	6	8 3/4	24 1/4	8	280	66.00
930G	8	10 3/4	26 1/4	10	305	71.00
940G	10	12 3/4	28 1/4	12	330	76.00
950G	12	14 3/4	30 1/4	14	355	81.00

When ordered without:

Sand bucket deduct 27 10.00

Gas seal cone deduct 13 6.00

When ordered with:

Brass backwater valve add 5 5.00

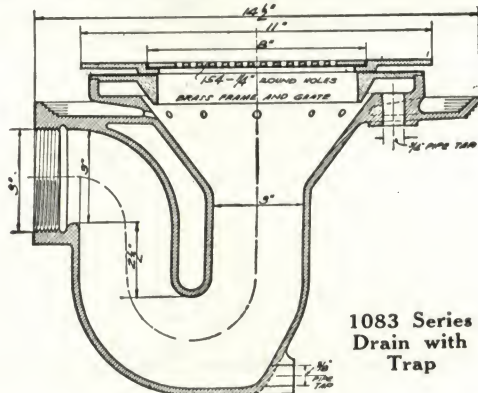
Polished brass rim and grate add 23.70

cleaning out. Trap without pocket prevents sediment deposit. Special threaded brass cleanout plug flush with floor provides positive means for removal for cleaning.

Furnished with cast iron sand bucket; also cast iron cone for deflecting gasoline fumes to vent pipe. With or without vent, with or without brass backwater valve. All galvanized at added cost.

Josam Double Drainage Drain and Trap with Flushing Rim (Self-cleansing Hospital Drain)

1083 Series—This drain is recommended especially for



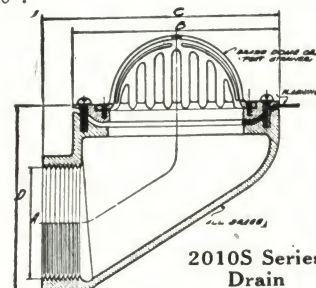
Dimensions in Inches

No.	Strainer	Outlet	Wt., lb.	Price
1083	8	3	53	\$38.00
1083A	8	3	40	33.25

hospital floors, or other places where sanitation is an important factor. The drain is of self-cleansing design with no fouling spaces. Interior of drain is white enameled throughout. The opening for jet into flush rim is not drilled through, but can be drilled for any size that the water pressure requires. Polished brass top with special hinged perforated and removable strainer is furnished with this drain. This drain is also furnished without the trap and is listed under Series 1083A.

Josam All-Brass Drain with Side Outlet

2010S Series—Although this drain is smaller in design, it is quite ample for draining cornices, window sills, small balconies, or where drainage is required in any small surfaces where construction requires a shallow drain with side outlet, either 45° or 90°.



Dimensions in Inches

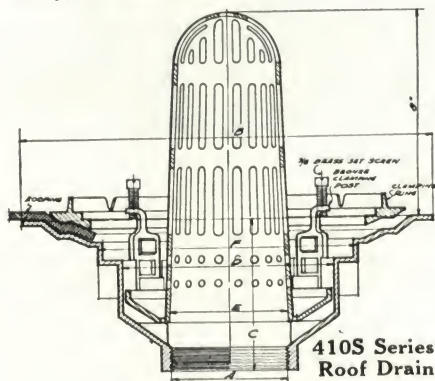
No.	90° outlet				Wt., lb.	45° outlet				Price
	A	B	C	D		A	B	C	D	
2012S	2	4 3/8	5	4	5	2	4 3/8	5 1/8	4 5/8	\$ 7.70
2013S	3	5 3/4	6 3/8	5	7 1/2	3	5 3/4	6	5	11.10
2014S	4	5 3/4	6 3/8	6	9 1/2	4	5 3/4	6	6	13.40

JOSAM ROOF DRAINS AND VENT STACK SLEEVES

Josam Improved Roof Drain with Removable Combined Sediment Cup and Dome Strainer for Wood, Concrete or Tile Roofs

410S Series—This drain affords an absolutely watertight connection between roofing and drain body without use of flashing. This is accomplished by an improved type clamping ring that has the same surface contour as flange of drain. This clamping ring is held securely in place by four adjustable manganese bronze clamping posts, each receiving a 3/8-in. set-screw, the tightening of which permits any desired pressure on clamping ring, under which roofing felts are clamped. Made of heavy cast iron, eliminating possibility of condensation when buried in roof slab.

This series can also be furnished with square top flange at no additional cost, and is designated as Series 410SL. Also furnished with side outlet at \$2.00 additional list, and designated as Series 410SR. Also furnished with side outlet and square top flange at \$2.00 additional list, and designated as Series 410SRL. Josam Expansion Joint can be furnished with this or other types of Josam Roof Drains with bottom outlet, where necessary, at added cost.

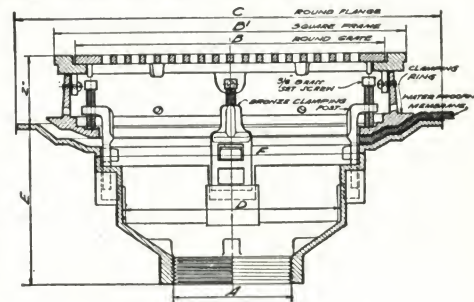


Dimensions in Inches

No.	A	B	C	D	E	F	Wt., lb.	Price
412S	2	16	6	8 3/8	5	10 1/4	38	\$14.00
413S	3	16	6	8 3/8	5	10 1/4	38	14.00
414S	4	16	6	8 3/8	5	10 1/4	38	14.00
415S	5	17 1/4	6	9 3/8	5 1/2	11 3/8	48	16.00
416S	6	18 1/4	6	10 3/8	6 1/2	12 1/4	56	18.00
418S	8	20 1/4	7	12 1/4	8 1/2	14 1/2	70	26.00

Josam Improved Roof Drain with Flat Grate

420SP Series—Recommended for the same types of roof as 410S, but where roof is used for promenade or deck and where a flat grate in place of dome strainer is necessary.



420SP Series Drain

Dimensions in Inches

No.	A	B	B ¹	C	D	E	F	Wt., lb.	Price
422SP	2	11 3/8	13 1/4	16	8 3/8	6	10 1/4	43	\$15.00
423SP	3	11 3/8	13 1/4	16	8 3/8	6	10 1/4	43	15.00
424SP	4	11 3/8	13 1/4	16	8 3/8	6	10 1/4	43	15.00
425SP	5	12 3/4	14 1/4	17 1/4	9 3/8	6	11 3/8	56	17.00
426SP	6	13 3/4	15 1/4	18 1/4	10 3/8	6	12 1/4	63	19.00
428SP	8	13 3/4	15 1/4	20 3/8	12 1/4	7	14 1/2	67	27.00

Josam Improved Overflow Angle Roof Drain

1250 Series—A recently designed angle roof drain with a large outlet area and overflow connection. Recommended where large roof drainage facilities must be provided for, and use of overflow is desirable.

Installation takes up minimum space in roof out from parapet wall. Rear slotted wall of this drain provides waterway to overflow if main outlet becomes clogged.

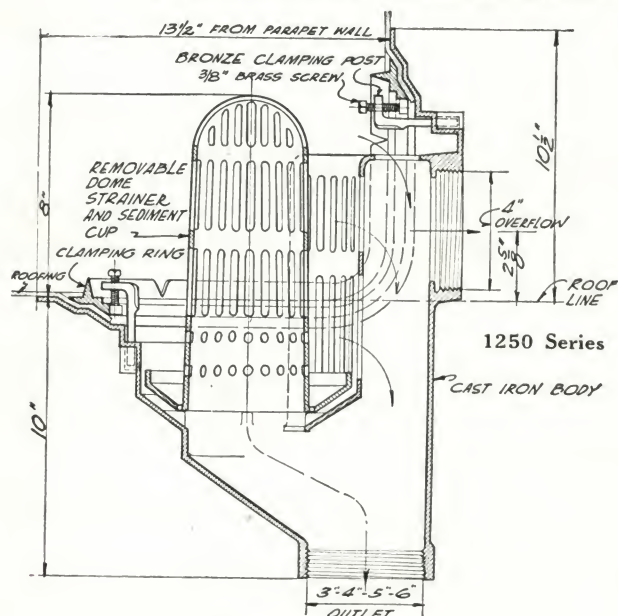
Drain has removable combined dome strainer, sediment cup and clamping ring, similar to Josam 410S Series, affording positive tightness between roofing felt and drain body.

Made in 3, 4, 5, or 6-in. threaded or inside calked outlet, and with 4-in. threaded overflow, as shown, but can also be furnished with two 2-in. additional auxiliary overflows in upper portion of rear vertical walls.

Regularly furnished in janned or galvanized cast iron, also in brass at additional cost.

A horizontal grate similar to a promenade grate can be furnished in place of the dome strainer at extra cost. See cut and table on following page.

JOSAM ROOF DRAINS AND VENT STACK SLEEVES (Continued)



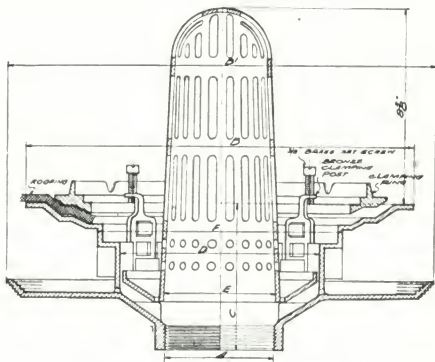
Dimensions in Inches

No.	Outlet	Wgt., lb.	Price, japanned
1253	3	60	\$21.00
1254	4	60	21.00
1255	5	65	24.00
1256	6	70	27.00

Josam Improved Double Drainage Roof Drain, with Removable Combined Sediment Cup and Dome Strainer for Concrete Roofs

430BS Series—In addition to having Josam double drainage feature, this drain affords a positive means whereby roofing felts are joined to the drain body with an improved clamping ring, that has the same surface contour as flange of drain and is held securely in place by four adjustable manganese bronze clamping posts, each receiving a 3/8-in. brass setscrew, the tightening of which permits any desired pressure on clamping ring, under which roofing felts are clamped. This insures an absolutely watertight connection between roofing felts and body of drain, and eliminates use of flashing.

Series 430BS has Josam removable combined sediment cup and dome strainer that can be removed easily for cleaning, thus keeping drain clean. Heavy cast iron construction eliminates possibility of condensation when buried in roof slab. Tapped for standard iron pipe thread. Soil pipe connectors for all sizes and all series of Josam roof drains can be furnished. Galvanized at added cost.

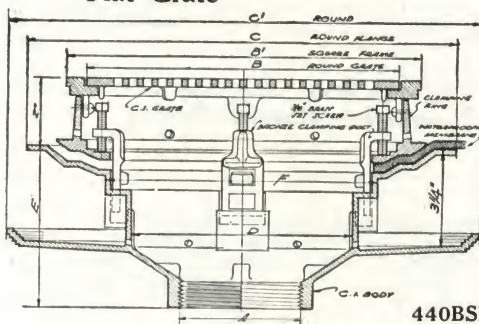


430BS Series Roof Drain

Dimensions in Inches

No.	A	B	B ¹	C	D	E	F	Wt., lb.	Price
432BS	2	16	17 1/2	5 3/8	8 1/2	4 5/8	10 1/4	45	\$15.00
433BS	3	16	17 1/2	5 3/8	8 1/2	4 5/8	10 1/4	45	15.00
434BS	4	16	17 1/2	5 3/8	8 1/2	4 5/8	10 1/4	45	15.00
435BS	5	17 3/8	18 1/2	5 3/8	9 1/2	5 3/8	11 3/8	55	17.00
436BS	6	18 1/2	20 1/4	5 3/8	10 3/8	6 3/4	12 1/4	70	19.00
438BS	8	18 1/2	20 1/4	5 3/8	10 3/8	6 3/4	14 1/2	77	27.00

Josam Improved Double Drainage Roof Drain with Flat Grate



440BSP Series Drain

Dimensions in Inches

No.	A	B	B ¹	C	C ¹	D	E	F	Wt., lb.	Price
442BSP	2	11 3/4	13 1/4	16	17 1/2	8 3/8	6	10 1/4	55	\$16.00
443BSP	3	11 3/4	13 1/4	16	17 1/2	8 3/8	6	10 1/4	55	16.00
444BSP	4	11 3/4	13 1/4	16	17 1/2	8 3/8	6	10 1/4	55	16.00
445BSP	5	12 3/4	14 1/4	17 1/2	18 1/2	9 3/8	6	11 3/4	64	18.00
446BSP	6	13 3/4	15 1/4	18 1/2	20 1/4	10 3/8	6	12 1/4	78	20.00
448BSP	8	13 3/4	15 1/4	20 1/4	20 1/4	12 1/4	7	14 1/2	82	28.00

Josam Roof Drain for Narrow Valleys or Gutters

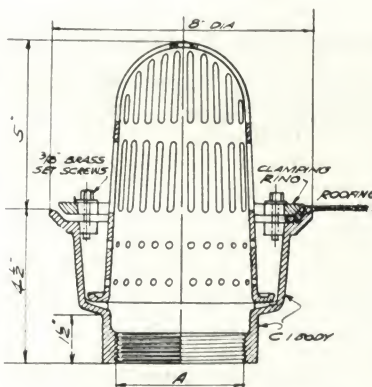
450G Series—Specially designed with a narrow body for use in gutters, on hip or flat roof construction.

Furnished with clamping ring and square head brass bolts with washers, which firmly hold gutter lining place, assuring watertight connection.

Equipped with Josam combined removable sediment cup and high dome strainer.

Especially recommended for gutter widths of 8 in. or over.

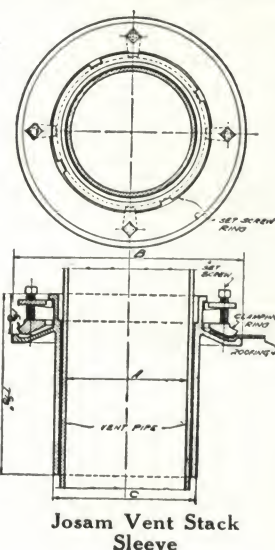
This series can also be furnished with square top flange at no additional cost, and is designated as Series 450GL. Also furnished with side outlet at \$1.00 additional list, and designated as Series 450GR. Also furnished with side outlet and square top flange at \$1.00 additional list, and designated as Series 450GRL.



450G Series Roof Drain

No.	452G	453G	454G	455G
A.....in.	2	3	4	5
Weight.....lb.	13	13	13	14
Price.....	\$9.00	9.00	9.00	10.00

Josam Vent Stack Sleeve



Josam Vent Stack Sleeve

610A Series—This new type cast iron vent stack sleeve is designed to positively eliminate the necessity of a copper or lead flashing. This sleeve can be placed in position during the construction of a concrete or wood roof deck and the vent pipe carried through it at any time.

The hub or space at the top of sleeve between the pipe and sleeve should be filled with oakum and a roofer's elastic cement or poured lead joint, thereby making a watertight joint between sleeve and pipe.

610A SERIES VENT STACK SLEEVE
Dimensions in Inches

No.	A	B	C	Wt., lb.	Price
611 1/2A	1 1/2	6	2 3/4	8	\$2.50
612A	2	6 3/4	3 1/4	9	2.50
612 1/2A	2 1/2	7	3 3/4	10	3.00
613A	3	7 1/2	4 1/4	11	3.00
614A	4	8 3/4	5 1/4	15	3.50
615A	5	9 3/4	6 1/4	20	4.25
616A	6	10 3/4	7 1/4	22	5.00
618A	8	13	9 1/2	24	9.00

Josam Sawtooth Roof Drain—No Flashing Required

490GC Series—This drain is really made to the exact pitch of the roof—the square top flange of the drain body is in the same plane and at the identical pitch of the slope of the roof. It is constructed of cast iron with round body and square top flange, and is suitable for wood, concrete, precast slab, sheet rock pyrofil, or any plastic slab design.

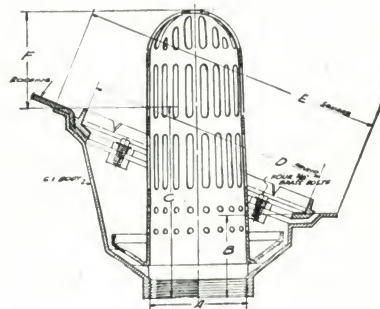
The labor and troublesome adjustment accompanying the installation of the so-called convertible type sawtooth roof drain is entirely eliminated when this Josam 490GC Series is used. No tilting or tipping is necessary to have it in line with the roof surface. Neither is there any reason for unsatisfactory connections, as the outlet is maintained as a true vertical line.

No *flashing* is necessary when the Josam Sawtooth Roof Drain is used, as the roofing membrane is laid on the even upper surface of the square flange top of the drain body which is in the same angle or bevel as the plane of the roof surface.

There is absolutely no perforation of the roofing material at any point of contact with the drain body, as the clamping ring arrangement is so designed that the pressure points are entirely within the limits of the opening made in roofing for draining area.

Cast iron removable dome strainer and sediment cup has ample waterway for the various size outlets, and is easily removed for cleaning, and just as easily replaced. No tools are necessary for its removal—no unscrewing of bolts or nuts—in fact, no disconnection of any kind. It is simply lifted out

by hand, dumped and replaced; consequently a clean drain is maintained without any troublesome connections.

**490GC Series Roof Drain**

Dimensions in Inches

No.	A	B	C	D	E. sq.	F	Wt., lb.	Price
492GC	2	3 13/16	*	11 3/8	14 1/4	4 1/2	38	\$18.00
493GC	3	3 13/16	*	11 3/8	14 1/4	4 1/2	38	18.00
494GC	4	3 13/16	*	11 3/8	14 1/4	4 1/2	38	18.00
495GC	5	3 7/8	*	13	15 7/8	4	48	20.00
496GC	6	3 7/8	*	13	15 7/8	4	52	22.00

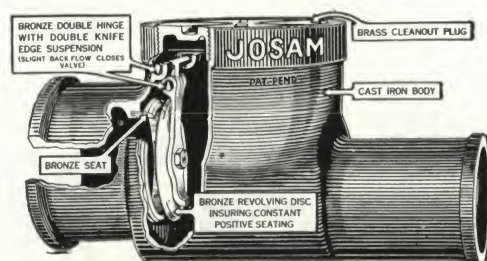
*Determined by angle of roof.

JOSAM SEWER AND SWING CHECK VALVES AND SHOCK ABSORBERS**Josam Open Seat Backwater Sewer Valve**

Has bronze working parts and brass insert seat. Regularly furnished with bolted down iron cover. Can be furnished with threaded brass cleanout plug (see table). Body is of cast iron equivalent to extra heavy soil pipe. Outlet end is offset providing clearance of 1 1/2 in. below the valve seat and valve disc allowing free passage of foreign matter through valve to outlet, precluding possibility of fouling valve.

Valve always opens about 3/4 in., except when functioning by flow of water in either direction. Double knife edge or fulcrum bearings positively respond to slightest movement required of valve. Revolving disc or flap valve insures positive seating.

When required, opens sufficiently to permit full waterway. Machine faced flanged connections can also be furnished in all sizes at extra cost.

**Open Seat Backwater Sewer Valve, 1100 Series**

No.	1102	1103	1104	1105	1106	1108
Size.....in.	2	3	4	5	6	8
Weight.....lb.	18	26	32	50	60	115
Price:						
Bolted cast iron cover.....	\$10.00	13.00	17.00	21.00	25.00	33.00
Threaded brass cover.....	\$18.00	22.00	26.00	30.00	38.00	

No.	1110	1112	1115	1118	1124	1130
Size.....in.	10	12	15	18	24	30
Weight.....lb.	190	250	540	780	1650	2400
Price:						
Bolted cast iron cover.....	\$50.00	65.00	200.00	275.00	575.00	On Ap

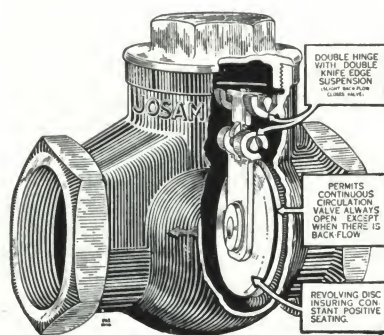
Josam Flap Valve—(Open Seat) Series 1100-1/2 for sewer outlets, sewer and water lines, sewage disposal plants. Construction and operation similar to backwater sewer valve. Placed at the discharge end of sewer line the Josam flap valve is an absolute safeguard against back flow of sewage. Permits full waterway. Prices and sizes same as Josam sewer valves.

Josam Open Seat Swing Check Valve

Holds and controls bodies of liquid matter. Has open seat with revolving flap check or disc suspended on compound acting double fulcrum bearings. The disc, normally, hangs open about 1/8 in., permitting continuous flow regardless of sluggishness in circulation and closes readily with the slightest back flow movement of the water.

The globe shape of the high grade red brass body permits circulation of water around and under valve disc when valve is partially open, and permits flow of full area of line when valve is completely open. Large hexagon cap plug permits easy accessibility to working parts.

Other than Josam check valves have closed seat and single pin bearings.

**Open Seat Swing Check Valve**

Size, in.	Price
3/8	\$ 2.00
1/2	2.00
3/4	2.25
1	2.80
1 1/4	3.65
1 1/2	4.75
2	6.75
2 1/2	15.00
3	24.00

Josam-Marsh Shock Absorber

Recommended for quieting waterhammer in pipe lines of any diameter or any pressure. This device consists mainly of two chambers of extra heavy malleable iron secured about a centrally located Everdur diaphragm of extreme resiliency. This diaphragm absorbs and dispels the shock arising from the thrust caused by sudden stopping of water from quick closing valves and faucets, eliminating noise and relieving the line from strain and possible damage. It is not an air chamber. Further details and prices upon request.

**Josam-Marsh Shock Absorber**

JOSAM ADJUSTABLE CLOSET OUTLET CONNECTION WATER-TIGHT AND GAS-TIGHT

No Putty Joints—Sanitary—Adjustable—Positive—Permanent

A simple and positive means for making a perfect and permanent seal between closet bowls and waste pipes.

Eliminates the use of putty, litharge, plaster of paris, etc., which dry out and deteriorate, causing the seal to crack or break upon the slightest settling of the building, and leaving openings for escape of sewer gas and water.

Provides plumbers with all necessary adjustments and facilities for easily and quickly obtaining an absolutely water-tight and gas-tight seal. Fits all regular makes of closet bowls. Contains many unusual features, which greatly reduce installation costs.



Showing Features of Construction

A graphite saturated closet gasket of finest quality seals the closet bowl with the connection. This gasket will never dry out or harden, constantly maintaining a positive and permanent seal regardless of any settling of the building. Being very flexible and resilient this gasket also acts as a cushion to prevent breakage of bowls or connections.

Threaded brass floor flange is vertically adjustable for any distance ordinarily required, and can be set at proper height to fully compress the closet gasket and seal the joint of the closet bowl with the bowl resting firmly upon the floor, and with no strain upon the joints or connections below. The seat for the closet gasket is extra wide, and is also extra deep in order to contract the gasket and prevent it from "spreading."

The vertical adjustment overcomes all difficulties generally encountered with ordinary non-adjustable connections, such as variations in level of finished floors, thickness of floor constructions, variations in closet bowl outlets, or unavoidable variations in locating the piping or fittings below.

A graphite saturated inner gasket of finest quality seals the brass floor flange with the cast iron body. This seal is also perfect, and will hold absolutely tight under all conditions. A threaded adjustable brass locking ring, having finger grips for adjusting it to proper position, supports the inner gasket and locks the floor flange to the body. The 45° taper on lower end of

floor flange expands and compresses the inner gasket against the inner threads of the body.

Cast iron internal test plate (or external test cap, which is furnished to order only) seals the connection for the water or other test usually required by plumbing inspectors. Metal thread protector prevents damage to threads from concrete, etc. Wood cover prevents damage to rim of floor flange, and also prevents debris from entering waste lines. Extra heavy $\frac{5}{8}$ -in. brass closet bolts and necessary gaskets are provided.

All parts are completely assembled at our factory, and the complete connection is then tested under 50 lb. hydraulic pressure before shipment. The connections can be installed just as received from the factory, and no further work or attention is required before closet bowls are installed.

Numerous practical tests, based on a very extensive study of the subject, have conclusively demonstrated that the Josam Adjustable Closet Outlet Connection overcomes all of the difficulties and meets all of the conditions required in obtaining dependable, sanitary installations of closet bowls. Truly it is "a much needed improvement."

PRICES ADJUSTABLE CLOSET OUTLET CONNECTIONS

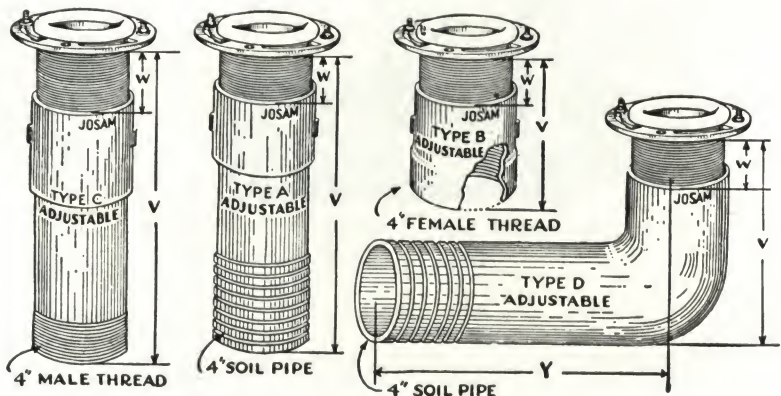
Type	V—length, in.		W—adjustment, in.		List price
	Min.	Max.	Min.	Max.	
Straight Connections for Soil Pipe					
A12	12	14	$\frac{3}{8}$	$2\frac{3}{8}$	\$6.00
A18	18	20	$\frac{3}{8}$	$2\frac{3}{8}$	6.50
A24	24	26	$\frac{3}{8}$	$2\frac{3}{8}$	7.00

Straight Connections, Female Threaded

B5½	6	8	$\frac{3}{8}$	$2\frac{3}{8}$	6.00
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Straight Connections, Male Threaded

C 5½	5½	7½	$\frac{3}{8}$	$2\frac{3}{8}$	6.00
C 6½	6½	9½	$\frac{3}{8}$	$3\frac{3}{8}$	6.75
C 8	8	11	$\frac{3}{8}$	$3\frac{3}{8}$	6.75
C10	10	13	$\frac{3}{8}$	$3\frac{3}{8}$	6.75
C12	12	15	$\frac{3}{8}$	$3\frac{3}{8}$	7.25
C14	14	17	$\frac{3}{8}$	$3\frac{3}{8}$	7.25
C16	16	19	$\frac{3}{8}$	$3\frac{3}{8}$	7.25
C18	18	21	$\frac{3}{8}$	$3\frac{3}{8}$	7.75
C20	20	23	$\frac{3}{8}$	$3\frac{3}{8}$	7.75
C22	22	25	$\frac{3}{8}$	$3\frac{3}{8}$	7.75



PRICES BEND CONNECTIONS FOR SOIL PIPE

Type	V—length of inlet, in.		W—adjustment, in.		Y center of inlet to end of outlet, in.	List price
	Min.	Max.	Min.	Max.		
D12x7½	7½	9	$\frac{3}{8}$	$1\frac{7}{8}$	12	\$7.00
D18x7½	7½	9	$\frac{3}{8}$	$1\frac{7}{8}$	18	7.50
D24x7½	7½	9	$\frac{3}{8}$	$1\frac{7}{8}$	24	8.00
D12x7	7	8	$\frac{3}{8}$	$1\frac{7}{8}$	12	7.00
D18x7	7	8	$\frac{3}{8}$	$1\frac{7}{8}$	18	7.50
D24x7	7	8	$\frac{3}{8}$	$1\frac{7}{8}$	24	8.00

JOSAM-MARSH INTERCEPTORS

Josam-Marsh Grease Interceptors

The Josam-Marsh Grease Interceptor is a decided improvement over devices previously used for the recovery of all kinds of grease. It is scientifically designed to recover the grease from waste water regardless of the water temperature.

It automatically evacuates all sediment, thereby leaving clean grease in the interceptor. This grease has a high commercial value as the removal of the sediment prevents decomposition, eliminating the forming of "free fatty acid gas" which destroys the glycerine properties of the grease. Glycerine content being essential to its value.

All odors which would result from sour water are eliminated, as the water is continually changing, evacuating the sediment which would cause fermentation and decomposition if allowed to remain in the interceptor. These advantages insure complete sanitation under all conditions.

Outstanding installations have paid for themselves in a year or less from the revenue obtained from the sale of the clean, high quality grease retained by the Josam-Marsh Interceptor.

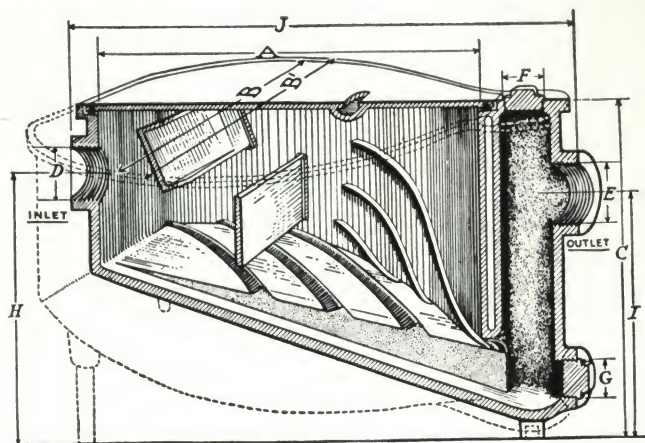
Due to the construction of the Josam-Marsh Interceptor, the grease is recovered before reaching the waste lines. This entirely eliminates any trouble and maintenance cost due to grease clogged waste lines.

The Josam-Marsh Interceptor is not water-jacketed, thereby eliminating the cost of piping from cold water supply. Has no movable parts, is easily installed, portable, can be placed on floor or hung from ceiling. Type A-0 can be held on wall brackets, furnished at extra cost.

By simply removing the cover, the entire chamber is accessible for the removal of grease. Grease accumulation can be skimmed off at any time without interrupting operation of interceptor.

The Josam-Marsh Grease Interceptors are made of heavy cast iron, in a complete range of sizes covering practically any requirement. They are constructed with the visible double wall seal as illustrated, or with the internal seal.

Constructed with flush top cover so that Interceptor can be located in floor construction with top flush with floor.



Josam-Marsh Grease Interceptor

Size		Flow range, gal. per hr.	Fat cap. lb.	Average dimensions in inches										Net wt., lb.	Pipe conn.	List price	
With visible double wall seal	With internal seal			A	B	B ¹	C	D	E	F	G	H	I				J
A-0		55	20	13 $\frac{1}{4}$	9 $\frac{3}{4}$	11 $\frac{1}{4}$	11	1 $\frac{1}{2}$ -2	1 $\frac{1}{2}$ -2	1	1 $\frac{1}{2}$	8 $\frac{1}{2}$ ₁₆	8 $\frac{1}{2}$ ₁₆	16 $\frac{1}{4}$	52	Tapped	\$ 25.00
A-1	A-1 $\frac{1}{2}$	100	30	16 $\frac{1}{2}$	11 $\frac{3}{4}$	13 $\frac{1}{2}$	13	2	2	1 $\frac{1}{2}$	1 $\frac{1}{2}$	10 $\frac{1}{8}$ ₁₆	10 $\frac{1}{8}$ ₁₆	19 $\frac{3}{4}$	72	Tapped	50.40
A-2	A-2 $\frac{1}{2}$	285	70	22	16	18 $\frac{1}{4}$	19 $\frac{3}{4}$	2-3	2-3	1 $\frac{1}{2}$	1 $\frac{1}{2}$	15 $\frac{1}{4}$ ₁₆	15 $\frac{1}{4}$ ₁₆	27	185	Tapped	97.00
A-3	A-3 $\frac{1}{2}$	480	105	27 $\frac{1}{2}$	19 $\frac{1}{4}$	21 $\frac{3}{4}$	24 $\frac{1}{2}$	3-4	3-4	2	2	20 $\frac{1}{4}$ ₁₆	20 $\frac{1}{4}$ ₁₆	32 $\frac{1}{2}$	360	Calk	156.00
A-5	A-5 $\frac{1}{2}$	825	140	29 $\frac{1}{2}$	22 $\frac{3}{4}$	25 $\frac{1}{4}$	28 $\frac{3}{4}$	4-5	4-5	2	2	23	23	38 $\frac{1}{2}$	539	Calk	275.00
	A-15 $\frac{1}{2}$	2100	205	37	27 $\frac{1}{2}$	29 $\frac{1}{2}$	33 $\frac{1}{2}$	4-5	4-5	2	2	27	27	46 $\frac{1}{2}$	710	Tapped	390.00
	A-25 $\frac{1}{2}$	3600	315	42 $\frac{1}{4}$	30 $\frac{1}{2}$	32 $\frac{3}{4}$	32 $\frac{3}{4}$	6	6	2 $\frac{1}{2}$	2 $\frac{1}{2}$	23 $\frac{1}{2}$ ₁₆	23 $\frac{1}{2}$ ₁₆	57 $\frac{1}{4}$	825	Calk	470.00
	A-50 $\frac{1}{2}$	8500	500	45 $\frac{1}{2}$	39 $\frac{1}{2}$	41 $\frac{1}{2}$	40	7	7	3	3	30 $\frac{1}{2}$ ₁₆	30 $\frac{1}{2}$ ₁₆	55 $\frac{3}{4}$	1650	Sewer	726.00
	A-75 $\frac{1}{2}$	13000	1120	69 $\frac{1}{2}$	52	54	48	7	7	3	3	36	36	84 $\frac{1}{2}$	3500	Pipe	1,254.00
	A-150 $\frac{1}{2}$	24000	1850	102 $\frac{3}{4}$	71	73	54 $\frac{1}{2}$	8	8	10	10	42 $\frac{1}{4}$ ₁₆	42 $\frac{1}{2}$ ₁₆	110 $\frac{3}{4}$	6500	Flange	2,288.00

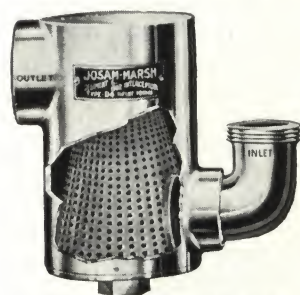
A-0, A-1, A-2, A-3, A-5 in both single and double wall seal types are provided with means of height adjustment.

The inlet and outlet on A-0, A-2, A-3, A-5 and A-15 both types, can be increased as shown in table.

Finish—Painted enamel.

Josam-Marsh Hair and Sediment Interceptors

D-4 Visible Double Wall Seal Type—For lavatories in barber shops, beauty parlors, residences, etc.



D-4 Visible Double Wall Seal Type

This interceptor will prevent clogged pipes by removing from waste water all hair and foreign matter. Has cast brass nickelplated body 6 1/2 x 3 3/4-in. and has 2-in. seal. It has inlet connection for 1 1/4-in. outside diameter brass tubing. Outlet is tapped for 1 1/2-in. iron pipe. Removable plug permits ready accessibility to brass filter screen. Is non-siphoning. Weight,

6 lb. Installation of this type permitted in all localities.

List price\$12.80

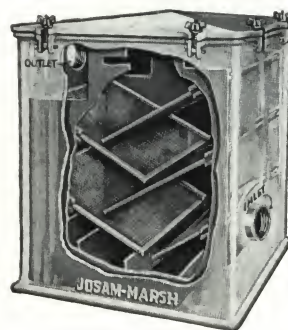
D-3 Type Josam-Marsh Hair and Sediment Interceptors—Same in construction and operation as the Type D-4, except that Type D-3 has an internal wall or partition seal, which is not permitted by many sanitary codes.

List price\$12.80

Josam-Marsh Dental and Surgical Sink Interceptors, Type C-2—Similar to Type C-1 in construction and operation. Is smaller and lighter. Recommended for dental, surgical and operating room sinks. This interceptor will remove from the waste water all solids, plaster, metals, cotton, lint, hair, etc. It is 10 1/2 in. high, 5 in. square and made entirely of polished aluminum,

excepting the screen which is brass. Has a 3 1/2-in. water seal and is non-siphoning. Inlet and outlet tapped 1 1/2 in. Bottom is removable for cleaning. Weight approximately 8 1/2 lb.

List price\$36.00



Type C-1 Josam-Marsh Hospital Plaster Sink Interceptors

Will remove from waste water all plaster of paris, either solid or in state of suspension, also cotton, lint, hair or other foreign matter which the waste water may contain. The Josam-Marsh Hospital Plaster Sink Interceptor is made of gray cast iron, porcelain, white enameled exterior,

with all exterior clamps heavily nicked. It is 18 1/4 in. high, 17 1/4 in. square and has 2-in. iron pipe connections. The cage is galvanized iron and the screens of brass. The interior is easily accessible for cleaning, in that the entire cage can be easily removed without any disconnecting.

Waste water enters through inlet pipe, is baffled and carried over the vertical plates and is then passed through the fine mesh-screens where the process of filtration takes place. The interceptor is absolutely non-siphoning and has 7 1/2-in. seal. Weight, approximately 240 lb.

List price\$130.00

PORTLAND IRON WORKS

Manufacturers of Fleming Floor and Roof Drains

495 Northrup Street
PORTLAND, ORE.

SALES REPRESENTATIVES

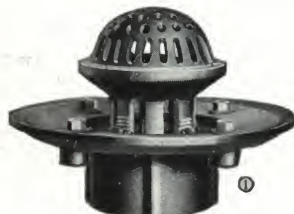
CHICAGO, ILL., W. E. SILBERMAN, 5050 Washington Boulevard
CLEVELAND, OHIO, FRANK P. MURPHY, 1704 Builders Exchange Building
DENVER, COLO., GEORGE HAMBURGER CO., 1715 California Street
DETROIT, MICH., DICK D. REED, 2410 Glendale Avenue
JACKSONVILLE, FLA., G. E. OSGOOD, 202 Florida Theatre Building
HOUSTON, TEX., THOMAS A. COCKRELL, 839 Electric Building
LOS ANGELES, CAL., H. H. CHAFFEE, 617 Architects Building
MEMPHIS, TENN., EDGAR L. GOLDSTEIN, Tennessee Hotel
MINNEAPOLIS, MINN., HARRY L. LOVEJOY, 1322 W. 32nd Street

NASHVILLE, TENN., JAMES RYAN SALES COMPANY, 1122 Stahlman Building
NEW YORK, N. Y., W. M. HENDERSON, 101 Park Avenue
PHILADELPHIA, PA., V. I. SULLIVAN, 421 Schaff Building
PITTSBURGH, PA., H. C. LEEZER, 6039 St. Merie Street
RICHMOND, VA., J. L. DORSET, Builders Exchange Building
SALT LAKE CITY, UTAH, F. B. PLATT, JR., 49 No. State Street
SAN ANTONIO, TEX., M. M. ARMAND, 1711 W. Huisache Avenue
SEATTLE, WASH., F. C. NEUPERT, 330 Central Building
WASHINGTON, D. C., L. LEON MEYERS, 1196 National Press Building

Fleming Leak-proof Floor Drains

Manufactured especially for shower, bathroom, natatorium and hospital floors, and all other types of construction where waterproofing membrane is required for plumbing connections.

Drains with the positive waterproof joint. All Fleming drains are especially designed to make positive, watertight joints, using 6-lb. or any weight cold sheet lead, copper or heavy waterproof fabric. Furnished in brass or galvanized or chromium finish at extra cost. Bolted connection positively prevents leakage to the ceiling below.

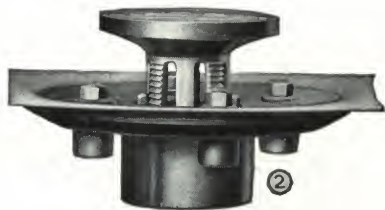


Series "B" with Beehive Strainer

Right

Series "B"

Patents, and patents applied



SERIES "B" FLOOR DRAINS

Catalogue No.	Size outlet, in.	Diam. strainer, in.	Weight, lb.	List price*
No. 2	2	4	9	\$ 7.20
No. 3	3	5	15	9.35
No. 4	4	6	17	11.00
No. 5	5	7	20	21.00

*Deduct \$1.00 each for flange if not required.

Fleming Adjustable Drum Type—Fleming adjustable drum type combination floor drain and trap for use where heavy trap seal is required. The drain has cast iron body with heavy cast brass nickelplated grided strainer, with extra long adjustment.



Fleming Adjustable Drum Type

All drains have standard pipe thread tapings, for strainers, and can be plugged for testing, all types of strainers being interchangeable.

ADJUSTABLE DRUM TYPE FLOOR DRAINS

Catalogue No.	Size outlet, in.	Diam. strainer, in.	Weight, lb.	List price*
No. 2	2	5	26	\$13.35
No. 3	3	6	35	17.50
No. 4	4	7	42	22.80

*Deduct \$1.00 each for flange if not required.

Series "D" — Shallow Pattern (U. S. Government Type)—Designed for narrow or 8-in. joist construction. Also has standard thread inlet for plugging and testing. Depth of water seal is 2 in. Furnished with hub outlet when specified.



Series "D" Shallow Pattern

SERIES "D" SHALLOW PATTERN TYPE FLOOR DRAINS

Catalogue No.	Size outlet, in.	Diam. strainer, in.	Lowest position, over all, in.	Weight, lb.	List price*
No. 2	2	5	7	26	\$15.35
No. 3	3	6	8 1/4	31	18.50

*Deduct \$1.00 each for flange if not required.

Fleming Adjustable Hospital Floor Drain—This new drain embodies the latest achievements in sanitary engineering, and has the special feature of being "adjustable" to various floor thicknesses. Especially designed with non-fouling inner surfaces. Has flushing rim to body and lower trap jet for cleaning and removing sediment, using direct hot or cold water or steam pressure to destroy germ life. Designed especially for hospital floors, operating rooms and science laboratories. Furnished with extra heavy nickelplated cast brass hinged strainers. Furnished chromium plated top, bronze or galvanized body at extra cost.



Fleming Adjustable Hospital Drain

ADJUSTABLE HOSPITAL FLOOR DRAIN

Catalogue No.	Size outlet, in.	Diam. strainer, in.	Weight, lb.	List price
No. 3	3	6	55	\$39.00

Fleming Leak-proof Roof Drains

Series "A"—Slab Type (Marine Specification)—Roof drains with the positive joint. For concrete and fireproof slab roofs, or wood roofs, can be used with or without waterproof flashing. Positively insures against leakage to ceiling below in all weather conditions when properly installed.

Fleming roof drains can be used with or without flashing using any weight sheet lead, copper or waterproofing fabric. Furnished in galvanized, brass, bronze or aluminum at extra cost.



Series "A" Slab Type



Fleming Strainer Guard

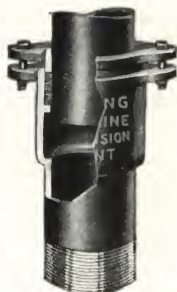
**SERIES "A," SLAB TYPE ROOF DRAINS
(STRAINER GUARD EXTRA)**

Catalogue No.	Size outlet, in.	Weight, lb.	List price
No. 2	2	13	\$14.00
No. 3	3	25	14.00
No. 4	4	26	14.00
No. 5	5	27	16.00
No. 6	6	30	18.00
No. 8	8	50	26.00

Fleming Expansion Joint for Pipe Line Connection

Furnished with male threaded outlet on spigot end. Can be screwed to wrought iron pipe line or calked into soil pipe hub. Allows 2-in. travel either upward or downward.

Made for all working pressures—no thin sleeve or casing thread to corrode out.



Fleming Expansion Joint for Pipe Line Connection

DETAILS AND PRICES

Catalogue	Size outlet, in.	List price, each
No. 3	3	\$4.50
No. 4	4	5.00
No. 5	5	6.00
No. 6	6	7.00
No. 8	8	10.00



Fleming Variable Angle Roof Drain



Fleming Variable Angle Sawtooth Roof Drain

For concrete, wood or fireproof slab roofs. A sawtooth roof drain embodying the feature of draining a sawtooth roof from any desired angle of building construction—yet adaptable to drain the V-shaped trench without any extra or special pipe fitting.

Furnished with double tapping and plugged on one side, giving right or left-hand side outlet piping connection. Has extra large water area and embodies the usual Fleming feature—the positive watertight joint.

FLEMING VARIABLE ANGLE SAWTOOTH ROOF DRAINS

Catalogue No.	Size outlet, in.	Weight, lb.	List price
No. 2	2	60	\$26.00
No. 3	3	60	27.00
No. 4	4	60	27.00
No. 5	5	80	29.00
No. 6	6	80	31.00

Fleming Series "C"—F. A. D. Drains

Heavy duty, extra heavy all cast iron floor areaway and deck drain. With non-tilting strainer. Can be used either with or without waterproof sheet. Made to stand heavy trucking over the grate. Has extra large water area. For use in factories, laundries, dairies, packing houses and industrial plants. Has threaded lugs for pipe legs, when specified. Furnished with brass, nickelplated or chrome strainer at extra cost.

Note: Also used for swimming pool connections.



Fleming Series "C"

DETAILS AND PRICES

Catalogue No.	Size outlet, in.	Weight, lb.	List price
No. 2	2	11	\$ 8.00
No. 3	3	24	12.00
No. 4	4	38	13.00
No. 5	5	43	14.50
No. 6	6	48	15.50
No. 8	8	50	18.50

Service to Architects

Architects' mechanical file prints giving full size data and measurements, etc., illustrating all Fleming drains as adapted to the various types of building construction will be cheerfully forwarded upon request. We solicit your problems for plan service which is furnished gratis. Write for complete catalogue.

THE RILE COMPANY, INC.

Manufacturers of Roof and Floor Sumps

247 McDougall Avenue
DETROIT, MICH.

Products

ROOF and FLOOR SUMPS.

Introduction

There has been a long-felt want among architects and engineers for a more lasting, permanent connection between roof and rain leaders, than that afforded by ordinary sheet metal. The integrity of any roof is restricted to the duration of its materials, for no roof can be stronger than the connections between roofing and rain leaders.

Roof Sump

Description—The Rile roof sump is an efficient, non-freezing, permanent rain conductor roof connection, forming a part of the general roof construction. It will effectively exclude foreign matter from the euduction or leader pipe.

Made of cast iron, the Rile roof sump is standard with many of the best architects and engineers for all classes of buildings and the various types of roof construction, including concrete, wood, book tile, hollow tile, gypsum roof tile, Federal tile, American tile, Truscon tile, or Hy-Rib.

Advantages—The Rile roof sump can not be readily broken, or stopped up, and is always accessible for cleaning.

Costs no more than the old soldered sheet metal types. Tapped for 4, 5, and 6-in. soil or wrought iron pipe.

The action of steam or sewer gases leaking through the drainage system and vented through the rain leaders has no effect on the Rile roof sump.

There are no soldering acids to cause trouble; no breaking of joints by expansion, contraction and buckling.

It will outlast the average roofing materials and is in position for the renewal of roofing or plumbing connections.

The use of Rile roof sumps effects a saving of from 3 to 6 weeks' time in the completion of every concrete structure in which they are used. By simply screwing a nipple and elbow to base of sump with a temporary pipe to discharge water outside of the building, sumps are ready for service the minute the structural roof slab is in place. Until such time as centering can be removed, to allow plumber to extend conductors and connect same, the lower stories are kept dry for flooring, the roof valleys and finish can be prepared for roofer, and finished roofing can be placed in advance of the plumbing.

Construction—Sump is made entirely of highest grade gray cast iron, and is entirely free from nuts, bolts, packed joints or other soldered or mechanical parts, and can be used for either wrought or cast iron conductor pipes. Main body, in the form of a cone frustum, is expanded into a flange at upper end. A removable cover, having perforation in the top and side openings, is seated in an annular seat in body by means of a peripheral flange. Bottom of body is screw-threaded to connect the cast or wrought iron euduction pipe.

Within the body is placed a removable catchbasin with integral perforated standpipe. Over the top of the catchbasin is placed a strainer, having perforations arranged radially and increasing in size toward the

periphery, so that bulk of water and any foreign substance will pass downwardly (if at all) between the walls of catchbasin and the walls of standpipe strainer, and any foreign substances be retained in catchbasin.

Operation—The coarser foreign substances will be kept out by the cap. Smaller particles which may pass through the cap will be stopped by the strainer. Still finer sediment will be arrested and held in catchbasin.

Sump is readily cleaned by removing cap, strainer and catchbasin.

Installation—In order to properly secure sump to roofing so as to form a perfectly tight and strong joint, there is provided in upper flange of the body an annular dovetail groove, into which the inner circular edge of flashing plate is placed, by being flanged downwardly and inwardly. Dovetail groove is then filled with molten lead and calked, forming a perfectly tight, strong and permanent joint.

This means of securing the roofing metal work or flashing to sump is an important feature, as well as the general design of main body containing catchbasin, strainers, etc., in which the major portion of sump is suspended below the roof and subject to action of dissipated heat units within building, thus insuring its non-freezing qualities—an important factor in the design of buildings containing high tension electrical generating and transmission apparatus.

Specifications—Contractor for plumbing (or roofing) will furnish and place as indicated on drawings (location of sumps should be indicated on architect's working drawings), or as required (state number required 4, 5, or 6 in.) standard cast iron Rile roof sumps (THE RILE COMPANY, INC., 247 McDougall Avenue, Detroit, Mich.). Plumber to pour and calk final lead joint between flashings and sumps. Flashings to be provided and applied by contractor for roofing.

New Floor Sump

For use with any type of flooring—wood, plastic or cement. Dimensions: Body 11½ in. deep over all; tapped 4 in. only; top member round, 17-in. diameter, with cupped edge and heavy standing flange with 6 weep holes for seepage into sump.

Shipped with regular pot and flat strainers and a heavy flat top strainer. (Three strainers.)

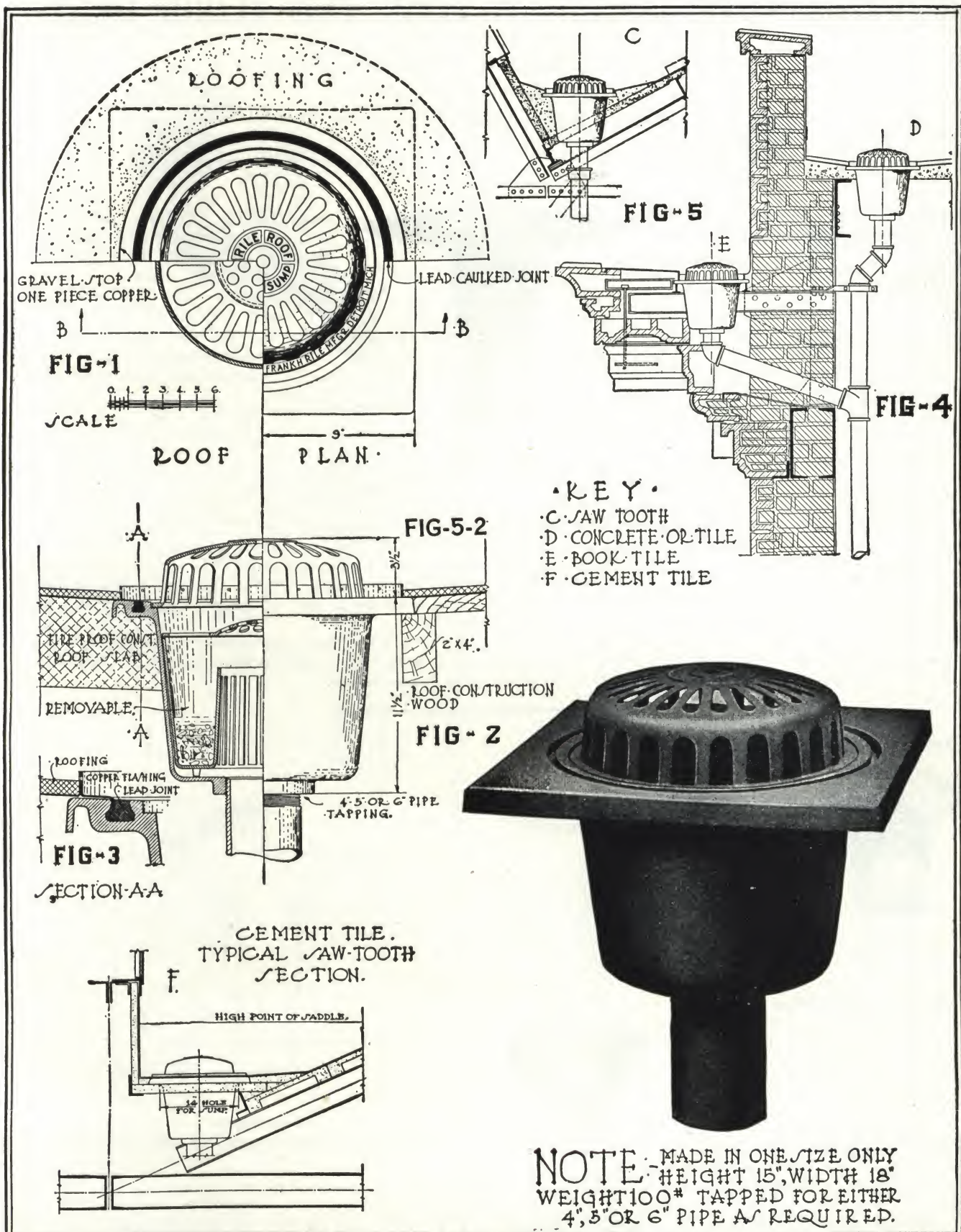
Ideal for laboratory, laundry and washroom floors.

References

Recent installations and orders:

United States Government
Aviation Dept. U. S. Army
United States Warehouses
Great Lakes Shipbuilding Co.
Cincinnati Milling Machine Co.
United States Tire Corporation
Geo. A. Fuller Construction Co.
Stone & Webster Corporation
Lincoln Motor Co.
Lockwood, Greene & Co.
Corn Products Co.
Solvay Process Co.
Ontario Power Co.
Canadian Steel Corporation
General Electric Co.
Packard Motor Car Co.
Leonard Construction Co.
Ford Motor Co.
Dodge Brothers (Motor Cars)
Cadillac Motor Car Co.

And scores of other leading engineers and builders.



DRAWN FOR
 THE RILE
 COMPANY, INC.

METHODS OF INSTALLATION AND
 DETAILS OF RILE ROOF SUMPS

SHEET NO. 1
 SCALE 3/8", 1/4" & 3/16"
 EQUALS 1'-0"

SUPERIOR CAST ALUMINUM ROOF AND FLOOR DRAINS

MANUFACTURED BY
SUPERIOR SKYLIGHT COMPANY, INC.

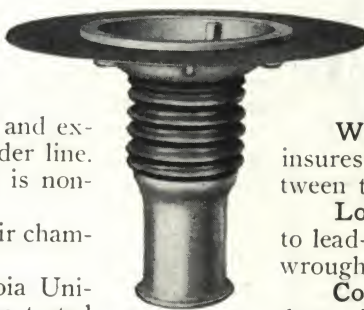
95 Webster Avenue
LONG ISLAND CITY, N. Y.

For Stage Skylight Ventilators and Projection Room Ventilators, see Manufacturers' Index

Superior (Cast Aluminum) Roof Leader Connections

- A Few of the Outstanding Features—**(1) A flexible lead expansion joint which absorbs the contraction and expansion caused by the settling of the leader line.
(2) Made of cast aluminum which is non-corrodible and stronger than cast iron.
(3) Equipped with an inner warm air chamber, making it anti-freezing.
(4) Hydrostatic test by the Columbia University Laboratory showed no leak when tested to 43 lb. to the square inch.
(5) Adaptable for all types of roof decks.
(6) Easy to install—no adjustments, no nuts, bolts or fitments necessary.
(7) Economical in cost and cuts down installation time.

Flexible Lead Joint—The flexible lead connection of convoluted folds between the bowl and conduit permits *expansion and contraction (approximately, 3 in.)* when the leader line settles, preventing damage to either roof deck or drain connection. This flexible lead joint is protected by an inner discharge tube which also forms a warm air pocket that will stop condensation and pre-



Type A
Connection

vent freezing. On the outside, the flexible joint is protected against infiltration of concrete by a temporary corrugated paper collar.

Wide Lead Flange—The wide lead flange insures a permanent watertight connection between the leader box and the roof.

Lower Ends—The lower ends are ferruled to lead-calk into cast iron pipes, or threaded for wrought iron pipe.

Columbia University Test—A recent hydrostatic test by the Columbia University laboratory showed no leak in connection between lead and aluminum when tested to 43 lb. per sq. in.

Adapted to Any Type of Roof Deck—The Superior (cast aluminum) roof leader connection is adapted to any type of roof deck. For roofs of flat brick or tile, inlaid slate or smooth cement, connection is furnished with a cast aluminum "tile stop." Bowl is provided with suitable "gravel stopper" when leader is to be used on a roof of gravel slag or other plastic material.

Should you have any unusual construction jobs in mind, write to us and describe the needs. We will be glad to co-operate.

Type "A" Roof Leader Connection



Type B
Connection

This is intended for installation with a cast iron leader line and is provided with a ferrule end to be lead-calked into the leader line.

Type "B" Roof Connections

This is made with a threaded end for use with threaded wrought iron pipe. Otherwise it is similar to type "A."

Type "C" Roof Drain

Without an expansion joint and is intended for use when the roof deck is too close to the underneath ceiling to permit the larger types to be used.



Type C
Connection

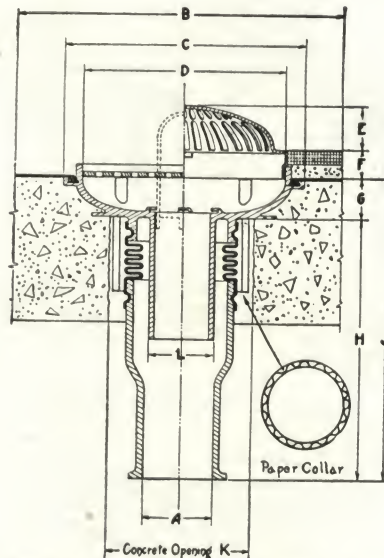
Type "L" Roof Drain

Type "L" is the same as Type "C" but made with side outlet for calking.

Particularly adaptable for ceiling use where height from ceiling to finished roof is limited and where conditions do not permit a straight connection to the leader line.



Type L
Connection



Detail of Type A Superior Roof Leader Connection

Size leader	A	B	C	D	E	F	G	H	J	K Roof opening	L	Wt. lb.
2	2	13 1/2	8 1/4	6	2	1 3/4	1 3/4	9 3/4	11 1/2	5 1/2	2	7 1/4
3	3	15	8 1/4	6 3/8	3 3/4	1 3/4	1 3/4	9 3/4	11 1/2	6	3	7 1/4
4	4	19	11	9	5	1 3/4	1 3/4	12	13 3/4	7 1/2	4	14
5	5	21	12 3/4	10 3/8	5 1/2	1 3/4	2 1/2	12 3/4	15 1/4	8 1/2	5	18
6	6	21 1/2	13	10 3/8	5 1/2	1 3/4	2 1/2	13	15 1/4	9 1/2	6	22 1/2

Table gives approximate over-all dimensions in inches and will be helpful when drawing up specifications.

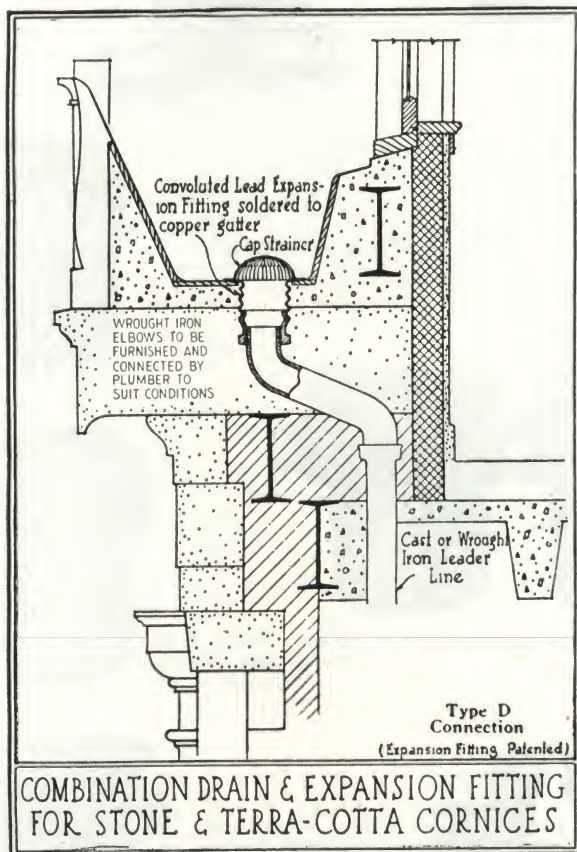
Type B: The dimensions of Type B are the same with the exception of the heights. The heights of Type B for leader sizes 3, 4, 5 and 6 in. are 7 1/2, 9, 12 and 13 in., respectively.

Type "D"

This is the same as Type "A" except for the elbow offset for stone and terra cotta cornices.



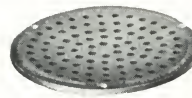
Type D Connection

Type D Connection
(Expansion Fitting Patented)**Strainers**

Three types of strainers may be had. A cap strainer which sets over the entire bowl, a flat strainer which is used on promenades, and a bowl strainer which sets down into the leader bowl.



Bowl Strainer



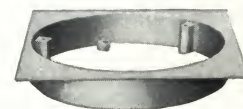
Flat Strainer



Cap Strainer

Tile Stop

Made of aluminum for use on roofs of flat tile or smooth cement finish.



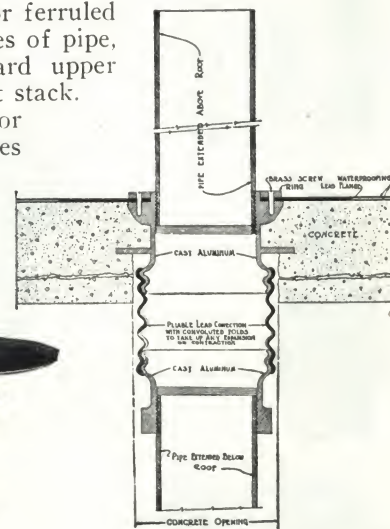
Tile Stop

Type "E" Expansion Vent Roof Connections for Vent Stacks

Type "E" is designed to be used in connection with long vent lines and affords a roof connection with all the advantages of our roof leader connections. It is made of aluminum castings with a flexible lead expansion joint and is threaded at the upper end to take a section of wrought iron threaded pipe.

In some localities a 4-in. vent stack is the smallest permitted, although a smaller line to the roof is allowed; therefore, the 2-in. and 3-in. sizes can be made with the lower end threaded or ferruled for these smaller sizes of pipe, but with the standard upper end to fit a 4-in. vent stack.

Made in 4, 5 or 6 in. and special sizes to order.

Type E Roof
Expansion Fitting for Vent Stacks**Typical Installations of Superior Roof Drain Connections**

BUILDING
New York Central Building
Chrysler Building
New York Telephone Co.
Lefcourt National Building
Equitable Life Insurance Building
American Locomotive Building
State Homeopathic Hospital
Long Island Railroad Building
Security Insurance Building
Bamberger Building
MacMillan Building
Central Union Trust Building
New Hotel Netherlands
Ford Administration Building
Columbia High School
Squibb Building
Asbury Park Convention Hall

LOCATION
New York, N. Y.
New York, N. Y.
Richmond Hill, N. Y.
New York, N. Y.
New York, N. Y.
Schenectady, N. Y.
Middletown, N. Y.
Long Island City, N. Y.
New Haven, Conn.
Newark, N. J.
New York, N. Y.
Wheeling, W. Va.
New York, N. Y.
Detroit, Mich.
Columbia, Mo.
New York, N. Y.
Asbury Park, N. J.

ARCHITECT
Warren & Wetmore
William Van Allen
Voorhees, Gmelin & Walker
Shreve & Lamb
Starrett & Van Vleck
R. G. White (Engr.)
Sullivan W. Jones
Long Island R. R. Co.
H. K. Murphy
Abbott-Merkel Co.
Carrere & Hastings
Chas. W. Bates
Schultz & Weaver
Albert Kahn, Inc.
Wm. B. Ittner & Co.
Buchman & Kahn
Warren & Wetmore

WADE IRON SANITARY MANUFACTURING CO.

Manufacturers of Wade "Accessible" Drainage Specialties

1717-1721 South Canal Street, CHICAGO, ILL.

Products

BACK WATER VALVE DRAINAGE FITTINGS;
WATER JACKET GREASE TRAPS and INTERCEPTORS;
CAST IRON GREASE, CATCH, GARAGE,



STEAM, CLEANOUT, BILGE PUMP, EJECTOR
PUMP, and FLOOR DRAIN BASINS; FLOOR
DRAINS; ROOF DRAINS; SHOWER DRAINS;
MANHOLE COVERS, and DRAINAGE SPECIALTIES.

Co-operative Service

The experts of this company will gladly assist in drawing up plans for any sanitary sewage systems that may be under contemplation.

Catalogues

Our new Catalogue "D" contains all specifications of all Wade Specialties, and will be furnished upon request, this page showing only a selected number of articles.



Fig. D101

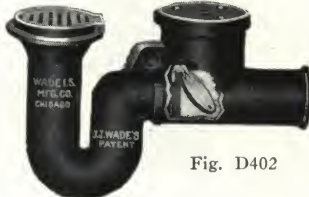


Fig. D402

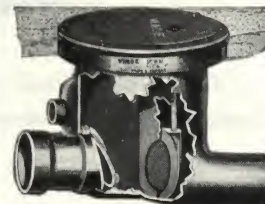


Fig. D406

Wade "Accessible" Backwater Valve Drainage Fittings

Wade "Accessible" backwater valve drainage fittings guarantee flood protection, and are made for every purpose

Wade Water Jacket Grease Trap

Completely surrounded by a jacket through which water is always circulating. By actual test this trap loses less than 1% of grease entering it

Wade All-Purpose Interceptor

Intercepts foreign material of any kind from waste water and prevents it from entering the sewer



Fig. D220



Fig. D210



Wade Sectional Pump Basins for Any Depth and Any Pump

Fig. D350



Wade Triple Gasoline and Oil Separating Basins for Garages

Wade Cast Iron Catch and Gravel Basin

Fig. D310



Fig. D380

Wade Floor Drain Basin

All sizes for all uses



Fig. D388

Wade Drains

Furnished with exposed seals where necessary

Wade Floor Drains and Basins can be furnished with exposed outside seals where necessary

Wade Steam Blow-off and Cooling Basin



Fig. D340

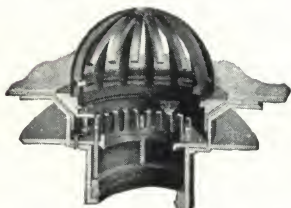


Fig. D452

Wade "Accessible" Roof Drain

Non-caulking, non-threading, self-expanding roof drain with adjustable clamp ring



Fig. D510

Wade Manhole and Street Covers are made in all sizes and styles with bolted or loose, solid, perforated or grated lids



Fig. D516

Wade "Accessible" Manhole Covers

Any type of cover of any size can be supplied for any purpose

WATER SUPPLY

Acme Electric Heating Co.....	C4815	Hygeia Filter Co.....	C4771
Albatross Steel Furniture Co., Ltd.....	C4869	International Filter Co.....	C4772
Allen, W. D., Mfg. Co.....	C4870-4873	Jiffy Fire Hose Rack Co.....	C4882-4885
American Rubber Mfg. Co.....	C4874	Kewanee Private Utilities Co.....	C4866
American Steam Pump Co.....	C4833	Lovekin Water Heater Co.....	C4804-4805
Ames Pump Co., Inc.....	C4834-4835	Motor Wheel Corp.....	C4806
Atlas Copper & Brass Mfg. Co.....	C4763	Myers, F. E., & Bro. Co.—	
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Beilman Water Heater Co., Inc.....	C4794	Water Supply Systems.....	C4867
Buhring Water Purifying Co.....	C4764	Nash Engineering Co.....	C4848-4849
Caldwell, W. E., Co.....	C4760	National Pipe Bending Co.....	C4781
California Filter Co., Inc.....	C4765	Paige & Jones Chemical Co., Inc.....	C4773
Chicago Bridge & Iron Works.....	C4761	Paramount Water Softener Corp.....	C4774
Chicago Pump Co.....	C4836-4839	Patterson-Kelley Co.	C4784
Crane Co.—		Penberthy Injector Co.....	C4850-4851
Water Heaters	C4796-4797	Permutit Co.	C4775
Water Softeners	C4766	Phister Mfg. Co.....	C4890-4892
Water Supply Systems	C4862	Pittsburgh-Des Moines Steel Co.....	C4762
Dahlquist Mfg. Co.....	C4819	Quimby Pump Co., Inc.....	C4852-4855
Davis Engineering Corp.....	C4780	Quincy Compressor Co.....	C4860
Deming Co.	C4864-4865	Refinite Co.	C4778
Duro Co.—		Riverside Boiler Works, Inc.....	C4807
Water Softeners	C4767	Roberts Filter Mfg. Co.....	C4776-4777
Water Supply Systems	C4863	Ruud Mfg. Co.....	C4808-4811
Economy Pumping Machinery Co.....	C4821-4832	Scaife, Wm. B., & Sons Co.....	C4779
Edison General Electric Appliance Co., Inc.....	C4816	Simmons, John, Co.....	C4886-4887
Elgin Softener Corp.....	C4768	Skidmore Corp.	C4845
Elkhart Brass Mfg. Co.....	C4876-4879	Taber Pump Co.....	C4856
Excelso Products Corp., Div. of American Radi-		Taco Heaters, Inc.....	C4785-4788
ator Co.	C4782-4783	Welsbach Co.	C4812-4814
Filtrine Mfg. Co.....	C4769	Westco-Chippewa Pump Co.....	C4858-4859
Florence Stove Co.....	C4795	Westinghouse Electric & Mfg. Co.—	
Gerstein, H., & Sons.....	C4820	Water Heaters	C4817
Goulds Pumps, Inc.....	C4840-4844	Water Supply Systems.....	C4868
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Grinnell Co., Inc.....	C4880-4881	Whitlock Coil Pipe Co.....	C4789-4793
Hoffman Heater Co.....	C4798-4801	Wirt & Knox Mfg. Co.....	C4888-4889
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Howard, H. J. M., Mfg. Co.....	C4875		

W. E. CALDWELL CO.

INCORPORATED

Manufacturers of Tanks and Tank Towers

2290 Brook Street
LOUISVILLE, KY.

Products

WOOD, STEEL and GALVANIZED TANKS, any shape or size, for any purpose; TUBULAR, ANGLE or CHANNEL COLUMN STEEL and WOOD TOWERS.

Also manufacturers of Railroad Water Stations; Tank Agitators; Steel Standpipes; Tanners' Drums; Power Transmission Machinery which includes: Friction Clutches, Friction Clutch Cut-off Couplings, Cast Iron Pulleys, Shaft Hangers, Safety Set Shaft Collars.

Cypress Tanks

This company specializes in cypress, as it is the best wood for tanks for most purposes. It has great durability with minimum shrinking and swelling, and gives no taste or coloring.

For some acids, yellow pine is recommended. Poplar, white pine, cedar and fir are also used.

Made round, elliptical and rectangular.

Specifications—Lumber to be thoroughly dry, without loose or unsound knots, splits, shakes, pecks, wormholes or other defects; all heart on inside; sound sap on outside, and then not to exceed one-half of the thickness of stave.

Thickness—2 in. for 10,000 gal. or less; 2½ in. up to 20,000 gal.; 3 in. for larger sizes. Finished thicknesses to be ¼ in. less than above.

Standard Inside Diameters of Round Tank—Every 6 in. from 3 to 9 ft.; every foot to 16 ft.; and every 2 ft. above 16 ft.

Standard Inside Depths of Round Tanks—

1 ft. 5 in.	4 ft.	6 ft. 5 in.	15 ft. 4 in.
2 ft.	4 ft. 5 in.	7 ft. 5 in.	17 ft. 4 in.
2 ft. 5 in.	5 ft.	9 ft. 5 in.	19 ft. 4 in.
3 ft.	5 ft. 5 in.	11 ft. 5 in.	21 ft. 4 in.
3 ft. 5 in.	6 ft.	13 ft. 5 in.	23 ft. 4 in.

Finish—Staves to be dressed both sides with edges machine jointed to proper bevel. Bottom to be dressed on top side only with edges machine jointed and square and well doweled.

Hoops—Round hoops to be of wrought iron (not steel) with malleable iron draw lugs; sizes and spacing to give a factor of safety of 4 to 1 or greater if required.

We also manufacture rectangular tanks of all dimensions and capacities.

Our Research Department will be glad to go into any special problem with you.

Tank Covers—Standard wood covers are supported by trusses and rafters and covered with 1-in. sheathing and Ruberoid roofing.

Flat wood covers are also furnished for frost protection when specified.

Tank Foundations

Realizing to what an extent the success of the tank depends on its foundation, we have made a careful study of tank foundations and have developed a series of standard designs which are not only of the proper strength but also use the minimum of material.

THE TANK WITH
A REPUTATION
Caldwell
TANKS
AND
TOWERS
TRADE-MARK



Cypress Tank

Steel Tanks

Hemispherical bottom steel tanks for elevated water storage are, in the larger sizes, as inexpensive in first cost as wooden tanks. Steel tanks are being extensively used in industrial plants and are the tanks for storage of oils, gasoline, alcohol and certain chemicals.

Caldwell steel tanks are made in every shape and for all purposes. We furnish these tanks all riveted, welded, or riveted-welded as required. Tanks can be shipped completely assembled up to 10½ ft. in diameter. Knocked down tanks are all punched, bent to shape and accurately fitted in our shops, with necessary erecting rivets furnished.

Tank Towers

Standard steel towers are of the following types: tubular column and angle column for flat bottom wood and steel tanks; latticed channel column for wood and hemispherical bottom steel tanks.

Standard Heights—*Tubular*—Every 12 ft. from 15 ft. to 100 ft.

Angle—Every 10 ft. from 12 ft. up.

Latticed—Every 5 ft. from 20 ft. up.

Erected anywhere.



150,000-gal. Tank, 205-ft. Tower, Studebaker Bros. Mfg. Co., South Bend, Ind.

DIMENSIONS AND CAPACITIES OF STANDARD TOWER TANKS

Class towers	Capacity, gal.	Standard wood tanks		Standard steel or galvanized tanks	
		Diameter ft. in.	Depth ft. in.	Diameter ft. in.	Depth ft. in.
O tubular.....	1,000	6 6	4 5	6 0	5 0
or CC angle.....	1,500	6 6	6 5	6 6	6 6
A tubular.....	2,800	8 0	7 5		
or FF angle.....	3,000	8 0	8 5	8 0	8 0
B tubular.....	5,000	10 0	9 5		
or HH angle.....	6,000	10 0	11 5	10 0	10 0
C tubular.....	10,000	12 6	11 5	12 0	12 0
or JJ angle.....	12,000	12 6	13 5		
D tubular.....	15,000	14 0	13 5	14 0	14 0
or KK angle or LD latticed.	17,000	14 0	15 5		
E tubular.....	20,000	16 0	13 5	16 0	14 0
or LL angle or LE latticed.	22,000	16 0	15 5		
ES tubular.....	25,000	16 0	17 4	16 0	18 0
or NN angle or LES latticed					
F tubular.....	30,000	18 0	15 4	18 0	16 0
or PP angle or LF latticed.	33,000	18 0	17 4		
FS tubular or LFS latticed.	35,000	18 0	19 4	18 0	20 0
G tubular.....	36,000	19 6	17 4		
or LG latticed.....	40,000	19 6	19 4	20 0	18 0
LH latticed.....	50,000	22 0	17 4	22 0	18 0
	55,000	22 0	19 4	22 0	20 0

Hemispherical bottom steel tanks and towers are regularly made in capacities from 5,000 gal. up. Any of the above towers can be made to suit special conditions.



Tank and Foundation,
Colonial Hotel,
York, Pa.

CHICAGO BRIDGE & IRON WORKS

Designers and Builders of Horton Steel Tanks and Plate Work

OFFICES

CHICAGO, ILL., 2120 Old Colony Building
NEW YORK, N. Y., 3122 Hudson Terminal Building
CLEVELAND, OHIO, 2221 Midland Bank Building
ATLANTA, GA., 2112 Rhodes-Haverty Building
PHILADELPHIA, PA., 1606 Jefferson Building
SEATTLE, WASH., 4308 Smith Tower
BOSTON, MASS., 1523 Consolidated Gas Building
TULSA, OKLA., 2428 Exchange Bank Building

DETROIT, MICH., 1522 Lafayette Building
DALLAS, TEX., 3312 Magnolia Building
SAN FRANCISCO, CALIF., 1075 Rialto Building
HOUSTON, TEX., 1130 Electric Building
TORONTO, ONT., 1425 Northern Ontario Building
BRIDGEBURG, ONT., 160 Janet Street
MONTREAL, QUE., 2125 University Tower
HAVANA, CUBA, Apartado 2507

PLANTS IN CHICAGO, BIRMINGHAM, GREENVILLE, PA., and BRIDGEBURG, ONT. (HORTON STEEL WORKS LTD.)

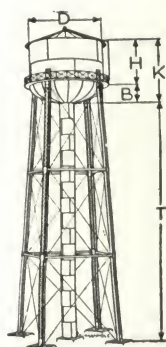
Products

HORTON ELEVATED STEEL TANKS for Sprinkler, Mill, Private Estate, Golf Club, Municipal, Railroad, Surge and General Service; STEEL STORAGE TANKS of all types for the storage of both liquids and solids.

STEEL PLATE CONSTRUCTION including: Gas Holders; the Hortonsphere and the Hortonspheroid for the storage of gas and liquids under pressure; Smokestacks; Penstocks; Standpipes; the Wiggins Floating Roof; the Wiggins Breather Roof; Oil Refinery Equipment; Riveted Pipe; Bins and Bunkers; Digesters.

Horton Standard Elevated Tanks

The ellipsoidal-bottom tank combines the advantages of elevated storage with a structure which is



ELLIPSOIDAL-BOTTOM ELEVATED TANKS

Nominal capacity, gal.	Tank dimensions			
	D	H	B	K
15,000	15'6"	8'9 1/2"	3'7"	12'4 1/2"
20,000	15'6"	12'3 1/2"	3'7"	15'10 1/2"
25,000	18'0"	10'9 1/2"	4'5"	15'2 1/2"
30,000	18'0"	13'3 1/2"	4'6"	17'9 1/2"
40,000	20'0"	13'9"	5'0"	18'9"
50,000	22'0"	14'0"	5'6"	19'6"
60,000	24'0"	14'0"	6'0"	20'0"
75,000	26'0"	15'0"	6'6"	21'6"
100,000	28'8"	16'0"	7'2"	23'2"
125,000	28'8"	21'2"	7'2"	28'4"
150,000	34'0"	16'6"	8'6"	25'0"
200,000	38'0"	17'6"	9'6"	27'0"
250,000	40'0"	20'0"	10'0"	30'0"
300,000	41'0"	23'9"	10'3"	34'11"
400,000	47'0"	23'2"	11'9"	34'11"
500,000	51'0"	24'3"	12'9"	37'0"
600,000	54'0"	26'3"	13'6"	39'9"
750,000	54'0"	32'0"	18'0"	50'0"
1,000,000	60'0"	34'0"	20'0"	54'0"
2,000,000	80'0"	35'6"	26'0"	61'6"

Height to bottom—any even foot, except for capacities of 30,000 gals. or less, which are furnished in standard story heights. We will quote on nearest standard height to actual requirements.

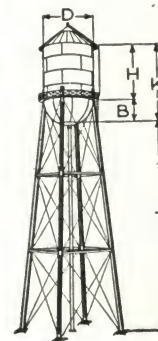
pleasing in appearance, yet designed in strict accordance with approved structural practice. The large diameter and relatively shallow shell allows but little variation in head between the high and low water lines.

The large steel riser is riveted solid to the bottom of the tank and requires no expansion joint. It provides additional support for the tank, and requires no wooden frost casing as the diameter is large enough to prevent freezing solid. The inlet and outlet pipe extends up into the riser several feet, allowing sediment to settle below its opening. A washout valve may be installed if advisable.



HEMISPHERICAL-BOTTOM ELEVATED TANKS

Nominal capacity, gal.	Tank dimensions			
	D	H	B	K
5,000	8'11"	7'8"	3'8"	11'4"
10,000	10'8"	11'10"	4'7"	16'5"
15,000	12'9"	11'9"	5'11"	17'8"
20,000	12'9"	17'3"	4'10"	22'1"
25,000	14'1"	17'3"	5'6"	22'9"
30,000	15'3"	17'3"	6'1"	23'4"
40,000	17'4"	17'3"	7'2"	24'5"
50,000	19'0"	17'6"	8'0"	25'6"
60,000	19'0"	22'3"	8'0"	30'3"
75,000	22'0"	19'4"	9'6"	28'10"
100,000	22'0"	28'0"	9'6"	37'6"
125,000	24'0"	29'0"	10'6"	39'6"
150,000	26'0"	29'3"	11'6"	40'9"
200,000	28'0"	34'6"	12'6"	47'0"
250,000	30'0"	37'2"	13'6"	50'8"
300,000	32'0"	40'0"	14'6"	54'6"
400,000	35'0"	44'0"	16'0"	60'0"
500,000	38'0"	46'6"	17'6"	64'0"



Height to bottom—any even foot, except on capacities of 30,000 gallons or less. These small capacity tanks are furnished in standard heights only. When asking for quotations on small capacity tanks please state the actual requirements. We will furnish our next largest standard tank at a cost less than that for an odd size of special design.

Information Required in Making Quotations on Elevated Water Tanks

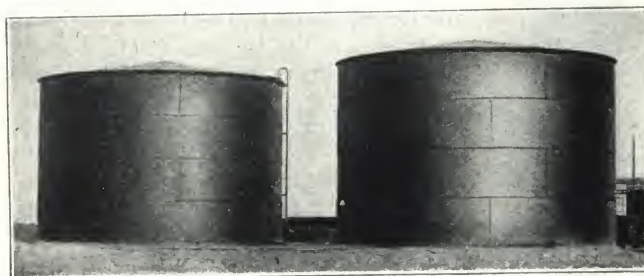
(1) Type of Tank—ellipsoidal or hemispherical bottom. (2) Capacity of tank required, gallons. (3) Height of tower, top of foundations to bottom of tank. (4) If tank is used for sprinkler service, state whether stock company, mutual or F.I.A. requirements. (5) Which, if any, of the following accessories manufacturer is to furnish: riser pipe, foot elbow, frost casing, overflow, indicator, tank heater. None of these accessories are included in quotations, except when expressly specified.

Steel Plate Construction

Our service includes the design, fabrication and erection of gas holders, Hortonspheres for high pressure storage, smokestacks, penstocks, standpipes, Wiggins floating roofs, Wiggins breather roofs, the Hortonspheroid, oil refinery equipment, steel pipe, bins and bunkers, digesters and other steel plate work.

Horton Standard Storage Tanks

Capacity, gal.	Diam.	Height	Capacity, gal.	Diam.	Height
10,000	12' 3"	11' 9"	150,000	30' 0"	29' 0"
20,000	17' 4"	11' 9"	175,000	32' 3"	29' 0"
25,000	16' 0"	17' 6"	200,000	34' 6"	29' 0"
30,000	17' 4"	17' 6"	250,000	38' 6"	29' 0"
40,000	20' 0"	17' 6"	300,000	42' 0"	29' 0"
50,000	22' 4"	17' 6"	400,000	49' 0"	29' 0"
60,000	21' 3"	23' 3"	500,000	54' 3"	29' 0"
75,000	23' 9"	23' 3"	600,000	60' 0"	29' 0"
80,000	24' 6"	23' 3"	750,000	66' 3"	29' 0"
90,000	26' 0"	23' 3"	1,000,000	77' 0"	29' 0"
100,000	27' 4"	23' 3"	1,500,000	94' 0"	29' 0"
125,000	27' 1"	29' 0"	2,000,000	108' 4"	29' 0"



PITTSBURGH-DES MOINES STEEL COMPANY

Steel Storage Tanks and Structural Steel

12 Neville Island

PITTSBURGH, PA.

SALES OFFICES

NEW YORK, N. Y., 616 Hudson Terminal Building
ATLANTA, GA., 630 Glenn Building
CHICAGO, ILL., 1222 First National Bank Building

SAN FRANCISCO, CAL., 326 Rialto Building
PLANTS: PITTSBURGH, PA. and DES MOINES, IOWA

DES MOINES, IOWA, 914 Tuttle Street
DALLAS, TEX., 1224 Praetorian Building
SEATTLE, WASH., 3128 L. C. Smith Building

Products

ELEVATED STEEL TANKS: for water storage and fire protection for buildings, plants, factories, golf clubs, private estates, municipalities and railroads.

Also Standpipes and Steel Reservoirs for water storage; Storage Tanks for oil, acid, gasoline, molasses and other liquids; Surge Tanks, either simple or differential for hydro-electric projects; Steel Stacks; Penstocks and Steel Pipe; Structural Steel and Plate Work.



Standard Tanks and Towers

After thirty-four years' experience, we have standardized the manufacture of our hemispherical bottom elevated tanks.

The designs most generally used are carried in stock, completely fabricated and ready for shipment.

Designs and materials for other standard tanks with capacities from 5,000 to 1,000,000 gallons are on hand, and these structures can be fabricated and shipped very promptly.

See the table below.



Homeopathic Hospital,
Rochester, N. Y.

50,000 gal., 100 ft. to bottom



Fisher Body Corp.,
Detroit, Mich.

40,000 gal., 20 ft. to bottom



Oshkosh Country Club,
Oshkosh, Wis.

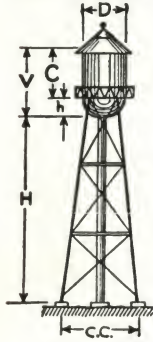
40,000 gal., 75 ft. to bottom



Chesebrough Mfg. Co.,
McKees Rocks, Pa.

50,000 gal., 100 ft. to bottom

Note: Distance center to center of adjacent columns (c.c.) is $.707D + .2(H + \frac{1}{2}D) + 1\frac{1}{2}$ in. The length of one side of the square plot of ground required may be determined roughly by adding 10 ft. to the above formula.



Boldface type indicates tanks and towers completely fabricated and ready for immediate shipment. Designs and materials for the other sizes are on hand; these structures can be fabricated and shipped very promptly.

DIMENSIONS OF PITTSBURGH-DES MOINES STANDARD TANKS AND TOWERS

Capacity in U. S. gals.	Range of head (V) ft. in.	Diameter (D) ft.	H—Heights to bottom capacity line, ft.-in.																	
*5,000	10 0	9	12 6	20 0	26 0	33 0	39 6	47 0	53 0	60 0	67 0	74 0	81 0	88 0	95 0	102 0	109 0	116 0	123 0	130 0
10,000	11 11	13	10 0	20 0	30 0	40 0	50 0	60 0	70 0	80 0	90 0	100 0	110 0	120 0	130 0	140 0	150 0	160 0	170 0	180 0
15,000	16 11	13	10 0	20 0	30 0	40 0	50 0	60 0	70 0	80 0	90 0	100 0	110 0	120 0	130 0	140 0	150 0	160 0	170 0	180 0
20,000	21 11	13	10 0	20 0	30 0	40 0	50 0	60 0	70 0	80 0	90 0	100 0	110 0	120 0	130 0	140 0	150 0	160 0	170 0	180 0
25,000	19 11	15	44 8	50 0	69 8	75 0	94 8	100 0	125 0	130 0	140 0	150 0	160 0	170 0	180 0	190 0	200 0	210 0	220 0	230 0
30,000	23 9	15	44 8	50 0	69 8	75 0	94 8	100 0	125 0	130 0	140 0	150 0	160 0	170 0	180 0	190 0	200 0	210 0	220 0	230 0
40,000	25 1	17	46 3	75 0	96 3	100 0	125 0	130 0	140 0	150 0	160 0	170 0	180 0	190 0	200 0	210 0	220 0	230 0	240 0	250 0
50,000	25 7	19	55 0	63 4	75 0	83 4	91 8	100 0	111 8	120 0	128 4	140 0	148 4	156 8	165 2	173 6	182 0	190 4	198 8	207 2
60,000	30 6	19	55 0	63 4	75 0	83 4	91 8	100 0	111 8	120 0	128 4	140 0	148 4	156 8	165 2	173 6	182 0	190 4	198 8	207 2
75,000	30 6	21	55 0	63 4	75 0	83 4	91 8	100 0	111 8	120 0	128 4	140 0	148 4	156 8	165 2	173 6	182 0	190 4	198 8	207 2
100,000	31 0	24	50 0	63 4	75 0	83 4	91 8	100 0	111 8	120 0	128 4	140 0	148 4	156 8	165 2	173 6	182 0	190 4	198 8	207 2
150,000	34 7	28	46 6	54 10	63 2	75 0	83 4	91 8	100 0	103 6	111 10	120 2	128 6	136 10	144 14	152 18	160 22	168 26	176 30	184 34
200,000	36 1	32	45 9	54 1	62 5	75 0	83 4	91 8	100 0	104 3	112 7	120 11	129 3	137 7	145 11	153 15	161 19	169 23	177 27	185 31
250,000	45 4	32	45 4	53 8	62 0	75 0	83 4	91 8	100 0	104 8	113 0	121 4	129 8	138 0	146 4	154 8	162 12	170 16	178 20	186 24
300,000	42 5	36	45 4	53 8	62 0	75 0	83 4	91 8	100 0	104 8	113 0	121 4	129 8	138 0	146 4	154 8	162 12	170 16	178 20	186 24
400,000	46 6	40	44 6	52 10	61 2	75 0	83 4	91 8	100 0	105 6	113 10	122 2	130 6	138 10	146 14	154 18	162 22	170 26	178 30	186 34
500,000	49 2	44	43 6	51 10	60 2	75 0	83 4	91 8	100 0	106 6	114 10	123 2	131 6	139 10	147 14	155 18	163 22	171 26	179 30	187 34
600,000	58 2	44	43 5	51 9	60 1	75 0	83 4	91 8	100 0	106 7	114 11	123 3	131 7	139 11	147 15	155 19	163 23	171 27	179 31	187 35
1,000,000	73 9	50	42 9	51 1	59 5	75 0	83 4	91 8	100 0	107 3	115 7	123 11	131 15	139 19	147 23	155 27	163 31	171 35	179 39	187 43

*This tank has a segmental bottom.

Roof Tanks

Should be used only when no suitable ground space is available for a standard water tower.

If you contemplate a roof tank on a new building, consult us in regard to the proper spacing for the tower supports when you plan the building.



City Water Works, Marblehead, Mass.
1,430,000 gal., 90 ft. high

Special Tanks and Towers

Will be designed, fabricated and erected to meet unusual conditions. Write for plans and estimates. If possible, give us the following information about the tower under consideration:

- (1) Use—for factory, plant, office building, golf course or municipality.
- (2) Capacity.
- (3) Height of tower to bottom of tank.
- (4) Erection conditions at proposed site: if on a building, give number of stories and spacing of the supporting columns; if on the ground, give the area of clear ground space available.

(5) Distance from nearest railroad.

Co-operative Service

Our engineers will be glad to discuss with you any questions concerning use, capacity, height and erection sites for steel storage tanks.

Write or wire our nearest office for designs and estimates of the tanks you need. Plans, specifications and quotations will be promptly sent, without any obligation on your part.

Submit your plans for special tanks, for structural steel or for plate work for estimates.

Send for our Industrial Tank Catalog No. 10, or our Municipal Water Works Catalog No. 10.



Des Moines City Ry. Co., Des Moines, Iowa
217 ft. high, 13 ft. diam. at top

ATLAS COPPER & BRASS MFG. CO.

Coppersmiths and Brass Finishers

2734-2744 High Street, CHICAGO, ILL.

Products

POLARSTIL, Water Distilling Apparatus.

Also Copper Kettles, Copper and Lead Lined Tanks.

Polarstil

Experiment and research by some of the foremost scientists in the country have proven that even the water which is secured from supposedly sanitary sources carries a high percentage of bacteria, certain types of which are beneficial, but a large number certainly disease-carrying organisms. These revelations have caused movement towards the increased use of distilled water for drinking and all sanitary purposes. Schools, industrial concerns, and hospitals, in particular, are rapidly adopting the principle of supplying their own distilled water.

Polarstils in various models were designed only after exhaustive research had revealed a simple and economic method of distilling water in large or small quantities.

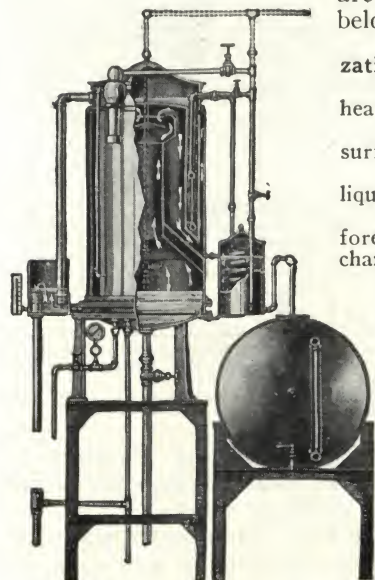
The construction of the Polarstil embodies a very simple design. The condensing chamber is free of coils and pipes.

The open interior construction facilitates easy cleaning and handling, and the automatic principle of operation is simplicity itself.

No matter how dirty, hard, full of sulphur or chlorine your water may be it will come forth from a Polarstil pure, crystal clear, aerated and palatable.

Steam Operated Polarstil

The principles of design upon which the Polarstils are dependent are outlined below:



Steam Operated Polarstil with Storage Tank

(1) Economical Vaporization—

- (a) Efficient source of heat.
- (b) Large evaporating surface.
- (c) Small volume of liquid to be heated.
- (d) Water preheated before delivery to evaporating chamber.

(2) Efficient Condensation—

- (a) Large area of condensing surface.
- (b) Condensing surfaces both water and air cooled.
- (c) Minimum amount of cooling water.
- (d) Minimum loss of uncondensed vapor.

(3) Freedom from Impurities—

- (a) High temperature of condensing water at surface.

- (b) Height of vapor traveling from evaporating chamber.
- (c) Wide vapor flue.
- (d) Efficient steam separator.

POLARSTIL



(4) Freedom from Mechanical Trouble—

- (a) Elimination of condensing tubes and coils.
- (b) Easy accessibility to all parts for cleaning or repair.
- (c) Bottom and evaporating coils hinged to base for easy removal.
- (d) Practical drain and flushout.
- (e) Interchangeability of parts.
- (f) Material, copper and brass.
- (g) Compact.

SIZES OF STEAM OPERATED STILLS

No.	Capacity per hr., gal.	No.	Capacity per hr., gal.
0	10	6	150
1	15	7	200
2	25	8	300
3	50	9	400
4	75	10	500
5	100	11	1000
Marine Stills			
0	10	2	25
1	15	3	50

Larger sizes built on order.

Note: Storage tanks are not included in our quotations unless requested.

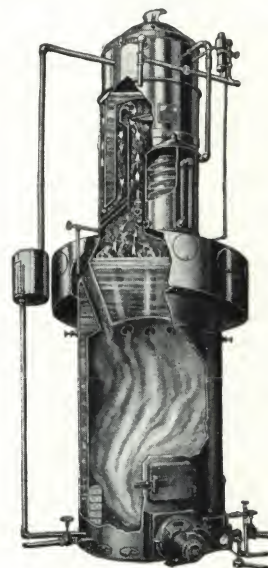
Sizes 1, 2 and 3 may be mounted on wall brackets.

Direct Fired Polarstils

Direct Fired Polarstils have the same construction as steam operated stills, with the exception of the steel evaporator, an addition to their equipment. This serves to evaporate the raw water into vapor form, sending it up to the distilling chamber, where it goes through the same process of distillation as in a steam operated still. No pressure built up in evaporator.

Can be operated by natural or manufactured gas, oil, or, if desired, combustion chamber can be equipped with grate to burn coal or wood.

Automatic controls operate after burner is started. When storage tank is full, still and burner automatically shut off.



Direct Fired Polarstil

Guarantee

The capacities of all Polarstils are guaranteed to be as rated.

The distilled water produced is guaranteed to be free from mineral or organic matter, either in suspension or solution, and of the highest degree of purity and sterility required for technical, manufacturing or drinking purposes—that it will not be flat or insipid to the taste, but equal in palatability to any of the best known table waters.

Services

Let us solve your water problems. Our Engineering and Laboratory Departments are at your disposal.

BUHRING WATER PURIFYING CO.

42 Murray Street, NEW YORK, N. Y.

REPRESENTATIVES

NEW YORK, N. Y., BOSTON WATER PURIFIER COMPANY, 40 Murray Street
BOSTON, MASS., BOSTON FILTER CO., Harvard Square, Charlestown District

CHICAGO, ILL., ALLEN FILTER SERVICE, 505 No. State Street

Products

WATER PURIFIERS, FILTERS.

Also Drinking Fountains, Sanitary Bubblers, Coil Coolers.

Buhring System Purifier

The Buhring System Purifier is for filtering and purifying water used for drinking purposes in hotels, restaurants, homes, offices, ice plants and other places where water free from impurities is essential. The Buhring eliminates all organic matter, either in suspension or physical solution, as well as considerable matter in chemical solution. The water is also decolorized and deodorized as the foreign matter is removed.

The Buhring System Purifier delivers the water pure and sparkling with all of its natural qualities retained.

Construction—The purifier is a cast iron pot with removable cover, protected against corrosion, which holds the filter bed. The pot has a water inlet at the top and outlet at the bottom.

Inlet and outlet fitted with standard screw pipe threads for connection to water system. The filter material consists of perfectly sterilized granulated charcoal of different grains, asbestos and a moulded carbon block. A perforated pipe passes through center of carbon block and is sealed by rubber washer at top and bottom of block screwing into outlet connection of pot.

Operation—The water entering the top of the purifier is released in a bed of loose granulated charcoal (a spreader is placed in this bed to force water over larger areas) passes through to a layer of asbestos cloth, through the asbestos cloth to another bed of charcoal where it strikes the carbon block, forcing its way to the outlet pipe. The larger and heavier impurities are stopped by the charcoal fields and final purifying is done by the carbon block.

Carbon Block—The density and hardness of the carbon block is proportioned according to the pressure and quality of the water where purifier is to be used. Density of each block being determined after location is decided. The carbon block is replaceable and should be renewed when absorbent properties become inert.

Sizes—The Buhring Purifier is made in three sizes, Nos. 14, 15 and 16.

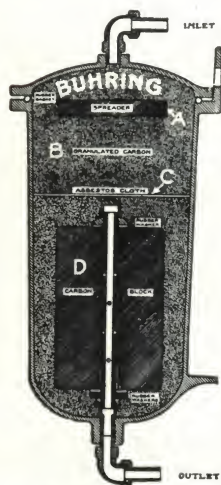
BUHRING

Reg. U. S. Pat. Off.

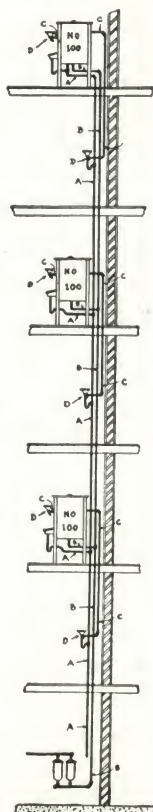
No. 16—For use where quantities up to 100 gallons per day are needed.

When a quantity in excess of 100 gallons per day is required, the No. 16 is used in parallel, and any capacity can be obtained this way.

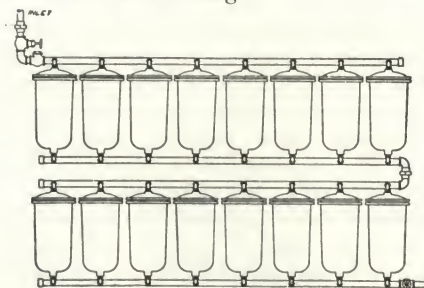
The units are then hung in rows to suit the location allotted to them and connected by means of tinned brass headers and fittings.



Sectional View
Buhring Purifiers
Nos. 15 and 16



Small Building
Installation
A—Waste pipe
B—Purified water
supply
C—Cold water
supply
D—Bubble
regulator



Battery of No. 16 Buhrings

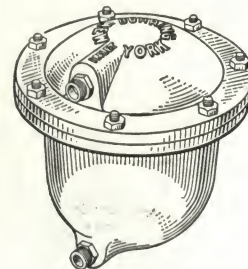


NO. 16 FOR ICE PLANTS

Tons of ice per day.....	1/2	1	2	3	4	5	6	7	8	10	12	15	20
Double units in compound.....	2	4	8	12	14	16	18	20	22	24	30	36	40

No. 15—For use where not more than 20 gallons per day are needed.

No. 14—This size Purifier was designed chiefly for use with electric water coolers and can be installed underneath most of them, being only 8 in. in height. Inlet and outlet connections are on the side so as to eliminate headroom and castings are heavy enough to withstand most any water pressure met in ordinary practice. Different types of brackets can be used to support purifier in various positions. No. 14 has a capacity up to 15 gallons a day.



No. 14

DIMENSIONS AND CAPACITIES

Size, No.	Dimensions, in.	Inlet, in.	Rate of flow, per min., gal.	Capacity, per year, gal.	Weight, lb.
14	8 x 8	3/4	1 1/2-1 1/2	5000	20
15	8 x 12	3/4	1 1/2-2	7000	25
16	12 x 22	1 1/2	1-3	35000	100

Rate of flow will vary in accordance with water pressure and density of carbon blocks used. Capacities are based on New York, N. Y. water when in normal condition, or its equal.

For drinking water systems, figure one No. 16 Unit for every gallon per minute capacity of circulating pump.

Electric Refrigeration—Buhring Purifiers are readily connected to any automatic system for cooling the water and will give excellent results.

Tests—The Buhring Purifier has passed many tests in its 39 years of service. Results of said tests furnished upon application.

Cleaning—Cleaning is by renewal only. When flow of water becomes too slow, the filter materials must be replaced.

Records are kept so that on orders for renewals the correct carbon block can be furnished.

CALIFORNIA FILTER COMPANY, INC.

981 Folsom Street, SAN FRANCISCO, CALIF.

DISTRICT SALES OFFICES

SEATTLE, WASH., 514 Fourth Avenue

LOS ANGELES, CALIF., 421 Associated Realty Building

Products

WATER PURIFICATION AND TREATING EQUIPMENT: Water Filters, Pressure and Gravity; Hypo Sterilizing Devices; Chlorine Control Apparatus; Liquid Chlorine; Water Softeners; Rate of Flow Indicator; Recorders; Controllers; Dry Chemical Feeders; Venturi Meters.



TRADE-MARK

heads, zinc-free bronze; coagulant tanks of cast iron.

Operation—Usually connected directly to existing water systems without change of piping arrangements or supplying additional pumping equipment.

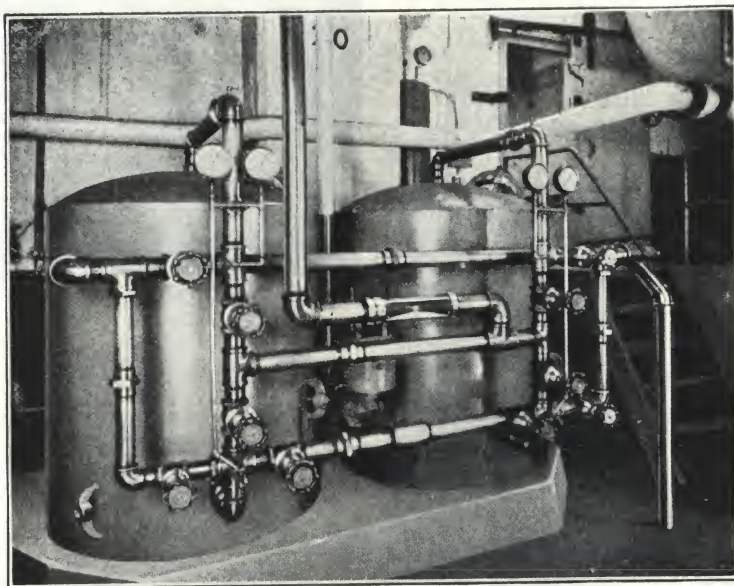
Gravity Type—Steel, wood or concrete.

Water Filters

Pressure Type—Constructed of steel plate; under-drain systems, cast or galvanized iron pipe; strainer

Gauntt Dry Chemical Feeders

All sizes and capacities for coagulants and lime, dry or solution feed.



Duplex Vertical Pressure Filter, Type K

FILTER SPECIFICATIONS AND SCHEDULE OF SIZES AND CAPACITIES

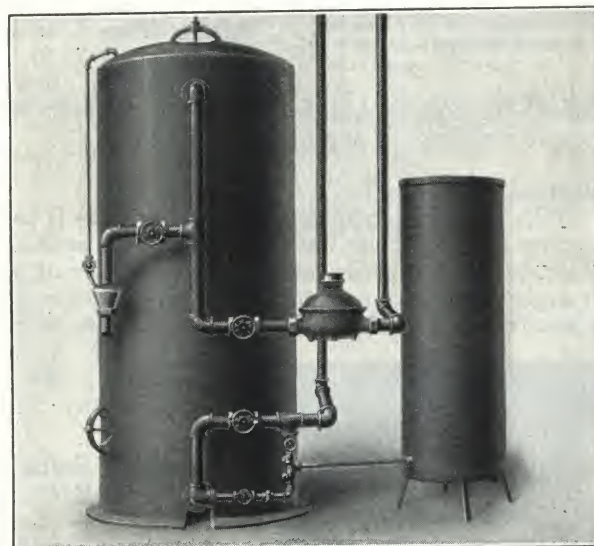
Type	Size diameter, in.	Inlet, outlet piping, in.	Waste pipe, in.	Height over all, ft. in.	Floor space required, ft. in.	Capacity in U. S. gallons		
						At 2-gal. rate		
						Minute	Hour	Total wt., lb.
Vertical Filters								
A	12	3/4	1	5-0	1-6 x 2-0	3	180	450
	16	1	1 1/4	5-0	1-10 x 2-11	4	240	750
	20	1	1 1/4	5-0	2-0 x 3-3	7	420	950
J	30	1 1/2	1 1/2	5-7	3-6 x 5-0	10	600	1,300
	36	1 1/2	1 1/2	5-7	3-6 x 5-5	15	900	2,000
K	40	2	1	5-9	4-0 x 5-6	18	1,080	2,500
	42	2	2	5-9	4-2 x 5-9	20	1,200	2,700
	48	2 1/2	2 1/2	5-11	4-6 x 6-0	25	1,500	3,500
	50	2 1/2	2 1/2	5-11	4-6 x 6-3	28	1,680	3,700
	54	2 1/2	2 1/2	6-0	4-6 x 6-7	32	1,920	4,400
	60	2 1/2	2 1/2	6-0	5-0 x 7-3	40	2,400	5,500
L	66	3	3	6-2	5-6 x 7-9	48	2,880	6,700
	72	3	3	6-5	6-0 x 8-3	57	3,420	8,000
	78	3	3	6-6	6-6 x 8-9	67	4,020	9,300
	84	4	4	6-10	7-0 x 9-6	77	4,620	10,700
	96	4	4	7-2	8-6 x 10-7	100	6,000	13,400
Horizontal Filters								
H-6	Diam. length							
	6 x 8	4	4	7-6	6-6 x 10-9	96	5,760	17,000
	6 x 10	4	4	7-6	6-6 x 12-9	120	7,200	21,300
	6 x 12	4	4	7-6	6-6 x 14-10	144	8,640	25,500
	6 x 14	6	6	7-6	6-6 x 17-0	168	10,080	29,750
	6 x 16	6	6	7-6	6-6 x 19-0	192	11,520	34,000
	6 x 18	6	6	7-6	6-6 x 21-0	216	12,960	38,250
	6 x 20	6	6	7-6	6-6 x 23-0	240	14,400	42,500
H-8	8 x 10	4	6	10-2	10-0 x 16-0	160	9,600	29,200
	8 x 12	6	6	10-2	10-0 x 18-0	192	11,520	35,100
	8 x 14	6	6	10-2	10-0 x 20-0	224	13,440	40,900
	8 x 16	6	8	10-2	10-0 x 22-0	256	15,360	46,800
	8 x 18	6	8	10-2	10-0 x 24-0	288	17,280	52,600
	8 x 20	8	8	10-2	10-0 x 26-0	320	19,200	58,400
	8 x 22	8	10	10-2	10-0 x 31-0	400	24,000	73,300
	8 x 25	8	10	10-2	10-0 x 31-0	400	24,000	73,300

Calclite (Zeolite) Water Softener

The Calclite mineral has a higher exchange value than most zeolites on the market, giving a greater capacity between regenerations. The mineral is of crystalline, white, porous structure, always delivering clear soft water. It is specially adapted to use for the household, laundry, industrial plants, and hotels.

Complete units of both pressure and gravity types are furnished. In the pressure types we furnish both vertical and horizontal units with interconnecting piping where more than one unit is supplied. The equipment includes all the necessary piping, control valves, water meters, and brine tank.

The features of quick regeneration and greater capacity between regenerations makes the Calclite Softener the most satisfactory for domestic use, as attention to the equipment is reduced to a minimum. Valves are conspicuously marked and full directions for installation and operation are furnished.



Calclite Water Softener

Rate of Flow Indicator

Designed for accurate, simple indication of water velocities by means of a Pitot tube inserted in any size line—wood, steel or cast iron.

Venturi Meters, Rate Controllers, Recorders

Builders Iron Foundry equipment, all sizes and capacities.

CRANE CO.

Water Softeners

836 South Michigan Avenue, CHICAGO, ILL.

For List of Branches and Sales Offices, see our Plumbing Section

Product

WATER SOFTENERS, Industrial and Domestic.

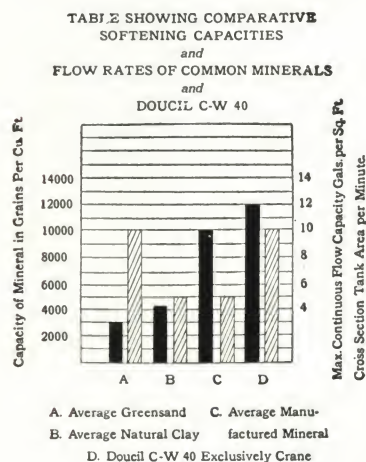
For our pages on Water Heaters, Gas Fired Boilers, Water Supply Systems, Plumbing Fixtures, see Manufacturers' Index.

Crane-Warlo Water Softeners

These up-flow systems, for the removal of all lime and magnesium in water, are supplied in sizes and capacities for every use, industrial, domestic, and municipal. The tanks of the smaller domestic machines are of corrosion resisting cast iron; those of the larger, of welded steel; and those of the industrials, of steel, both riveted and welded. The distributing system is planned to supply water uniformly to the mineral bed at any flow rate; avoiding both channeling and packing. Top

strainers prevent the loss of mineral and eliminate rate of flow controls. A patented timing funnel regulates accurately the time of contact between mineral and brine, regardless of pressure, while the patented double regeneration cycle saves salt and water waste.

The mineral used in all Crane Softeners is Doucil C-W 40. It is unique in that it



combines the high capacities of synthetic minerals with the rapid flow rate of natural green sand.

Industrial Softeners

Style D meets practically any requirement. It has a softening capacity four times that of green sand and will produce full capacity and a constant supply of zero soft water at a flow rate as high as 10 gallons per minute per square foot of tank area. Standard sizes range from

24 to 120 in. tank diameter; special sizes for any capacity.

Domestic Softeners

The Electro-Matic, the Semi-Automatic, and the low cost CW.

Electro-Matic

—Two sizes: No. 1700 for water up to 40 grains per gallon hard; No. 1702 up to 60 grains. For each size, two styles are made, softener

mechanism being the same, the type of automatic control varying.

Style A—Regenerates automatically when the limit of its capacity is reached.

Style SA—Equipped with a combination light and push-button switch. When this softener nears the limit of its capacity, the signal light flashes red, indicating that the switch should be turned to the automatic position for regeneration.

Semi-Automatic Supplied in three sizes.

Style SA-22—Al-

though not quite so attention-free as the Electro-Matic, this softener requires but little time. The brine tank needs refilling about three times a year; the mineral, regeneration about twice a month. Regeneration is simplified to moving a hand lever to two different positions, then returning it to its original setting.

Style SA-36 and SA-72—These operate on exactly the same principle as the SA-22. They differ only in their larger size, and the fact that steel has been substituted for heavy cast iron in the tanks.

CW-22, 36, and 72—Made in three sizes, this hand operated softener dependably supplies Crane-Warlo soft water at the lowest price.



Crane-Warlo Electro-Matic Softener

ELECTRO-MATIC
MAXIMUM FLOW RATES AND CAPACITIES
All calculations based on U. S. gallons

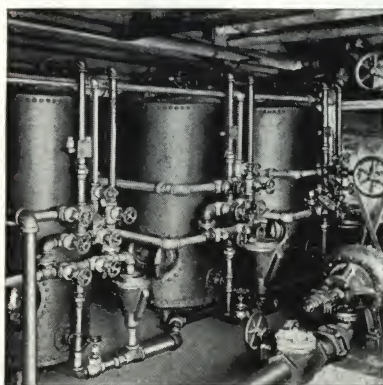
No.	Possible delivery of soft water in gal. per min.*	Capacity in grains of hardness removed per 100 lb. salt	Capacity in gal. per regeneration for water of 5 to 60 grains hardness										
			5	10	15	20	25	30	35	40	50	60	
1700	10	165,000	1270	610	390	280	215	170	140	115			
1702	14	170,000	3750	1850	1215	900	710	585	495	425	330	265	

*Running water pressure to softener, both 1700 and 1702 sizes—50 lb.

OTHER CRANE-WARLO DOMESTIC WATER SOFTENERS

Size	SA-22 CW-22	SA-36 CW-36	CW-72
Maximum flow rate intermittent service in gal. per minute.	10	20	33
			SA-72
			20
Hardness of water in grains per gal.	Gallons soft water per regeneration		
8	2750	4500	9000
10	2200	3600	7200
12	1833	3000	6000
14	1571	2571	5142
16	1375	2250	4500
18	1222	2000	4000
20	1100	1800	3600
22	1000	1636	3272
24	916	1500	3000
26	846	1384	2769
28	785	1285	2571
30	733	1200	2400
32	687	1125	2250
34	647	1058	2116
36	611	1000	2000

To choose the right softener for the home, multiply the number of gallons of water used every two weeks by the grains of hardness. Then consult the table and select one of similar capacity.



Typical Crane-Warlo Industrial Installation

THE DURO COMPANY

Manufacturers of Automatic, Semi-automatic and Hand Operated
Water Softeners

DAYTON, OHIO

BRANCH OFFICES AND REPRESENTATIVES IN ALL THE IMPORTANT CITIES IN THE UNITED STATES AND CANADA

Products

"DE LUXE" VITREOUS PORCELAIN CONVERTIBLE WATER SOFTENERS; VITREOUS PORCELAIN NON-CONVERTIBLE WATER SOFTENERS; GALVANIZED ARMCO IRON WATER SOFTENERS.

For Duro Shallow and Deep Well Pumps and Complete Water Systems, see Manufacturers' Index.



Easy to Install

Each type of Duro Water Softener is easy to install in any home, old or new, and wherever softened water is needed. Made in capacities to meet all requirements. The determining factor in deciding softener size is flow rate in gallons per minute rather than capacity between regenerations. Shipped completely assembled, ready to operate, making installation cost low.



SA-60 Convertible Softener



SR-60 Convertible Softener



ST-60 Convertible Softener



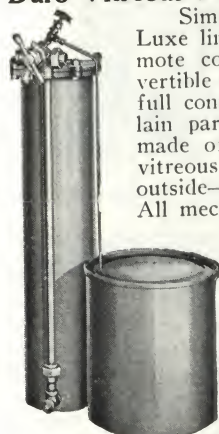
Model A Full Automatic
Convertible Softener

Duro "De Luxe" Convertible Softeners

This line comprises five types. The difference in each type is in the ease and convenience in which regeneration is accomplished. The semi-automatic type can be converted quickly and at little cost into either a remote control or full automatic type.

Duro Vitreous Porcelain Softeners

Similar in construction to the De Luxe line, but are not made in the remote control units. The SA is convertible to the SR. Both the De Luxe full convertible and the vitreous porcelain partially convertible softeners are made of armco ingot iron with fused vitreous porcelain coating inside and outside—non-corroding and non-rusting. All mechanism parts cadmium plated.



RG-Rapid Flow
Softener

Duro Galvanized Armco Ingot Iron Softeners

Duro Rapid Flow Galvanized Softeners are hand operated and among the most modern and efficient softeners in that field. Made of galvanized armco ingot iron, single control valve, non-leaking, easy to operate.

SPECIFICATIONS FOR CONVERTIBLE "DE LUXE" SOFTENERS AND MODEL A AUTOMATIC SOFTENERS

Size No.	Depth, width, height, in.	Shipping weight crated, lb.	Flow rate gal. per min.	Salt per refilling lb.	Regen. per refill	Grain gal. per regen.
RG-1	26x14x44	160	8	50	8	10400
RG-2	26x16x52	230	10	50	4	20800
RG-3	26x16x67	300	10	50	3	28600
SA-60	14x24x44	245	12	75	12	10400
SA-61	16x26x52	300	16	100	8	26800
SA-61½	18x30x52	315	16	200	16	20800
SA-62	16x26x67	420	16	200	12	28600
SA-63	25x32x60	530	20	500	16	59800
SA-65	28x40x80	1180	35	500	10	90220
SR-60	16x24x50	250	12	75	12	10400
SR-61	16x26x56	315	16	100	8	20800
SR-61½	20x30x56	325	16	200	16	20800
SR-62	20x30x67	430	16	200	12	28600
SR-63	28x40x64	540	20	500	16	59800
SR-65	28x40x80	1190	35	500	10	90220
SP-60	16x24x52	265	12	75	12	10400
SP-61	16x24x58	325	16	100	8	20800
SP-61½	20x30x58	335	16	200	16	20800
SP-62	20x30x67	440	16	200	12	28600
ST-60	16x24x52	265	12	75	12	10400
ST-61	16x24x58	325	16	100	8	20800
ST-61½	20x30x58	335	16	200	16	20800
ST-62	20x30x67	440	16	200	12	28600
A-60	24x34x50	315	12	75	12	9600
A-61	28x36x56	395	16	100	8	19200
A-61½	28x36x56	415	16	200	16	19200

Note: Divide hardness into grain gallon capacity as given in column six above to obtain gallons per regeneration on each unit.

ELGIN SOFTENER CORPORATION

Water Softening and Conditioning Equipment

ELGIN, ILLINOIS

Products

ELGIN INDUSTRIAL and DOMESTIC ZEOLITE SOFTENERS.

ELGIN PRESSURE SAND FILTERS.

ELGIN DECONCENTRATORS for Boilers.

ELGIN CONTINUOUS BLOW DOWN SYSTEM with Heat Exchanger.

Also Elgin Chemical Control Equipment and Elgin Anti-corrosion Products.

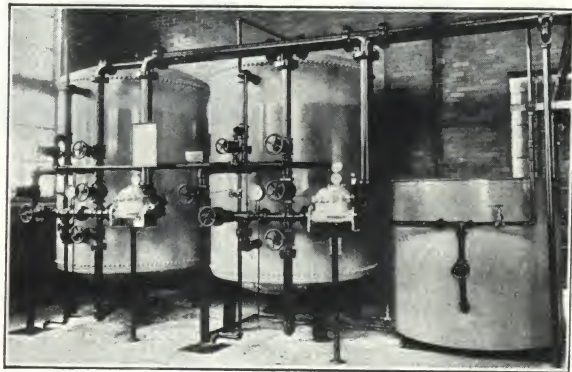
Service

The ELGIN SOFTENER CORPORATION (formerly the Reiter Co.) has specialized in the field of water purification for twenty years. In addition to a thoroughly equipped laboratory, the Company maintains a staff of competent engineers to investigate industrial water problems and to survey boiler feed water problems.

Elgin Zeolite Water Softener

The Elgin Softener embodies filtration in addition to softening. The equipment, operating on the upward flow principle, produces the maximum softening capacity per regeneration with a minimum waste of wash water.

The equipment includes a filter bed at the bottom, with independent means for backwashing the filter bed, without passing the washwater through the zeolite, and during regeneration the salt solution is removed, without passing through the filter bed. The Elgin interior design overcomes one universal trouble with zeolite softeners, namely, bed blowing.



Elgin Industrial Zeolite Water Softener

The softener is complete in all details including brine tank, water meter, valve nest, softener tank and zeolite. The zeolite furnished includes either a natural or synthetic product, as required by the conditions under which the softener will operate.

The equipment is built in all sizes in both vertical and horizontal design for installation as single units or in a battery of two or more.

Elgin External Deconcentrator for Boilers

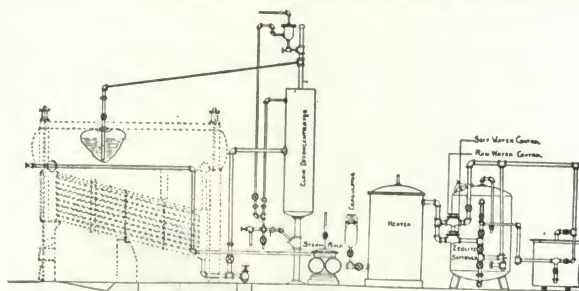
This system includes a sedimentation chamber to which is circulated the equivalent of 25% to 50% of the hourly evaporation in a boiler. Suspended matter in the boiler water settles to the bottom and the clarified water returns to the boiler.

Oil present in the boiler water collects in the sedimentation chamber, and is removed periodically by the opening of a drain valve.

The continuous circulation of the boiler water to the sedimentation chamber produces clean boiler water as the first step in the production of clean steam. In combination with correct conditioning of the feed water, blow down is materially reduced and the boiler water will not cause embrittlement, corrosion nor scale.

Elgin Zeolite-Deconcentrator Combination

Utilizing the Elgin Deconcentrator in combination with the zeolite water softener eliminates the danger of caustic embrittlement, excessive blow down and wet steam. The combination system permits by-passing a definite quantity of raw



Elgin Zeolite-Deconcentrator Combination

water which will react with the caustic soda produced by the zeolite softened water and the sludge produced will be removed by the Elgin Deconcentrator.

The zeolite softener changes the temporary hardness in the raw water to sodium bicarbonate, baking soda, which under heat and pressure within the boiler breaks down to soda ash and to sodium hydroxide. These salts are extensively used in this country for softening water, and by using a deconcentrator, raw hard water can be by-passed, utilizing these salts for softening purposes.

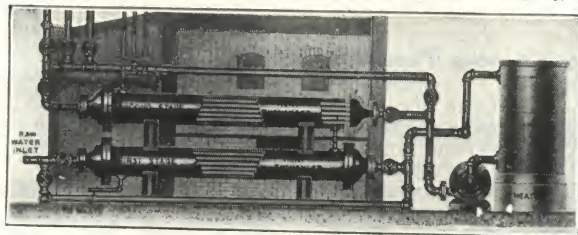
The combination system produces ideal boiler water at minimum operating expense, and eliminates the danger from uncontrolled caustic in the boiler water.

Elgin Lime Soda Combination

The Elgin Deconcentrator operated in combination with the lime soda softener will provide uniformly clean boiler water, reducing blow down and permitting higher overloads without the production of wet steam. Proper chemical control of the boiler water provides protection against embrittlement, corrosion and a dirty boiler.

Elgin Continuous Blow Down System

Designed for boilers where the problem is primarily soluble salts. The equipment includes an internal deconcentrator to separate the sludge in the boiler water. A single or double stage heat exchanger is used to transfer the heat units from the boiler water to the incoming feed water. The equipment can be operated as an intermittent or continuous blow down without the waste of heat units.



Elgin Continuous Blow Down System, with Deconcentrator and Heat Exchanger

The continuous blow down method is a dilution process wherein the blow down is replaced with fresh incoming feed water. It is necessary to maintain the boiler in proper chemical balance the same as with deconcentration, to secure the highest efficiency in operation.

Elgin Pressure Sand Filters

Elgin Water Filters will produce a clean water suitable for industrial uses, public buildings, swimming pools, institutions and homes. The equipment embodies the most advanced principles in design and construction and each system is tested at 50% over the maximum operating pressure.

The equipment is built in both vertical and horizontal designs, as single units or in a battery of two or more.

THE FILTRINE MANUFACTURING COMPANY

ESTABLISHED 1910

Manufacturers of Filters and Water Coolers

51-53 Lexington Avenue, BROOKLYN, N. Y.

Products

FILTERS for water (hot or cold), syrups, vegetable oils, extracts, preserving brine, etc., capacities 1 to 100 gal. per minute.

WATER COOLERS and FILTERS, combined, cooled by ice. Also ELECTRIC WATER COOLERS, small and large capacities, and CIRCULATING DRINKING WATER SYSTEMS.

Filtrine

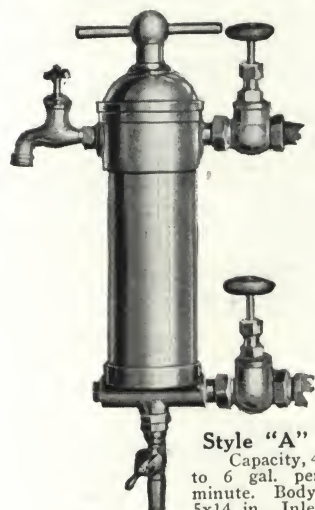
Filtrine is the filtering material used in all "K-System" filters. This fabric contains the essential qualities of a filtering material, as specified by recognized standard authorities, here and abroad, viz.: all filtering devices must be constructed so as to allow frequent renewal of filtering bed.

Why? Because no medium can retain its purifying power indefinitely. The oftener it is changed, the more effective the filter.

Filtrine retains all suspended matter, rendering the water clean and pure. To clean the filter take out the dirty "spent" sheet and replace with new. Upkeep cost is very low.

"Filtrine" Style "A" Filter

This filter is designed to be set in the supply line, feeding a number of outlets. Filtered



and outlet, $\frac{3}{4}$ in. Weight, 20 lb.



Style "B"

Capacity, 15 to 20 gal. per minute. Weight, 100 lb. Floor space required 18x18 in. x 24 in. high. $1\frac{1}{2}$ in. inlet. $1\frac{1}{2}$ in. outlet

Especially suitable for: *Drinking water lines* in factories, hotels, office buildings, banks, theaters, etc. *Hot water lines* in private homes, apartments, etc. *For general installation* in bottling plants, laboratories, restaurants, ice-making plants, etc.

For greater capacity, filters can be mounted in multiples.

Operation—Water enters center standpipe from the bottom where the force is broken by the specially designed "baffle." From the standpipe the water works outward through the encasing cylinder of "Filtrine," depositing all the suspended matter on the surface of the filtering material, the purified water flowing off at either of the outlet valves.

Made of heavily nicked brass, valves and fittings of finest material. Tested for 75 lb. working pressure. All capacities are based on 25 lb. pressure per sq. in.

To clean, merely close inlet and outlet valves, open waste, remove top and lift out, and replace the "Filtrine." The entire replacement takes less than one minute.

"Filtrine" Style "B" Filter

Suitable for general circulating water systems in hotels, theaters, restaurants, apartment houses, department stores, and for filtering water for swimming pools, ice plants, factory and industrial use.

Installed at any point in the water service line.

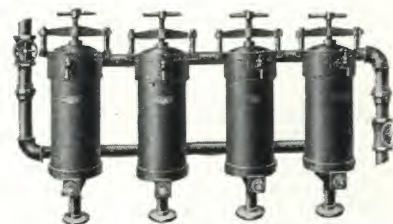
Made of galvanized iron. Can be installed in batteries of two or more units with capacities up to 100 gal. per minute.

Style "B" Filter in Multiple Units—Where a large amount of water is used we manufacture multiple units of Style "B" filters.

Any number of these filters may be installed in a battery to care for a large supply of water.

They will be found very practical and will give unexcelled service in homes, hotels, schools, clubs, swimming pools, ice plants, etc.

Equally applicable to either cold or hot water supply.



Style "B" Filters in Multiple Unit

Space required for above, 2x2 ft. x 4 ft. high. Capacity, 75 to 100 gal. per minute. Weight, 500 lb.

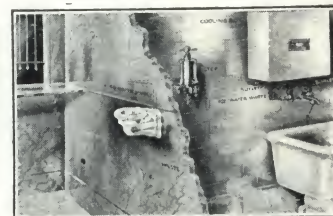
"Filtrine" Wall Bubbler Type 5A

"Filtrine" wall bubbler takes the place of elaborate circulating drinking water system. Cooling box and filter located in one room, sanitary drinking fountain brought out in main room. Original expense and upkeep are moderate.

Steel cooling box of white enamel, dimensions according to available space (usual size 25 $\frac{1}{2}$ x11x20 in.), tinned copper lining, cork insulation; block tin cooling coil, in conjunction with cooling cell.

Style No. 1 filter. Sanitary drinking fountain furnished to suit client.

Designed for stores, banks, restaurants, theaters, offices, etc.



Typical "Filtrine" Wall Bubbler Installation

Note the absence of the unsightly, unsanitary and space wasting bottle cooler

"Filtrine" Automatic Circulating Water Cooling System

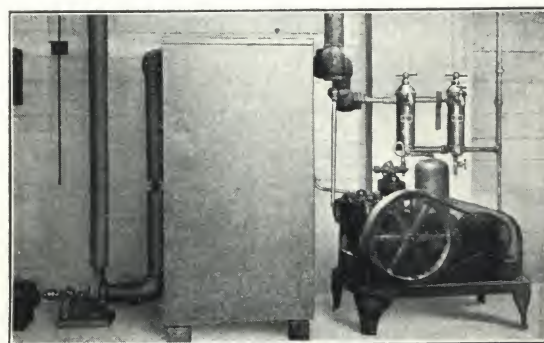
Fully automatic circulating drinking water systems with capacities up to 50 gal. per hour.

Comprising pressure storage cooling tank; automatic refrigerating machine, circulation booster pump; Style "A" filters.

Large storage cooler enclosed in heavy insulated steel container.

Cooling tank, riveted and welded.

Sizes from 4 to 75-gal. storage.



Typical "Filtrine" Water Cooling System

"Filtrine" Electric Coolers

Self-contained and remote types for offices, factories, hospitals, clubs, restaurants, featuring large reserve capacities to meet heavy peak demands.

GRAVER TANK & MFG. CORP.

Manufacturers of Water Softening and Purifying Equipment

4120 Todd Avenue

EAST CHICAGO, IND.

BRANCH OFFICES

BALTIMORE, 113 East Franklin Street
CHICAGO, 28 East Jackson Boulevard
CINCINNATI, 1009 Mercantile Library Building
CLEVELAND, 118 St. Clair Street, E.
DENVER, 1720 California Street
DETROIT, 4829 Woodward Avenue
FORT WORTH, 1301 Electric Building

JACKSONVILLE, 119 East Forsyth Street
KANSAS CITY, 713 Linwood Boulevard
LOS ANGELES, Pacific National Bank Building
MEMPHIS, P. O. Box 187
NEW ORLEANS, 1003 Magazine Street
NEW YORK, 3519 Grand Central Terminal Building

OMAHA, 1006 Douglas Street
PITTSBURGH, 32 East Carson Street
ST. LOUIS, 923 Chemical Building
ST. PAUL, 230 Hamm Building
SALT LAKE CITY, 417 Kearns Building
TULSA, 1714 East 17th Street
TORONTO, ONT., 360 Dufferin Street
HAVANA, CUBA, Obrapia 19

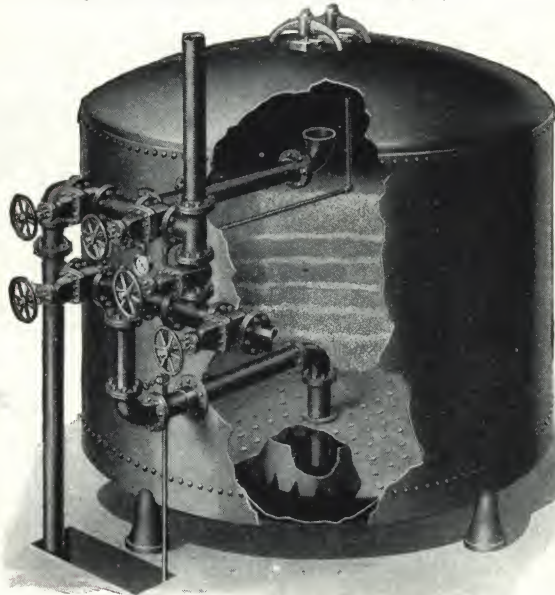
Filters

Graver filters are made in both horizontal and vertical pressure types conforming to the standards adapted by the Associated Manufacturers of Water Purifying Equipment.

The strainer plate system is used for collecting filtered water. It is the same as that shown and described under "Zeolite Water Softener."

Batteries of two or more units with interconnecting piping are furnished where backwashing facilities are inadequate for single unit of the same capacity, or where large capacity is desired.

Complete information in Bulletin A 501.



GRAVER VERTICAL FILTER STANDARDS AS MANUFACTURED BY GRAVER TANK & MFG. CORP.

Code No.	Size inside diam.	Height	Effective area sq. ft.	Capacity—single unit based on rates per sq. ft. per min. shown			Pipe con- nections	Floor space	Operating weight lb.
				2 gal.	3 gal.	4 gal.	Inlet outlet waste		
Vertical Pressure Filters									
V 1½	1' 6"	4' 11"	1.77	3.5	5.4	7.2	1"	2' 6" x 4' 3"	1104
V 2	2' 0"	5' 3"	3.14	6.2	9.5	12.8	1½"	3' 0" x 5' 0"	1881
V 2½	2' 6"	5' 4"	4.98	9.8	14.7	19.6	1½"	3' 2" x 5' 6"	2837
V 3	3' 0"	6' 0"	7.07	14.0	21.0	28.2	2"	4' 0" x 6' 8"	4563
V 3½	3' 6"	6' 2"	9.62	19.2	28.8	38.4	2"	4' 6" x 7' 2"	6022
V 4	4' 0"	6' 5"	12.57	25.1	37.5	50.2	2½"	5' 0" x 7' 10"	7816
V 4½	4' 6"	6' 8"	15.90	31.8	47.7	63.6	2½"	5' 6" x 8' 5"	9916
V 5	5' 0"	6' 5"	19.64	39.2	58.8	78.4	3"	6' 0" x 9' 1"	12070
V 6	6' 0"	8' 1"	28.27	56.6	84.9	113.2	3½"	7' 0" x 10' 4"	17448
V 7	7' 0"	7' 1"	38.49	77.0	115.5	154.0	4"	8' 0" x 11' 5"	25606
V 8	8' 0"	7' 6"	50.27	100.6	150.9	201.2	5"	9' 0" x 12' 9"	33666
V 9	9' 0"	7' 7"	63.62	127.2	190.8	254.4	5"	10' 0" x 13' 9"	43275
V 10	10' 0"	7' 10"	78.54	157.2	235.5	304.4	6"	11' 0" x 14' 9"	53533
Horizontal Pressure Filters									
H-10	8' 0"	10' 0"	65.7	132	198	264	6"	9' 0" x 14' 4"	52810
H-12	8' 0"	12' 1½"	81.1	162	243	324	6"	9' 0" x 16' 7"	63030
H-14	8' 0"	14' 2"	95.9	192	288	384	6"	9' 0" x 18' 7"	73770
H-16	8' 0"	16' 2½"	110.7	220	330	440	8"	9' 0" x 21' 2"	85700
H-20	8' 0"	20' 0"	138.2	276	414	552	8"	9' 0" x 24' 11"	106170
H-24	8' 0"	24' 1"	167.8	336	503	670	8"	9' 0" x 29' 0"	127070

Zeolite Water Softener

Will give zero hardness to any water. The zeolite used will regenerate as rapidly as is possible for the salt solution to flow through the bed.

The grains of zeolite are hard and have a surface softening action only, which gives a lasting softening capacity that does not decrease with age. The entire softening capacity may be utilized as rapidly as desired.

The perforated strainer plate method of collecting the softened water is used. This perforated plate is assembled in the shop and eliminates the necessity of the concrete fill required when the strainer head system is used. The strainer plate gives uniform distribution of the water with but little loss of pressure.

The softeners are built in both horizontal and vertical types.

Completely described in Bulletin A 509.

Swimming Pool Equipment

This equipment consists of filters, heater, sterilizer, pumps and motors. It is designed to keep the pool and water in a sanitary condition and, when operated correctly, will keep the pool water within the health requirements for drinking water.

The standard Graver Filters are used; sizes and specifications as listed.

In specifying, do not use a filtering rate greater than 3 gal. per sq. ft. of filter area per minute as satisfactory results can not be obtained with more rapid rates.

Accessory equipment, such as vacuum cleaner, fittings, hair catcher and coagulant equipment can be furnished.

Completely described in Bulletin A 500.

Graver Hot Process Softener

A continuous lime-soda softener that heats, softens and filters water for boiler feed purposes. It is designed solely for use in steam power plants.

It is guaranteed to produce from any water supply a feed water, containing no scale forming matter, heated to within 5° of the temperature of the incoming exhaust steam.

Cost of treatment is lower than with other methods as part of the hardness is removed by heat.

The units, consisting of heater and settling tank, pressure filter and chemical tank, are so flexible that the equipment can be installed without changes in plant layout or expensive housing and foundation.

This softener will operate satisfactorily in any boiler plant of 250 hp. or larger.

Completely described in Bulletin A 504.

Cold Process Water Softener Type "M"

This is a continuous lime-soda softener made for use by ice plants, railroads, quarries and power plants where there is no exhaust steam. It consists of settling tank, pressure filter and chemical feeding device.

It will deliver uniformly softened water at any rate of flow up to the rated capacity of the softener.

Completely described in Bulletin A 507.

Steel Plate Equipment

Tanks of all sizes from 550 gal. to 80,000 bbl. built in standard sizes and erected either in the shop or field.

Pressure tanks, stacks, flues, stills, agitators, etc., built to customers' specifications. Elevated tanks fabricated in our shops are erected by Graver men, anywhere.

Send your blue prints for quotations.

INTERNATIONAL FILTER CO.

Water Softening and Filtration Plants

59 East Van Buren Street, CHICAGO, ILL.

OFFICES IN PRINCIPAL CITIES
CANADIAN DISTRIBUTERS, GENERAL SUPPLY CO. OF CANADA, LTD. OTTAWA, TORONTO, MONTREAL

Products

WATER PURIFICATION EQUIPMENT of every type and size, for every need and purpose.

International Zeolite Softeners

Built in standard sizes, vertical and horizontal pressure types. Will meet the most exacting requirements in hotels, hospitals, office buildings, laundries, textile mills, etc., wherever a pressure softener and water of "zero" hardness is required. Furnished singly, in pairs, or in batteries of three or more units; complete with brine tank, brine control, operating valves and piping, etc.



Crystalite Softener

International zeolite is known as Crystalite, a registered trade name. Crystalite is extremely rapid in softening and regenerating actions; capable of considerable overload capacity and operation at high rates of flow. Rapid softening action is desirable in securing flexible softener operation and to permit flow rates to meet any seasonal demand for soft water. Regeneration requires under thirty minutes for all operations.

In addition to rapid action properties, Crystalite is of high exchange capacity, ranging from 8000 to 12,000 grains of hardness per cubic foot when regenerated with from 4 to 9 pounds of salt per cubic foot. Higher salt economy than 0.5 pounds per 1000 grains hardness can be obtained by reducing the salt used and exhausting the Crystalite to a lesser degree.

Crystalite is a manufactured zeolite of the gel type. As furnished for use, it is graded to proper grain size for the conditions under which it is to operate. It resembles crushed glass in appearance, and its durability or hardness may be described by the statement that the particles will scratch glass.



International Lime-Soda Softeners

Built in both the "Hot-Flow" and cold-process types; capacities 250 gallons per hour to several million gallons per day. Built in styles to conform with local operating conditions—wood, steel or concrete tank construction, ground or top operated.

Uniformity of treatment guaranteed under all conditions.

International Swimming Pool Equipment

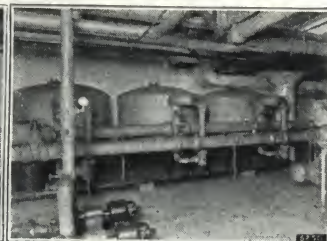
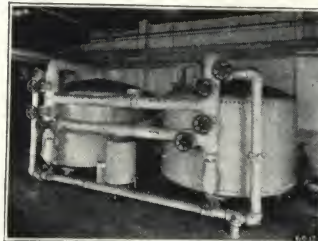
Includes International filters and coagulant feeders with special heater, circulating pump, sterilizer, hair catcher, vacuum cleaner and pool fittings—correlated and selected to assure pure, sparkling clear water in the pool at all times. Complete equipment furnished for pools of all sizes, from the smallest plunge to extensive outdoor installations.



International Sand Filters

The pressure type is built in four styles—D, E and R with vertical steel shells and Style H with horizontal steel shells. Capacities from 170 gallons per hour to any number of million gallons per day. Filters can be used singly or in battery of two or more units. Furnished complete with wash and collecting manifold system, full charge of filtering material, all immediate pipes, valves and fittings necessary for operation, pressure coagulant feeder, pressure gauges, sampling cocks, sight glass, etc.

Recommended for filtration, under pressure, of water for industrial plants, public institutions, hospitals, office buildings, hotels, apartment buildings, bakeries, dairies and all food product plants, etc. Specially designed plants for swimming pools.

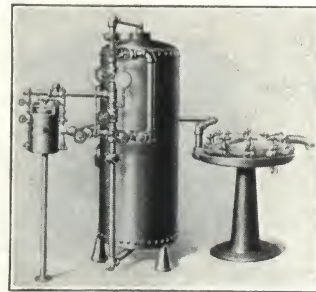


Pressure Type Sand Filter Installations

International Disk Filters

Built in four sizes, 75 to 600 gallons per hour. Used for fine filtration, being designed for putting the finishing touch of filtration on water that is already comparatively clean. Uses compressed cotton fiber disks which are discarded when clogged.

Restaurants, tea rooms, hotels, office buildings, etc., can make their drinking water most inviting by installation of the combination International Sand Filter and Disk Filter.



Sand and Disk Filter

Miscellaneous Equipment

Standard equipment to meet every problem of water purification. Gravity filter plants; mechanical filter equipment; steam-operated water stills; sterilizers; color, iron and oil removal plants, etc.

Co-operative Service

INTERNATIONAL FILTER Co. specializes in water purification for industrial, municipal and domestic purposes. We maintain a complete laboratory and staff of engineers to make reports and recommendations. This service is intended to co-operate and not conflict with the work of any representative or engineer appointed by the prospective purchaser.

Bulletins describing every type of equipment gladly sent on request.

PAIGE & JONES CHEMICAL CO.

INCORPORATED

Water Technologists
Manufacturers of Water Treating Chemicals
and Systems for Using Same

TECHNICAL DEPARTMENT AND WORKS
HAMMOND, IND.

EXECUTIVE OFFICES
461-463 Fourth Avenue, NEW YORK, N. Y.

Products

CHEMICALS and DEVICES for feeding same for treatment of boiler feed water. Chemicals for preventing pipes from rusting.

FERRIC ALUMINA, a powerful acid coagulant, for use in lime and soda water softeners.

Boiler Feed Water Treatment

The basic principle behind the Paige-Jones Method is not to counteract the scale forming salts chemically but rather by physical action to prevent their injurious crystallization in the boiler. Instead of removing the solids from the water as does a Water Softener the Paige-Jones Method impregnates the water with chemicals which act in the boiler under heat and pressure to prevent the crystallization of the substances present into hard scale. The scale-forming salts are precipitated as an easily washed out sludge.

The action of the treatment is physical rather than chemical. The ingredients of the compound are depended upon to change the nature of the deposit rather than to prevent its precipitation. With the Paige-Jones Method the scale-forming salts are rendered harmless. This treatment will not induce foaming but rather tends to counteract it. It is standard on many of the railroads and in many large industrial plants.

Method of Feeding

The chemicals are supplied in the form of round balls, weighing one pound each, prepared under high pressure. These are fed to the water supply by means of a simple feeder shown in the drawing. The feeders are charged once, twice, or three times in twenty-four hours as may be desired. The required number of balls are placed in the feeder and by adjusting the valves, they will dissolve in the required time.

Anti-rust (Formula 26)—For Preventing Rust

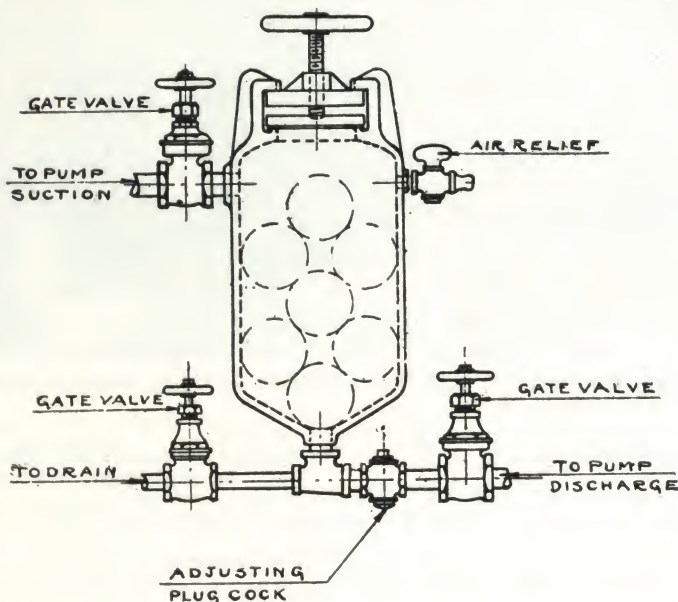
Paige-Jones Anti-Rust differs from boiler feed water formulæ in that it is compounded primarily to prevent rusting on hot or cold water supply lines. It is being used with much success in many large hotels, hospitals and laundries and is very satisfactory, wherever rust is troublesome.

Formula No. 26 establishes a protective coating on the inside of the piping which is constantly maintained by feeding a small quantity of the treatment directly into the supply lines. Rust is caused chiefly by oxygen-bearing water and Formula No. 26 prevents rusting by protecting the piping from the effects of oxygen. Treatment will vary from a pound to 4,000 gallons, down to a pound to 8,000 gallons, depending upon the size of the operation. Some users report that after a protective coating has been established in the piping that a pound per 15,000 gallons maintains it. It does not make water unsuitable for drinking, bathing or laundry.

There are numerous liquid preparations on the market at the present time which presumably serve as an anti-rust compound, but Formula No. 26 is more than twice as strong as the average liquid preparation. It contains no water as it is furnished in solid balls and can be uniformly applied to the water without difficulty. Each ball weighs one pound, so treatments do not need to be weighed or measured. Feeders furnished for Formula No. 26 are exactly the same as those used for the application of Boiler Feed Water Treatment.

Ferric Alumina

This is a powerful acid coagulant for improving the water from lime-soda softeners. It allows rapid clarification of the water and a low degree of hardness without the necessity of excessive alkalinity in the treated water.



PARAMOUNT WATER SOFTENER CORP.

Water Softeners, Water Filters and Green Zeolite Mineral

90 West Street, NEW YORK, N. Y.

What the Architect Should Know About Zeolite Water Softeners

The only thing an architect need know about zeolite water softeners is the size of the equipment required to meet given conditions so that sufficient floor space may be allowed for its installation.

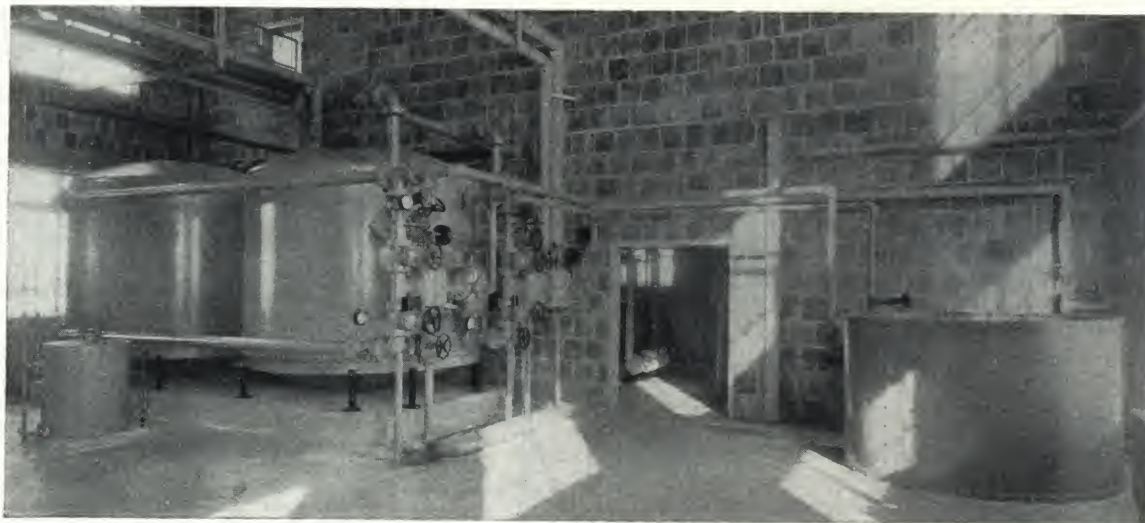
The size of the zeolite water softener will be determined generally by the total daily and maximum hourly consumption of water and its hardness. Certain operating conditions may increase or decrease the size. Operating conditions that may affect the size of the zeolite water softener are whether or not continuous flow is required (it is necessary to shut down these softeners occasionally for regeneration) and if water storage facilities are available.

Why Greensand Zeolite Water Softeners Are Preferred

The effectiveness and economy of greensand zeolite water softeners are proven by the large number of such installations in comparison with all other methods. Some of the reasons for this are their simplicity of construction, installation and operation as well as their elimination of trouble and care. Their installation is as simple as putting in a meter or wash basin. No skilled operator is required. Any one can quickly learn to operate a greensand zeolite water softener. Greensand zeolite is not susceptible to damage or injury by freezing, drying or clogging and will soften a wide range of water. It does not deteriorate and its life is practically perpetual.

Paramount Zeolite Water Softeners

The Paramount Domestic Zeolite Water Softener is designed for installation in residences, beauty parlors, cleaning and dyeing plants as well as in small apartment houses, institutions and other places where large quantities of water are



Twin Unit Paramount Zeolite Water Softener in U. S. Veterans Hospital

Where continuous flow is required and no water storage facilities are furnished, a multiple unit softener will be necessary. Without such information the proper size of a zeolite water softener cannot be determined.

Given the foregoing information, we will gladly recommend the proper size zeolite softener.

Hard and Soft Water

The use of soft water is an economy in industry and the home. In many places it is absolutely necessary to soften water.

Hard water causes trouble in power and heating plants.

It wastes fuel, soap and other supplies and also causes extra and unnecessary work.

Zeolite water softeners are used wherever it is advantageous and necessary to soften water. They are now installed in apartment buildings, hotels, hospitals, other institutional buildings as well as in private residences and industrial plants.

The economies and advantages of the use of soft water are well established. There only remains the selection of the most practical method and equipment for softening water.

not required. It is simplicity itself. Easy to operate with no diaphragms or mechanical parts to get out of order.

For other purposes Paramount builds industrial zeolite water softeners of all sizes to meet all requirements. Railroads, hospitals, hotels, laundries, dye works and other industries as well as municipalities have found Paramount Zeolite Water Softeners economical and entirely satisfactory.

After considerable research and study Paramount has designed and proven a new design for zeolite water softeners, which size for size gives greater softening capacity, increases flow rates and reduces the quantity of wash water required. This means a smaller apparatus for given conditions requiring less floor space but, of more importance, it means more soft water at lower operating costs.

This new design permits the introduction of more greensand zeolite into the apparatus, in fact, the entire softening tank is filled with this mineral. This adds more than 25% to the capacity of the softener unit. The new screening method (Patent Pending) designed by Paramount, cannot clog and does not permit any of the mineral to escape. This eliminates the necessity of rate of flow controllers and permits greater flow rates which are only limited by the initial pressure of water supply. The reduction of the void space, due to completely filling softening unit with zeolite mineral, reduces quantity of wash water required thus reducing operating costs.

Paramount Service

In addition to supplying water softening and filtering equipment, Paramount rebuilds existing water softeners to give greater efficiency and supplies greensand zeolite mineral for refilling existing zeolite softeners.

THE PERMUTIT COMPANY

Water Softeners, Filters, Water Treating Apparatus for Every Purpose

TELEPHONE
ASHLAND 0170

440 Fourth Avenue, NEW YORK, N. Y.

CABLE ADDRESS
"PERMUTIT, NEW YORK"

BRANCH OFFICES

BOSTON, MASS., 705 Statler Building
BRADENTON, FLA., 430 Broad Street
BUFFALO, N. Y., 422 Brisbane Building
CHATTANOOGA, TENN., 1013 Provident Building
CHICAGO, ILL., 222 West Adams Street
CINCINNATI, OHIO, 5024 Main Avenue, Norwood

CLEVELAND, OHIO, 1408 B. F. Keith Building
DALLAS, TEX., 4039 Travis Street
DETROIT, MICH., 2120 Union Trust Building
KANSAS CITY, MO., 2020 Grand Avenue
LOS ANGELES, CAL., 909 Wright-Callender Building
MINNEAPOLIS, MINN., 1046 McKnight Building

PHILADELPHIA, PA., 20 So. 15th Street
PITTSBURGH, PA., 921 Union Trust Building
ST. LOUIS, MO., 1423 Chemical Building
SAN FRANCISCO, CAL., 1012-1014 Balboa Building
SPARTANBURG, S. C., Montgomery Building
OKLAHOMA CITY, OKLA., 2516 No. Robinson Street

Products

"PERMUTIT" WATER SOFTENERS
and WATER FILTERS.

Also Other Special Water Treating Apparatus.

Permutit Zeolite Water Softeners

Consists of a steel tank containing a mineral known as zeolite. Zeolite is granular, sand-like material, insoluble in water. Water flows through the softener, and all hardness is taken out during this passage. No chemicals are used.

The zeolite is periodically regenerated by passing through it a solution of common salt. This renews its water-softening power. There are models with salt solution tanks (HS) and without them (H). Zeolite never becomes exhausted—the only material used up is salt.

Where Permutit Water Softeners Are Used

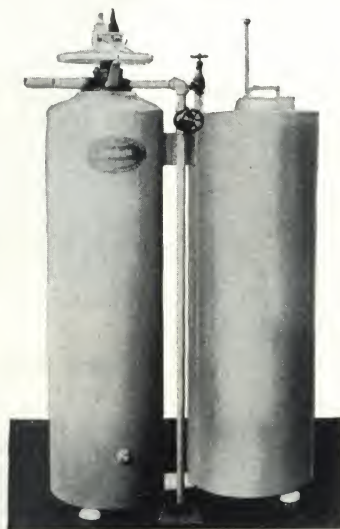
Hotels, hospitals, power plants, laundries and many other industries use Permutit Water Softeners to take all hardness out of water and fit it for some exacting service. Thousands are used in private houses supplying delightful soft water for all domestic and personal uses.

Engineering Service

Scarcely ever are the water problems of any two homes or buildings the same. Our engineering service includes free analysis of the water supply and recommendations as to the type of equipment needed.

Operation

By merely rotating the operating wheel at the top of the softener through a series of positions, the soft-



Type HS

ener is regenerated. Salt solution is stored in the tank as shown. Softeners are usually chosen of sufficient size to allow for one week's operation between regenerations.

Installation of Household Water Softeners

Softeners are usually installed in the basement as close to the street supply as convenient. Provide for carrying off the wash water by means of a sump or pipe connecting into a sink, laundry tray, etc.

Specifications for Permutit Household Softeners

Water Service—Provide and install a service line from the street main to the house meter of ample size to deliver gals. of water per minute and not less than in. diameter.

Cesspool Floor Drain—Provide and install an approved cesspool type floor drain adjacent to the softener connected to the main house drain with a in. waste pipe with sufficient fall to carry away gals. of water per minute.

Water Softener—Provide and install complete with all accessories a model Permutit Water Softener and containing not less than cu. ft. of zeolite. The softener shall have a capacity between regenerations of gals. of zero water when the water entering the softener is grains hard.

Hard Water Connections—Provide and install hard water connections to yard hydrants.

Note: Mention all other hard water outlets required.

Guarantee—The contractor shall guarantee in writing the complete installation against all structural defects that may develop within one year from date of completion. Also that, if properly operated, it will furnish completely softened water and that the water delivered will be clear and suitable for household use.



Type H

In this type—the least expensive Permutit Softener—salt required for regeneration is measured into a bucket, dissolved and automatically sucked into the softener during regeneration. Simple, it will give satisfactory service in moderate sized homes.

SPECIFICATIONS FOR HOUSEHOLD WATER SOFTENERS

Model	Over-all dimen. depth x width x height, in.	Size pipe in.	Salt tank refill, lbs.	Size in gals. of salt con- tainer required	Number of regenerations per refill	Salt per re- generation, lbs.	Approximate shipping weight, lbs.
HS 9	16 x 30 x 55	3/4	150	..	18	..	350
HS12	16 x 33 x 55	3/4	150	..	10	..	450
H 9	16 x 30 x 55	3/4	..	4	..	8	250
H 12	16 x 33 x 55	3/4	..	8	..	14	350

ROBERTS FILTER MANUFACTURING CO.

606 Columbia Avenue
DARBY, PA.

Products

ROBERTS FILTERS, FILTRATION PLANTS and FILTER APPLIANCES for every water purification requirement.

For our pages on Swimming Pool Equipment, see List of Manufacturers.

Types and Uses

Pressure type and gravity type filters, with capacities from 1 gal. per hour to 1,000,000 gal. an hour and larger.

Filters for residences, apartment houses, hotels, institutions, hospitals, swimming pools, industrial drinking water systems, mills and factories, water works and municipalities. See table below, classifying filters as to type of service.

CLASSIFICATION AS TO TYPE OF SERVICE

Type of Service	Vertical Pressure Filters								Horizontal Pressure Filters	Wood Tank Gravity Filters	Rectangular Concrete Gravity Filters
	Roberts Gravity Stone Filters	Style D	Style M	Style E	Style O	Style G	Style H	Style L			
Individual faucet use	x										
Residences (small and medium)		x	x	x	x						
Residences (large)				x	x						
Apartment houses				x	x	x					
Hotels and institutions				x	x	x	x	x			
Theaters		x	x	x	x	x					
Department stores				x	x	x					
Swimming pools (ordinary)				x	x	x	x				
Swimming pools (large)								x	x		
Factory drinking water systems		x	x	x	x	x	x				
General industrial use				x	x	x	x				
Large industrial water supply								x			x
Town or city water works								x	x	x	x

Operation

Water enters filter at top, passing downward through the filter bed, collects in strainer system at bottom and discharges through outlet.

Filter bed consists of specially graded pure silica sand, resting on graded silica gravel. In some cases quartz, marble, or refined bone charcoal are employed. Attached to inlet line of filter there may be (and usually is) employed a Roberts automatic coagulant feeder, which accurately feeds a slight quantity of alum into the raw water.

In all vertical pressure filters, except Styles "H" and "L," the entire operation is governed by the Roberts single control valve.



Roberts Single Control Valve

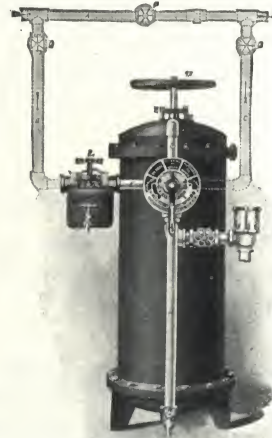
Cleaning of all Roberts filters is thoroughly and easily accomplished by a reverse flow of water, which lifts and "liquefies" the sand bed, scouring it on itself and flushing the removed matter to the sewer.

A sight glass on the waste line indicates when the washing is complete.

Roberts Style "D" Filter

The model household filter. Cast iron construction. Equipped with coagulant feeder, single control valve, sight glass. Also has agitator, operated by hand wheel, which is used during washing to assist in breaking up the filter bed.

Made in 12, 16 and 20-in. sizes.

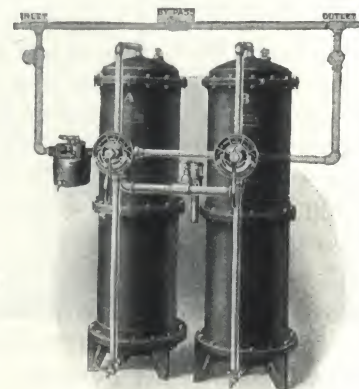


Style "D" Filter

Roberts Style "M" Filter

Widely used in residences of the better class. Consists of two cast iron filters, connected in tandem for double filtration. First cylinder charged with sand and ground marble; second cylinder with refined bone charcoal. First cylinder removes suspended matter; second cylinder reduces or removes odor, taste and color. Equipped with single control valves, sight glass and coagulant feeder.

Made in 12, 16 and 20-in. sizes.

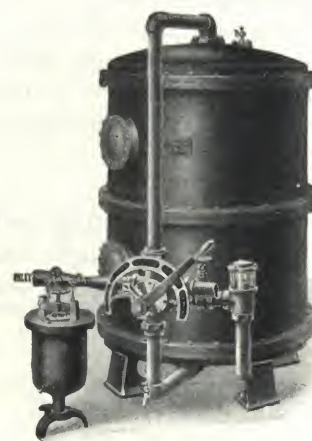


Style "M" Filter

Roberts Style "E" Filter

Cast iron construction—in sections. Can readily be taken through small doorways. Equipped with coagulant feeder, single control valve and sight glass. Filling and inspection hole (4 in.) in top; larger sizes also have standard manhole in each shell section. (See illustration Style "O.") Pleasing appearance; substantial in looks and in fact.

Made in 8 sizes, 12 to 50 in.



Style "E" Filter

Roberts Style "O" Filter

Consists of two Style "E" filters connected *in tandem* for double filtration. Principle similar to Style "M," but larger units. Two Style "G," or Style "H" units may also be connected up as a double filter. Specially adapted for waters containing dissolved color, taste and odor.

Made in 5 sizes, 24 to 50 in.



Style "O" Filter

Roberts Style "G" Filter

Steel construction; top head bumped convex, bottom head concave. Equipment and connections similar to Style "E." Hand-hole in top, manhole in shell. Made in 5 sizes, 30 to 60 in.



Style "G" Filter

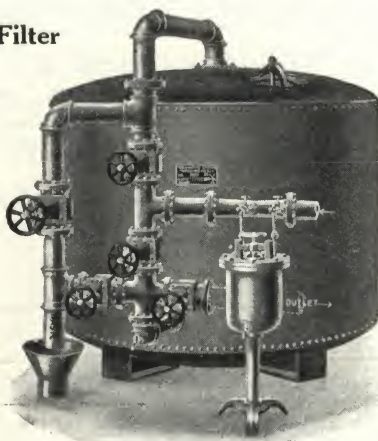
Roberts Style "H" Filter

Same as Style "G," except single control valve omitted. Operation controlled by 5 gate valves. Made in 5 sizes, 30 to 60 in. Connections as illustrated on Style "L."

Roberts Style "L" Filter

Steel construction; both heads bumped convex. Filtered water collector system consists of central manifold and laterals of the perforated pipe type. Equipped with gate valve control, coagulant feeder and waste funnel. Manhole in top head.

Made in 66, 72, 78, 84 and 96-in. sizes.



Style "L" Filter

VERTICAL PRESSURE FILTERS, DIMENSIONS AND CAPACITIES

Size (inside diam.) in.	Filtering area, sq. ft.	Capacity, gal. per min.*				Height overall, in.	Pipe connections in.†		Floor space, ft.
		Unit rate 2	Unit rate 3	Unit rate 4	Unit rate 5		Inlet and outlet	Waste to sewer	
12	.78	1.56	2.34	3.12	3.90	58	1	1 1/4	3 x 2 1/4
16	1.39	2.78	4.17	5.56	6.95	63	1	1 1/4	3 x 3
20	2.19	4.38	6.57	8.76	10.95	64	1	1 1/4	3 x 3
24	3.14	6.28	9.42	12.56	15.70	64	1 1/2	1 1/2	3 1/2 x 3
30	4.91	9.82	14.73	19.64	24.55	74	1 1/2	2	4 1/2 x 3
36	7.07	14.14	21.21	28.28	35.35	76	2	2 1/2	5 x 3 1/2
42	9.62	19.24	28.86	38.48	48.10	78	2	2 1/2	6 x 4
48	12.56	25.13	37.70	50.24	62.80	77	2 1/2	3	6 1/2 x 4 1/2
54	15.90	31.80	47.70	63.60	79.50	78	2 1/2	3	7 x 5
60	19.63	39.26	58.89	78.52	98.15	82	2 1/2	3	7 x 5 1/2
66	23.76	47.52	71.28	95.04	118.80	87	3	4	8 1/2 x 6
72	28.27	56.54	84.81	113.10	141.40	94	3	4	8 1/2 x 6 1/2
78	33.17	66.34	99.51	132.70	165.90	96	3	4	9 x 7
84	38.48	76.96	115.40	153.90	192.40	98	4	5	10 x 7 1/2
96	50.26	100.50	150.80	201.00	251.30	100	4	5	10 1/2 x 8 1/2

*See "Notes on Specifications."

†Special or oversize connections can be furnished.

Notes on Specifications

Specify filters by *inside diameter*. If diameter is not specified, the term "capacity" is meaningless unless accompanied by the following "at a unit rate of filtration not exceeding ... gal. per min. per sq. ft. of effective cross-sectional filter area." Example: A 42-in. (inside diameter) filter has an area of 9.62 sq. ft. (42-in. circle) and at a unit rate of 4 has a capacity of 38.48 gal. per min.; while at a unit rate of 3, capacity is 28.86 gal. per min.

The *unit rate* of filtration that may be safely employed in a given case is determined by two factors: (a) the character of the raw water, and (b) the quality of filtered water desired. When bacterial efficiency and complete clarification are desired, a 2-gal. unit rate is the maximum. For clarification of a turbid water use a 2-gal. unit rate; of a slightly turbid water, a 3-gal. unit rate; and of a good water (such as New York City) a 4 or 5-gal. unit rate. For recirculating *swimming pools* the standard unit rate is 3. *No unit rate in excess of 5 gal. should ever be employed.*

In filter practice, the accepted meaning of clarification is the removal of practically all suspended matter visible to the naked eye, rendering the water bright, clear and sparkling.

Capacity of a double filter (two cylinders in *tandem*) is that of a single filter of same diameter cylinder.

Always specify maximum pressure to which filters will be subjected in operation.

Roberts standard cast iron filters are built for a working pressure of 60 lbs. and tested to 100 lbs.; steel filters are for working pressure of 60 or 100 lbs. and subjected to a test 50% in excess of working pressure.

Filters for higher pressures supplied, where required.

Other Styles

We manufacture Roberts stone filters for individual faucet use. Over 500,000 in use. Capacities 1 to 60 gal. per hour. Prices \$5.00 to \$70.00. Catalogue on request.

Horizontal pressure filters, wood tank gravity filters and rectangular concrete gravity filters for large installations. Complete information upon application.

Send for bulletins or, if more convenient, see SWEET'S ENGINEERING CATALOGUE for data on larger sizes.

General

Roberts equipment is being used satisfactorily for domestic, industrial and municipal installations. The pure, clear and sparkling water delivered at all times is convincing proof of its efficiency.

More than 900,000,000 gal. of water are being satisfactorily treated daily by Roberts filters.

Strength and durability are two of their main characteristics.

THE REFINITE COMPANY

GENERAL OFFICES AND LABORATORIES

OMAHA, NEBR.

Products

REFINITE RAPID ZEOLITE.
REFINITE INDUSTRIAL SOFTENERS.
REFINITE DOMESTIC SOFTENERS.
Also Refinite Rapid Pressure Filters.

Refinite Rapid Zeolite

Refinite Zeolite (a natural product) has high capacity, long life, does not dissolve, wash from the container nor contain ferrous oxide (iron rust).

Refinite Zeolite is adaptable to any type of softener. When used in softeners of other makes will greatly increase capacity. Write us for the names of 100 or more institutions which have made this change.

Our Rapid Regenerator is a marked improvement. Can be placed at remote points, even on the floor above or floor below the softener, where convenient to salt storage.



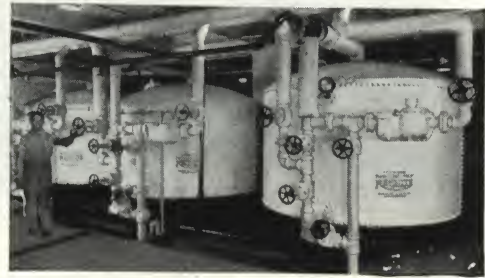
The Clinic and the Hotel Kahler, Rochester, Minn.

Two 96-in. Refinite Softeners installed in this plant at Rochester, Minn., to soften hot water from turbine condensers, effecting a great saving in heat units. Refinite Zeolite is the only mineral that will soften hot water. This is proof it will last almost indefinitely softening cold water.

Refinite Water Softeners

Refinite Water Softeners deliver a large quantity of soft water per regeneration. Guaranteed exchange capacity 80 grains per pound of mineral. Many installations are actually delivering 100 to 120 grains per pound of mineral.

Refinite Softeners are equipped with the exacting and rigid "standard soap test" as prescribed by the American Public Health Association.



Three 96-in. Water Softeners

The three 96-in. water softeners illustrated above are regenerated with one Refinite Rapid Regenerator 24 in. in diameter, placed in the salt room, 30 ft. distant from these softeners.

The Refinite Rapid Regenerator replaced an old style brine tank that occupied 114 sq. ft. of valuable floor space.

Specifications for Industrial Water Softener

Capacity—Furnish and install a water softener having a capacity for . . . gallons per each regeneration when softening water of . . . grains hardness.

Regeneration—The softener must be of the Rapid regenerating type and so constructed that a complete regeneration can be made within 40 minutes' time. The softener shall be designed so that not to exceed 30 gal. of raw makeup water will be required to dissolve salt and to transfer sodium to softener.

Softener Tank Construction—The tank shall be of heavy riveted construction and tested for 100 lb. working pressure.

Meter—The meter shall be of the bell alarm type and connected so that a bell will ring when the softener has reached its rated capacity.

Samples and Information

THE REFINITE COMPANY will be glad to send samples of Refinite Mineral and architect's A.I.A. File 29d32 upon request.

Refinite Domestic Water Softeners

Refinite Domestic Water Softeners are made in sizes suitable for every home.

They are the lowest in price when quality and construction are considered.

Prices range from \$100.00 up.

The most popular size is the D-18, which sells for \$195.00 f.o.b. factory.

This softener is nearly 100% automatic in operation.

It is equipped with our single lever monotrol

valve, making it extremely simple to operate.

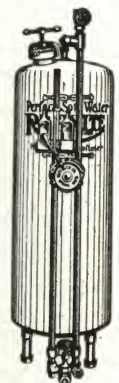
We have avoided the use of any complicated collection of gears, cams, wheels, motors, magnets and diaphragms which would entail frequent and expensive repairs by factory experts.

Refinite does not produce rusty water.

The table shows prices and capacities of our domestic softeners.

PRICES AND CAPACITIES OF REFINITE DOMESTIC WATER SOFTENERS

Hardness in grains per U. S. gallon		6	8	10	12	14	16	18	20	22	24	26	28	32	36	40
Size	Price	Capacity in gallons per regeneration														
D-14	\$145.00	2585	1935	1550	1293	1107	968	861	775	705	646	596	554	484	430	388
D-18	195.00	5170	3870	3100	2585	2214	1935	1722	1550	1410	1293	1192	1107	968	860	775
D-22	375.00	10340	7740	6200	5170	4428	3870	3444	3100	2820	2585	2384	2214	1935	1720	1550



Refinite Domestic Water Softener

WM. B. SCAIFE & SONS CO.

FOUNDED 1802

Water Filters and Water Softening Systems

Executive Offices, Laboratory and Works
OAKMONT, PA.

PITTSBURGH OFFICE, First National Bank Building

NEW YORK OFFICE, 101 Park Avenue

CHICAGO OFFICE, First National Bank Building

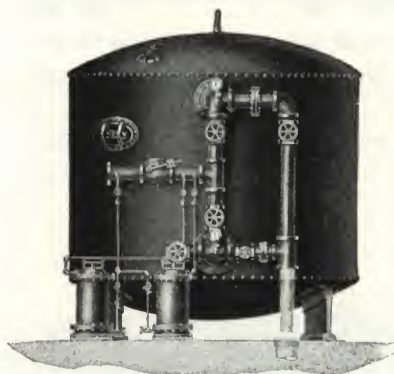
Products

WATER FILTERS (Gravity and Pressure) for industrial uses, municipalities, public buildings, swimming pools and residences.

WATER SOFTENERS for boiler feed, residences and industrial uses.

Pressure Filters

Pressure filters are designed to operate with water under pressure. They are built of steel plate in vertical sizes to 120 in. in diameter. For larger capacities they

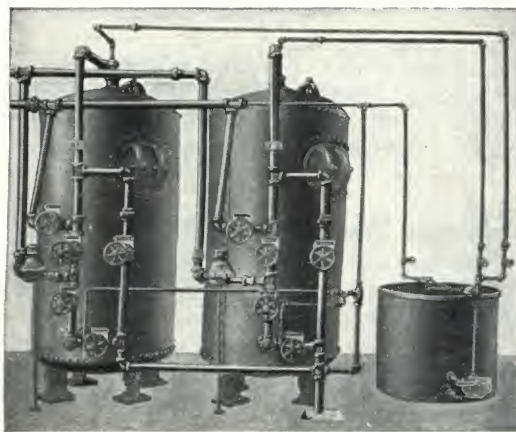


Single Vertical Pressure Filter

are built horizontally to 25 ft. long. Unsurpassed for office buildings, swimming pools and industrial plants.

Zeolite Softening System

Designed to remove lime and magnesia hardness to zero by soap test. Heavy, durable mineral that gives clear, soft water immediately after regeneration. Auto-

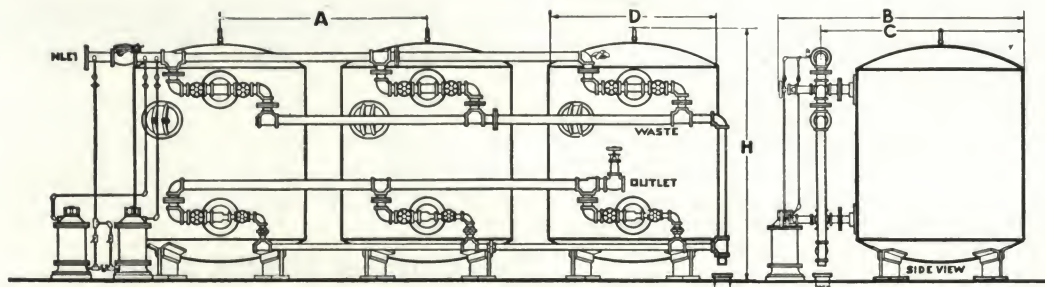


Scaife Zeolite System

matic salt dissolving, measuring and introducing device. Especially adapted for hotel, office building, hospital, textile and laundry use.

Bulletins

- | | |
|---------------------------------|--|
| No. 196. Pressure Filters | No. 211. Water Softeners for Railroads |
| No. 212. Gravity Filters | No. 205. Zeolite Softeners, Industrial |
| No. 210. Intermittent Softeners | No. 209. Zeolite Softeners, Household |
| No. 202. Continuous Softeners | |
| No. 214. Hot Process Softeners | |



CAPACITIES AND DIMENSIONS FOR SINGLE VERTICAL PRESSURE FILTER

Cat. No.	Dimensions					Area, sq. ft.	Capacity per minute, rate per sq. ft.			Wash water per min. based on 12 gals. per sq. ft. filter area	Approx. shipping weight, lb.	Approx. weight when in operation, lb.	Size of connections	
	Diam. D in.	Height H ft. in.	See drawing				2 gal.	3 gal.	4 gal.				Inlet outlet and waste, in.	Rewash in.
			A ft. in.	B ft. in.	C ft. in.									
8	30	7-2	3-6	4-0	3-4	4.9	10	15	20	59	3200	5400	1½	1¼
9	36	6-9	4-0	4-7	3-10	7.0	14	21	28	84	3635	6200	2	1¼
10	42	6-11	4-6	5-2	4-5	9.6	19	29	38	115	4750	8300	2	1¼
11	48	7-0	5-0	5-11	4-11	12.5	25	38	50	150	5950	10600	2½	1¼
12	54	7-2	5-6	6-5	5-5	15.9	32	48	64	191	7490	13500	2½	1¼
13	60	7-4	6-0	7-0	5-11	19.6	39	59	78	235	9025	16700	3	1¼
14	66	7-5	6-6	7-6	6-5	23.7	47	71	95	284	10945	20500	3	1¼
15	72	7-7	7-0	8-3	7-0	28.2	56	85	113	338	12850	24200	4	1½
16	78	7-9	7-6	8-9	7-6	33.1	66	99	132	397	14650	28200	4	1½
17	84	7-10	8-0	9-3	8-0	38.4	77	115	154	461	16750	32700	4	1½
18	90	8-0	8-6	10-1	8-7	44.1	88	132	176	529	18810	37400	5	1½
19	96	8-2	9-0	10-7	9-1	50.2	100	151	201	602	21300	42800	5	1½
21	108	8-10	10-0	11-11	10-3	63.6	127	191	254	763	28700	56000	6	2
23	120	9-2	11-0	12-11	11-3	78.5	157	236	314	942	34710	68300	6	2

Note: Weights based upon 100 lb. per sq. in. working pressure to 60 in., inclusive, and upon 65 lb. per sq. in. to 120 in., inclusive.

DAVIS ENGINEERING CORP.

Manufacturers of Paracoil Water Storage Heaters and Other Heat Exchangers,
Steam Traps, Steam Specialties

90 West Street
NEW YORK, N. Y.

FACTORY: ELIZABETH, N. J.

CABLE ADDRESS
"PARACOIL, NEW YORK"

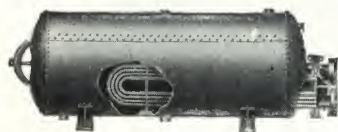
Products

STORAGE and INSTANTANEOUS WATER HEATERS.

Also Steam Traps, Feed Water Heaters, Feed Water Filters and Grease Extractors, Oil Heaters, Evaporators, Exhaust Gas-steam Generators, Oil Coolers, Distillers.

Paracoil Storage Water Heater

For heating and storing hot water for laundries, factories, hospitals, etc. Has steel plate shell for water and copper heating coils for steam. Pressures 100 lb. standard and up. Sizes, 200 to 20,000 gal. per hour, heated to 180° F. These heaters can be arranged for below boiler water line service as submerged type described below.



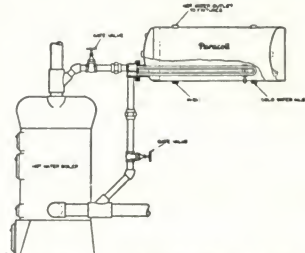
Paracoil Storage Water Heater

Paracoil Submerged Type Storage Water Heater— for 1 to 10 Family Jobs

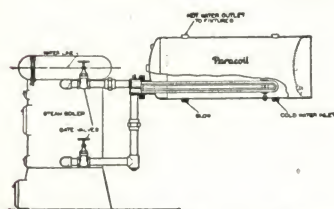
This submerged Paracoil Storage Water Heater, designed especially for the private residence and small apartment house, gives users the same hot water service (only on a smaller scale) that is derived from the large Paracoil storage units, which are in use in many of the world's largest buildings. Write for bulletin giving capacities, piping diagrams, etc.

Among the advantages of this self-contained unit over the separate tank and heater system are:

Clogging of circulating



Paracoil Submerged Type
Connected to Hot Water
Boiler



Paracoil Submerged Type Con-
nected Below Water Line
of Steam Boiler

Paracoil Instantaneous Water Heater, U-Tube Tank Heater, Preheater and Condensation Cooler

Ideal for apartment houses, hotels, etc. Connected below water level of boiler, heats water supply when fire is banked.

Unexcelled for indirect heating of private garages and conservatories.

Capacities from 350 to 12,500 gal. or more, as required.



Paracoil Instantaneous Water Heater

DIMENSIONS PARACOIL INSTANTANEOUS WATER HEATER

No.	Diam., in.	Length, in.	Water inlet and outlet, in.	Steam, inlet, in.	Drain, in.	Capacity, gal. per hr. 40-180° F. steam atmosphere	Weight, lb.
200	14 1/2	34	2	2	1	200	250
300	14 1/2	34	2	2	1	300	250
400	14 1/2	47	2	3	1 1/2	400	290
500	14 1/2	47	2	3	1 1/2	500	300
600	16 1/2	50	3	4	1 1/2	600	480
750	16 1/2	50	3	4	1 1/2	750	500
1000	16 1/2	62	3	4	1 1/2	1000	560
1250	16 1/2	62	3	4	1 1/2	1250	580
1500	19 1/2	70	3	5	2	1500	962
1750	19 1/2	75	3 1/2	5	2	1750	1010
2000	19 1/2	80	3 1/2	6	2	2000	1083
2500	21 1/2	81	3 1/2	6	2	2500	1252
3000	21 1/2	87	4	7	2 1/2	3000	1301
4000	21 1/2	99	4	8	2 1/2	4000	1400
5000	21 1/2	110	4	10	2 1/2	5000	1481
7500	26	95	5	12	3	7500	1915
10000	26	108	5	14	3	10,000	2125
12500	26	120	5	14	3	12,500	2241

Nos. 200 to 1250 cast iron shell, and Nos. 1500 to 12,500 steel shell.

PARACOIL U-TUBE TYPE TANK HEATER

Size No.	Capacity, gal.		Hot water radiation, sq. ft.	Diam., in.	Length, in.	Weight, lb.
	Below water level	With live steam				
1	350	650	260	7 1/2	27 1/2	90
2	700	1300	520	11 3/4	40 1/4	220
3	1050	1900	780	14 1/2	47	375
4	1350	2500	1000	16 1/2	50	500

Larger sizes on application. Capacity rating, 100° temperature rise in 3 hours (40° to 140°). Capacity rating with live steam based on 1/2-lb. steam pressure.

Paracoil Indirect Resident Heaters

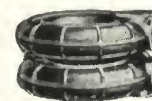
Paracoil Indirect Resident Heaters, for residences and small apartment houses, connected below water line of steam or vapor boilers.

Fire Pot Type Hot Water Heater for Hot Air Furnaces

An effective and economical way to procure domestic hot water from hot air furnace installations. Used in conjunction with Paracoil Indirect type. Send for Bulletin.



Paracoil Indirect Resident
Water Heater



Paracoil Fire Pot Type
Water Heater

THE NATIONAL PIPE BENDING CO.

Manufacturers of Steam Actuated Water Heaters

156 River Street, NEW HAVEN, CONN.

OFFICES IN THE FOLLOWING CITIES

ATLANTA, GA.
BALTIMORE, MD.
BOSTON, MASS.

BUTTE, MONT.
CHICAGO, ILL.
CINCINNATI, OHIO

CLEVELAND, OHIO
DENVER, COLO.
DULUTH, MINN.

LOS ANGELES, CAL.
MEMPHIS, TENN.
MINNEAPOLIS, MINN.

NEW YORK, N. Y.
PHILADELPHIA, PA.
PITTSBURGH, PA.

Products

WATER STORAGE HEATERS (Bulletin No. 65); INSTANTANEOUS WATER HEATER (Bulletin No. 55); FEED WATER HEATERS (Bulletin No. 51A, 53); COAL BURNING TANK HEATERS (Bulletin No. 52A).

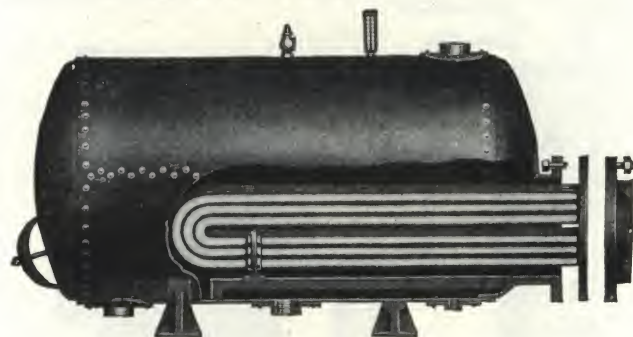
Also Coils, Pipe and Tube (Bulletin No. 60), Caustic Liquid Heaters (designed to suit service), Fuel Oil Heaters (designed to suit service).

National Hot Water Heaters

We make hot water heating units of two types, storage and instantaneous. Each type has its advantages and the installation depends upon the hot water demand. For either exhaust or live steam.

Single and Double Element Storage Heaters

A combination of a closed pressure vessel and a steam tube heating element. For use under conditions where the instantaneous demand for hot water exceeds the immediate steam supply. A properly proportioned hot water storage heater will insure ample hot water without increased boiler capacity in many instances.



Single Element Steel Shell Horizontal Storage Heater

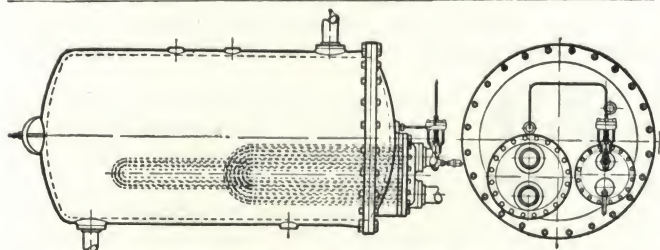
Made in horizontal and vertical type to supply from 100 to 15,000 gal. of hot water per hour, heated through standard temperature range 50° to 180° F., with steam under pressures from 0 to 100 lb. gauge.

Standard diameters and storage capacity:

Shell diameter.....in.	36	42	48	54	60	72	84	96	108
Gals. per ft. of length...	52	72	95	131	142	215	282	366	462

Hourly Heating Capacities—These capacities depend upon water temperature required and available steam pressure. Heating elements can be furnished to meet any requirements. Relative heating values to steam under different steam pressures are as follows:

Steam pressure.....lb.	0	2	5	10	20	30	50	75	100
Ratio.....	1	1.09	1.22	1.39	1.67	1.87	2.18	2.47	2.70

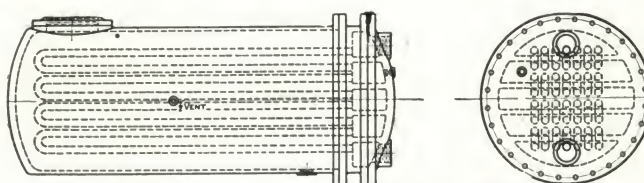


Double Element Steel Shell Horizontal Storage Heater

Instantaneous Type

Heats water as it flows either continuously or intermittently. Built for steam pressures up to 75 lb. per sq. in.

U-bend copper tubes through which the water passes are fitted into a cast iron or steel shell through which the steam for heating is passed. Made in sizes from 210 to 12,000 gal. of hot water per hour at temperatures from 40° to 180° F.

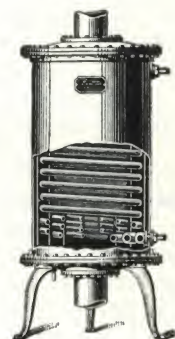


Instantaneous Process Water Heater

Feed Water Heaters

National Feed Water Heaters are made up of a cast iron, wrought iron or steel shell containing one or more helical coils of seamless copper tubing. The water is pumped through the coils absorbing heat from the exhaust steam in the shell.

These heaters are made in sizes to provide for heating the feed water for a wide range of boiler sizes and invariably show large savings of fuel.



Copper Coil Coal Burning Tank Heaters, Automatic

The National "Multi-Flow" is ideal for hot water supply for domestic use, restaurants, beauty parlors, apartments, small hotels, country clubs, etc., and is adaptable for heating small bungalows, garages, sun porches, etc.

Construction—The high grade construction of the National insures long life and continuous service. Jacket is extra heavy gauge iron, with red vitreous enamel finish, top and base high grade gray iron.

Large double wound copper coils with brazed seamless manifolds.

Coils tested to 600 lb. pressure will stand up under any city water pressure.

Fire brick combustion chamber, triangular grates, and lift drafts.

Tank Capacities in Gallons—No. 12, 125 gal.; No. 16, 250 gal.; No. 20, 450 gal.



No. 12

EXCELSON WATER HEATERS

KLEARWAY VALVES

MADE BY
EXCELSON PRODUCTS CORP.

65 Clyde Avenue
BUFFALO, N. Y.

BRANCHES IN ALL PRINCIPAL CITIES

Products

EXCELSON INDIRECT and DIRECT WATER HEATERS which replace the fire pot coils and permit the effective utilization of the boiler and furnace fire for the heating of the domestic hot water supply. In any size building from a cottage to large apartments, hotels, office buildings and factories, Excelson Heaters will provide a constant, uniform hot water supply for all tap needs at practically no cost. Excelson Water Heaters are self-operating and require absolutely no attention. They are easily and quickly installed in new buildings or old, by any plumber or steamfitter.

Excelson Heaters are also used extensively for heating hot water radiation.

Excelson Water Heaters are made in two types: *Indirect*, for use with steam or vapor heating plants, and *direct*, for use with hot water or warm air systems.

Excelson Klearway Valve—A simplified two-way cleaning valve for hot water supply or heating systems. It eliminates several valves usually installed.

Excelson Indirect Heaters

How Used—Excelson Indirect Heaters are attached between the steam or vapor boiler and the hot water storage tank, as shown in the illustration. Water from the heating boiler flows around the copper coils in the heater, in turn heating the domestic water supply which circulates inside the coils and into the storage tank. The tank is always full of piping hot water as long as the boiler is being fired.

Special Features—The Heater itself is made up of a heavy, self-draining cast iron shell, with removable cover plate and a heavy duty removable copper coil with patented ground joint brass connections, an exclusive Excelson feature. The use of this special type of connection eliminates the necessity for gaskets, thus doing away with the chief cause of leaking found in many heaters after a few years' use. The water being heated comes in contact only with the copper coil and the patented ground joint brass connections. It remains free and uncontaminated by rust, dirt or sediment.

Where Used—Excelson Indirect Heaters can be used in any type or size of building where there is a steam or vapor heating plant. There are over 700,000 of them in use today in all parts of the United States and Canada. It has been proven conclusively that practically no building is too large to have its domestic hot water needs efficiently cared for by one or more Excelson Indirect Heaters. They are in use today in twenty and thirty-story buildings, in apartment hotels housing several hundred families, in buildings covering entire city blocks. In every case, the water is always piping hot, even at the outlets located the farthest away from the heater.

EXCELSON

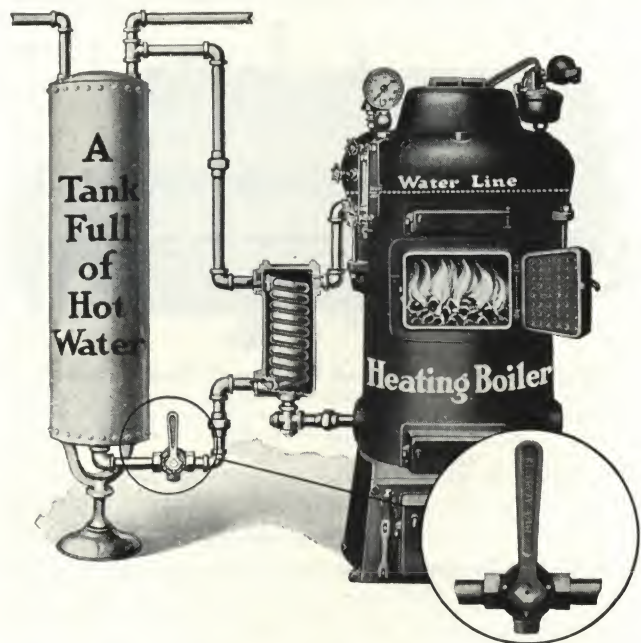
WATER HEATERS

Excelson Indirect Heaters operate equally satisfactorily on any type of steam or vapor boiler, new or old, whether cast iron or steel, sectional or round, plain or jacketed.

Practically No Operating Cost—A careful check-up of thousands of Excelson Indirect Heater installations throughout the country indicates that Excelson provides hot water at practically no operating cost.

A Size for Every Need—Excelson Indirect Heaters are made in four types and seventeen sizes, providing heating capacities for tanks ranging from 30 to 2000 gal. Unlimited capacities can be provided for by the installation of two or more Excelson Heaters in battery.

Other Uses—Excelson Heaters are used extensively for heating radiation, warming sprinkler tanks, swimming pools, and heating open vats and tanks.

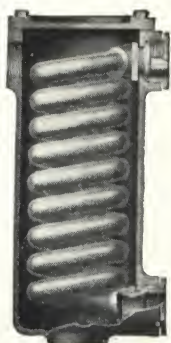


Typical Excelson Indirect Water Heater Installation With New Excelson Klearway Valve

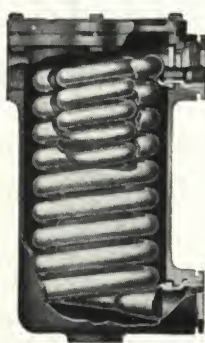
This illustration shows an Excelson Indirect Water Heater installed with the new Excelson Klearway Valve.

The simple operation of the valve on an Excelson or other hot water heater installation effectively cleans rust and sediment from the system. It offers a new safety feature, as with it the circuit is never blocked. It can be installed on high temperature systems without the hazard which results if gate valves are used and accidentally left closed.

EXCELSCO INDIRECT WATER HEATERS

**Excelso Single Coil Indirect Heaters**

Made in seven sizes, with capacities of from 30 to 140 gal., to care for small and medium size residences. Single coil heaters are equipped with two fine quality brass unions as well as removable copper coils and the Excelso patented ground joint brass connections.

**Excelso Double Coil Indirect Heaters**

Made in four sizes, with capacities of from 160 to 420 gal., intended for installation in small apartments, stores, large residences, etc. Excelso single and double coil Grey heaters are used extensively for preheating heavy grades of oil—improves combustion and economy. Special corrosion resisting coil used.

**Excelso Triple Coil Indirect Heaters**

Made in three sizes, with capacities of from 600 to 1000 gal., designed especially for large apartments, small hotels, hospitals, garages, etc. Heaters may be used singly or in batteries of two or more. Large diameter tubing in coils assures full flow through all copper and brass waterways.

**Excelso Dual Coil Indirect Heaters**

Made in three sizes of from 1200 to 2000 gal. capacity, designed to heat water in very large apartments, hospitals, hotels, swimming pools, auto washing stations—in fact, Dual Coil Excelsos will furnish practically any quantity of hot water desired, as they may be installed singly or in batteries of two or more.

DIMENSIONS—PRICE LIST—CAPACITIES

	Single Coil							Double Coil				Triple Coil			Dual Coil		
Size of heater.....	Jr	11	12	13	14	15	16	25	26	27	28	35	36	37	42	44	46
Length, in.....	8½	10½	14	11½	15	19½	24½	12½	15	19	23¼	21	25	29	21½	25¼	29¼
Width, in.....															26	26	26
Diameter, in.....	5	5	5	6½	6½	6½	6½	9	9	9	9	13¾	13¾	13¾	13¾	13¾	13¾
Shell openings, in.....	1	1	1	1½	1½	1½	1½	2	2	2	2	3	3	3	4	4	4
Coil openings, in.....	¾	¾	¾	1	1	1	1	1½	1½	1½	1½	2½	2½	2½	3	3	3
Weight, crated, lb.....	12	14	19	30	38	43	50	65	70	90	100	200	225	240	360	410	470
List Price.....	\$12.50	30	40	50	60	70	80	120	150	180	210	310	400	490	610	780	950

Heating Water Below Water Line of Steam or Vapor Boilers

Size of heater.....	Jr.	11	12	13	14	15	16	25	26	27	28	35	36	37	42	44	46
Tank cap., gal.....	30	30	42	60	82	120	140	160	180	250	372	600	800	1000	1200	1600	2000

Temperature rise 100° in 3 hours.

Hot Water Radiator Heating Capacities

Size of heater.....	Jr.	11	12	13	14	15	16	25	26	27	28	35	36	37	42	44	46
Radiator capacity, sq. ft....	45	45	67	90	135	180	210	240	300	450	600	900	1200	1500	1800	2400	3000

Heating Water with Live Steam

Size of heater.....	Jr.	11	12	13	14	15	16	25	26	27	28	35	36	37	42	44	46
Tank capacity, gal.....	45	50	75	100	150	200	220	250	300	450	600	900	1200	1500	1800	2400	3000

Temperature rise 100° in 3 hours, Steam at 5-lb. pressure.

EXCELSCO DIRECT WATER HEATERS

Excelso Fire Pot Generator

Installed above the fire level in hot water boilers and warm air furnaces. It does not interfere with combustion or fuel or with firing the furnace. Its design gives maximum broad heating surface. It is available in either cast iron, brass or galvanized iron in two sizes: No. 1, capacity up to 40 gal.; No. 2, capacity up to 60 gal.

**Excelso Phaeton Heater**

Intended for heating the domestic hot water supply or auxiliary radiators, or both. They are placed in the furnace or hot water boiler, above and out of the way of the fire. Made of cast iron, brass and galvanized iron in six sizes ranging from 30 to 250 gal. capacity for water heating and from 40 to 400 sq. ft. of hot water radiation.

**Excelso Fin Pin Heaters**

Installed directly into the bed of the fire. The fins on the side of the heater prevent clinkers forming around the unit and allow air passage which prevents deadening of the fire so common where pipe coils are installed directly into the fire. Made in cast iron, brass and galvanized iron in 30 and 40 gal. tank capacities.

**Dealers and Stock**

Sold and installed by plumbers and steamfitters everywhere.

EXCELSCO
WATER HEATERS
AND KLEARWAY VALVES

Catalogue

Complete detailed catalogue mailed on request.

Stocked and sold by leading wholesalers, and boiler and radiator manufacturers everywhere

THE PATTERSON-KELLEY CO.

Water Heating Engineers and Manufacturers of Hot Water Heaters

102 Park Avenue
NEW YORK, N. Y.

BRANCH OFFICES IN PRINCIPAL CITIES

Products

PATTERSON HOT WATER SERVICE HEATERS: STORAGE and INSTANTANEOUS TYPES.

Also manufacturers of Converters for hot water heating systems; Swimming Pool Heaters; Preheaters or Condensation Coolers; Reclaimers for recovering heat from waste liquids; Feed Water Heaters and Purifiers; Fuel Oil Heaters; Kelley Hot Water System for Laundries.

Co-operative Engineering Service

Architects place themselves under no obligation by permitting Patterson-Kelley Engineers to submit suggestions regarding heaters required for specified purposes. We offer such service without charge and, when an installation is made in accordance with our recommendation, we positively guarantee that it will furnish all of the hot water required, as hot as required and when required.

General Construction

The tubes in all Patterson Hot Water Heaters, Types A, B, C, D, E, F, G and L, are of heavy gauge, seamless drawn copper, tested to 1000-lb. hydrostatic pressure per sq. in. All tube heads are forged steel. The shells are either boiler plate or best quality dry sand castings of ample thickness. After assembling, each heater is tested to a hydrostatic pressure 50% greater than the specified working pressure.

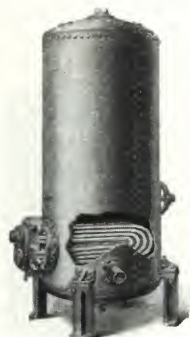
Guarantee

We guarantee the materials and workmanship of each heater to be first class in every respect, and any part proving defective within one year from date of shipment will be replaced without charge. We also guarantee each heater to heat its rated capacity of water.

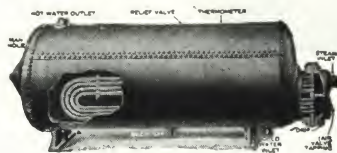
Patterson Combined Hot Water Service and Storage Heaters

Both the Type B, horizontal, and Type L, vertical, provide any combination of storage and heating capacities. They require only a small continuous supply of steam to heat and store sufficient water for peak load periods.

The tubes are "U" shaped seamless copper, both ends of each tube being expanded in a forged steel removable tube head. The shells are of steel and, if desired, may be coated inside with rust resistant or lined with copper so that water comes in contact with no metal other than copper, thus combining the strength of steel with the durability of copper.



Vertical Heater
Type L



Horizontal Heater
Type B

Suggested Specifications for Type B Heaters—

Furnish and install, where shown on drawing, one Type B Patterson (or equally approved) Combined Hot Water Heater and Storage Tank, with No. S storage section and No. H heating section.

The heating surface to consist of "U" shaped seamless copper tubes, both ends of each tube to be expanded in a forged steel tube head, and to be of sufficient capacity to heat not less than

.... gallons of water per hour from an initial temperature of degrees to a final temperature of degrees when supplied with steam at pounds pressure.

The heater to be furnished with manhole, all necessary openings, tappings, and saddles for its support.

The water space to be tested for a working pressure of pounds per square inch and the steam space for a working pressure of pounds per square inch.

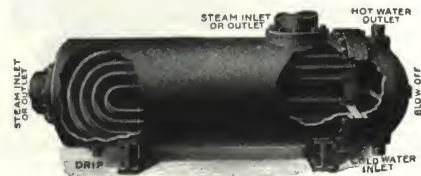
PATTERSON COMBINED HOT WATER SERVICE AND STORAGE HEATER TYPE B

Storage capacities				Heating capacities 40° F. to 180° F.—steam at atmospheric pressure		
No.	Dimensions, in.	Capacity gal.	Approx. wt., lb.	No.	Gal. per hour	Approx. wt., lb.
1 S	24x 48	94	650	1 H	100	200
2 S	24x 60	118	750	2 H	150	215
3 S	24x 72	141	850	3 H	200	235
4 S	24x 84	164	950	4 H	250	255
5 S	30x 60	180	875	5 H	300	285
6 S	30x 72	215	1000	6 H	400	315
7 S	30x 84	255	1150	7 H	500	350
8 S	30x 96	285	1300	8 H	600	370
9 S	30x120	360	1500	9 H	700	400
10 S	36x 72	310	1250	10 H	800	425
11 S	36x 84	365	1400	11 H	1000	450
12 S	36x 96	415	1550	12 H	1250	500
13 S	36x108	475	1700	13 H	1500	550
14 S	36x120	500	1850	14 H	1750	600
15 S	36x144	640	2100	15 H	2000	700
16 S	42x 72	430	1500	16 H	2500	800
17 S	42x 84	500	1650	17 H	3000	900
18 S	42x 96	575	1800	18 H	3500	1050
19 S	42x108	650	1950	19 H	4000	1200
20 S	42x120	720	2200	20 H	4500	1350
21 S	42x144	860	2450	21 H	5000	1500
22 S	42x168	1000	2800	22 H	6000	1750
23 S	42x192	1155	3100	23 H	7500	2000
24 S	48x 96	750	2600	24 H	10000	3200
25 S	48x120	940	2925	25 H	12500	3800
26 S	48x144	1125	3350	26 H	15000	4500
27 S	48x168	1300	3840	27 H	20000	5100
28 S	48x192	1500	4200	28 H	25000	5800
29 S	54x120	1190	3500			
30 S	54x144	1425	3900			
31 S	54x168	1665	4300			
32 S	54x192	1900	4700			
33 S	60x120	1400	4300			
34 S	60x144	1700	4950			
35 S	60x168	2000	5600			
36 S	60x192	2240	6200			
37 S	72x174	3000	7000			
38 S	84x168	4000	8700			
39 S	96x168	5200	10000			
40 S	96x192	6000	11000			

Note—To specify Type B heaters, combine the numbers of the required storage and heating capacities. For example, "One Patterson Type B heater with No.22S. and No. 17H." has 1000 gal. storage with 3000 gal. hourly heating capacity.

Patterson Instantaneous Hot Water Service Heater

This is a water tube heater, with only nominal storage capacity. It is recommended for use where the hot water demand is practically continuous or as a hot water generator for circulating systems.



Instantaneous Heater Type D

"Data Book for Architects' and Engineers' Use"

Send for this. It contains accurate capacity tables of the herein described and other types of Patterson Service Heaters and Generators.

Gallons of water per hour are given for each size, at various final temperatures, using steam at different pressures. Detailed dimensions are shown of all sizes; also capacities of Patterson Converters in square feet of radiation, etc.

TACO HEATERS, INCORPORATED

Manufacturers of Indirect Water Heaters

342 Madison Avenue, NEW YORK, N. Y.

Taco for Constant, Economical Hot Water Supply with Any Type Heating Plant

Taco *Indirect* Hot Water Heaters are furnished in three styles for use with steam and hot water heating plants. They will provide up to 5000 gal. of hot water (based on 100° temperature rise in three hours) for every domestic need.

Taco Universal *Direct* Hot Water Heaters are for round hot water heating boilers for supply tanks up to 60 gal. capacity.

Taco Heaters, as shown in the detail for each heater, will operate successfully with oil burning systems, and in combination with automatic gas hot water supply heaters as preheaters.

Taco Indirect Heaters Embody Correct Operating Principles and Are All Guaranteed

The Taco Indirect Water Heater is hooked up to a steam or hot water heating boiler. Hot water from the boiler circulates within the shell of the Taco Heater and surrounds a copper coil through which the storage tank water flows. Heat is transferred to the storage tank water at all times while the heating boiler is in operation and with a suitable size Taco properly installed, an abundant supply of clean, hot water is assured.

Factors Which Determine the Proper Selection and Installation of Taco Heaters

In selecting the size of Taco for a given installation, consideration must be given to a number of factors. The catalogue ratings are based on 100° temperature rise in three hours, and the capacity in gallons given in the tables is usually considered also to be the capacity of the storage tank which the heater will serve. It is well to understand that these rated capacities of the Taco were obtained operating under favorable conditions and with the boiler steaming. It

TACO

is good practice to allow a margin when selecting Tacos of the proper size to provide for loss of efficiency due to fouling; also to allow a margin for increased future demands for hot water. In other words, to select the larger sized Taco for consistently satisfactory hot water supply, particularly in mild weather when boiler fire is often banked for hours at a time. Other factors which have a bearing on the selection of the proper size Taco are:

Location of Storage Tank—Tank should be placed as high as possible. Storage tanks of 18 in. diameter and over should be horizontal, with bottom on or above the water line of the boiler.

Losses by Radiation—It is obvious that if there is an extensive circulating system used in connection with the domestic hot water supply, comprising long runs of uncovered piping, that radiation loss from this piping should be given consideration by increasing the size of the Taco.

Pipe Sizes—Pipes should be full size of the heater openings. This is particularly important in connection with the pipe that connects the Taco to the boiler. If brass pipe is used between the Taco and storage tank, it may be one size less than the Taco opening. The use of brass pipe for this service is increasing and is strongly recommended.

Drains for Heaters—Valves and drains are absolutely necessary to permit flushing out the shell and coil of the heater at regular intervals.

Gas or Oil Fired Boilers—Where oil or gas is used for fuel it is fired intermittently. This means that in mild weather there may be a fire in the boiler for only one or two hours a day. It has been frequently found that installations that were entirely satisfactory with coal as a fuel, have been less so when a change was made to oil. The remedy has in all cases been a larger Taco, larger storage tank, or both. For "summer hot water" installation, see Figs. 14 and 14-A.

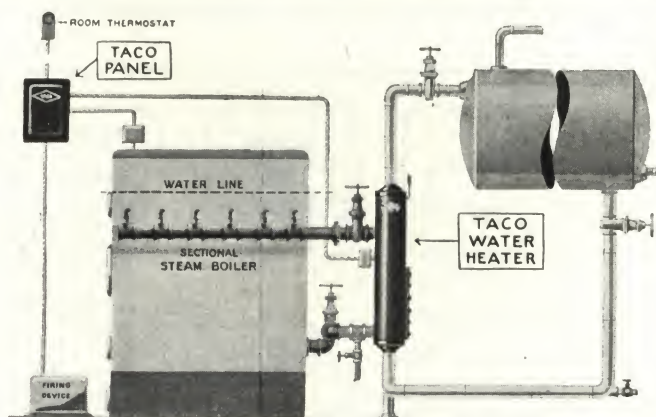


Fig. 14

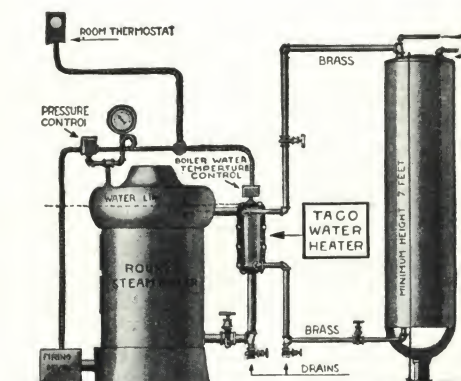


Fig. 14-A

TACO INSTALLATION YEAR ROUND DOMESTIC HOT WATER SUPPLY, TACO-ABBOTT SYSTEM

For detail installations see following pages

Patent No. 1654396

Taco Installations

For Year Around Domestic Hot Water Supply with Oil Burner

Taco-Abbott System. Patent No. 1,654,396. Automatically Controlled

Taco-Abbott System provides for automatic year round domestic hot water supply from an oil-fired steam heating boiler. This system offers many advantages to the home owner and the oil burner dealer alike. By keeping the boiler in service the year round, the boiler and oil burner are always in perfect condition. The slight heat radiated from the equipment keeps the cellar dry. No other water heater is needed and the cost of summer operation is so small as to be negligible. *There are no valves or switches to be operated.*

This system can be installed in connection with a cast-iron sectional boiler with each section tapped and headed together just below the water line. Tapping the boiler in this manner not only permits the free circulation of the boiler water to the Taco from all sections of the boiler, but *prevents the boiler from steaming during the summer months* when heat is not required in the radiators. With steel boilers and round cast-iron boilers no header as above described is required.

A boiler water temperature control is set to automatically maintain a minimum water temperature in the boiler at all times of about 170 to 180 degrees F.

This patented system is offered to you exclusively by Taco Heaters, Incorporated.

Due to the intermittent operation of the oil burner and the fact that the boiler water is maintained at only 170 to 180 degrees during mild weather and during the summer months, larger Tacos are required than when the boiler is coal-fired and used during the heating season only.

Special circulars and detailed piping diagrams are available upon application for all types of installations.

Table on following page lists the recommended sizes of Tacos, Storage Tanks and Pipe Sizes for use with Taco-Abbott System.

There are given a number of typical installation drawings. Larger scale drawings similar to these will be furnished upon request, also installation drawing for any installation not covered by these drawings.

Fig. 22. Residence, one small to medium sized family; round cast-iron boiler with vertical range boiler.

Fig. 23. Residence, one small to medium sized family; small sectional cast-iron boiler with vertical range boiler.

Fig. 24. One- to three-family house. with round cast-iron boiler and vertical range boiler.

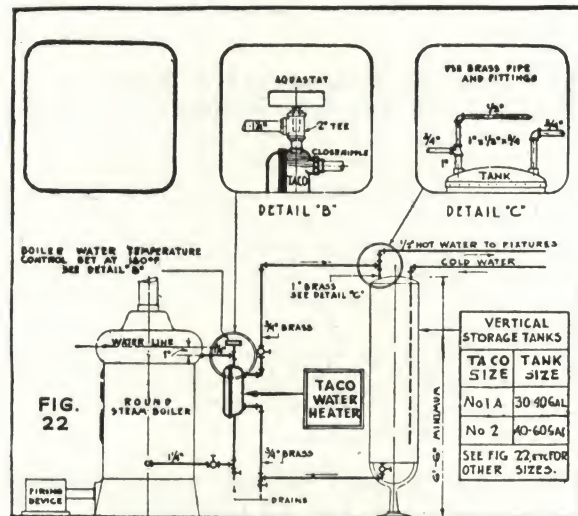
Fig. 25. One- to three-family house, with sectional cast-iron boiler and horizontal storage tank.

Fig. 26. Residence or apartment of four or five families. Sectional cast-iron boiler and horizontal storage tank.

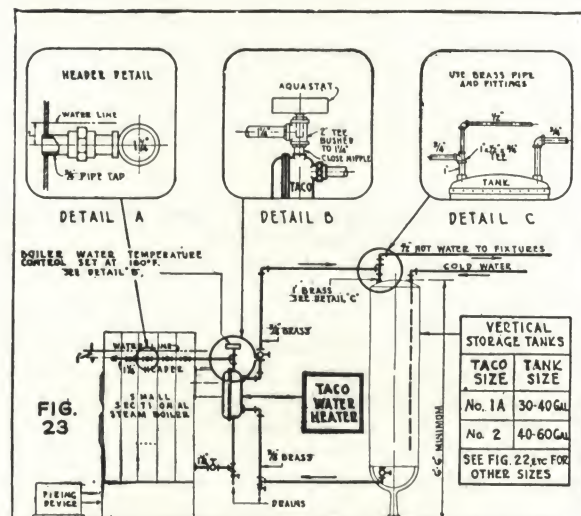
Fig. 27. Larger residence or apartment up to ten families. Sectional cast-iron boiler and horizontal storage tank.

Fig. 28. Large residence or four to five apartments; sectional cast-iron boiler with horizontal storage tank.

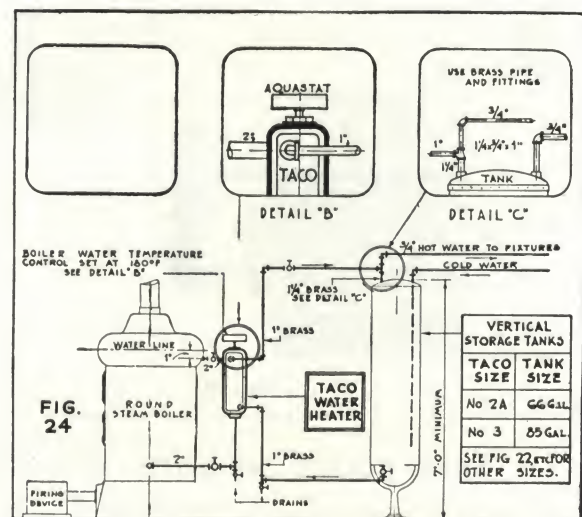
Fig. 29. Large residence or apartments of four or five families; hot water boiler with horizontal storage tank.



Residence—One Small to Medium Sized Family

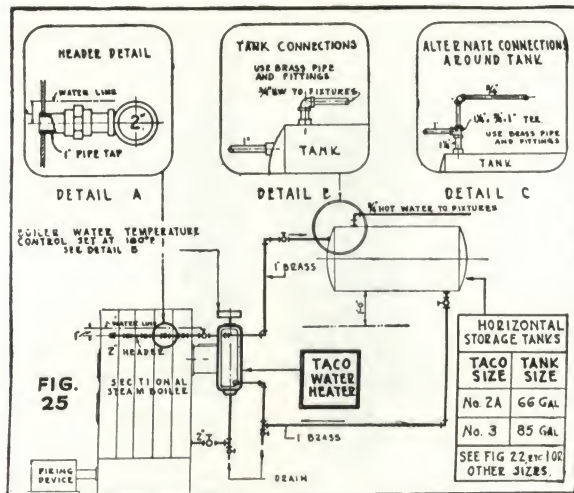


Residence—One Small to Medium Sized Family

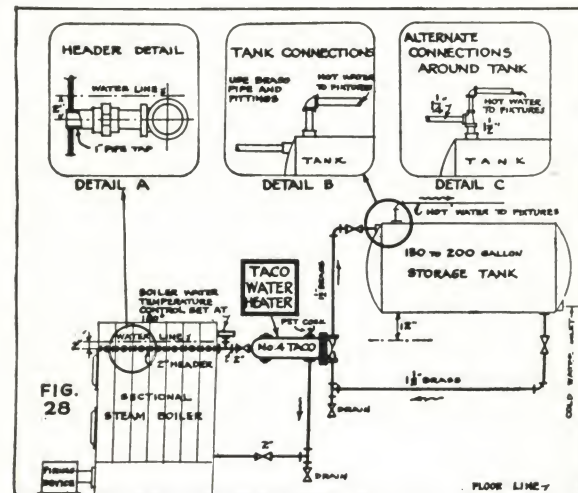


Residence or Apartment—Two or Three Baths

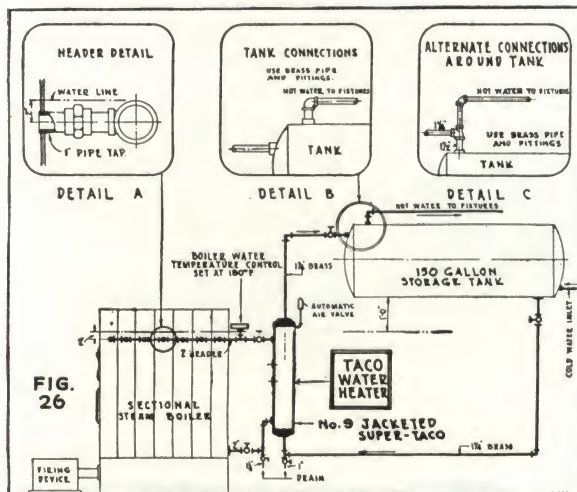
Taco Installations Continued



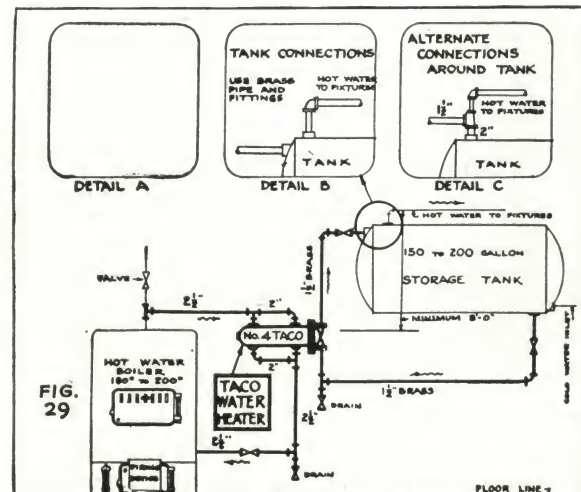
Residence or Apartment—Two or Three Baths



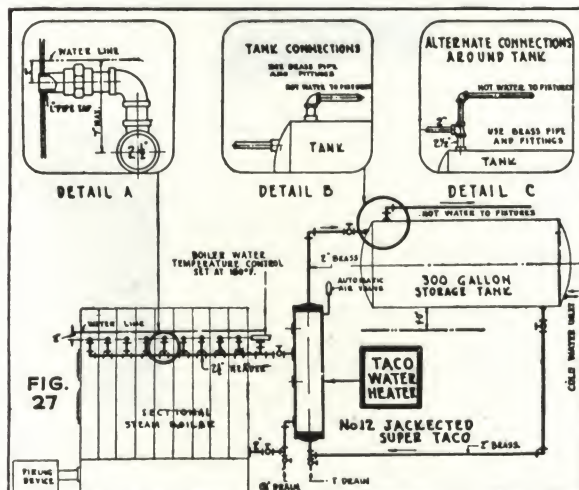
Large Residence or Four to Five Apartments



Residence or Apartment—Four or Five Families



Year Around Domestic Hot Water Supply from Hot Water Heating System



Large Residence or Apartment—Up to 10 Families

FIG. 30
STORAGE TANK SELECTION

TANKS, GALLON CAPACITY	CONNECTIONS BOILER	TANK	TACO SIZE	NUMBER OF FAMILIES
30-40 GALS	1 1/2"	1"	NO. 1A	1
40-60 "	1 1/2"	1"	NO. 2	1
66 "	1 1/2"	1"	NO. 2A	1-2
85 "	2"	1"	NO. 3=NO. 7	2-3
100 "	2"	1 1/2"	NO. 3=NO. 7	3
120 "	2"	1 1/2"	NO. 3=NO. 7	4
140 "	2"	1 1/2"	NO. 3=NO. 4	4-5
150 "	2"	1 1/2"	NO. 3=NO. 4	4-5
180 "	2"	1 1/2"	NO. 10=NO. 4	5-6
220 "	2"	1 1/2"	NO. 10	7
250 "	2 1/2"	1 1/2"	NO. 12=NO. 5	8
295 "	2 1/2"	1 1/2"	NO. 12=NO. 5	9-10
365 "	3"	2"	NO. 20	12
420 "	3"	2"	NO. 20	14
450 "	3"	2"	NO. 20	15
500 "	3"	2"	NO. 25=NO. 6	16
525 "	3"	2"	NO. 25=NO. 6	17
575 "	3"	2"	NO. 25	19
720 "	4"	3"	NO. 35	24
865 "	4"	3"	NO. 35	27
1000 "	4"	3"	NO. 50	40

THIRTY GALLONS PER FAMILY IN APARTMENT HOUSES HAVING 3 TO 5 ROOMS EACH AND THIRTY GALLONS PER BATH FOR THE USUAL PRIVATE RESIDENCE CAUTION.

TANK SIZE MUST BE INCREASED TO PROVIDE FOR KITCHEN AND LAUNDRY USE AND WASHES WHEN THERE ARE A NUMBER OF SERVANTS FOR SUCH AN INSTALLATION WHETHER IN DETACHED HOUSES OR APARTMENTS 50 OR MORE GALLONS STORAGE CAPACITY SHOULD BE ALLOWED PER BATH WITH A MINIMUM STORAGE OF 100 GALLONS.

NOTE

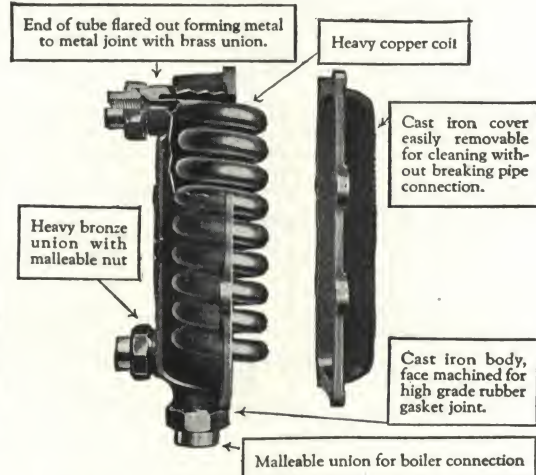
THIS TABLE LISTS TACOS WITH PIPE SIZES, STORAGE TANKS ETC. WHEN TACO IS USED FOR YEAR AROUND DOMESTIC HOT WATER SUPPLY - TACO-ABBOTT SYSTEM - SEE REGULAR CATALOG FOR RATINGS, PIPE SIZES ETC. FOR OTHER TYPES OF INSTALLATIONS. BRASS PIPING IS RECOMMENDED FOR DOMESTIC WATER CONNECTIONS

Storage Tanks and Pipe Sizes

Capacities, Dimensions and Shipping Weights of Taco Heaters

Domestic Taco with Brass Unions

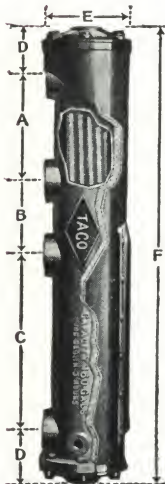
Size	0	30	1	1-A	2	2-A	3
Capacity, below water line, gal.	30	30-40	40-60	60-80	80-120	120-160	160-200
100° rise 3 hours....	.....	.....	.....	.....	30-40	40-50	50-66
100° rise 1 hour....	.....	.....	.....	.....	60	90	120
Square ft. water rad. ....	.....	.....	.....	.....	16½	19	21½
Height, inches	8½	11	13	14	16½	19	21½
Diameter, inches	5½	5½	5½	7	7½	8½	8½
Tank conn., inches....	¾	¾	¾	1	1	1	1¼
Boiler conn., inches....	1	1	1	1¼	1¼	1½	2
Shipping weight, lbs....	9	11	14	20	24	45	54
LIST PRICES	\$10.00	\$15.00	\$20.00	\$25.00	\$30.00	\$40.00	\$50.00



Super Taco—Jackets Extra

Jackets are of heavy steel, finished with two coats of baked red enamel with black trimmings, and are thoroughly insulated with Asbestocel.

Jacketed Super Tacos are equipped with removable bronze heads for tank connections. 4 convenient tappings for boiler connections. Vertical copper tubing assures quick heating.



Size	7	8	9	10	12	15	20	25	35	50	75	100
Capacity, gals.....	160	220	320	450	600	800	1000	1250	1750	2500	3750	5000
100° rise 3 hours....	52	70	100	150	200	265	333	415	580	830	1250	1660
100° rise 1 hour....	8	10	8	10	10	12	7½	8½	8½	12	12	12
A	5½	7½	5	7	6½	9	7½	11½	11½	18	18	18
B	13½	17½	13	17	16½	21	15½	20	20	30	30	29
C	3¾	3¾	5	5	6	6	7	7	7	8½	10½	12½
D	6¾	6¾	7½	7½	9¼	9¼	11¾	11¾	14¼	14¼	19	21
E	34½	42½	36	44	45	54	45	54	55	77	81	84
F	2	2	2½	2½	3	3	4	4	4	5	5	6
Boiler con's., in....	1½	1½	2	2	2	2½	2½	2½	2½	4	5	6
Tank con's., in....	70	100	130	150	185	220	280	350	500	685	1050	1250
Shipping wt., lbs....	70	100	130	150	185	220	280	350	500	685	1050	1250
LIST PRICE.....	\$55	\$70	\$90	\$110	\$150	\$190	\$270	\$330	\$470	\$670	\$1000	\$1300

Increase size of Taco for inadequate tank capacity. Thirty-gallon tank capacity is usually required per family.

Taco No. 4, 5, 6

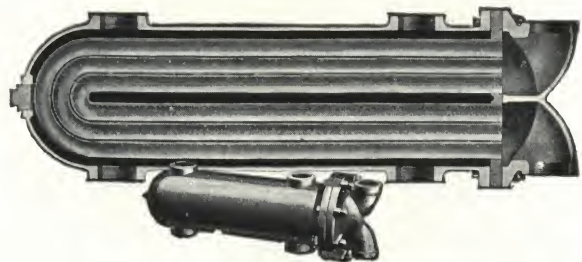
Size	4	5	6
Capacity, below water line, gal....	*	*	*
Cap. Steam, Gals. 100° rise 3 hrs..	600	1200	1800
Cap. Steam Gals. 100° rise 1 hr...	200	400	600
Square feet water radiation.....	240	480	750
Length, inches.....	26	38	40
Diameter, inches	8	11¾	13½
Tank connections, inches.....	2	2½	3
Boiler connections, inches.....	2	2½	3
Shipping weight, pounds.....	96	192	265
LIST PRICES	\$100.00	\$200.00	\$300.00

*For these capacities Super Tacos are recommended.

When desired below water line, Capacity Gallons.

100° rise 3 hrs. No. 4, 320; No. 5, 640; No. 6, 960

100° rise 1 hr. No. 4, 100; No. 5, 210; No. 6, 320



Universal Taco

Size	6-9-30 Iron	6-9-60 Iron
Capacity, gallons	30	60
Height, inches	10½	10½
Width, inches	6	11½
Shipping weight, pounds.....	10	17
LIST PRICE, Iron.....	\$8.00	\$14.00
LIST PRICE, Brass.....	\$20.00	\$35.00



Taco Heaters are stocked and distributed nationally by manufacturers and wholesalers of plumbing and heating material.

THE WHITLOCK COIL PIPE COMPANY

MANUFACTURERS AND ENGINEERS

Service Water Heaters
HARTFORD, CONN.

NEW YORK, N. Y.
BOSTON, MASS.
PHILADELPHIA, PA.
CHICAGO, ILL.
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SEATTLE, WASH.
TACOMA, WASH.

MANUFACTURERS OF AND SALES AGENTS FOR WHITLOCK HEATERS IN CANADA: DARLING BROS., LTD., MONTREAL

Products

Manufacturers of STORAGE HEATERS, INSTANTANEOUS HEATERS, SWIMMING POOL HEATERS, CONVERTORS (hot water heating systems), CONDENSATION or DRIP COOLERS and PRE-HEATERS, INDIRECT HEATERS, FEED WATER HEATERS,

WHITLOCK
HEAT-TRANSFER
EQUIPMENT

FUEL OIL HEATERS, and HEAT EXCHANGERS, for heating and cooling liquids, vapors and gases.

Also makers of Coils and Bends of any size and shape from Iron, Steel, Copper, and Brass Pipe and Tubing.

Whitlock Type K Horizontal Storage Heaters

For Use with Live or Exhaust Steam

Whitlock Type K Storage Heaters are used wherever large quantities of hot water are required at irregular intervals. By using a small amount of steam steadily, sufficient heat is stored to supply ample hot water for peak requirements with a steady load on the steam boiler. Hotels, apartment houses, office buildings, schools, hospitals, laundries, textile mills and other buildings have obtained their hot water supply from these heaters for many years.

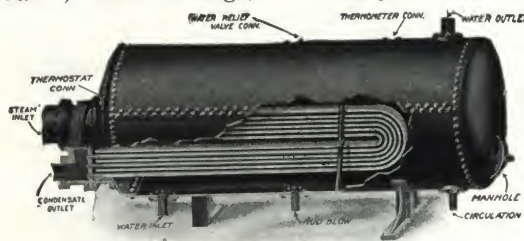


Fig. 1. Type K Horizontal Storage Heater

Construction

Shell—Steel plate, to A.S.T.M. Specifications 78-27, firmly riveted. The bumped heads are not the conventional type, but are curved to the contour of a semi-ellipsoid, by means of knuckle radii which are from 4 to 8 times as great as required by the A.S.M.E. Unfired Pressure Vessels Code.

Heating Section—Heavy gauge, seamless copper U-bends, removable as a unit for cleaning and inspection.

Tube Sheet—Heavy rolled steel.

Tube Support—Rolled or cast bronze.

Head or Steam Chamber—Best commercial grade cast iron.

Manhole—11x15-in. manhole with double yoke on heaters of 30-in. diameter or greater; 6x8-in. handholes on smaller diameter heaters.

Note: This standard construction may be varied to meet unusual operating conditions.

Test

Before shipment, every heater is subjected to a hydrostatic test pressure as required by the laws of the State in which it is to be installed—with a minimum of 50% in excess of the working water pressure specified. A test certificate is sent to the customer.

Selecting the Proper Size of Heater

Consultation with Whitlock Engineer on Heater Requirements Recommended—We strongly recommend the practice of many architects and engineers in calling in the nearest Whitlock Engineer for suggestions or recommendations as to the best type and

proper size of water heater for given installation—see last paragraph on the fourth following page. However, where this is impossible, the following tables will enable the architect or engineer to select a heater to fit the requirements of the majority of cases, if proper attention is given to all of the conditions.

Referring to Table I, list the various fixtures of each kind, and their capacities as shown opposite the fixture for the particular type of building in question. Add these capacities together and the probable average hourly requirement equals hourly requirement, as found, multiplied by the heating capacity factor in the table.

TABLE I. HOT WATER FIXTURE CAPACITIES FOR VARIOUS TYPES OF BUILDINGS

Figured at a final temp. of 180° F.

Type of fixture	Gal. of water per hour per fixture									
	Apartment house	Club	Gymnasium	Hospital	Hotel	Industrial plant	Office building	Public bath	Private residence	School
Basins—										
Private lavatory...	2	2	2	2	2	2	2	2	2	2
Public lavatory...	4	6	8	6	8	12	6	12	15	8
Bathtubs...	20	20	30	20	30	30	45	20	15	30
Dishwashers...	15	30	30	30	30	12	15	3	3	12
Foot basins...	3	3	12	3	3	12	10	10	10	20
Kitchen sinks...	10	20	20	20	20	20	20	20	20	20
Laundry station-										
ary tubs...	20	28	28	28	28	28	28	28	28	28
Pantry sink...	5	10	10	10	10	225	225	75	225	225
Showers...	75	150	225	75	75	20	15	15	15	20
Slop sinks...	20	20	20	20	20	20	20	20	20	20
Hourly heating capacity factor percentage	20	30	40	25	25	40	25	50	30	40
Storage capacity factor percentage	80	90	100	60	80	100	200	120	70	100

To illustrate the above method of selecting the proper heater, we will take the hot water requirements of a small hotel as follows:

Private lavatories.....100 @ 2 gals. each 200 gals. per hr.
Public lavatories.....10 @ 8 gals. each 80 gals. per hr.
Bathtubs.....75 @ 20 gals. each 1500 gals. per hr.
Dishwashers.....2 @ 30 gals. each 60 gals. per hr.
Kitchen sinks.....3 @ 20 gals. each 60 gals. per hr.
Pantry sinks.....3 @ 10 gals. each 30 gals. per hr.
Showers.....24 @ 75 gals. each 1800 gals. per hr.
Slop sinks.....9 @ 30 gals. each 270 gals. per hr.
Hourly requirements (total).....4000 gals. per hr.

Hourly heating capacity equals 4000 multiplied by 25%, or 1000 gal. per hour.
Storage capacity equals 1000 multiplied by 80%, or 800 gal.

Nearest shell size to 800 gal. is 860, No. 16 (42x144 in.).
Heating section of 1000-gal. capacity is No. H13.
Heater required is then "Whitlock Type K No. 16H13."

Table II will now give the proper size shell and heating section of the Type K heater and the principal dimensions to assist in the layout. Note particularly in combining shell size and heating section the column in

Table II showing the "Minimum size shell section will fit" and see that the heating section chosen is not too large for the shell.

Table II lists shell and head thicknesses which we recommend for usual working pressures to insure a long life to the heater.

Table III (on following page) should be consulted to be sure that the heater selected is heavy enough for the particular working water pressure to which it will be subjected.

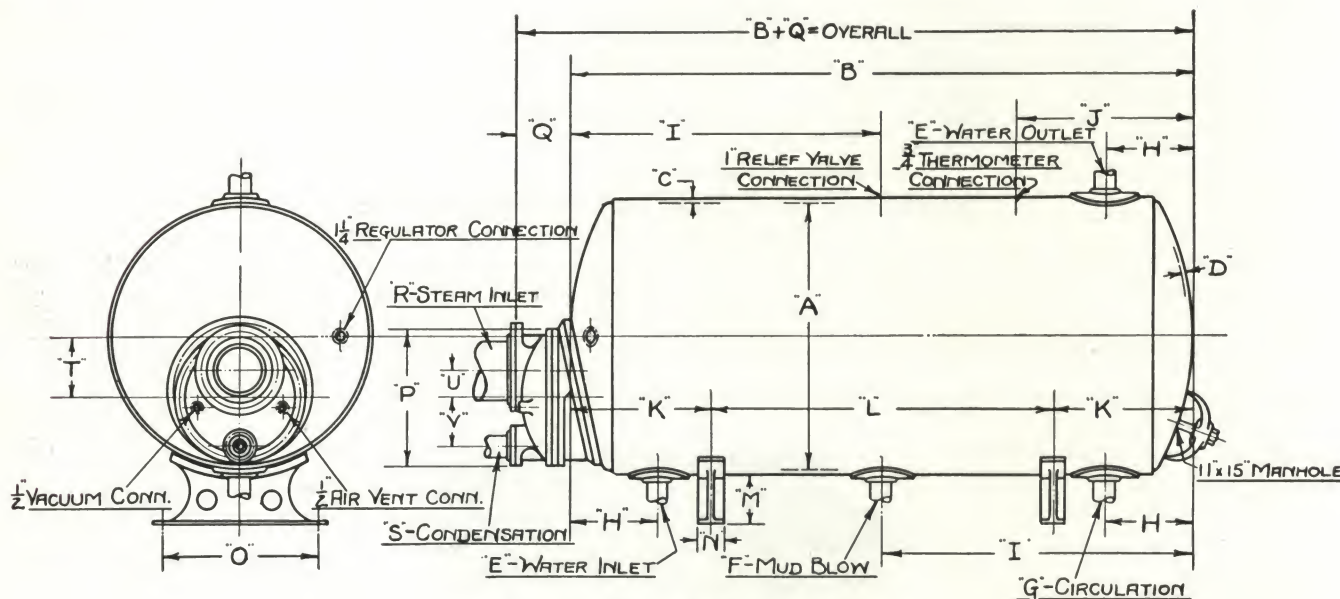


Fig. 2. Details of Type K Storage Heater

(Patent applied for)

TABLE II. WHITLOCK TYPE K STORAGE HEATERS (HORIZONTAL)

SHELLS															HEATING SECTIONS												
No.	Gallons—one filling	"A" Diam., in.	"B" Length, in., add "Q" for over all	"C" Thickness of shell	"D" Thickness of head, in.	Weight, lb.	"E" Water inlet and outlet, in.	"F" Mud blow, in.	"G" Circulation, in.	"H" Location of water connection, in.	"I" Location of mud blow, in.	"J" Location of thermometer, in.	"K" Location of cradles, in.	"L" c. c. of cradles	No.	Gallons per hour	Smallest shell into which section will fit, in.	Weight of entire section, lb.	"P" Diam. of head port, in.	"Q" Add to "B" for over all, in.	"R" Max. and std. steam inlet, in.	"S" Max. and std. condensation	"T" Center heater to center of section	"U" Location of steam inlet, in.	"V" Location of cond. outlet, in.		
1	65	18	60	$\frac{1}{4}$	$\frac{3}{8}$	400	2	2	.....	10	30	22	18	24	4	H0	100	18x48	75	9 $\frac{1}{4}$	6 $\frac{1}{4}$	2	1	17 $\frac{1}{8}$	2 $\frac{1}{2}$	
2	80	18	72	$\frac{1}{4}$	$\frac{3}{8}$	450	2	2	.....	10	36	22	18	36	4	H1	150	18x60	80	9 $\frac{1}{4}$	6 $\frac{1}{4}$	2	1	17 $\frac{1}{8}$	2 $\frac{1}{2}$	
3	118	24	60	$\frac{1}{4}$	$\frac{3}{8}$	600	2	2	.....	11	30	23	19	22	6	H2	200	18x72	90	9 $\frac{1}{4}$	6 $\frac{1}{4}$	2	1	17 $\frac{1}{8}$	2 $\frac{1}{2}$	
4	141	24	72	$\frac{1}{4}$	$\frac{3}{8}$	700	2	2	11	36	23	19	34	6	H3	250	18x84	175	12 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{1}{2}$	2	2	28 $\frac{1}{4}$	3 $\frac{1}{2}$	
5	164	24	84	$\frac{1}{4}$	$\frac{3}{8}$	800	2	2	11	42	23	19	46	6	H4	300	18x96	185	12 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{1}{2}$	2	2	28 $\frac{1}{4}$	3 $\frac{1}{2}$	
6	185	30	60	$\frac{1}{4}$	$\frac{3}{8}$	750	3	2	12	30	24	20	20	7	H5	350	18x60	190	12 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{1}{2}$	2	2	28 $\frac{1}{4}$	3 $\frac{1}{2}$	
7	220	30	72	$\frac{1}{4}$	$\frac{3}{8}$	850	3	2	12	36	24	20	32	7	H6	400	18x60	200	12 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{1}{2}$	2	2	28 $\frac{1}{4}$	3 $\frac{1}{2}$	
8	255	30	84	$\frac{1}{4}$	$\frac{3}{8}$	950	3	2	12	42	24	20	44	7	H7	500	18x72	210	12 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{1}{2}$	2	2	28 $\frac{1}{4}$	3 $\frac{1}{2}$	
9	290	30	96	$\frac{1}{4}$	$\frac{3}{8}$	1050	3	2	12	48	24	20	56	7	H8	550	18x72	215	12 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{1}{2}$	2	2	28 $\frac{1}{4}$	3 $\frac{1}{2}$	
10	365	36	84	$\frac{1}{2}$	$\frac{3}{8}$	1300	3	2	14	42	26	22	40	8	H9	600	18x84	220	12 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{1}{2}$	2	2	28 $\frac{1}{4}$	3 $\frac{1}{2}$	
11	420	36	96	$\frac{1}{2}$	$\frac{3}{8}$	1450	3	2	.....	14	48	26	22	52	8	H10	700	24x60	300	15 $\frac{1}{4}$	7 $\frac{1}{2}$	5	2	2	4 $\frac{1}{2}$	
12	475	36	108	$\frac{1}{2}$	$\frac{3}{8}$	1600	3	2	14	54	26	22	64	8	H11	800	18x96	260	12 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{1}{2}$	2	2	28 $\frac{1}{4}$	3 $\frac{1}{2}$	
13	525	36	120	$\frac{1}{2}$	$\frac{3}{8}$	1800	3	2	2	14	60	26	22	76	8	H12	900	18x108	270	12 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{1}{2}$	2	2	28 $\frac{1}{4}$	3 $\frac{1}{2}$	
14	575	42	96	$\frac{1}{2}$	$\frac{3}{8}$	1850	4	2	17	48	29	26	44	8	H13	1000	18x120	285	12 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{1}{2}$	2	2	28 $\frac{1}{4}$	3 $\frac{1}{2}$	
15	720	42	120	$\frac{1}{2}$	$\frac{3}{8}$	2150	4	2	.....	17	60	29	26	68	8	H14	1250	24x84	370	15 $\frac{1}{4}$	7 $\frac{1}{2}$	5	2	2	4 $\frac{1}{2}$	
16	860	42	144	$\frac{1}{2}$	$\frac{3}{8}$	2500	4	2	2	17	72	29	26	92	8	H15	1500	24x108	425	15 $\frac{1}{4}$	7 $\frac{1}{2}$	5	2	2	4 $\frac{1}{2}$		
17	1000	42	168	$\frac{1}{2}$	$\frac{3}{8}$	2900	4	2	2	17	84	29	26	116	8	H16	1750	24x120	450	15 $\frac{1}{4}$	7 $\frac{1}{2}$	5	2	2	4 $\frac{1}{2}$		
18	950	48	120	$\frac{1}{2}$	$\frac{3}{8}$	2850	4	2	2	18	60	30	27	66	9	H17	2000	30x96	570	18 $\frac{1}{4}$	8 $\frac{1}{2}$	6	2 $\frac{1}{2}$	3 $\frac{1}{4}$	5 $\frac{1}{2}$		
19	1140	48	144	$\frac{1}{2}$	$\frac{3}{8}$	3250	4	2	2	18	72	30	27	90	9	H18	2400	30x120	620	18 $\frac{1}{4}$	8 $\frac{1}{2}$	6	2 $\frac{1}{2}$	3 $\frac{1}{4}$	5 $\frac{1}{2}$		
20	1310	48	168	$\frac{1}{2}$	$\frac{3}{8}$	3700	4	2	2	18	84	30	27	114	9	H19	2800	30x132	670	18 $\frac{1}{4}$	8 $\frac{1}{2}$	6	2 $\frac{1}{2}$	3 $\frac{1}{4}$	5 $\frac{1}{2}$		
21	1480	48	192	$\frac{1}{2}$	$\frac{3}{8}$	4100	4	2	2	18	96	30	27	138	9	H20	3200	36x96	860	21	9 $\frac{3}{8}$	8	2 $\frac{1}{2}$	4 $\frac{1}{2}$	6 $\frac{1}{8}$		
22	1190	54	120	$\frac{1}{2}$	$\frac{3}{8}$	3250	4	2	2	20	60	32	30	60	9	H21	3600	36x108	920	21	9 $\frac{3}{8}$	8	2 $\frac{1}{2}$	4 $\frac{1}{2}$	6 $\frac{1}{8}$		
23	1430	54	144	$\frac{1}{2}$	$\frac{3}{8}$	3700	4	2	2	20	72	32	30	84	9	H22	4000	36x120	950	21	9 $\frac{3}{8}$	8	2 $\frac{1}{2}$	4 $\frac{1}{2}$	6 $\frac{1}{8}$		
24	1670	54	168	$\frac{1}{2}$	$\frac{3}{8}$	4200	4	2	2	20	84	32	30	108	9	H23	4400	36x132	1020	21	9 $\frac{3}{8}$	8	2 $\frac{1}{2}$	4 $\frac{1}{2}$	6 $\frac{1}{8}$		
25	1900	54	192	$\frac{1}{2}$	$\frac{3}{8}$	4700	4	2	2	20	96	32	30	132	9	H24	4800	36x96	1200	24	9 $\frac{3}{8}$	10	3	5 $\frac{1}{2}$	8 $\frac{1}{8}$		
26	1420	60	120	$\frac{1}{2}$	$\frac{3}{8}$	4300	4	2	2	20	60	32	30	60	10	H25	5400	36x108	1300	24	9 $\frac{3}{8}$	10	3	5 $\frac{1}{2}$	8 $\frac{1}{8}$		
27	1710	60	144	$\frac{1}{2}$	$\frac{3}{8}$	4900	4	2	2	20	72	32	30	84	10	H26	6000	36x120	1380	24	9 $\frac{3}{8}$	10	3	5 $\frac{1}{2}$	8 $\frac{1}{8}$		
28	2000	60	168	$\frac{1}{2}$	$\frac{3}{8}$	5600	4	2	2	20	84	32	30	108	10	H27	7000	42x96	1950	30	11 $\frac{1}{2}$	12	4	6 $\frac{1}{2}$	10 $\frac{1}{2}$		
29	2300	60	192	$\frac{1}{2}$	$\frac{3}{8}$	6200	4	2	2	20	96	32	30	132	10	H28	8000	42x96	2000	30	11 $\frac{1}{2}$	12	4	6 $\frac{1}{2}$	10 $\frac{1}{2}$		
30	2460	72	144	$\frac{1}{2}$	$\frac{3}{8}$	5700	4	2 $\frac{1}{2}$	2 $\frac{1}{2}$	23	72	35	34	76	8	H29	9000	42x108	2300	30	11 $\frac{1}{2}$	12	4	6 $\frac{1}{2}$	10 $\frac{1}{2}$		
31	2880	72	168	$\frac{1}{2}$	$\frac{3}{8}$	6400	4	2 $\frac{1}{2}$	2 $\frac{1}{2}$	23	84	35	34	100	8	H30	10000	42x108	2460	30	11 $\frac{1}{2}$	12	4	6 $\frac{1}{2}$	10 $\frac{1}{2}$		

TABLE III. WORKING PRESSURES IN WHITLOCK STORAGE HEATERS (ALL TYPES)

Diam. of shell, in.	Thickness of shell, in.				
	1/4	5/16	3/8	7/16	1/2
18	230	280	340	400	450
24	170	210	250	300	340
30	140	170	200	240	270
36	110	140	170	200	230
42	100	120	150	170	190
48	80	110	130	150	170
54	75	95	110	130	150
60	70	85	100	120	140
72	55	70	85	100	110
84	50	60	75	85	95
96	40	55	65	75	85

Type K Vertical Storage Heaters for Use Where Space Is Limited

All of the previous material has related primarily to the more common horizontal storage heaters.

Space requirements at times make it more desirable to install a vertical heater.

The Type K Vertical Heater shown in Fig. 3 is designed especially for these conditions with the heating section low in the shell and supported on pipe legs and side brackets.

This type of heater is made in the same standard sizes of shells and heating capacities as the Type K horizontal heater.

Type K Combination Live and Exhaust Steam Horizontal Storage Heater

The Combination Type K is provided with two heating sections as shown in Fig. 4. In this case the primary section uses what exhaust steam, drips or condensation returns are available and the auxiliary section uses live steam, under thermostatic control, to complete the heating required.

The specifications, in the next column, are written so that these alternate types of heaters may be substituted, but where possible we urge the architect or engineer to consult a Whitlock Engineer (or write us the details) as a few other factors enter into this problem which can not be entirely covered in these pages.

Installation Diagrams, etc.

We will be glad to co-operate with any architect or engineer in furnishing additional information as to the construction and materials used in these heaters, or furnish typical installation drawings.

Bulletin No. 40-SA, containing complete information on Type K Heaters, sent on request

Whitlock Instantaneous Heaters

Uses

Whitlock Instantaneous Heaters are made in several different types for a variety of uses.

With Storage Tank—An instantaneous heater may be used to supply hot water to a storage tank by either gravity or forced circulation.

Swimming Pool Heater—Heating a large quantity of water through a small temperature range. It is customary to figure on heating the contents of the pool in from 10 to 12 hours.

Specification for Whitlock Type K Storage Heater

Option 1—Furnish and install as shown on the plans, one Whitlock Type K Storage Heater No. H

Option 2—Furnish and install in [horizontal] [vertical] position as shown on plans, one Whitlock Type K Storage Heater as manufactured by THE WHITLOCK COIL PIPE COMPANY, Hartford, Conn.

Capacity—The heater shall have a storage capacity of gals. The shell shall be in. in diameter by in. long (shell thickness in.; head thickness in. suitably riveted to stand a working water pressure of lbs.).

*The heater shall be capable of heating gal. of water per hour from 40° F. to 180° F. when supplied with sufficient steam at lb. gauge pressure.

Construction—The shell shall be constructed of steel plate to A.S.T.M. Specifications 78-27, with riveted seams properly designed for specified working pressure.

Necessary connections of sizes recommended and guaranteed by the heater manufacturer for specified duty and 11x15-in. manhole shall be provided.

Heating Section—The heating section shall consist of seamless drawn copper tubing made up into U-bends with ends expanded into a rolled steel tube sheet. The heating section shall be properly supported in the shell of the heater, shall be easily accessible and arranged so that the entire section can be easily removed from the shell for cleaning or inspection.

The steam distributing chamber or head, baffle at steam inlet connection, and supporting cradles (if horizontal type heater) shall be of the best grade commercial cast iron.

Test—Before shipment, shell and heating section shall be submitted to a hydrostatic test pressure as required by the laws of the State in which heater is to be installed—with a minimum test pressure of 50% in excess of the working pressure specified.

*Note: When the combination Type K heater is required, substitute the following paragraph in the above specifications:

The heater shall be capable of heating gal. of water per hour from 40° F. to 180° F. when the primary heating section is supplied with lb. of exhaust steam or condensate at a temperature of ...° F. and the auxiliary heating section is supplied with steam at lb. gauge pressure under control of an automatic temperature regulator of approved design.

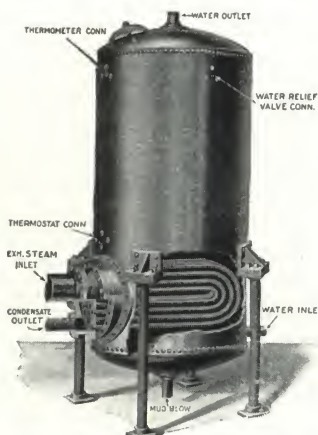


Fig. 3. Type K Vertical Storage Heater

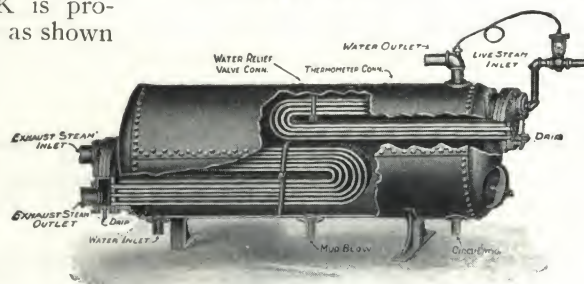


Fig. 4. Type K Combination Live and Exhaust Steam Horizontal Storage Heater

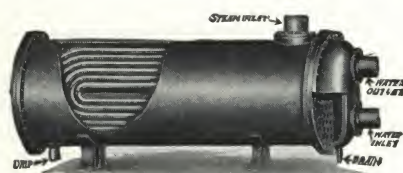


Fig. 5. Whitlock Type R Instantaneous Heater, U-Bend Pattern

Convertor for Hot Water Heating Systems—Reheating the water returning from the system to the temperature at which it should enter the system.

Condensation Cooler—(Also called drip cooler, economizer and preheater.) For this use the instantaneous heater is equipped with baffles to increase its efficiency in heating service water while cooling condensation returns. Of especial benefit where steam is purchased and condensation can not be returned to boiler. Write for Bulletin No. 100-SA.

TABLE IV. STANDARD SIZES, CAPACITIES, DIMENSIONS AND WEIGHTS OF WHITLOCK TYPE R INSTANTANEOUS HEATERS

Size No.	Two-pass. Temp. Range 40° to 80° F.						Four-pass. Temp. Range 40° to 120° F.						Multi-pass. Temp. Range 40° to 180° F.					
	Capacity, gal. per hour	Over-all length, in.	Diam. shell, in.	Water connections, in.	Steam connections, in.	Weight, lb.	Capacity, gal. per hour	Over-all length, in.	Diam. shell, in.	Water connections, in.	Steam connections, in.	Weight, lb.	Capacity, gal. per hour	Over-all length, in.	Diam. shell, in.	Water connections, in.	Steam connections, in.	Weight, lb.
0	150	11 3/8	7	3/4	1 1/4	80	80	11 3/8	7	3/4	1	80	25	15 3/8	7	3/4	1	90
1	350	14 3/8	7	1 1/4	1 1/2	90	150	16 3/8	7	3/4	1 1/4	100	60	26 3/8	7	3/4	1 1/4	125
2	650	19 3/8	7	1 1/2	1 1/2	110	300	21 3/8	7	1	2	115	150	37 3/8	7	3/4	1 1/2	160
3	1100	23 3/8	7	2	2	130	480	26 3/8	7	1	2	135	200	39 3/8	9 1/2	1	1 1/2	280
4	1600	29 3/8	7	2	2 1/2	145	650	31 3/8	7	1 1/4	2 1/2	150	250	48 3/8	9 1/2	1	2	325
5	1900	34 3/8	7	2	3	170	800	38 3/8	7	1 1/4	2 1/2	170	300	51 3/8	9 1/2	1	2	250
6	2550	44 3/8	9 1/2	2 1/2	3	240	960	44 3/8	9 1/2	1 1/2	3	220	400	60 3/8	9 1/2	1 1/4	2 1/2	300
7	3200	50 3/8	9 1/2	2 1/2	3 1/2	270	1350	50 3/8	9 1/2	2	3	270	500	66 3/8	9 1/2	1 1/4	3	325
8	3800	55 3/8	9 1/2	2 1/2	4	300	1600	55 3/8	9 1/2	2	3 1/2	300	600	72 3/8	9 1/2	1 1/4	3	350
9	5100	63 3/8	9 1/2	3	5	360	2100	63 3/8	9 1/2	2	4	350	800	82 3/8	12	1 1/2	3 1/2	575
10	6350	71 3/8	12	4	6	420	2600	71 3/8	12	2 1/2	5	420	1000	91 3/8	12	1 1/2	3 1/2	645
11	7950	81 3/8	12	4	8	610	3300	81 3/8	12	3	6	620	1250	101 3/8	12	1 1/2	4	760
12	9550	91 3/8	12	4	8	670	4000	91 3/8	12	3	6	700	1500	111 3/8	15	2	5	870
13	12700	101 3/8	15	5	8	810	5300	101 3/8	15	3 1/2	8	860	2000	121 3/8	15	2	5	1020
14	15900	111 3/8	15	5	8	930	6600	111 3/8	15	4	8	940	2500	131 3/8	17	2 1/2	6	1035
15	19100	121 3/8	15	5	8	1040	8000	121 3/8	15	4	8	1070	3000	141 3/8	17	2 1/2	6	1175
16	25600	151 3/8	17	6	10	1320	10500	151 3/8	17	5	10	1390	4000	171 3/8	17	2 1/2	8	1420

Sizes 0 to 10, inclusive, have 3/4-in. o. d. No. 18 B.W.G. copper tubes.
Remainder have 1-in. o. d. No. 17 B.W.G. copper tubes.

Sizes 0 to 10, inclusive, have 3/4-in. o. d. No. 18 B.W.G. copper tubes.
Remainder have 1-in. o. d. No. 17 B.W.G. copper tubes.

Sizes 0 to 8, inclusive, have 3/4-in. o. d. No. 18 B.W.G. copper tubes.
Remainder have 1-in. o. d. No. 17 B.W.G. copper tubes.

Above capacities based on steam at atmospheric pressure corresponding to a temperature of 212° F. Companion flanges are furnished for connections 3 in. and larger. Supporting cradles will be furnished only when specified. Larger size heaters can be furnished if needed.

Types

Type AC—Copper coil design, similar to Type A Feed Water Heater shown in Fig. 6, in which the water heated comes in contact with copper and bronze only. Of value, too, in heating liquids which corrode iron or steel. Write for Bulletin No. 24-SA.

Type R—This type (Fig. 5), with heating section made up of U-bends of seamless copper tubing firmly expanded into a rolled steel tube sheet, is recommended for all usual conditions, as it is of simple construction and allows for unlimited expansion and contraction. Standard shells are of cast iron on smaller sizes and steel on the larger sizes, but can be made to suit working conditions.

Table IV shows capacity and general dimensions of the standard two, four and multi-pass heaters at various temperature ranges. A Whitlock Engineer should be consulted for advice on other temperature ranges and higher steam pressures. Bulletin No. 25-SA, containing full particulars, sent on request.

Type S—Similar to the Type R, except that the heating section is made up of straight tubes with one end expanded into a rigid tube sheet and the other end expanded into a floating tube sheet to allow for expansion and contraction. These heaters are used where the water deposits a large quantity of mud or scale-forming materials and must be cleaned frequently.

Whitlock Heaters for Various Classes of Service

Feed Water Heaters

The type A American standard feed water heater, shown in Fig. 6, has been the standard design for this service for over 30 years. For some cases, heaters of Type R or Type S construction are used for this service also. Write for Bulletin No. 13-SA.

Indirect or Submerged Type Heaters

In the submerged type water heaters the copper tube heating section is located below the water line of the steam boiler. Boiling water from the steam boiler then heats the domestic water supply. The storage tank is preferably a part of the submerged heater, Type K construction—but it may be independent of it and of Type R construction.

This type of heater is proving very satisfactory for many reasons. It takes the heat required at such a uniform rate that it gives better fuel economy. It uses heat otherwise wasted by uneven firing and general overheating. It eliminates a separately fired water heater, can be used where headroom is very limited, and

requires no condensation pumps or traps and no temperature regulator.

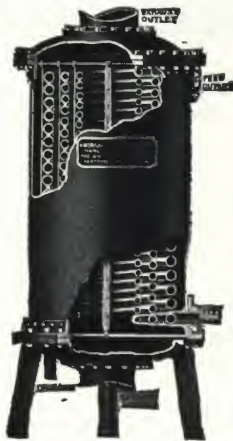


Fig. 6. Type A Standard Feed Water Heater

Fuel Oil Heaters—Heat Exchangers

In addition to the apparatus described in these pages, we manufacture all types of heat transfer equipment.

Our years of experience in this line are at the command of prospective customers everywhere.

With the increasing use of oil as fuel, the importance of a properly designed fuel oil heater becomes more and more evident. We offer several types fitting every possible condition as to capacity, temperature range and cost.

For some conditions and some oils the coil type is preferable, and for other conditions the U-Bend construction or straight tube construction is more desirable.

We are prepared to recommend the proper type for any condition. Bulletin No. 31-SA containing complete information sent on request.

Engineering Service

Architects and engineers interested in heat transfer apparatus will be interested in literature and data which we are publishing from time to time.

We will gladly furnish sample specification sheets, typical installation diagrams, and specific advice on any problem in this line.

Personal Service

We maintain sales offices or representatives in each of the cities listed at the beginning of these pages. Many of these men were trained in our factory and have had practical experience in both laboratory and field. All of them are fully qualified to give personal service on any specific problem.

Hot Water Heating Systems

Hot Water Converter

One class of installation in which the Type "R" instantaneous heater is widely used, is in the heating of water for hot water heating systems. As so applied the heater is usually known as a "converter."

The Illustrations

The illustrations herewith show typical installations of this class, Fig. 7 showing a single unit as connected for a residence or building, and Fig. 8 showing a battery of three units as used in large factories or institutions.

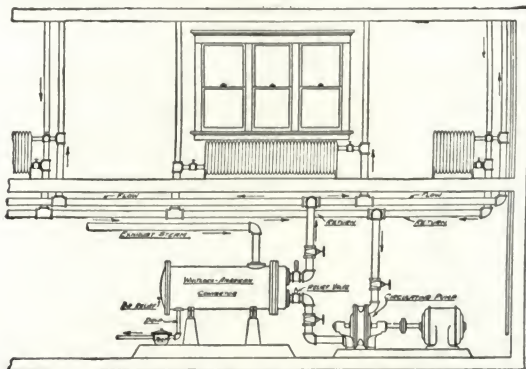


Fig. 7 Typical Piping Plan Single Type "R" Converter

Both of these illustrations show the so-called "forced circulation" method of operation, that is with the water being forced through the converter, radiation and connecting piping by means of a pump.

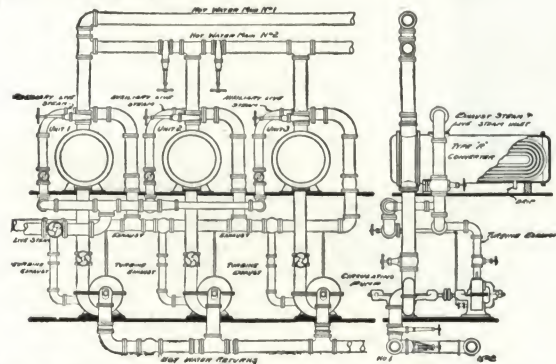


Fig. 8 Typical Piping Plan of 3 Type "R" Converter Connected Parallel

The "gravity circulation" method is also widely used, in which the flow through the system is induced by the difference in specific weight of the ascending hot column of water issuing from the converter and the descending cool column of water leaving the radiation.

The essential differences between these two systems are the following:

The advantages of the gravity method are simplicity, absence of any moving parts and elimination of power cost for promoting the circulation.

The advantages of the forced method are, on the whole, more pronounced. They include the possibility of using smaller pipe lines to supply a given amount of radiation, a smaller converter for a given duty, the ability to carry the heating water for long horizontal distances, the ease of exact control of the amount of heat supplied to the radiation and the possibility of carrying relatively heavy over-loads.

In gravity systems both the pipe lines and converters must be so proportioned as to allow keeping the water velocity from about 50 to 100 ft. per minute, as the total head available to effect the circulation is relatively small and the head losses due to friction must therefore be kept extremely low.

In the forced system on the other hand, the water velocity may be raised 250 to 300 ft. per minute or even higher and the resulting loss of head due to friction is limited only by the limit which it is desired to place on the power used to effect circulation.

Whitlock Type "R" converters are regularly built for both gravity and forced circulation, the design and construction being carefully proportioned in each case, to meet the desired operating conditions.

Tables

The tables given herewith, Table V and Table VI are sample rating tables for Type "R" converters of various capacities. A few words in explanation of these tables are in order.

In Table V the ratings are expressed in sq. ft. of direct radiation since this is the method generally used in connection with gravity hot water heating systems. The figure given is total radiation, hence, in selecting the proper size of converter for any given project the total radiating of the supply mains and branches must be included in the figures used. Where the exact radiating surface of the supply main and branches is not known, or it is not desired to calculate this exactly, it is customary to add 25% to the total amount of direct radiation, to allow for this factor.

Ratings based on any ranges not given in this table will be furnished on application.

In Table VI the ratings are based on gallons of water per minute, this being the most commonly used method in connection with the forced circulation type of system.

Ratings based on ranges not given in this table will, of course, be gladly figured and supplied.

In both of these tables the size of converter required to perform a given duty is indicated by a symbol number consisting of two numbers or a number and a letter. The first number in each case refers to the size of the standard type "R" converter or heater (required for the given duty) as given in our Bulletin No. 25. Where the second figure is a number or the letter M, it indicates the number of passes recommended in the heater (that is 2 pass, 4 pass or multi pass). Where the letter S follows the first number, it indicates a "special" heater having the same diameter as a standard two pass type "R" heater of the size number indicated, but a somewhat smaller overall length. Exact specifications of these "special" heaters will be furnished on request for any given duty.

TABLE V. SIZES WHITLOCK TYPE "R" CONVERTORS FOR VARIOUS DUTIES—GRAVITY CIRCULATION

Square ft. of Radiation	160°-180° 150 b.t.u. per sq. ft. radiation per hr.					160°-190° 150 b.t.u. per sq. ft. radiation per hr.				
	0 lb.	5 lb.	10 lb.	20 lb.	30 lb.	0 lb.	5 lb.	10 lb.	20 lb.	30 lb.
1,000	8	6	6-S	6-S	6-S	9	6	5	4	3
1,500	9	7	6	6-S	6-S	10	8	7	6	6-S
2,000	11	11-S	11-S	11-S	11-S	11	9	8	7	6
2,500	12	11-S	11-S	11-S	11-S	12	11-S	11-S	11-S	11-S
3,000	12	11-S	11-S	11-S	11-S	13	11	11-S	11-S	11-S
3,500	13	11	11-S	11-S	11-S	14	11	11-S	11-S	11-S
4,000	14	14-S	14-S	14-S	14-S	14	12	11	11-S	11-S
5,000	15	14-S	14-S	14-S	14-S	16	13	12	11	11-S
7,500	16	16-S	16-S	16-S	16-S	17	15	14	14-S	14-S
10,000	18	18-S	18-S	18-S	18-S	18	16	16-S	16-S	16-S
12,500	18½	18-S	18-S	18-S	18-S	19	17	16	16-S	16-S
15,000	19½	19½-S	19½-S	19½-S	19½-S	19½	18	18-S	18-S	18-S
17,500	19½	19½-S	19½-S	19½-S	19½-S	21-S	18	18-S	18-S	18-S
20,000	20	19½-S	19½-S	19½-S	19½-S	21	19½-S	19½-S	19½-S	19½-S
25,000	22	22-S	22-S	22-S	22-S	22	19½	19½-S	19½-S	19½-S
30,000	22	22-S	22-S	22-S	22-S	23	21	19½	19½-S	19½-S
35,000	24-S	24-S	24-S	24-S	24-S	24-S	22-S	22-S	22-S	22-S
40,000	24-S	24-S	24-S	24-S	24-S	24	22	22-S	22-S	22-S
45,000	24	24-S	24-S	24-S	24-S	24	22	22-S	22-S	22-S
50,000							24-S	24-S	24-S	24-S
60,000							24-S	24-S	24-S	24-S
70,000							24-S	24-S	24-S	24-S

TABLE VI. SIZES WHITLOCK TYPE "R" CONVERTORS FOR VARIOUS DUTIES—FORCED CIRCULATION

Gal. per min.	Steam at 0 lb. gauge					
	160°-180°	160°-185°	170°-195°	160°-190°	170°-200°	160°-195°
10	3-4	4-4	5-M	5-M	7-M	6-M
20	6-4	7-4	9-4	8-4	10-M	9-M
30	8-4	9-4	10-4	10-4	11-M	11-M
40	9-4	10-4	11-4	11-4	13-M	13-M
50	10-2	11-4	13-M	12-4	14-M	13-M
75	12-4	13-4	14-M	14-M	16-M	15-M
100	13-2	14-4	16-4	15-4	17-M	16-4
125	14-4	15-4	16-4	16-4	18-4	17-4
150	15-4	16-4	17-4	17-4	18½-4	18-4
175	16-4	16-4	18-4	18-4	19-4	18½-4
200	16-4	17-4	18½-4	18-4	19½-M	19-M
250	17-2	18-4	19-4	19-4	21-4	20-4
300	18-4	18½-4	20-4	19½-4		21-4
350	18½-2	19-2	21-4		22-4	22-4
400	18½-2	19½-4		21-4		
450	19-2	20-4	22-4		23-4	
550	19½-4	21-4		22-4		23-4
600	20-4	21-4			24-4	
650	21-2		23-4			24-4
700	21-2	22-4		23-4	25-4	
750	21-2		24-4			25-4
800	21-2	23-4		24-4		
900	22-2		25-4			

THE BEILMAN WATER HEATER CO., INC.

Manufacturer of Automatic Storage Water Heaters

BUFFALO, N. Y.

NEW YORK CITY REPRESENTATIVE: WALTER H. PEARCE, 23-41 35th St., LONG ISLAND CITY, N. Y.

Beilman-Seamans' Improved Automatic Gas Fired Storage Water Heaters with Automatic Pilot Burner

These combination gas fired water heaters and storage tanks have stood the test of over 35 years of service.

Thousands now in use. All heaters guaranteed. There are no coils to clog, freeze or give trouble.

They burn natural or artificial gas, the only modifications being in the burners.

In artificial gas installations, heaters can be economically connected to the water section in the house furnace or kitchen range so that the gas can be cut off entirely when furnace or range is in operation, or, a coal fired heater can be supplementarily installed.

These heaters supply any quantity of hot water, temperature as desired. It takes 30 to 40 minutes to heat any capacity tank to 170° F. when started from cold. After contents of tank have been heated to the predetermined temperature, hot water can be drawn instantly, whenever desired,

from all hot water faucets. After water in the tank is heated to the predetermined temperature, the main burners automatically shut off and the patented auto-

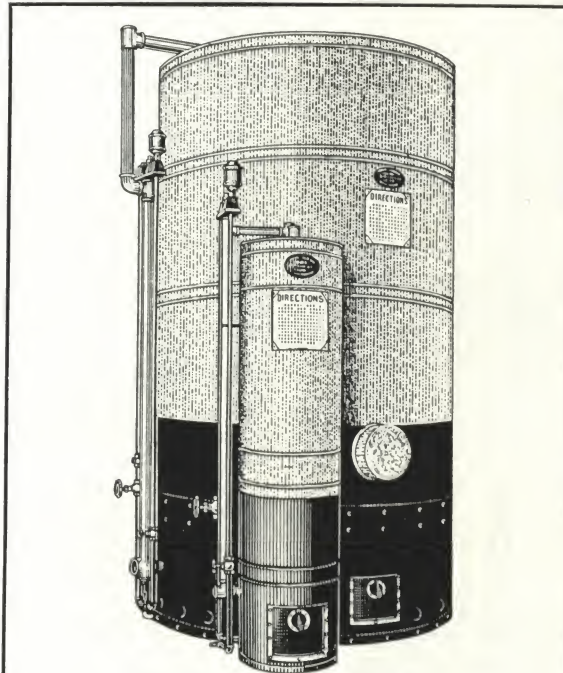
matic pilot light which will reduce itself (with by-pass, which prevents pilot from being extinguished) holds the water to the proper temperature until hot water is drawn, whereupon the main burners light from the pilot.

These heaters are easily adjusted to any predetermined temperature, also to high or low gas pressures.

The specially improved burners provide perfect combustion and give an intense heat. They are directly under the boiler, which is considered to be the most economical and direct method known.

Special float check valves can be furnished extra for return pipe circulation. These valves prevent the mixture of cold water from the bottom of the tank with hot water on the faucet line.

These heaters can be supplied with the Barber gas burners and Beilman's patent automatic pilot.



The Smallest and the Largest Size
24 and 570-gal. heaters. These and 23 intermediate
sizes meet all requirements

Beilman-Seamans' Improved Automatic Gas
Fired Tank Water Heaters

(Patented April 28, 1925)

BEILMAN-SEAMANS' WATER HEATERS

No.	Cap., gal.	Diam. and height of boiler, in.	Heater height, in.	Heater with 1/4- in. steel boiler 3/8-in. heads with hand holes; galv. iron pipe circulation; (3/8-in. shell and 1/2-in. head- on sizes above 390 gal.)	Heater less the boiler; galvanized iron pipe circulation	Heater with 5-year guaranteed boiler; galvanized iron pipe circulation	Heater with 7-year guaranteed boiler; galvanized iron pipe circulation
B-Web	24	12x48	72	.....	.....	\$60.00	.....
1	30	12x60	76	.....	\$68.00	85.00	\$90.00
1A	32	14x48	76	.....	70.00	87.00	93.00
2	40	14x60	76	.....	72.00	93.00	98.00
2A	42	16x48	66	.....	74.00	95.00	100.00
3	52	16x60	76	.....	78.00	105.00	112.00
3A	53	18x48	64	.....	80.00	112.00	120.00
4	66	18x60	78	.....	85.00	120.00	127.00
5	82	20x60	78	.....	92.00	142.00	150.00
6	100	22x60	78	.....	97.00	158.00	165.00
7	120	24x60	78	.....	105.00	.....	190.00
8	150	30x48	73	\$210.00	110.00	.....	.....
9	165	30x54	80	225.00	115.00	.....	.....
10	185	30x60	86	242.00	122.00	.....	.....
11	210	36x48	74	258.00	128.00	.....	.....
12	225	30x72	98	272.00	135.00	.....	.....
13	265	36x60	86	292.00	145.00	.....	.....
14	290	36x66	92	310.00	152.00	.....	.....
15	315	36x72	98	335.00	160.00	.....	.....
16	350	38x72	100	368.00	175.00	.....	.....
17	390	40x72	100	398.00	190.00	.....	.....
18	430	42x72	102	437.00	210.00	.....	.....
19	470	48x60	90	460.00	235.00	.....	.....
20	515	46x72	102	520.00	255.00	.....	.....
21	570	48x72	104	550.00	295.00	.....	.....

Prices f.o.b. Buffalo. Crating extra.

General Notes

Any size heater up to 120 gal. can be run with 3/4-in. gas pipe on natural or artificial gas, 1-in. pipe being required for larger sizes only. Some of our 30, 40 and 50-gal. heaters are run on 1/2 and 3/8-in. gas supply.

Number of heater in price list corresponds to number of bathrooms that each size heater up to No. 15 will supply at one time. No. 16 will supply 20 baths; No. 17, 24 baths; No. 18, 28 baths; No. 19, 32 baths; No. 20, 35 baths; No. 21, 40 baths, besides laundry and other fixtures.

All heaters with 5-ft. boilers (Styles X and XX) can be set under ceiling from 6 1/2 to 7 ft. Larger size heaters than listed above can be supplied if required.

Where two like numbers are given for same capacity heaters, the difference is for a heater with short or long boiler to suit conditions; that with short boiler is listed higher in price.

Pipe to chimney should not be reduced in size and a damper should not be installed therein.

When heaters are set on a wood floor, the latter should be protected against fire.

PRICES OF HEATER WITH BROWN'S SEAMLESS SPECIAL 200-LB. TEST COPPER BOILER (STYLE X)

No.	Cap., gal.	Size, in.	Brass circulation pipe, in.	No.	Cap., gal.	Size, in.	Brass circulation pipe, in.
			1 1/4				1 1/4
1	30	60x12	\$145.00	6	100	76 x20	\$420.00
2	40	60x14	168.00	6	100	60 x24	445.00
3	50	60x16	230.00	7	120	65 1/2 x24	\$480.00
4	60	70x16	260.00	7 1/2	125	69 x24	495.00
4	60	44x20	310.00	8	150	78 1/2 x24	550.00
5	80	59x20	360.00				

Prices f.o.b. Buffalo. Crating extra.

ESTABLISHED 1872

FLORENCE STOVE COMPANY

Ranges, Ovens, Water Heaters and Room Heaters

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Products

FLORENCE OIL BURNING WATER HEATERS.

Also Florence Electric Ranges, Gas Ranges, Oil Ranges, Ovens, Oil Room Heaters, Oil Cabinet Heater.

The Florence Kerosene Oil Burner

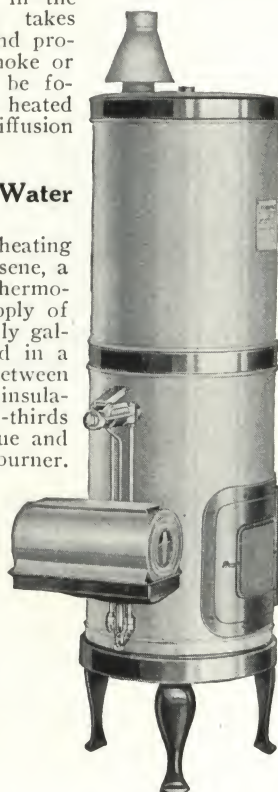
Consists of a specially constructed burner bowl and inner and outer chimney. Burner bowl is a narrow circular trough in which is a Florence *asbestos* starting ring or kindler. Heat from the starting ring at first, later from the flame itself vaporizes the kerosene. This vapor rising in the channel formed by the chimneys is thoroughly mixed with air by means of perforations carefully placed in the chimneys. Complete combustion takes place in all parts of the flame and produces an intense heat with no smoke or soot. The flame may therefore be focused close-up to the surface to be heated so there is no loss of heat by diffusion into the room.

Florence Automatic Storage Water Heater, No. WB31

A complete, automatic, water heating and storage unit which burns kerosene, a cheap fuel. It operates under thermostat control and maintains a supply of hot water. A 30-gal. boiler, heavily galvanized inside and out, is encased in a sheet steel shell. Dead air space between boiler and shell provides effective insulation. Water chamber extends two-thirds the length of shell. Walls continue and form a hollow shell that surrounds burner. Every boiler is given a 250-lb. hydrostatic test.

The parts of the heater are shown in the diagram below. Thermostat, manufactured by The Fulton Co., consists of parts which have been in successful use for over 30 years. Pilot light is a small wick enclosed in a tube that has no connection with the rest of the burner bowl. It consumes no appreciable amount of oil. A regulator can be set for the degree of hot water wanted, and can also be turned to shut off the burner, if ever desired.

Oil consumption depends on the amount of hot water used. Two gallons will operate the



No. WB31

Floor space required 28x19 in.
Height, with draft diverter, 71 in.
Height without diverter, 64 in.

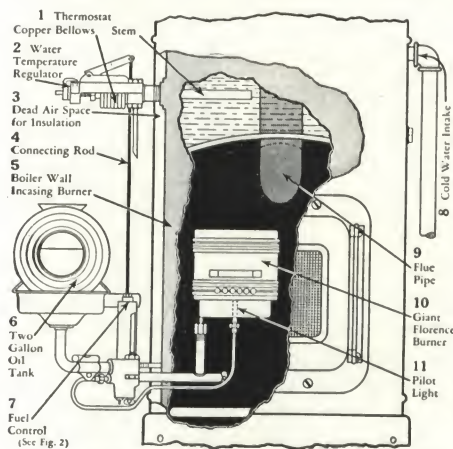


Diagram Showing Parts of Heater No. WB31

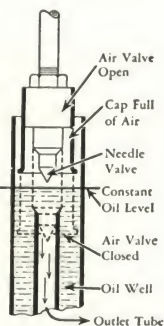


Fig. 2

Showing how the opening and closing of the flow of oil to the burner

Florence One-Burner Water Heater with Thermostatic Control, No. W13

For connection to any standard 30-gal. range boiler. Burns kerosene, is fully automatic, completely runs itself indefinitely and maintains a supply of hot water.

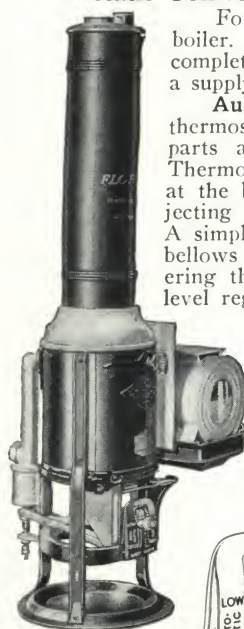
Automatic Operation—Is by means of a thermostat. It consists of the same time-tested parts as used in the storage water heater. Thermostat stem is placed in the intake pipe at the back of the heater. The bellows, projecting outside, is protected by a steel casing. A simple system of levers connects the copper bellows and the burner bowl. Raising and lowering the burner bowl in and out of the oil level regulates the flame.

Manual Operation—Heater can be operated entirely by hand. With the control lever in the manual groove the burner can be put out at any time by simply lifting the lever to the top of the groove.

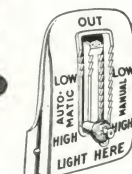
With the lever in the manual groove the burner heats one boiler full of water and shuts off automatically.

It must be relighted by hand to operate again.

Water is Pre-heated—Water is thoroughly warmed or pre-heated in the pre-heating water chamber before it enters the coil. In using this pre-heating method Florence works on the most advanced principle of heating water.



No. W13
Floor space required, 19½ x 17 in.
Height, 41 in.



A close-up of the Indicator Plate

Florence Oil Burning Water Heaters, No. W12 and W21

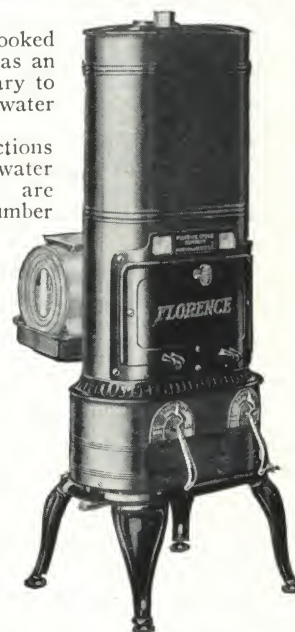
They are designed to be hooked up with any 30-gal. range boiler as an independent unit or as an auxiliary to a furnace or kitchen range hot water system.

Easy Installation—Connections on all heaters, at both the hot water outlet and cold water intake, are carried through so that the plumber can do all his work on the outside of the heater.

Economical—Under normal domestic conditions a Florence Heater heats a 30-gal. tank of water for 4 to 4½ cents.

W12 Water Heater—Is a one-burner, popular-priced unit similar to No. W13 but without the thermostat control, see illustration of No. W13. The giant, high-powered, Florence burner focuses its intense heat close up to 20 ft. of ¾-in. (outside dimension) copper tubing.

W21 Water Heater—Is a two-burner unit. It has two standard, powerful Florence burners that focus their hot, blue, gas-like flames directly on to 28 ft. of ½-in. (outside dimension) copper tubing.



No. W21

Floor space required, 20x17 in.
Height, 39 in.

CRANE CO.

PREMIER HEATER DIVISION, LA PORTE, IND.

Automatic and Manual Storage Gas Water Heaters

836 South Michigan Avenue, CHICAGO, ILL.

For Branch Offices, see our Plumbing Section

For our pages on Water Softeners, Water Supply Systems, Plumbing Fixtures and Gas Fired Boilers, see Manufacturers' Index

The
Premier
INSULATED AUTOMATIC
STORAGE GAS WATER HEATER

The
Keystone
INSULATED AUTOMATIC
STORAGE GAS WATER HEATER

How They Operate

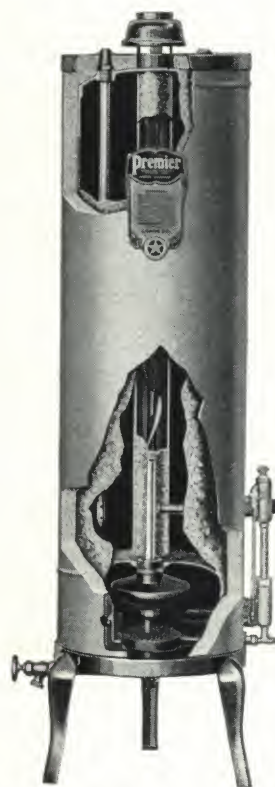
The tank consists of two compartments, the upper containing the stored water—the lower encasing the heating element, burner and pilot. Sturdily constructed throughout, there are no delicate parts to give trouble.

When the heater is first lighted, the storage supply is quickly heated to the temperature at which the control is set. This is usually 135° F., but can be adjusted from 80° F. to 190° F. Instantly the set temperature is reached, the thermovalve, with instant-action, shuts off the gas supply to the main burner, and there is a tank full of hot water ready for *instant service*.

The automatic action is extremely simple. When hot water is drawn from the storage, cold water from the city mains enters at the top (left-hand side) and is discharged near the bottom of the tank. The cold water chills the thermorod which causes the control to automatically open and the heating process begins at once. Thus the storage supply of hot water is constantly maintained.

Simplicity is also marked in the circulatory movement of the water once the heating process begins. Cold water enters the heating element at the top and is carried through the arms directly to the bottom compartment. Here it travels in a flowing stream directly over the hottest portion of the burner flame, absorbing practically every heat unit of gas used. As the water is heated, it rises rapidly through the central circulating pipe to the top of the tank.

This method insures quick circulation, greater efficiency and economy of operation.



Premier Features

Prem-O-Stat safety pilot control
Quick removable brass heating element
Heat seal rock wool insulation
Blue flame bunsen burner
Double extra heavy tank
Instant action thermostat
Gas line, drain line and interior fittings all brass or copper
Superheat deflector
Draft hood
Galvanized steel outer drum
Gray enamel finish



Keystone Features

Quick removable heating element
Instant action thermostat
Heavily constructed tank
Heat seal rock wool insulation
Keystone patented blue flame burner
Interior fittings brass and copper
Superheat deflector
Draft hood
Galvanized outer drum
Gray enamel finish
Gas pressure regulator



This Laboratory Approval Seal is a guaranty of compliance with basic national requirements for safety

PREMIER AND KEYSTONE DIMENSIONS

Heater No.	Capacity, gal.	Cold water inlet	Hot water outlet	Gas connections	*Headroom reg'd	Width reg'd over all
2	20	3/4 in.	3/4 in.	1/2 in.	75 in.	22 in.
3	35	3/4 in.	3/4 in.	1/2 in.	75 in.	26 in.
4	50	1 in.	1 in.	1/2 in.	80 in.	29 in.

*Includes 10 in. for flue elbow connection.

Other Crane Water Heaters

In addition to the Premier and Keystone Gas Water Heaters, the Crane Royal Heater is available in larger sizes suitable for larger homes, small apartment buildings, and restaurants.

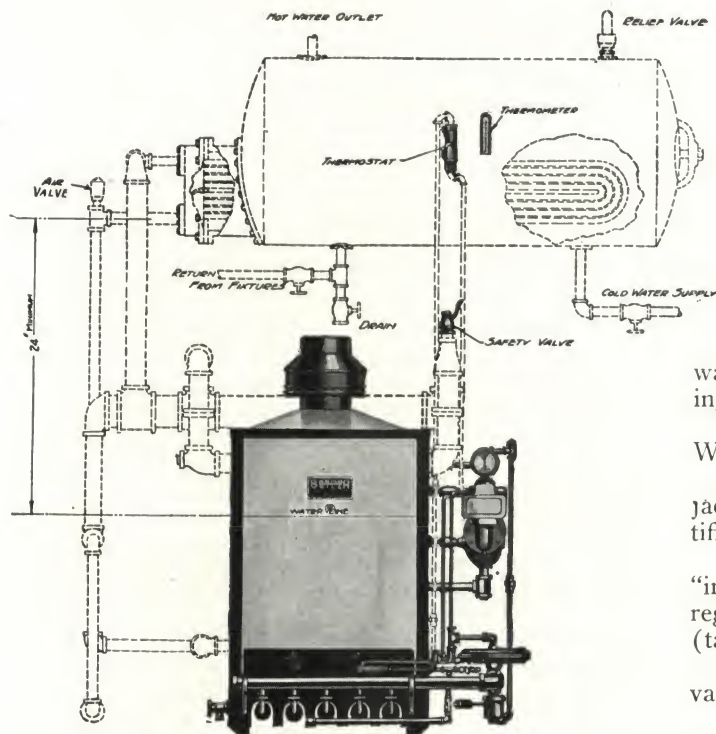
The Crane Marvel Non-automatic Water Heater is available in five sizes, ranging from 12 to 50 gal. capacity.

For heavy-duty water heating beyond the capacity of the above heaters, the Basmor Gas-fired Boiler, shown on the following page, is recommended.

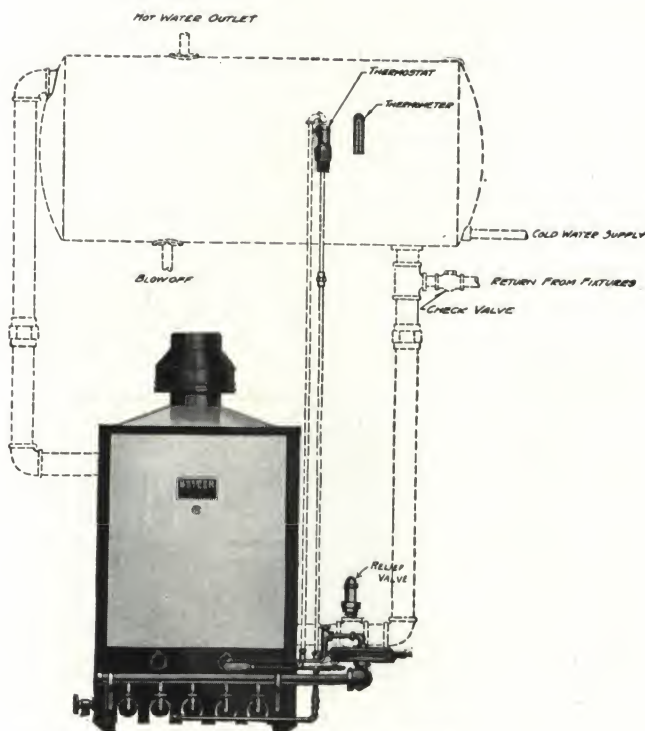
Consult your nearest Crane Branch or write to Premier Heater Division of Crane Co., LaPorte, Indiana, for an A. I. A. file folder descriptive of the entire line.

Basmor Gas Fired Boilers

Heavy Duty Water Heating for Large Homes, Apartments, Hotels, Restaurants, Office Buildings, etc.



Type WIM (Indirect Method)



Type WDM (Direct Method)

Indirect Method—Type WIM

The indirect method of heating water is by far the most satisfactory and is strongly recommended. Heating is done by transfer of heat from steam to the water by an external heater or coils in the storage tank. Copper steam coils located in the tank are preferred.

This method has the distinct advantage of preventing sediment, lime and other mineral matter being deposited in the boiler sections. This means longer life of the boiler with a maintenance of constant efficiency, immunity to high water pressures and shocks, and no discoloration of the hot water delivered. It is the most practical method of heating large quantities of water yet devised.

Equipment—Basmor Gas Fired Boilers, Type WIM, are furnished with the following equipment:

Housing and Insulation—Enameled exterior jacket complete, heavy air cell asbestos insulation, scientifically designed draft hood.

Controls—Gas pressure regulator, gas operated "instant action" gas valve with throttling type flame regulator, main gas shut-off valve, Basmor thermostat (tank).

Safety Features—Safety gas control, pop safety valve, steam pressure regulator and low water cut-off.

Also steam pressure gauge with water seal, water gauge and try cocks, boiler drain faucets, auxiliary pilot, thermometer (tank). All necessary fittings for front and side manifold. Pilot line and tubing for controls on boiler, but not piping to thermostat in tank.

Direct Method—Type WDM

The direct method is practical where water conditions are satisfactory, especially for smaller installations. With the direct method water is circulated through the boiler for heating. Boiler sections are of substantial construction to withstand a water working pressure of 60 lb.

No. 4-WDM-2 (2 section) does not have the master diaphragm valve as gas is controlled directly through the tank thermostat.

Equipment—Basmor Gas Fired Boilers, Type WDM, are furnished with the following equipment:

Housing and Insulation—Enameled exterior jacket complete, heavy air cell asbestos insulation, scientifically designed draft hood.

Controls—Gas pressure regulator, gas operated "instant action" gas valve, main gas shut-off valve, Basmor thermostat (tank).

Safety Features—Safety gas control, relief valve (tank).

Boiler drain faucets, thermometer (tank), auxiliary pilot. All necessary fittings for front and side manifold pilot line and tubing for controls on boiler but not piping to thermostat in tank.

Electrical Operation

Basmor Boilers can be supplied especially equipped to operate electrically and should be used where the storage tank is located more than 35 ft. from the boiler. Low voltage wires are run from the electric thermostat in storage tank to the electrically operated master diaphragm gas valve thereby operating electrically instead of by gas. Electrical equipment will not be furnished unless specified.

THE HOFFMAN HEATER COMPANY

Gas Water Heaters and Systems

1701-1715 Dixie Highway, LOUISVILLE, KY.

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SAN ANTONIO, TEX.
SAN FRANCISCO, CALIF.
TULSA, OKLA.
YOUNGSTOWN, PA.
WASHINGTON, D. C.

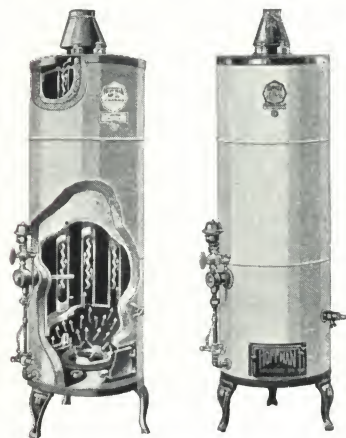
Products

A complete line of WATER HEATERS for use with manufactured, natural, butane and liquefied gases, including Outer Flue and Tubular Automatic Storage Systems; Heavy Duty Automatic Storage Systems; Automatic Large Volume Heaters and Systems; Automatic Multicoil Heaters and Systems; Automatic Continuous Flow Heaters; Tank Water Heaters.

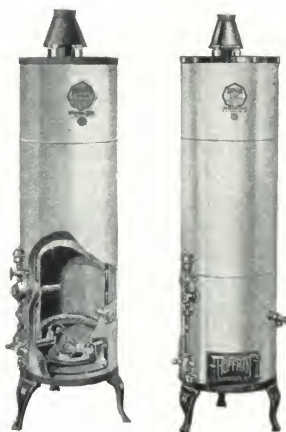
Hoffman Automatic Storage Systems

Tubular Flue Type—Three Sizes—Hoffman Tubular Flue Automatic Storage Systems show ex-

ceptionally high efficiency because of their laboratory perfected heat control. Models 24 and 34 have six 1½-in. vertical wrought iron tubes extending from combustion chamber to top of flue area. Each tube contains a corrugated stainless steel baffle strip which controls the heat travel, permitting the water to absorb the maximum heat. Model 54 has ten similar baffled tubes.



Outer Flue Type—Four Sizes—In Hoffman Outer Flue Automatic Storage Systems the heat is conducted upward through the scientifically proportioned flue space between the water boiler and the inside shell. This heat travel completely surrounds the entire tank surface with the hot gases and provides a high degree of heat absorption into the water. Both Tubular Flue and Outer Flue models are equipped for use with liquefied gases.



TUBULAR FLUE TYPE

Model	Application
24	For small homes having usual bathroom, kitchen and laundry outlets.
34	For homes having 2 or 3 bathrooms, 1 or 2 extra lavatories, kitchen and laundry.
54	For homes having 3 to 5 bathrooms, 2 or 3 extra lavatories, kitchen and pantry sinks and large laundry.

No. of system	Tank capacity, gal.	Hourly cap., gal., 60° rise	Max. hourly cap., gal., 60° rise	Hourly B.t.u. capacity	
				Nat. gas	Art. gas
24	24	33.44	57.44	19,000	19,000
34	34	40.88	74.48	23,000	23,000
54	54	68.64	122.64	40,000	40,000

OUTER FLUE TYPE

Model	Application
20-R	For small homes having usual bathroom, kitchen and laundry outlets.
30-R	For homes having 2 or 3 bathrooms, 1 or 2 extra lavatories, kitchen and laundry.
45-R	For homes having 3 or 4 baths, 2 or 3 extra lavatories, kitchen and pantry sink and laundry.
20-S	For small homes having usual bathroom, kitchen and laundry outlets.

No. of system	Tank capacity, gal.	Hourly cap., gal., 60° rise	Max. hourly cap., gal., 60° rise	Hourly B.t.u. capacity	
				Nat. gas	Art. gas
20-R	20	29	49	19,000	19,000
30-R	30	35	65	23,000	23,000
45-R	45	61	106	40,000	40,000
20-S	20	32	52	21,000	21,000

Heavy Duty Type—Two Sizes—Hoffman Heavy Duty Storage Systems provide large capacity, high efficiency hot water service in large homes, duplex houses, or wherever there is large demand. No. 665 is for homes having 3 or 4 baths, extra lavatories and other usual outlets. No. 175 is for homes with 3 to 5 baths, 2 or 3 bedroom lavatories and other outlets. Both are equipped with Hoffman Multicoil Heaters.

No. of system	Tank capacity, gal.	Hourly cap., gal., 60° rise	Max. hourly cap., gal., 60° rise	Hourly B.t.u. capacity	
				Nat. gas	Art. gas
665	66	61	127	45,000	45,000
175	100	78	78	60,000	60,000

Continuous Flow Automatic Thermostatic and Pressure Valve Water Heaters

Hoffman Continuous Flow Automatic Gas Water Heaters are made in two classes: thermostatic and pressure valve controlled. No. 35 is a pressure valve type. All others are thermostatic.

These heaters are universal in adaptability, operating with unfailing efficiency under all conditions of gas pressure and quality. They render exceptional service with either artificial or natural gas. The Storage Systems may also be operated with bottled gas, thus permitting their use in homes located beyond gas mains.

Selecting the Right Size—Under normal conditions selection of the proper size is an easy matter. The table in the next column gives recommended heaters for various requirements. The requirements are based on the number of hot water faucets that must be served at one time and the rate of flow per minute. Thus the total number of gallons per minute which may be required will indicate the correct size of heater.

The average home, using hot water in average quantities, will have an approximate flow demand, at any one time, of 3 gal. per minute. Hence Heater No. 3, as shown in the table, is the recommended size.

Since the requirements of the usual apartment are the same as the average home, assume a demand of 3 gal. per minute per family and provide a heater delivering 75% of the total. This size will supply adequate service, since not more than two-thirds of the faucets are likely to be open at the same time.

RECOMMENDED SIZES OF HOFFMAN HEATERS

Heater No.	Gal. per min. at 63° temp. rise	Application
35 Pressure valve	2	For cottages and bungalows, with 3 or 4 persons in the family. Furnished with leg base or wall brackets, for basement or kitchen installation.
45-T Thermostatic	2½	For either kitchen or basement installations in cottages and bungalows and to serve small families. Also furnished on leg base or wall brackets.
3 Thermostatic	3	For average homes and average families using usual hot water fixtures in bathroom, kitchen and laundry.
4-H Thermostatic	4	For modern homes housing 5 or 6 people and having 2 baths, or bath and extra shower stall, kitchen and laundry.
6-H Thermostatic	6	For large families in residences with 2 or more baths and extra shower stalls, kitchen, butler's pantry and laundry. Also suitable for small duplexes.
8-H Thermostatic	8	For largest dwellings, small hotels, apartments, restaurants, and similar heavy hot water demand installations.

CAPACITIES IN GALLONS PER MINUTE DELIVERED BY HOFFMAN CONTINUOUS FLOW AUTOMATIC WATER HEATERS

Heater Model No.	Degrees of temperature rise										
	50	60	70	80	90	100	110	120	130	140	150
*35	2.85	2.38	2.03	1.78	1.58	1.42	1.29	1.18	1.09	1.00	.95
45-T	3.15	2.62	2.25	1.97	1.75	1.58	1.43	1.31	1.21	1.12	1.05
3	3.78	3.15	2.70	2.36	2.10	1.89	1.72	1.58	1.45	1.35	1.26
4-H	5.05	4.20	3.60	3.15	2.80	2.52	2.29	2.10	1.94	1.80	1.68
6-H	7.58	6.30	5.40	4.73	4.20	3.87	3.52	3.23	2.98	2.76	2.58
8-H	10.10	8.40	7.20	6.30	5.60	5.04	4.59	4.20	3.88	3.60	3.36

*Pressure valve.



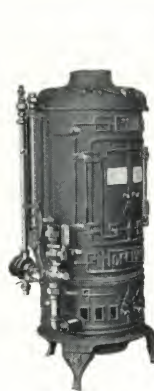
No. 35



No. 45-T



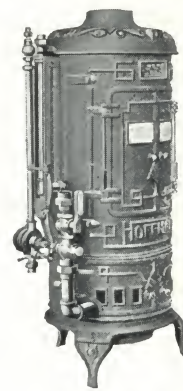
No. 3



No. 4-H



No. 6-H



No. 8-H

Automatic Multicoil Storage System

To determine the correct storage installation:

(1) Ascertain the flow per minute of each fixture.
(2) Estimate times per hour each fixture will be used during hour of maximum demand.

(3) Estimate how many minutes each fixture will be used each time.

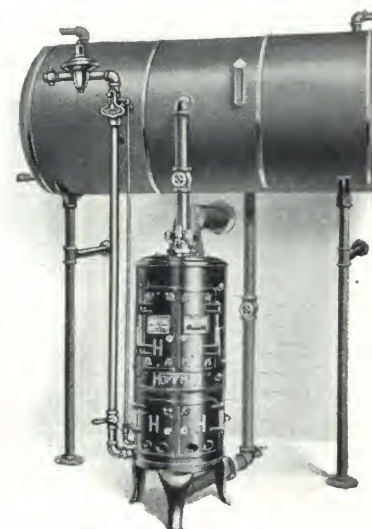
(4) Multiply flow per minute of each fixture by total minutes fixtures will be in use and add products. The sum will be the hourly demand.

(5) Estimate number of hours maximum demand periods will continue.

(6) Estimate at what intervals maximum demand periods occur.

(7) Estimate hourly demand during intervals between maximum demand periods.

(8) Specify a system having a potential rated capacity sufficient for the maximum demand period and the rated capacity of which is sufficient for the minimum demand periods and to heat, during the intervals between maximum demand periods, the storage capacity of the tank.



Hoffman Automatic Multicoil Storage System

Assembled and installed, fitted with thermostatic valve, circulators, etc.

SIZES OF HOFFMAN MULTICOIL STORAGE SYSTEMS

Size System	Application
No. 100 Heater, with 80, 100 or 150-gal. boiler	Residences having 3 to 5 bathrooms, extra lavatories, kitchen sink, pantry sink and laundry. Apartment buildings with 6 apartments each, having usual hot water outlets.
No. 200 Heater, with 100, 150, 200, 250 or 300-gal. boiler	Residences having 5 to 8 bathrooms, extra lavatories, kitchen sink, pantry sink, dishwashing machine, large laundry. Apartment buildings having 6 to 12 apartments, each having usual hot water outlets.
No. 300 Heater, with 200, 250, 300 or 375-gal. boiler	Residences having 7 to 10 bathrooms, extra lavatories, kitchen sink, pantry sink, dishwashing machine, large laundry. Apartment buildings having 10 to 20 apartments, each having usual hot water outlets.
No. 500 Heater, with 425, 500, 600, 720 or 860-gal. boiler	Apartment buildings having 20 to 30 apartments each with usual hot water outlets. Very large homes. 40- to 60-room hotels.

The Unit Volume Principle

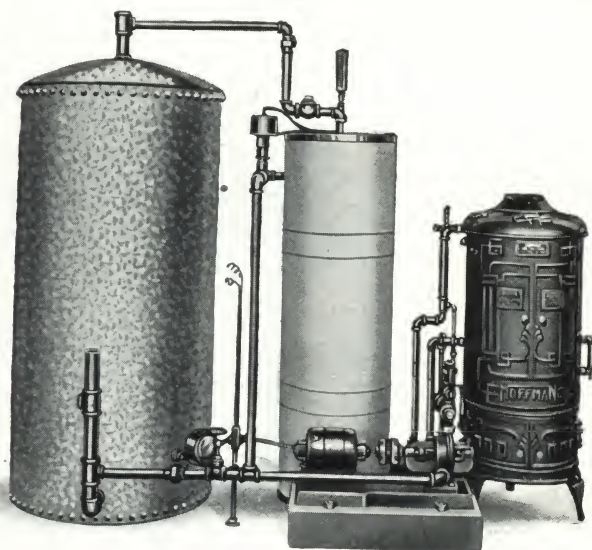
The Hoffman Unit Volume Principle of water heating is the heating of water to a fixed temperature in a separate heating tank before passing the fully heated water to the storage tank. This heating method gives practically a one-temperature hot water supply. The variation in temperature is under 2%. Starting with the system filled with cold water, fully hot water is available within five minutes.

Automatic Unit Volume Storage Systems

Designed for large office or apartment buildings, hotels, schools, stadiums, swimming pools, country clubs, hospitals and industrial plants, where the hot water demand is practically constant for hours at a time.

The Hoffman Single Unit Volume Storage System consists of one No. 1500 Hoffman Automatic Water Heater, unit volume heating tank (insulated), motor pump unit, temperature control, thermometer, capacity control and gas regulator; with or without storage tank.

The Duplex, Triplex and Quad. Unit Volume Storage Systems have the same equipment, except that they have two, three and four No. 1500 Hoffman Heaters respectively.



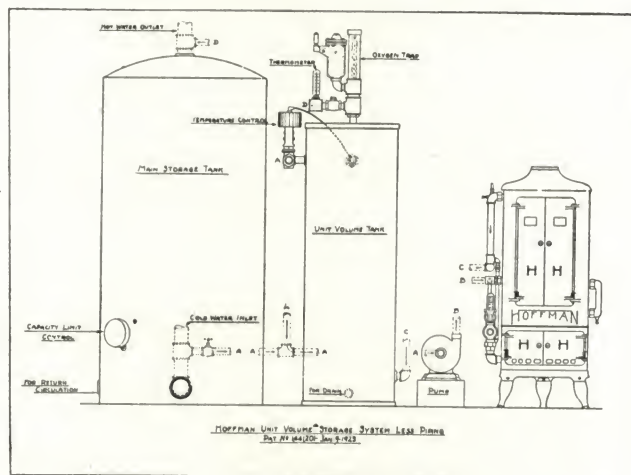
Single Unit Volume Storage System

The following table gives typical combinations of heaters and storage tanks in various capacities:

*Size system	Hourly capacity heaters, gal.	Maximum hour capacity complete system, gal.	Capacity of system hourly for 3 consecutive hours, gal.	Total capacity of system for 24 consecutive hours, gal.
1/315	300	615	400	7515
1/430	300	720	440	7620
1/525	300	825	475	7725
1/720	300	1020	540	7920
2/525	600	1125	725	14925
2/720	600	1320	840	15120
2/940	600	1540	913	15340
2/1130	600	1730	976	15530
3/525	900	1425	1075	22125
3/720	900	1620	1140	22320
3/940	900	1840	1213	22540
3/1130	900	2030	1276	22720
4/720	1200	1920	1440	29520
4/940	1200	2140	1513	29740
4/1130	1200	2330	1576	29930
4/1300	1200	2500	1633	30100

*Numbers preceding line (/) indicate whether system is Single, Duplex, Triplex or Quad., while numbers following line indicate tank capacities in gallons. System 1/315, for example, is a single unit volume storage system with a 315-gal. storage tank.

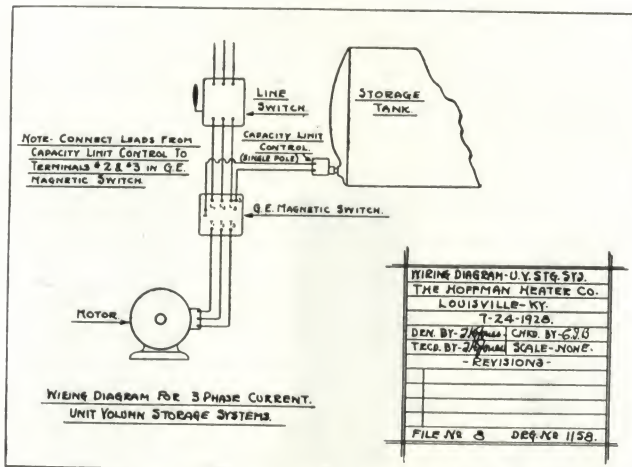
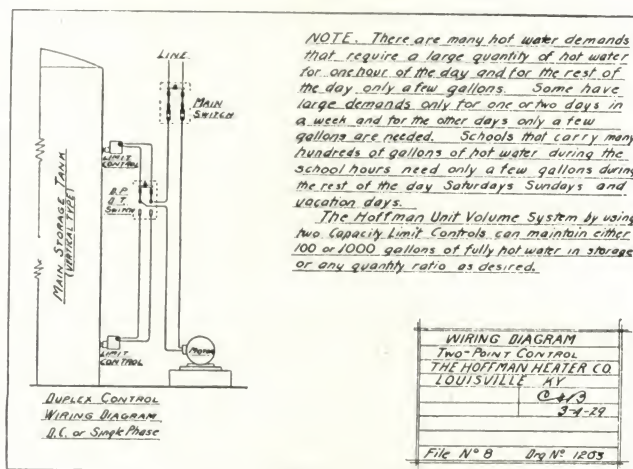
Below is a diagram of the point to point piping, showing flexibility of position of the four parts of the system.



This permits placing the gas heater near the chimney, assuring a favorable draft, and the storage tank near the point of hot water demand or in the least valuable space. The No. 1500 Heater represents approximately 8 hp.

Only do as much heating as will be needed.

In emergency, who knows which valves to turn? Simply open the switch to shut off fuel.



Magnetic Starting Switches Used in the Larger Installations

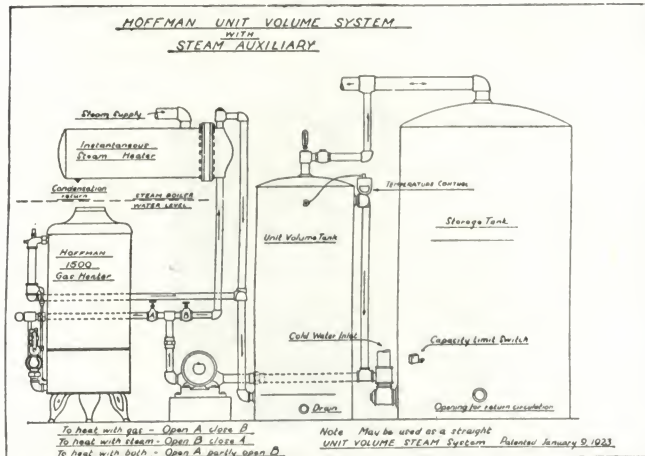
The fuel control thermostat is low in the storage tank, thus maintaining as much fully heated water as is usually maintained in storage tanks nearly twice as large.

Continued on next page

Automatic Steam Unit Volume Storage Systems

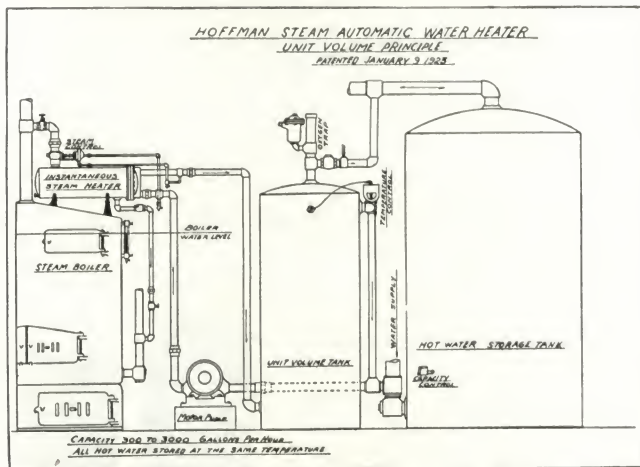
These systems use the instantaneous type of steam water heaters as the gas systems use the instantaneous type of gas water heaters. Low pressure steam heaters do not generally require automatic steam control. High pressure steam heaters automatically turn on and off the steam supply as the gas heaters turn on and off the gas supply.

Steam Unit Volume Systems are available in single units having recuperation of 600 to 6000 gal. per hour. Multiples of these single units are used for larger demands.



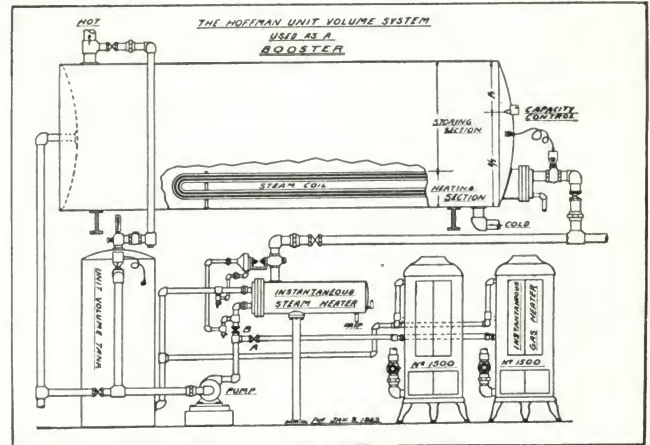
From Gas to Steam with but Two Valves

A simple method of absorbing any excess steam available



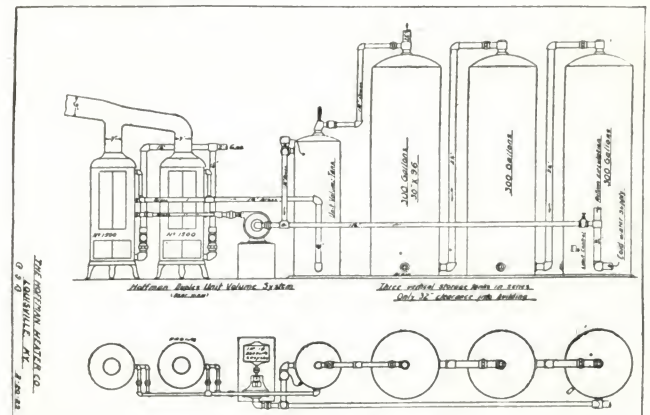
Takes the Place of a Storage Tank with Steam Coil

Only the steam heater need be above the boiler water level. A tank full of hot water at one temperature with a steady low rate of steam demand



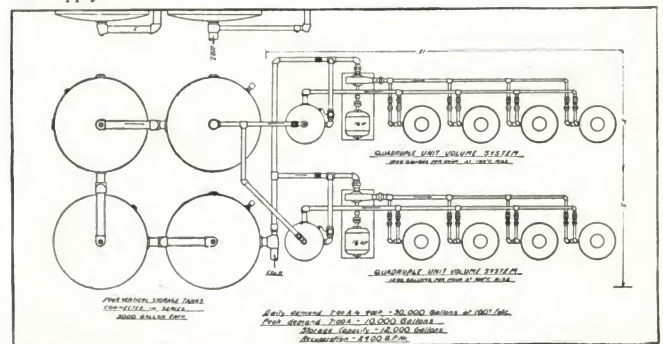
This Booster Will Maintain the Hot Water Supply Temperature with Either Gas or Steam Until Recuperation Exceeds Demand

In the usual gravity installation, the longer demand exceeds recuperation the greater will be the drop in the hot water supply temperature. Steam control shown.



Connected in Series

To avoid marring a building for the entry of a very large storage, divide the capacity into sizes that will enter a door or window. Simply connect in series, placing the capacity control 6 in. above the entry of the supply water



A Large Water Heating Installation

The ability to use storage tanks in series and heating equipment in multiple, makes very large water heating installations quite simple with either gas or steam or both. The storage tank may be either vertical or horizontal or a combination of both as space and headroom will permit

Oxygen Trap

The rapid destruction of hot water lines is due to the oxygen set free by heating. This free oxygen in hot water is in the form of thousands of tiny bubbles.

To gather these bubbles, break them within an air

chamber and discharge the oxygen is the work of the Hoffman oxygen trap.

This trap is estimated to be about 80% efficient. It costs but a few dollars and would be worth many times its price if it were only 10% efficient.

HOLYOKE HEATER COMPANY

Kerosene, Gas and Auxiliary Water Heaters

HOLYOKE, MASS.

Products

- "HOLYOKE" KEROSENE WATER HEATERS.
- "HOLYOKE" GAS WATER HEATERS.
- "HOLYOKE" AUXILIARY WATER HEATERS.
- "HOLYOKE" INDIRECT HEATERS.
- "HOLYOKE" FIRE POT GENERATORS.

Slogan

"The Heart of the Home."

"Holyoke" Kerosene Tank Water Heaters

Hot water is no longer regarded a city convenience alone—the suburban and country homes may also enjoy one of the greatest household necessities—hot water and plenty of it—through the installation of a "Holyoke" Kerosene Water Heater.

The design of the "Holyoke" quadruple patented copper coil makes it an unusually rapid heater. The tubes are of such size that, in the aggregate, they present the greatest practical amount of heating surface to a given volume of water passing through them. Each of the four tubes is $\frac{1}{8}$ in. in diameter with a total length of 30 ft. of tubing per coil.

"Holyoke" Kerosene Heaters are intended for attachment to any type of range boiler or tank and are non-automatic in operation, i.e., they are manually lighted and extinguished.

The burner is our *new improved* blue flame wick type. It is instantly and positively regulated and combustion is practically odorless. All heaters are now equipped with the swing burner which simplifies the care and operation of the heater. This is an exclusive "Holyoke" feature, fully protected by patents.

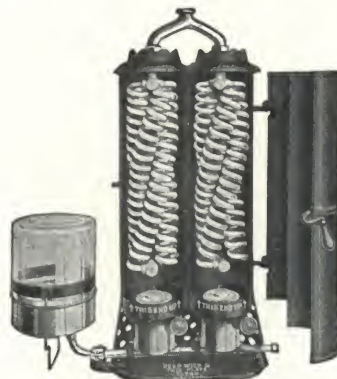
Shell is of cast iron attractively finished in durable black enamel.

The No. 4-30K (single) heater will heat water for toilet and shaving in 4 to 6 minutes after it is first lighted, for dishwashing in 15 to 20 minutes, and an ample quantity of hot water for the bath in about 45 minutes. The No. 5-60K (twin) heater will take care of the above in half the time. (The No. 4-30K heater operating at maximum capacity will raise the temperature of 1 gal. of water 14° F. per minute. The No. 5-60K heater will raise the temperature of 1 gal. of water 28° F. per minute.)

One gallon of kerosene (coal oil) is sufficient for 12 to 24 hours of operation per burner, depending upon

the height of the flame used. The oil reservoir holds 9 pints.

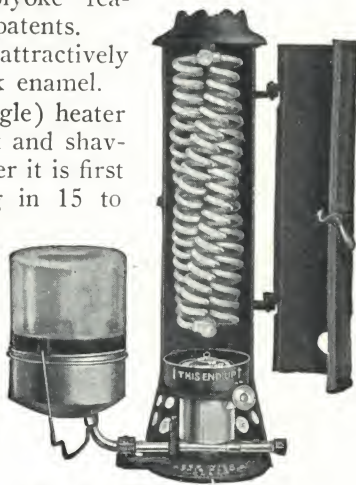
Both kerosene heaters are convertible into gas burning heaters when desired.



No. 5-60K (Twin) Kerosene Tank Water Heater

SPECIFICATIONS—KEROSENE HEATERS

Heater No.	4-30 K (Single)	5-60 K (Twin)
Capacity	20 to 40	30 to 60
Water connections.....	$\frac{3}{4}$ in.	$\frac{3}{4}$ in.
Height	28 $\frac{1}{4}$	28 $\frac{1}{4}$
Size of shell.....	6 (diam.)	8x12
Size of base.....	8 (diam.)	8x13
Floor space required.....	17x9	22x9
Net weight	40	75
Shipping weight.....	60	100
List price	\$30.00	\$54.00



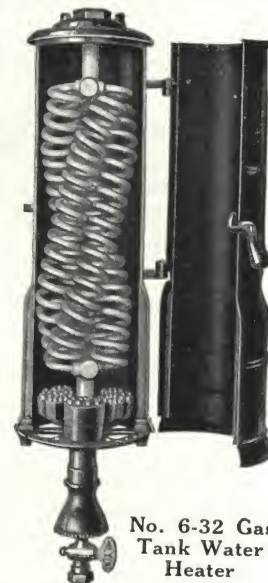
No. 4-30K (Single) Kerosene Tank Water Heater

"Holyoke" Quadruple Coil Gas Water Heater

The "Holyoke" No. 6-32 Gas Water Heater is equipped with the famous quadruple patented coil which makes it an unusually rapid heater. The shell is of cast iron, the lower part of which has an air jacket or double wall surrounding the heat zone. This air jacket serves as an insulator and minimizes the amount of heat radiated from the shell.

The "Holyoke" coil is reversible, that is, it may be removed and replaced in an inverted position after long use, thus doubling its life.

The burner is of the simple and efficient horseshoe type. Its adjustable air shutter insures perfect combustion. Burner is readily removable for cleaning without dismantling the heater. Finished in durable black enamel.



No. 6-32 Gas Tank Water Heater

"Holyoke" Double Coil Gas Water Heaters

The "Holyoke" Nos. 8-20, 8-25, 8-40, 8-50, 8-70 and 8-80 Gas Water Heaters are of the double coil type with a flared cast iron shell, allowing ample space for proper combustion.

The coil consists of two 3/4-in. 20-gauge copper tubes. Baffles on the coil direct the intense heat evenly to all parts of the coil.

A combination case and drip pan attached to the heater jacket supports the burner. This burner is designed after model approved by the U. S. Bureau of Standards.

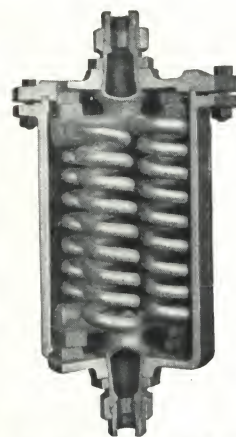
Ground (ball) joint brass unions reduce installation costs.

Heater regularly furnished in jet black japan; also furnished in gray vitreous porcelain enamel at small additional cost.

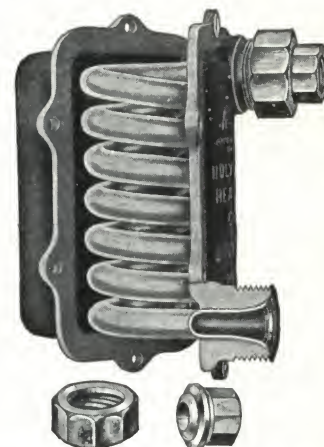
These heaters have the approval of the American Gas Association Testing Laboratory of Cleveland, Ohio.



No. 8-40 Gas Tank Water Heater



A-16 Indirect Water Heater



A-4 Indirect Water Heater

SPECIFICATIONS—GAS HEATERS

Heater No.	Capacity, gal.	Coil		Height, in.	Diam., in.	Shipping weight, lb.
		Diam., in.	Lgth., ft. in.			
6-32	30-60	7/16	30 0	24 1/4	8	48
8-20B	30	3/4	14 6	19	8	32
8-25B	30	3/4	16 6	21 1/2	8 3/4	40
8-40B	30-40	3/4	17 6	24	8 3/4	41
8-50B	40-52	3/4	20 0	24	8 3/4	42
8-70B	40-66	3/4	22 0	25	8 3/4	46
8-80B	52-82	3/4	25 0	25	8 3/4	47

Gas connections: 1/2 in. Flue connections: 3 in. Heaters equipped with two orifices for manufactured or natural gas. All "Holyoke" Gas Heaters, with the exception of No. 6-32, are furnished with ball joint brass unions with the following threads at no extra charge: 3/4-in. -20 fine thread, 1/2 and 3/4-in. Standard Pipe thread. Unless otherwise ordered, heaters will be equipped with 3/4-in. standard pipe thread ball joint brass unions.

"Holyoke" Auxiliary (Indirect) Water Heaters

"Holyoke" Auxiliary Heaters furnish ample quantities of hot water for all domestic needs when used in connection with the steam or vapor house heating boilers during the heating season.

They are designed to provide the greatest amount of hot water at the lowest cost. The "Holyoke" Auxiliary Heaters are inexpensive to install on account of being union equipped. Patents pending.

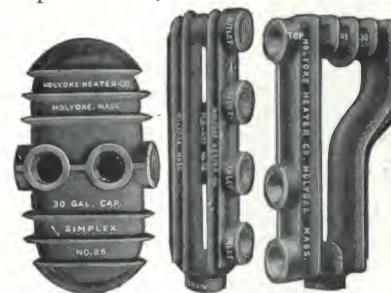
Models A-4, A-5, A-6, A-7, A-8 and A-9 have no brazed joints.

The two ends of the coil are expanded into the cover—the ground (ball) joint brass unions bearing directly upon the copper coil, insuring perfect joints—impossible for rust or sediment to collect.

"Holyoke" Fire Pot Generators

Holyoke fire pot generators are designed primarily for use in connection with a warm air furnace. They are obtainable in either cast iron, galvanized iron, or brass.

All generators have an opening in the bottom for a drain or cleanout. Fins positively prevent deadening of fire. Tappings on these heaters are arranged to conform to openings in all present day hot water or steam boilers. Top tappings must be used for the hot water outlet. Cold water inlet may be connected to any other tapping that is most convenient. An ordinary 1-in. plug will close the tappings not needed.



FIRE POT GENERATORS

Size of heater	Capacity, gal.	Shipping weight, lb.
"Holyoke" Flo-Hot Generator		
28 Cast iron	30	6
28 Galvanized	30	6
28 Brass	30	7
"Holyoke" Eveready Generator		
25 Cast iron	30	7
25 Galvanized	30	7
25 Brass	30	8 1/4
"Holyoke" Fire Pot Generator		
30 Cast iron	30-40	9 3/4
30 Galvanized	30-40	9 3/4
30 Brass	30-40	11

SPECIFICATIONS—INDIRECT HEATERS

Heater size	Single coil							Double coil			Triple coil			Quadruple coil		
	A-4S	A-4	A-5	A-6	A-7	A-8	A-9	B-10	B-11	B-12	C-13	C-14	C-15	A-16	A-24	A-32
Length, in.	9 3/4	9 3/4	12 3/4	15 3/4	16 1/4	20 1/4	21 1/4	16 1/4	20 3/4	25	22 3/4	26 3/4	26 3/4	11	15 1/8	19 1/4
Width, in.	6 1/4	6 1/4	6 1/4	6 1/2	8 3/8	8 3/4	9 1/4	11 3/4	11 3/4	11 3/4	16 3/4	16 3/4	16 3/4	6 1/4	6 1/4	6 1/4
Depth, in.	5 3/8	5 3/8	5 3/8	5 3/8	8	8	8 3/8	10 1/4	10 1/4	10 1/4	14 3/8	14 3/8	14 3/8	6 1/4	6 1/4	6 1/4
Shell openings, in.	1	1	1	1	1 1/2	1 1/2	2	2	2	2	3	3	3	1	1 1/4	1 1/2
Coil openings, in.	3/4	3/4	3/4	3/4	1	1	1 1/4	1 1/2	1 1/2	1 1/2	2 1/2	2 1/2	2 1/2	3/4	3/4	1
Weight, crated, lb.	12	13	16	21	50	58	68	138	138	138	138	138	138	34	47	56

Heating Water Below Water Line of Steam or Vapor Boilers

Heater size	A-4S	A-4	A-5	A-6	A-7	A-8	A-9	B-10	B-11	B-12	C-13	C-14	C-15	A-16	A-24	A-32
Tank capacity, gal.	30	30	52	60	90	120	160	200	300	400	600	800	1000	52*	82*	120*

Temperature rise 100° in 3 hours. *Temperature rise 118° in 3 hours.

Heating Water with Live Steam

Heater size	A-4S	A-4	A-5	A-6	A-7	A-8	A-9	B-10	B-11	B-12	C-13	C-14	C-15	A-16	A-24	A-32
Tank capacity, gal.	45	50	75	100	150	200	250	300	450	600	900	1200	1500	100*	150*	225*

Temperature rise 100° in 3 hours at 5 lb. pressure. *Temperature rise 118° in 3 hours at 5 lb. pressure.

THE LOVEKIN WATER HEATER CO.

ESTABLISHED 1842

TELEPHONE
MARKET 6410

FACTORY AND EXECUTIVE OFFICES

21 to 43 Laurel Street

PHILADELPHIA

BROOKLYN, N. Y., 161 Willoughby Street—Telephone, Triangle
1827

CHICAGO, ILL., Peoples Gas Building, 122 So. Michigan Ave.
nue—Telephone Wabash 8291-2

Products

LOVEKIN AUTOMATIC GAS FIRED
STORAGE WATER HEATERS for home
use, in five sizes.

KUMFORT AUTOMATIC GAS FIRED
STORAGE WATER HEATERS for home
use, in two sizes.

Lovekin

TRADE-MARK

The Lovekin Water Heater

Maintains a continuous supply of hot water with storage capacities as shown in Table 1. Entirely automatic in operation, and insures full flow irrespective of number of hot water faucets opened simultaneously. This heater has been on the market for 17 years and represents the highest grade materials and workmanship.

Boiler Construction—See illustration, Fig. 3. Boiler and tubes are made of extra heavy gauge steel as shown in Table 1. All joints are full-welded, the boiler is tested for 250 lbs. pressure and then heavily galvanized. Multiple vertical tubes running full length of boiler provide most economical gas consumption by distributing heat throughout water body, a principle of design similar to Scotch fire-tube construction in marine boilers.

Patented spiral, corrugated baffle plates—an exclusive Lovekin feature—within tubes

prevent wasteful escape of heat into flue opening.

"Reverse dish" boiler head allows for expansion and contraction.

Thermostatic Control—On the No. 40, No. 50 and No. 60 sizes the water temperature is controlled by the Lovekin "Sylphon" Thermostat which has proved its merit through 17 years of practical use. It is snap action, positive working. Thermostat is set to heat water 140° F. and can be adjusted by user to 10° above or below this temperature. For greater range of temperatures, adjustment must be made at factory.

On the No. 22 and No. 32 sizes the temperature is controlled by a special Model 2-A Robertshaw, throttling type, 16 in. long—a time proven instrument. This thermostat is direct-acting and of the simplest design possible.

The gradual rise or drop of the temperature of the water produces a corresponding gradual rise or drop in the gas flame, thus producing the exact heat needed constantly and shutting

off to the pilot flame when set temperature is reached.

It is set for a temperature of 140° F. and is adjustable.

Lovekin Single Burner—So designed that scale and foreign particles cannot fall into openings

and clog them. The flame does not impinge upon the bottom of the boiler shell. This adds materially to the life of the heater.

No screen is used in the burner—a flash back is practically impossible.

Operates Efficiently Under Poor Water Conditions—The Lovekin operates independently of the water pressure and works perfectly where the pressure is poor or variable.

Where water is of a nature to cause considerable precipitation, the deposit in the base of the boiler will not affect operation of thermostat nor will it noticeably affect heating efficiency, as heat is transmitted to the water body through tubes running the entire length of boiler and is not dependent upon a single heating surface at the base.

Insulation

—The outside of the boiler is fully insulated with four ¼-in. layers of heavy corrugated air cell asbestos. All working parts of the heater are enclosed in one housing.

Because of this thorough insulation and the method of distributing the heat to the entire body of water, the water temperature is practically uniform throughout, there being less than 5° difference from top to bottom.

Safety Features—All Lovekin heaters are equipped with safety pilots which automatically cut off the gas supply if the pilot light becomes extinguished.

They are also equipped with pressure relief valves which relieve excessive pressure on the boiler.

Finish—The Lovekin is finished with a new metal top, adding immeasurably to its appearance. Brass fittings are used for the water inlet, outlet and drain cock. The flanges covering these connections are plated with chromium.

Heater is metal covered throughout and finished in Lacquer in the popular new Lovekin Slate Green.

Equipment—Heater comes completely assembled, with drain cock, gas cock, draft hood and brass fittings at water inlet and outlet.



Fig. 1
Lovekin Automatic
Storage Heater No.
50 and No. 60 with
Multiple Tubular
Boiler



Fig. 2
Lovekin Automatic
Storage Heater No.
22 and No. 32 with
Multiple Tubular
Boiler

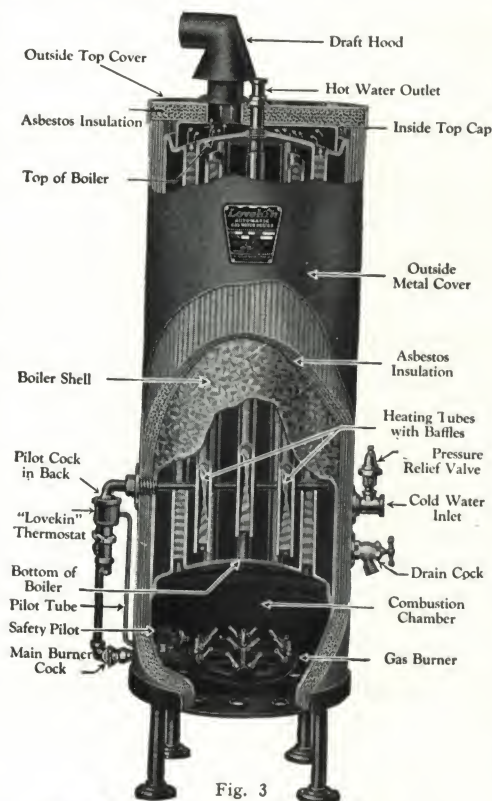


Fig. 3
Sectional View of Lovekin Heater No. 50
and No. 60 Showing Multiple Tubular
Boiler

The Kumfort Water Heater

A moderately priced storage gas water heater which adequately meets the need of the average small home. Entirely automatic in operation with storage capacities as shown in Table 1.

Boiler Construction—Internally fired similar to the Lovekin but having a single 2½ in. heavy gauge fire tube running vertically through the full length of the boiler. A Lovekin patented spiral baffle is suspended in this tube; this exclusive feature assists in increasing the heat transfer into the water by retarding the flow of the flue gases and reducing the wasteful escape of heat into the chimney.

Thermostatic Control—Temperature is controlled by a Lovekin Klixon snap-action thermostat, simple in construction and positive in operation.

Burner—Equipped with the celebrated Cleveland Barber Burner with six jets placed at an angle which prevents dirt or sifting from clogging the openings.

This burner operates efficiently over a wide range of gas conditions (both artificial and natural gas), and is set so that the flame does not impinge on the metal.

No screen is used in the burner—a flash back is practically impossible.

Insulation—The efficient insulation of the Lovekin boiler, described on facing page, is also used on the Kumfort.

Finish—The Kumfort heater is metal covered throughout.

The shell is finished in aluminum with the top cap and base in black enamel.

Equipment—The Kumfort comes completely assembled, with drain cock, gas cock, 3-in. draft hood and water connections.

TABLE 1—SPECIFICATIONS

Type and No.	Rated capacity (approx.) gal.	Thickness of boiler shell, gauge	Boiler heads top and bottom, in.	Heating surface, sq. ft.	Gas consumption per hr., (approx.) cu. ft.
Kumfort Type 1					
No. 20.....	20	12	$\frac{3}{16}$	3.28	30
No. 30.....	30	12	$\frac{3}{16}$	4.42	35
Lovekin Type 6-A					
No. 22.....	22	10	$\frac{3}{16}$	8.65	50
No. 32.....	32	10	$\frac{3}{16}$	11.46	60
No. 40.....	32	10	$\frac{3}{16}$	11.46	80
No. 50.....	45	9	$\frac{1}{4}$	14.42	90
No. 60.....	60	8	$\frac{1}{4}$	16.15	100

The Lovekin Heater is also made in 110-gal. size. Details on request.

TABLE 2—INSTALLATION SPECIFICATIONS

Heater for	Heater No.	Water connection, in.	Gas supply, in.	Flue connection, in.	Standard headroom, ft. in.	Minimum floor space, in.	Average weight crated, lb.
Small homes with 1 bath, kitchen, laundry; or small barber shop or beauty parlor. . .	Kumfort No. 20	$\frac{3}{4}$	$\frac{1}{2}$	3	5 0	23 x 17	220
	Lovekin No. 22	$\frac{3}{4}$	$\frac{1}{2}$	3	5 6	24 x 17	285
Average homes with 2 baths or large homes with 1 bath, kitchen, laundry and extra lavatory.	Kumfort No. 30	$\frac{3}{4}$	$\frac{1}{2}$	3	6 5	23 x 17	270
	Lovekin No. 32	$\frac{3}{4}$	$\frac{1}{2}$	3	6 0	26 x 19	380
For residences with 3 or more baths, and other fixtures; larger apartments; small office buildings; restaurants; etc. Choice should be governed by families' mode of living. When in doubt, use larger size. . .	Lovekin No. 40	1	$\frac{1}{2}$	3	6 0	27 x 19	390
	Lovekin No. 50	1	$\frac{1}{2}$	4	6 1	30 x 25	603
	Lovekin No. 60	1	$\frac{1}{2}$	4	6 4	32 x 27	687

General Facts

Guaranteed—All Lovekin and Kumfort heaters are fully guaranteed against defective materials and workmanship.

Safety-pilot Control—All Lovekin heaters are equipped with safety pilot which automatically cuts off gas supply if pilot light becomes extinguished. Safety pilot control on Kumfort heaters is available on special order.

Installation Notes

How to Specify—Install where indicated on plans.
 No. Lovekin Type 6-A [Kumfort Type 1] Storage-Automatic Water Heater. Connect ½-in. gas line from nearest gas supply to heater, and cold and hot water to heater as with a range boiler. Place a gas shut-off valve on the gas line near thermostat and a valve on cold water line near where it enters heater. Vent to flue as indicated on plan.

Choosing the Size—See Table 2 below. Where there is a question between two sizes it is advisable to select the larger.

Remember, however, that these heaters recover their set temperature more quickly than a coal heater and it is not necessary to specify as great a size of boiler.

Where to Place—To avoid long run of flue pipe the heater should be installed near a flue, and also as close as convenient to the faucets most frequently used (i.e. kitchen faucets in domestic installations). Usually installed in basement or laundry; occasionally for small installations, in the kitchen.

Return Circulation—Return circulating systems can be used in connection with a Lovekin, but the operating expense is higher than with the direct system.

In planning new houses, operating cost can be reduced in either direct or circulating systems by insulating the hot water supply pipes throughout the house.

Venting—A 3-in. vent, (4 in. for Nos. 50 and 60) preferably to a separate chimney, should be provided for in all cases. A draft hood is always furnished with heater. This draft hood is placed at top of the heater and prevents strong drafts either up or down the chimney from affecting the action of the burner or pilot.



Fig. 4
Kumfort Automatic
Storage Heater
Type 1

Lovekin
 ALWAYS **HOT WATER** READY

MOTOR WHEEL CORPORATION

HEATER DIVISION

Manufacturers of Piatt Oil Burning Domestic Utilities

LANSING, MICH.

Piatt Oil Burning Water Heater

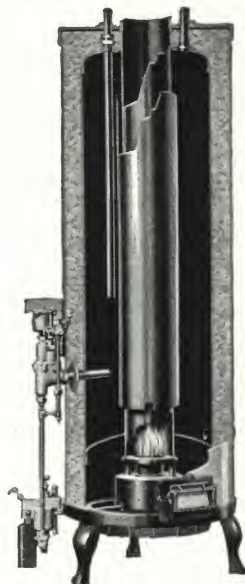
Adaptability

Made in a range of sizes suitable for use in the small bungalow and on up to large apartment buildings. Also for restaurants, clubs, office buildings, dairies, factories, resorts, car-washing racks, etc.

Recommended for use in all places except where a dependable supply of natural gas is available at a rate of 50c or less.

Operation

Automatic controls mechanically operated. Electricity or gas not required. Controls are simple, positive and dependable. Once lighted, flame is controlled according



Listed by Underwriters' Laboratories, Inc.

to water needed. Draft control automatic. Uses American Oil Burner Association Specification No. 1 furnace oil (38-40° distillate).

Construction

Sturdily constructed of the best materials obtainable. Boiler is heavy galvanized copper-bearing steel. Tested 300 lbs. hydrostatic pressure. Operates 125 lbs. hydrostatic pressure.

SIZES AND CAPACITIES

Model	Storage capacity, gal.	Heating rate per hour, gal.
20	18	18
40	36	20
60	47 1/2	20
80-S	68	100

Heating rate based on 70° temperature rise.

Piatt Oil Burning Forced Warm Air Furnace

Uses and Advantages

Uses—

For use in homes, stores, service stations, cottages, factories, and almost all places where heat is required. Completely automatic. May be placed in out-of-way location, yet have positive air circulation.

Pipe sizes may be reduced and run level.

Advantages—

Oil Burner built for furnace—furnace scientifically designed for Piatt Oil Burner. Inefficiency as associated with oil burners in ordinary warm air furnaces eliminates.

No gas required.

Burner noiseless.

Fan exceptionally quiet.

Humidifier pan provided.

Extremely high over-all efficiency.

Low operating cost.

Practically no maintenance expense.

Operation

Completely automatic. Oil burner

and blower controlled by thermostat in room. Equipped with all necessary safety devices to safeguard against misoperation.

Construction and Capacity

Constructed of the best materials obtainable.

Heating unit of welded steel construction with double the heating surface ordinarily found on coal-fired units of corresponding ratings.

Minneapolis-Honeywell electric controls used.

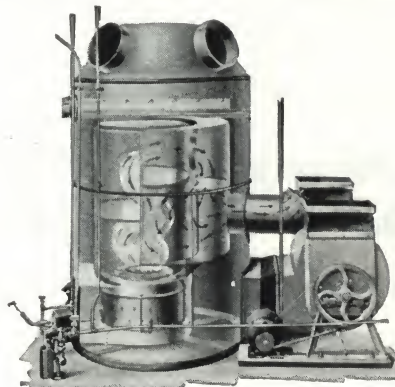
Detroit Lubricator Company's float control used.

"Furbo" centrifugal type fan with ball bearings.

Furnaces are supplied in three size capable heating loads, as follows:

No. 303..... 300 sq. in. of warm air pipe area
No. 304..... 480 sq. in. of warm air pipe area
No. 305..... 900 sq. in. of warm air pipe area

Ratings based on gravity circulation, with pipe sizes determined according to rules of the "Standard Code."



ESTABLISHED 1889

RIVERSIDE BOILER WORKS, INC.

Manufacturers of Steel and Copper Tanks

CAMBRIDGE, MASS.

NEW YORK, N. Y.
CLEVELAND, OHIOHARRISON, N. J.
SEATTLE, WASH.BRANCHES
RICHMOND, VA.
PHILADELPHIA, PA.FORT WORTH, TEX.
MONTREAL, CANADA

CHICAGO, ILL.

Products

ALL-COPPER "PACKO" AUTOMATIC STORAGE SYSTEM.
"KANTLEAK" RIVETED and WELDED GALVANIZED RANGE BOILERS.

"VICTORY" ALL-WELDED GALVANIZED RANGE BOILERS.

"RIVERSIDE" TWENTY-YEAR GUARANTEE COPPER RANGE BOILERS.

"RIBOCO" COPPER RANGE BOILERS.

"RIVERSIDE" "ASPHALTIZED" SEPTIC TANKS.

"RIBOCO" DIRECT FIRED AUTOMATIC STORAGE SYSTEMS.

Also "Riverside" Pneumatic Tanks for water supply systems; "Riverside" Black and Galvanized Hot Water Storage Tanks; "Riverside" Indirect Water Heaters; "Riverside" Basement and Under-ground Fuel Oil Tanks.



Galvanized Boiler



Copper Boiler

Galvanized Range Boilers

Two types, all sizes—"Kantleak" riveted and welded, "Victory" electrically welded. Standard—85-lb. working pressure.

Extra heavy—150-lb. working pressure. Double extra heavy—"Kopsteel"—150-lb. working pressure.

"Kopsteel" Boilers guaranteed 6 years. Credit based on service period.

Massachusetts Regulation Boilers in Extra Heavy and Double Extra Heavy Types

All boilers are full size; "Hilowtap" openings; two 1 in. in head; one 1 in. in bottom; two 1 in. on side, respectively, 6 in. down and up on the shell. All lengths are lengths on shell.

Size, in.	Nom. cap., gal.	List price	Size, in.	Nom. cap., gal.	List price
12x36	18	\$14.50	18x60	66	\$38.00
12x48	24	15.75	20x60	82	45.50
12x60	30	19.00	22x60	100	63.50
14x48	32	21.00	24x60	120	72.50
14x60	40	24.00	24x72	144	103.00
16x48	42	26.00	24x96	192	132.00
16x60	52	31.00			

"Riverside" Massachusetts Regulation Copper Boilers

Two grades—"Riverside" 20-year Guarantee Copper Boilers, also a competitive line, somewhat lower in price, called "Riboco" Copper Boilers.

Styles—Low-tap (old style), Hilowtap and Universalaltap.

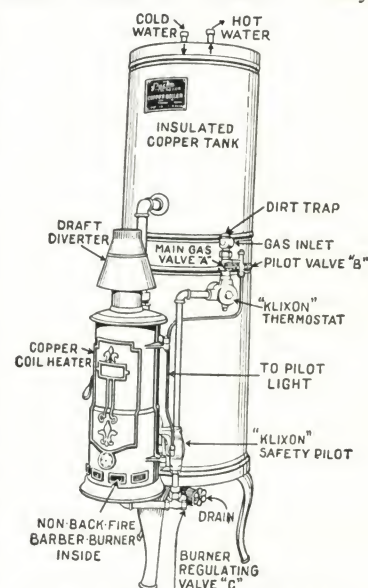
The Universalaltap boiler is especially made for building an automatic copper hot water storage system. The gas heater is connected on the side and the thermostat can be inserted in the 1-in. female tapping.

Gal.	Size, in.	Test pressures and working pressures
30	12x60	Mass. 200-lb. test; stamped 200-lb. test, 85-lb. w.p.
40	14x60	(Outside of Mass. can be used for 100-lb. w.p.)
50	16x60	Mass. 250-lb. test; stamped 250-lb. test, extra heavy 106-lb. w.p.
60	18x60	(Outside of Mass. can be used for 125-lb. w.p.)
80	20x60	Mass. 300-lb. test; stamped 300-lb. test, double extra heavy, 127½-lb. w.p.
100	22x60	(Outside of Mass. can be used for 150-lb. w.p.)
125	24x60	
150	24x72	

"Packo" Automatic Storage Systems

The "all-copper" "Packo" hot water storage system is built for the better class of homes. Only three connections are necessary upon installation: hot water, cold water and gas supply. All "Packos" are equipped with automatic safety pilots.

Equipment—Massachusetts Regulation Copper Boiler of 300-lb. test. "Klixon" snap-action control, draft diverter. Double copper coil heater, with non-backfire Barber burner and automatic safety pilot. All connections and piping for water are of brass. Interior boiler heavily insulated. Outer metal casing attractive copper-color finish.



30-gallon All Copper "Packo"

"Packo" No.	Approx. capacity, gal.	Height over all, in.	Width including heater, in.	Weight crated approx., lb.
20	20	57	25	203
24	24	65	25	225
30	30	65	29	258
40	40	65	36	300
52	52	65	36	520
66	66	55	40	660
82	82	65	40	820
100	100	65	42	925

Note: All hot and cold water tapings ¾-in. iron pipe size; gas connection ¾-in. iron pipe size—all systems except 20 and 24 gal. tapped on back ¾-in. iron pipe size for indirect heaters.

For large requirements use two systems connected in multiple. This allows a cutting off of one system without interfering with the entire domestic water supply.

"Riverside" Septic Tank

The "Riverside" Septic Tank is made of "Kopsteel." All joints and seams are welded, tanks are "asphaltized" after completion.



500-gallon Septic Tank

No.	Size, in.	Capacity, gal.	Average number of persons taken care of			*Average shipping weight, lb.
			Home	School	Factory	
200	38 d. x 48 ht.	200	6	13	11	250-260
300	47 d. x 48 ht.	300	10	19	16	310-320
500	52 d. x 60 lgth.	500	21	36	31	500-510
1000	60 d. x 96 lgth.	1000	41	56	51	900-925

*Weights are not guaranteed, as tanks are built to gauge and vary in weight.

"Riboco" Storage Systems

These systems are made with 300 lb. test copper or "Kopsteel" galvanized tanks. They are of the external flue type and direct fired by gas. Sizes made, 15, 20 and 30 gallon. They are beautifully finished in color scheme, but priced to meet the small home owner's pocketbook. Guaranteed in every respect. Just the system to figure on for speculative house developments.

RUUD MANUFACTURING COMPANY

Manufacturers of Gas-Fired Water Heaters

GENERAL OFFICES
PITTSBURGH, PA.

UNITED STATES FACTORY: 2934-44 Smallman Street, PITTSBURGH, PA.

FOREIGN FACTORIES AND SALES OFFICES

CANADA: RUUD MANUFACTURING COMPANY, 474 Bathurst Street, TORONTO, ONT.

ENGLAND: RUUD MANUFACTURING COMPANY, LIMITED, 99 High Holborn, LONDON, W. C. 1

GERMANY: RUUD HEISSWASSER APPARATEBAU, 87 Neu Lokstedter Strasse, Hamburg-Lokstedt

BRANCH OFFICES

BALTIMORE, MD., 1212 No. Charles Street
BOSTON, MASS., 172 Cambridge Street
BUFFALO, N. Y., 875 Main Street
CHICAGO, ILL., 1223 So. Wabash Avenue
CINCINNATI, OHIO, 707 Elm Street
CLEVELAND, OHIO, Builders Exchange Building
DALLAS, TEX., 2018 Jackson Street
DAYTON, OHIO, 414 Warren Street
DENVER, COLO., 1635 Blake Street
DETROIT, MICH., 23 Parsons Street
JACKSONVILLE, FLA., 123 No. Ocean Avenue
KANSAS CITY, MO., 1508 Main Street

LOUISVILLE, KY., 504 So. Third Street
LOS ANGELES, CALIF., 911 So. Grand Avenue
MINNEAPOLIS, MINN., 900 No. 4th Street
MILWAUKEE, WIS., 192 E. Water Street
NEW ORLEANS, LA., 1903 St. Charles Avenue
NEW YORK, N. Y., 274 Madison Avenue
PHILADELPHIA, PA., 1938 Market Street
PORTLAND, ORE., 1201 Public Service Building
PITTSBURGH, PA., 444 Oliver Avenue
ST. LOUIS, MO., 1906 Washington Avenue
SAN FRANCISCO, CALIF., 665 Howard Street
TOLEDO, OHIO, 2101 Adams Street

WASHINGTON, D. C., 713 G Street, N. W.

Ruud Automatic Gas Water Heaters

Ruud Automatic Gas Water Heaters are made in two types—Continuous Flow and Storage—with a wide range of capacities, insuring a suitable size for any given hot water requirement.

(1) The Continuous Flow Type heats water instantly as it flows and burns gas only when the faucet is open. It has no tank.

(2) The Storage Type burns gas at a comparatively slower rate, but for longer periods, storing the heated water in a tank ready for use when needed.

Ruud Water Heaters are divided into six general classes—the Continuous Flow Type (Nos. 3, 4, 6 and 8), the Cottage Continuous Flow Type (the No. 95), the Storage Type (Nos. 40 and 50), the Multi-Coil Storage Type (Nos. 100, 200, 350 and 500), and the Ruud-Autohot Underfired Storage Type (Nos. 20, 30 and 45).

From this large quality line of water heaters, *perfect hot water service* is assured for homes of any size, for apartments, stores, factories, institutions, churches, schools, athletic plants or, in short, for any hot water requirement.

The chart on this page indicates the types and sizes that may be specified for ordinary residence work. For industrial and commercial use, it is recommended that you consult with the nearest Ruud branch or factory, listing all fixtures, lengths and size of hot water pipes, whether direct or return circulation is to be used, approximate hourly requirement, the average number of hot water users and whether the peak load is of one hour's duration a day or whether it is repeated.

Ruud, a Standard of Water Heater Quality

Four factories supply an international demand for Ruud products, and branch offices are located in every population center. These are manned by water heater engineers of long experience and you are invited to call for their assistance at all times.

READY REFERENCE CHART FOR SPECIFICATION WRITER

Type of residences and apartments	Heaters applicable	
	Continuous flow type	Storage type
Small residences		
One family bath and kitchen, small family	Tables Nos. 5 and 7	Table No. 2
One family bath, one servant's bath, kitchen, laundry	Table No. 5	Table No. 2
Two family baths, one servant's bath, kitchen, pantry, laundry and lavatories	Table No. 5	Table No. 2
Three or four family baths, servant's bath, kitchen, pantry, laundry and lavatories	Table No. 5	Tables Nos. 2 and 4
Large residences and apartments		
Four or more family baths, servant's bath, kitchen, pantry, laundry and lavatories	Table No. 5	Table No. 4

FLOW IN GALLONS PER MINUTE DELIVERED BY ORDINARY PLUMBING FIXTURES

Fixture	Fair flow	Good flow	Excellent flow	Compiled from tests on 30 lbs. water pressure, and intended merely as a guide.
Kitchen sink bibbs.....	2	4	6	"Fair Flow" is minimum from which good service could be expected; "Excellent Flow" is maximum to be obtained without splashing and noise. "Good Flow" is a stream which combines satisfaction and economy in most cases.
Pantry sinks:				
High gooseneck bibbs..	2	2	3	
Large plain bibbs.....	4	6	8	
Laundry tray bibbs.....	4	6	8	
Slop sink bibbs.....	3	4	6	
Lavatory basin bibbs.....	2	3	4	
Bathtub bibbs.....	3	4	6	
Shampoo spray.....	½	1	2	
Shower baths:				
5 -in. rain heads.....	2	3	4	
6½-in. rain heads.....	2	3	5	
8 -in. rain heads.....	4	6	8	
8 -in. tubular heads...	6	8	10	
Needle baths.....	20	30	40	
Manicure tables.....	1	1½	2	

Used with Protane Gas

Special models are made for use with Pyrofax and other bottled or protane gases. Write for information.

RUUD-AUTOHOT AUTOMATIC UNDERFIRED STORAGE WATER HEATER

A Low Cost Storage Heater

Ruud-Autohot, a low cost storage water heater, is made in three sizes. Used principally in residences, it also meets the small and ordinary commercial hot water needs.

It is self-contained and entirely automatic, maintaining an ever-ready supply of hot water in the heavily insulated tank, rapidly replaced upon withdrawal because of the powerful recuperative qualities of the system.

Ruud-Autohot is of the underfired type, needs no separate unit heater and because of this, needs no more floor space than its tank diameter.

Gas is controlled by: first, the Ruud All-metal Moment Valve which permits gas to burn only when the tank temperature falls to a pre-determined degree; and second, by the Ruud Automatic Gas Cut-off which closes the main supply line in case the pilot light is extinguished.

The system will operate perfectly with low water and gas pressures, and is ruggedly built for exceptionally long life.

General Features of Construction

(1) Smart, trim appearance. Shell in ivory finish with contrasting porcelain enamel trim of a terra cotta color.

(2) All mechanism directly in the front of the heater permitting installation in any wall off-set the size of the diameter of the heater.

(3) Entire burner assembly removable in one piece. Makes for ease of inspection, adjustment or repair.

(4) Hard brass gas supply line.

(5) Non-breakable pressed steel top, base and legs.

(6) All tank fittings are cast one-piece brass.

(7) Spring type pressure relief valve.

(8) Easily removable and replaceable tank. Tank heads are copper-brazed.

(9) Tank insulated with 1½ in. of mineral wool.

(10) Copper dip pipe.

(11) Ruud draft regulator.

(12) Adjustable needle valve and air shutter.

(13) Equipped with Ruud-Automatic Gas Cut-off.

Shuts off gas to main burner in event of pilot failure.

(14) Ruud Moment Valve (thermostatic control). Same as used on all Ruud Storage Systems.

(15) Lead-coated flue liner.

(16) Brass hose-end drain valve.

(17) Pilot lock.

TABLE 1—SPECIFICATIONS AUTOHOT UNDERFIRED STORAGE TYPE

No.	Tank capacity, gal.	Height over all, in.	Heater diam., in.	Size connections, in.			Weight, lb.	
				Flue	Water	Gas	Net	Crated
20	20	51	18	4	¾	½	185	215
30	30	65	18	4	¾	½	215	270
45	45	61	23	4	1	½	345	440

Shipped as a unit, ready to install by making gas, water and flue connections.

Ruud Copper Tanks If Desired

Ruud-Autohot is also made with copper tanks in all three sizes. All tanks are interchangeable. If at any time the user wishes to change to a copper tank it is a simple operation.

Ruud-Autohot Copper Systems are furnished 250 lb. test—106 lb. Massachusetts working pressure tanks.



Autohot Underfired Storage Type
Galvanized or copper tanks

Selection of Size

The following table sets forth the capacities of the three models and the requirements each is designed to meet.

TABLE 2—AUTOHOT STORAGE TYPE
Sizes of Systems and Their Application to Various Conditions

Size	Capacity, gal.	Application
No. 20	20	Residences with one bath, kitchen and laundry. Small family.
No. 30	30	Residences with one or two baths. Usual laundry and kitchen fixtures.
No. 45	45	Residences with two or three baths, usual laundry and kitchen fixtures.

Special Hard Water Model

Where water supply contains much lime or other mineral properties, Ruud makes a special model of Ruud-Autohot equipped with a handhole clean-out.

A small cover is held in place with four nuts and this once removed permits cleaning and scraping of the bottom and sides of tank. Slightly higher price for this model.

Quality Throughout

In every part, this unit has been designed to give a high quality hot water service at even cost.

RUUD MULTI-COIL AUTOMATIC STORAGE WATER HEATER

Description

The Ruud Multi-Coil Automatic Storage System, recently improved, is designed for conditions requiring a large supply of hot water at several faucets at one time. It permits every hot water faucet to flow as fast as the corresponding cold water faucets, and is suitable for large residences, apartment houses, small hotels, office buildings, hospitals, bathhouses, schools, gymnasiums, restaurants, factories, etc.

It is often used in apartment houses and institutions having a hot water supply tank heated in winter by steam coils. Used as an auxiliary under such conditions, the Ruud Multi-Coil System with the Ruud Moment Valve adds sufficient heat to keep the tank full of hot water when the heating plant is in partial operation. In summer, when the heating plant is closed down altogether, the Ruud renders perfect hot water service.

The hot water furnished by the heater is stored in a tank. The gas burned is controlled automatically by the temperature of the water in the tank by means of the Ruud All-Metal Thermostatic Moment Valve described in the next column. Gas is burned only when the temperature of the water in the tank is below the moment valve setting.

This system is especially adapted to low water pressure conditions, also low pressure gas supply because it burns gas at a relatively slow rate and over longer periods than the instantaneous (continuous flow) type heater.

The complete system consists of heater, tank, moment valve, thermometer, gas regulator, tank supports and magnesia insulation. Supports are not furnished with tanks larger than 500 gal. capacity. The circulator pipes and gate valves between the heater and tank are obtained locally after the system is placed.

Ruud Multi-Coil Automatic Storage Systems are distinguished for flexibility of service, efficiency in operation and for long life.

TABLE 3—SPECIFICATIONS MULTI-COIL STORAGE TYPE

Size heater	Height over all, in.	Width over all, in.	Size, circulator, in.	Flue, in.	Hourly B.t.u. capacity		Size gas line, in.	Minimum height to bottom of tank, in.
					Nat. gas, cu. ft.	Art. gas, cu. ft.		
No. 100	45	27	1½	5	77,000	80,000	¾	41
No. 200	53½	32	2	6	154,000	160,000	1	49
No. 350	61	36½	2½	7	270,000	280,000	1¼	56
No. 500	64½	38½	2½	8	385,000	400,000	1½	58

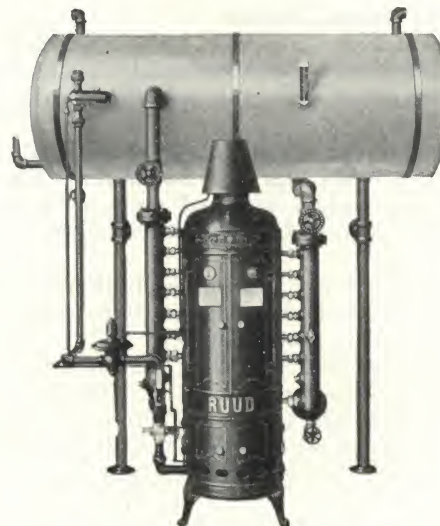
Selection of Sizes

The basis for determining the proper size Ruud Multi-Coil Storage System for any given condition is the *total number of gallons of hot water used during the period of heaviest demand*. Where the conditions are a great deal complicated, the services of our engineering department are always available.

TABLE 4 (MULTI-COIL STORAGE TYPE)
Sizes of Systems and Their Application to Various Residences

Size heater	Capacity of tank, gal.	Requirements
100	80, 100 or 150	Residences having 3 to 5 bathrooms, bedroom lavatories, large kitchen sink, pantry sink and laundry. Apartment buildings with 6 apartments of 4 or 5 rooms each.
200	150, 200 or 250	Residences having 5 to 8 bathrooms, large kitchen sink, dishwashing machine, large laundry. Apartment buildings having 6 to 12 apartments of 5 or 6 rooms each.
350	250, 300, 365 or 425	Residences having 7 to 10 bathrooms, large kitchen sink, dishwashing machine, large laundry. Apartment buildings having 10 to 18 apartments of 5 or 6 rooms each.
500	425, 500, 600 or 700	Apartment buildings having 20 to 30 apartments of 5, 6, or 7 rooms each. Very large homes. 40 to 60-room hotels.

Note: Larger capacity tanks, while not listed here, are available, and may be used with two or more Ruud Heaters. All tanks in black iron, galvanized or copper.



New Improvements

Changes in design are basically important in their contribution to higher efficiency, freedom from operating troubles and longer life.

Sizes have been changed in one particular; the No. 300 heater is now replaced with a No. 350 heater with an hourly heating capacity of 350 gal. based on temperature rise of 63°.

Other Features

These, long standard and merit-proved through many years of use, include:

The Ruud Moment Valve—No fuel control of greater reliability, economy and continuous, perfect performance has been discovered. The moment valve is snap-acting, being either "full-on" or "full-off" and gives full pressure and volume at the orifice, permitting a constant air-gas ratio in the mixer, which in turn guarantees a proper flame of even height and uniform characteristics.

The Ruud Automatic Gas Cut-off—Its reliability has been firmly established in thousands of units so equipped. It closes the main gas line in case of pilot failure.

Coil Arrangement—By ingenious arrangement all coils are separate and independent. In case one coil must be repaired or replaced, it can be removed from the heater and there will be no interruption in the service.

Burners—Ruud uses a full bunsen burner and with this type a proper flame is easily maintained, making for uniformity of operation and fixed efficiency. The burner is simple in design, easily taken apart for cleaning and uses only a flat brass gauze as flame check.

Ruud Tanks—Tanks vary greatly in ratio as to material and workmanship. Ruud tanks are made from flange steel; ordinary tanks are made of plate steel. Ruud weights for tanks are not theoretical. The highest standard known is employed in riveting, both as to size and spacing of rivets.

Ruud can also furnish copper tanks in many multi-coil combinations. Where brass or copper is used to pipe a building only a copper tank should be used for it eliminates all possibility of discolored water.

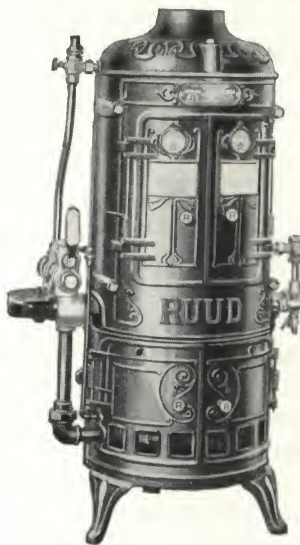
General Design

Ruud Multi-Coil Automatic Storage Systems are designed to give, within range of sizes and combinations, perfect and continuous hot water service at low, reasonable cost. The object of Ruud engineers has constantly been a harmonious meeting of these two factors, now through new improvements accomplished in greater measure than ever before.

Made in 4 sizes and combinations, with steam coils and without, with tanks of copper, black or galvanized iron, singly and in combination, it is entirely reasonable to say that Ruud can meet an overwhelming majority of Volume Water Heating Specifications.

RUUD AUTOMATIC CONTINUOUS FLOW WATER HEATER

Description



This type, newly improved, combines instant service, an inexhaustible supply with the highest efficiency attainable. The operation is automatic, gas being turned on or off by the flow of water when a faucet is opened or closed with a secondary and independent thermostatic fuel control that proportions the flow of gas to the quantity of water heated. The supply cannot be exhausted. Each size is built to a rated capacity, and as long as the faucet remains open hot water will be delivered at that rate.

This type may be installed in connection with a primary hot water supply from a furnace, boiler, coal range, etc., on the "reheating system," adding the needed heat to the water to bring it to the temperature required.

Its service is ideal for intermittent requirements, as it burns gas only when hot water is being drawn. In addition to the residence field, it is used largely in garages and auto wash stations, athletic plants, drug stores, beauty shops, etc.

Improvements and Construction

Engineering improvements have in general increased efficiency and life of this type unit and reduced in remarkable degree the need for maintenance service.

Of major importance is the change in the lower section of the copper heating surface from a conical to a straight, basket-type design. Enlargement of the combustion chamber thus made possible, has given the unit much greater flexibility. Combustion under proper conditions of gas flow, is practically complete; even when overgassed with 25% of volume, there is no change in perfection of combustion. General operating efficiency has been raised 82.5—85%. The coil and combustion chamber improvements now decrease shell temperature to a noticeable degree. Burners are held at much lower temperatures, lessening tendency to warp and flash, lengthening life and decreasing maintenance service. Coil life has been added through adoption of 17 gauge seamless, premium copper tubing as standard.

The requirements of the American Gas Association labora-

tory are greatly exceeded in all important particulars. Heating efficiency, for instance, is about 20% higher than the laboratory minimum.

Ruud Dual Fuel Control

Gas flow is automatically controlled by two separate and independent gas valves. Water flow operates one valve; water temperature the other. Gas burns in the quantity needed to heat water within exact degree limits.

Ruud Burners

Made in two simple pieces with a perforated flat flame check, easy to dismount and clean.

General Construction

All cast iron parts, shell, doors, top and bottom are heavy, substantial and long-lasting. Castings are of durable gray iron.

Recent price reductions in the residential sizes (Nos. 3 and 4) effect a considerable saving.

Selection of Sizes

Table 5 is a guide for the proper sizing of heaters. The size number corresponds to the capacity of the heater on a basis of raising the temperature of the water 63° F. Special conditions, the number of fixtures and people in the family, whether they use small or large quantities of hot water, should always be considered in using this general table.

TABLE 5 (CONTINUOUS FLOW TYPE)
Sizes of Heaters—Their Application to Residences

Size heater	*Gal. per min.	Residences having
No. 3	3	1 bathroom and kitchen sink, small family.
No. 4	4	1 family bathroom, 1 servants' bathroom, kitchen and laundry.
No. 6	6	2 family bathrooms, 1 servants' bathroom, kitchen, pantry, laundry and 1 or 2 lavatories.
No. 8	8	3 or 4 family bathrooms, servants' bathroom, kitchen, pantry, laundry and lavatories.

*These figures are approximate, depending on the temperature of the incoming water. The capacity is rated on a temperature rise of 63°.

TABLE 6—SPECIFICATIONS FOR CONTINUOUS FLOW TYPE

Size	Water inlet, in.	Water outlet, in.	Gas line, in.	Vent pipe, in.	Temp. raise, deg.	Hourly B.t.u. capacity		Gas meter	Weight, lb.	
						Nat. gas	Art. gas		Net	Crated
3	1½	1½	1	6	63	110,000	116,000	30 lgt.	262	335
4	1½	1½	1¼	6	63	137,500	145,000	45 lgt.	340	405
6	3¼	3¼	1½	7	63	220,000	232,000	60 lgt.	455	560
8	3¼	3¼	2	8	63	275,000	290,000	80 lgt.	565	670

Note: Standard pressure heaters require water pressure of 25 lb. per sq. in. at the highest faucet. When pressure is lower than this and not less than 5 lb., specify "Low Pressure" heater. No. 3 size is not made in "Low Pressure."

RUUD COTTAGE CONTINUOUS FLOW WATER HEATER

Ruud Royal Blue

The Ruud Royal Blue, a small size continuous flow type water heater, is ideal for cottages, bungalows and, in warmer climates, is suited for average family use.

Recent engineering improvements plus attractive Royal Blue color and low price secured for this unit a ready market in the small home class.

General Features of Construction

Mechanical features differ very little from the larger sizes of Ruud Continuous Flow Water Heaters. The rearrangement of water control and independent thermostatic control has only been made to facilitate installation in the small home.

The shell of this heater is heavy gray iron castings throughout, double-dipped japan in a royal blue color.



The coils are all 17 stubbs gauge premium copper tubing. All copper and brass waterways insure a rust-free hot water service.

TABLE 7 (COTTAGE CONTINUOUS FLOW TYPE)

Sizes of Heaters—Their Application to Residences

Size heater	*Gal. per min.	Application
No. 95	2½	For small hot water requirements. Ideally meets the needs of the modern small home where fixtures are compact, pipe runs short and where there are but a few people in the family.

*These figures are approximate depending on the temperature of the incoming water. The capacity is rated on a temperature rise of 63°.

TABLE 8—SPECIFICATIONS FOR COTTAGE CONTINUOUS FLOW TYPE

Size	Cap. gal. per min.	Temp. raise, deg.	Water line		Gas inlet, in.	Flue, in.	Gas meter	Hourly B.t.u. capacity		Weight, lb.	
			Inlet, in.	Outlet, in.				Nat. gas	Art. gas	Net	Crated
95	2½	63	½	½	¾	5	10 lgt.	92,000	97,000	200	270

Note: A water pressure at highest faucet of at least 25 lb. per sq. in. is required to enable these heaters to deliver their capacity at that point.

WELSBACH COMPANY

Manufacturers of Self-action Storage Gas Water Heaters

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CHICAGO, ILL.

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Products

WELSBACH HOTZONE and STAZHOT
SELF-ACTION STORAGE GAS WATER
HEATERS.

The Company

These automatic storage gas water heaters described herein are products of the WELSBACH COMPANY. For forty years this Company has manufactured gas burning appliances for the home.

HOTZONE
Welsbach
STAZHOT



Every one is familiar with the enviable reputation for reliable products which it has built up during that time.

The Hotzone and Stazhot heaters are the result of the best engineering skill and the vast amount of experience accumulated throughout this period. They bear the approval of the laboratories of the Good Housekeeping Institute and the American Gas Association.

WELSBACH HOTZONE AND STAZHOT SELF-ACTION STORAGE GAS WATER HEATERS

Description

In these heaters, gas under the control of a graduating thermostat is burned in a combustion chamber directly below the storage tank, and the products of combustion pass up through an annular space between the outside of the tank and an inner cylinder of lead-coated terne plate, giving up their heat to the whole exterior surface of the tank which acts as heat absorbing surface.

The annular space is so proportioned as to give the maximum of efficiency for wide variations in gas consumption and the exterior of the inner cylinder is insulated against the loss of heat by a heavy blanket of rock wool, the best insulation for the purpose.

As the water in the tank is heated, the thermostat automatically reduces the gas flow to the burner until, when full temperature is reached, only sufficient gas is being burned to keep the tankful hot, this gas passing around the thermostat valve through a by-pass.

The Hotzone is made in 15, 20, 30, 45, 60 and 80-gal. sizes, with double extra heavy 300 lb. test galvanized tanks. Hotzones may also be obtained with copper tanks, tested and tight at 250 lb. pressure per sq. in., and where specially needed 300 lb. pressure.

Temperature and Availability of Supply

The usual desired temperature of the household hot water supply is between 130° and 140° F. at the faucet, and to provide maximum satisfaction there should be available at all times an adequate quantity at this temperature.

Because of the method of heating and arrangement of the temperature control the Welsbach Self-action Heaters within their

capacity will supply a maximum of hot water. Repeated independent tests show less than 2° temperature difference between the first and last gallon drawn. Because of the uniformity of temperature of water from top to bottom of tank and the constantly maintained temperature, there is a large amount of useful hot water available.

When hot water is drawn from the tank the gas is immediately and automatically turned on by the thermostat and therefore recuperation commences at once. This assures a tank full of hot water at all times.

Recommended Heater Sizes

Sizes below are given as a general guide only. Conditions in each family will determine the proper size to specify.

Hotzone—No. 1—15 gal. For bungalows, small residences having one bathroom and usual fixtures with three or four persons in family.

No. 2—20 gal. For residences having one bathroom and usual fixtures and four or five persons in family; where there is a larger demand for hot water; small barber shops and beauty parlors.

No. 3—30 gal. For residences having two baths, or one bath with showers and usual fixtures; barber shops, beauty parlors, small restaurants, etc.

No. 4—45 gal. For residences having two or three baths; small apartments up to three or four families; large commercial applications.

No. 6 and 8—60 and 80 gal. For apartment houses and commercial installations.

The Stazhot is made in 15, 20, 30 and 40-gal. sizes, with 250 lb. test galvanized tank. The Stazhot is also furnished with copper tank where needed.



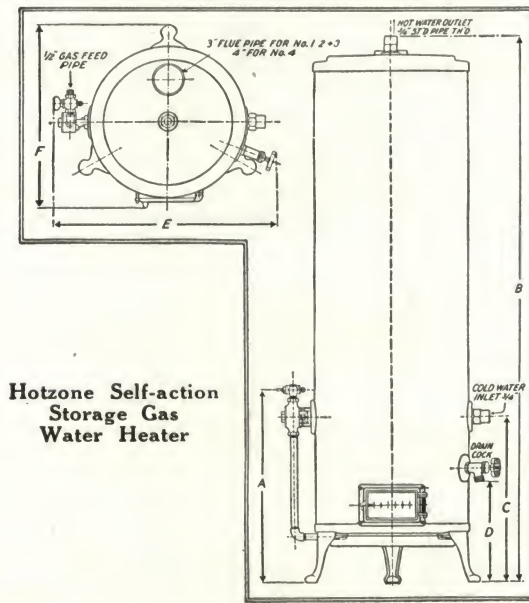
HOTZONE WATER HEATER

Standard Dimensions and Weights—Recovery Capacity, etc.

HOTZONE SELF-ACTION GAS WATER HEATER

No.	Capacity, gal., galv. & copper	*Recovery capacity	B.t.u. per hr.	Crated weights, lb.	
				Galv.	Copper
1	15	32.4	25,000	250	224
2	20	32.4	25,000	300	275
3	30	44.1	34,000	385	350
4	45	64.9	50,000	590	520
6	60	104.0	80,000	615	575
8	80	104.0	80,000	710	670

*Recovery capacity per hour U. S. gallons, 60° rise.



KEY TO DIMENSIONS (INCHES)—GALVANIZED OR COPPER

No. 1	No. 2	No. 3	No. 4	No. 6	No. 8
A 17 3/4	A 20 3/4	A 20 1/4	A 24	A 24	A 24
B 50 1/4	B 58	B 62 1/2	B 64	B 58 1/2	B 68
C 18	C 18	C 18 1/4	C 20 1/2	C ..	C ..
D 11 1/2	D 11 1/2	D 11 1/2	D 13 3/4	D 15	D 15
E 22	E 23	E 25 3/4	E 30	E 31 1/2	E 31 1/2
F 20	F 19 1/4	F 22	F 24	F 28 1/2	F 28 1/2

Note: On Nos. 1, 2 and 3 add 6 in. to "B" for over-all height, including draft hood.

On Nos. 4, 6 and 8 add 7 in. to "B" for over-all height, including hood.

X-ray of Hotzone

The illustration shows the interior construction and the following clearly explains the Hotzone features:

Tank—Extra heavy, galvanized inside and out. Tested to stand a pressure of 300 lb. to the sq. in.

Flue Passage—Allows heat to circulate freely around entire tank, heating the water evenly from top to bottom.

Flue Liner—Lead coated shell of steel, surrounding tank and aiding in holding in the heat.

Insulation—Thick rock wool, carefully packed between the flue liner and outer shell. The best insulation for the purpose.

Outer Shell—Heavy gauge full-finished steel body stock, buff lacquered to give attractive finish.

Burner—Will not flash back or carbonize.

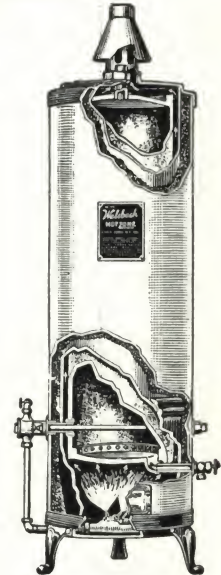
Thermostat—Direct acting, non-clog type. Controls supply of gas to burner. Can be adjusted for temperature.

Draft Hood—Properly designed to carry off combustion products. Standard stove pipe size.

Piping—1/2-in. gas, 3/4-in. water inlet and outlet.

Note: Can be supplied with safety gas shut-off and with temperature pressure relief valve at slight additional cost.

Note: Should occasion ever require, tank may be renewed by removing water connections and thermostat, without disturbing insulation, flue liner, combustion chamber or jacket.



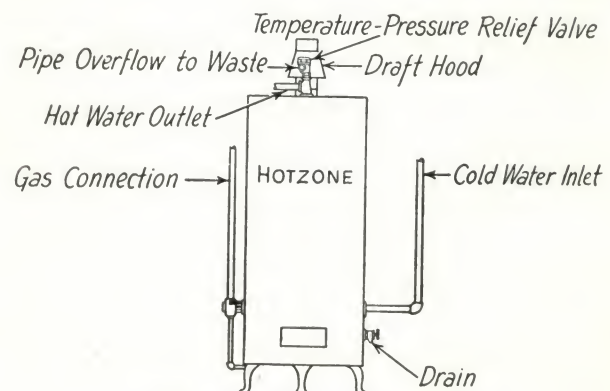
Standard Connections for Hotzone

For the best method of connecting a Hotzone heater into the gas and water systems of the building, the following illustration will prove interesting.

Relief valves should be installed on all systems fed through lines having water meters or check valves to prevent excessive pressure in case of overheating. The relief valve should be installed in a tee mounted as close as possible to the inlet of the system as shown in the illustration below.

Method of Connecting One Hotzone Water Heater to an Extra Storage Tank of 100 or 200-gal. Capacity—It will be noted that the hot water outlet is connected directly to the side of the insulated storage tank and the take-off pipe is from the top of the tank. From the bottom a return cold water pipe connects to the cold water inlet in a standard "Y" fitting.

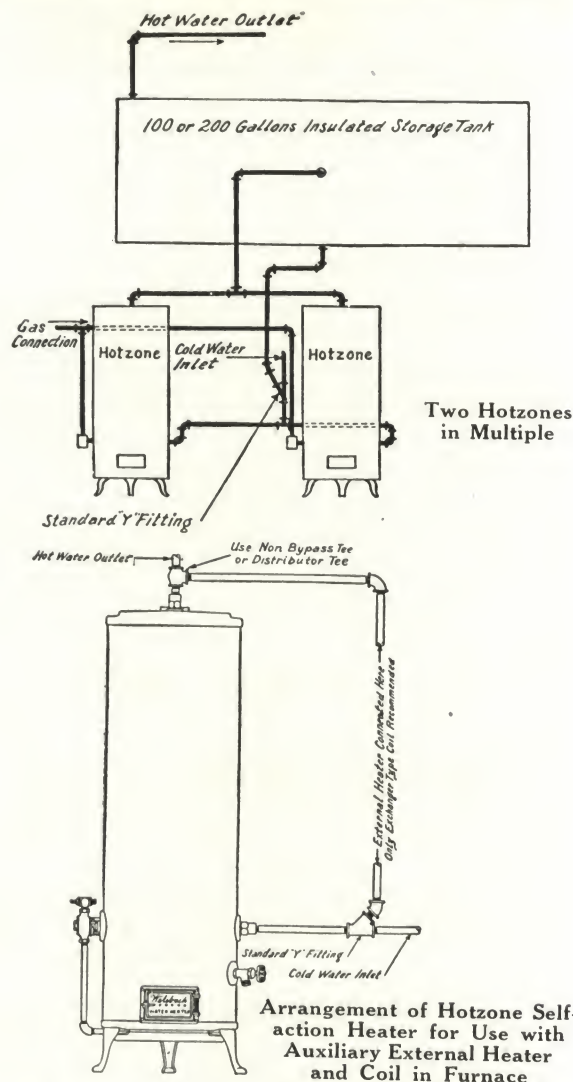
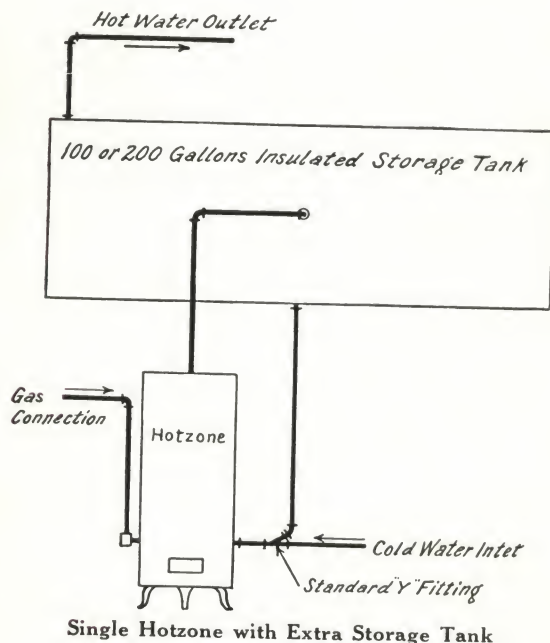
When the demands upon the hot water heating system will be unusually heavy, it may be necessary to connect Hotzone Heaters in multiple. The hot water outlet from each is joined, and enters the storage tank on the side as in the preceding case. The cold water inlet is also joined in a standard "Y" fitting with the cold water return from the tank.



Standard Connections for Hotzones

It is important in this type of installation to have number and kind of fitting between the two tees indicated on the hot and cold water lines and each heater, i.e., pipes AA should be of the same diameter and length, BB likewise, etc.

This will insure equalization of the load between the heaters and prevent by-passing. It is frequently desirable to make multiple installations using 2 or 3 heaters and by placing gate valves in the inlet line of each heater, it is possible to use only one heater at a time when the demand can be served by a single heater with resulting gain in economy.



DESCRIPTION OF STAZHOT WATER HEATER

The tank of the Stazhot Self-action Storage Gas Water Heater is galvanized inside and out, and is tested to 250 lb. pressure.

Can be supplied with safety gas shut-off and temperature pressure relief valve at slight additional cost.

Should the occasion ever require, tank may be renewed by removing water connections and thermostat, without disturbing insulation, flue liner, combustion chamber or jacket.

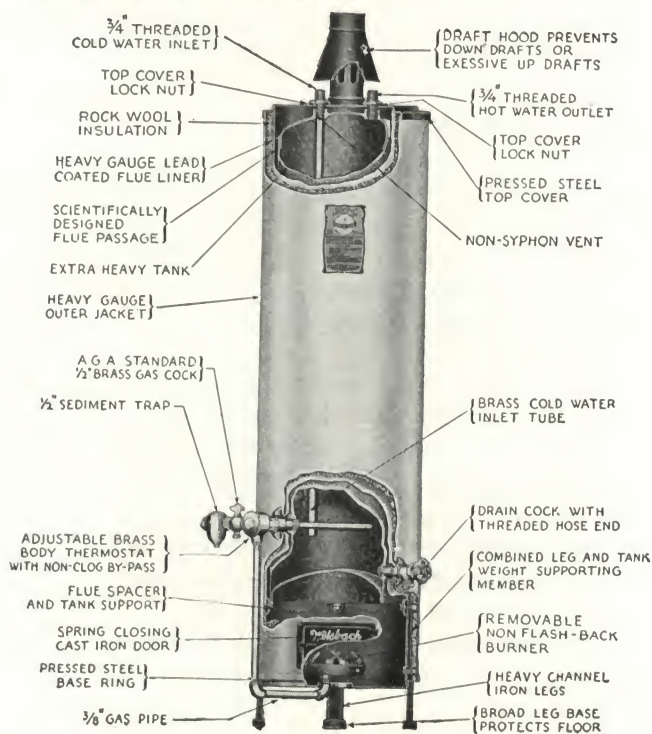
STAZHOT SELF-ACTION GAS WATER HEATER

No.	Capacity, gal., galv. and copper	B.t.u. per hr.	*Recovery capacity
150	15	17,000	22.0
200	20	17,000	22.0
300	30	25,000	32.4
400	40	34,000	44.1

*Recovery capacity per hour U. S. gallons 60° rise.

SIZE AND WEIGHT STAZHOT SELF-ACTION GAS WATER HEATER

No.	Floor space, in.	Height, including draft hood, in.	Crated weight, lb.	
			Galv.	Copper
150	22x16	55 3/4	200	165
200	22x16	66	220	180
300	24x18	70	300	280
400	26x25	63	500	445



ACME ELECTRIC HEATING CO.

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We maintain a special service department to co-operate with architects and engineers.

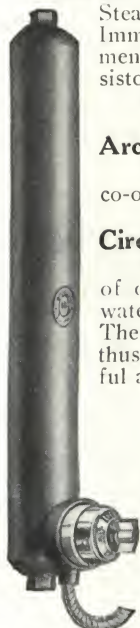
Circulation Water Heaters

Acme Circulation Water Heaters are the result of our painstaking efforts to bring about an electric water heater correct and complete in every detail. The liquid flow is completely surrounded by the heat, thus economically accomplishing a service. A beautiful appliance of correct design and sturdy construction.

ACME CIRCULATION WATER HEATERS

Cat. No.	Dimensions, in.		Watts	Price
	Diam.	Length		
421	3	15	125-500	\$22.00
422	3	15	188-750	24.00
423	3	15	250-1000	26.00
424	3	24	375-1500	30.00
425	3	24	500-2000	35.00
426	3	24	750-3000	40.00
427	3	24	1000-4000	45.00
428	3	24	1250-5000	50.00
429T	Tee	Non-by-pass		2.50

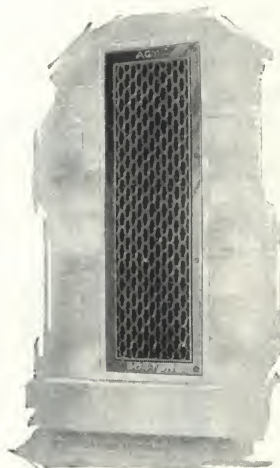
Furnished 110-125; 220-250 volts.
Threaded for 1/2-in. standard iron pipe thread at each end.



Acme Circulation Water Heater

Electric Radiators

The Acme line of electric radiators is complete. There is a radiator to meet every problem and solve it precisely and economically for the home, clubhouse, hotel, church, garage, factory, ticket booth, organ room,



Series D, Flush Type, Radiator

For close quarters where radiator space is desired to be utilized. No floor space consumed; out of the way; heats with precision and economy. Heating element is so arranged that depth of casing requires only 2 1/2-in. space, and will fit in any partition or wall. Can be so arranged that heat will project either from one side of wall or both sides.

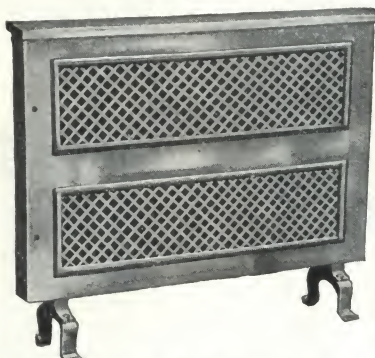
From 1 1/2 to 3 kw.



Series A Radiator

For floor or wall mounting. Beautifully designed, very practical, and built in heat capacities to meet the requirements in the home, office, etc. Dimensions, 27 in. long by 12 in. high.

From 1 1/2 to 4 1/2 kw.

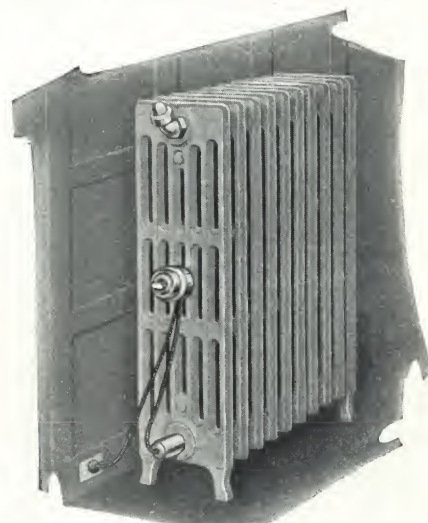


Series B Radiator

Particularly well suited for heavy duty where requirements for heating are considerable, as in church, meeting hall, large living quarters, and reception halls. Dimensions, 27 in. long by 23 in. high.

From 3 to 12 kw.

valve house, etc. The heating principle in this construction is beyond criticism. The exterior casing is a masterpiece for design and craftsmanship, and will blend harmoniously with the finest equipment wherever installed. Finished in art bronze.



Series E Electric Steam Radiator

Each radiator is a complete steam plant in itself, and is operated with the ease of mere turning on a switch. Can be moved from room to room (wherever there is an electric outlet). A few quarts of water will run one of these radiators practically an entire season without replenishing.

From 1 to 3 kw.

The Acme heating units are built in two distinct sizes—all made three-heat. A controlling switch is mounted directly on the heater. Non-corrosive, non-deteriorating water chamber. Nicked, and highly polished.

Hot Closets and Plate Warmers

Acme Hot Closets are designed for the butler's pantry as a warming closet for food and dishes. Because the heating

ACME HOT CLOSETS

Cat. No.	Outside dimensions, in.			Watts	Price
	Width	Depth	Height		
1621*	25	14	24	150-600	\$ 90.00
1622†	30	17	26	220-880	115.00
1623†	35	20	28	400-1200	150.00

Furnished 110-125; 220-250 volts.

*Made with single door. †Made with double doors.

Closets other than above can be constructed by us to order.

element is of the Acme grid-type construction, heat is distributed efficiently and exactly throughout the entire cubic dimensions.

Made of black planished iron with nickelplated trimmings, consisting of hinges and latches. Interior is made of heavy gauge galvanized iron and provided with two galvanized iron perforated shelves. Sides and top are insulated with heavy layers of asbestos, preserving the heat. Three-heat switch for successful operation of this type of appliance. Prism light indicates operation.



Hot Closet
Cat. No. 1622

EDISON GENERAL ELECTRIC APPLIANCE CO., INC.

5600 West Taylor Street, CHICAGO, ILL.

For Branches and Service Stations, see our pages on Commercial Cooking Equipment

Product

HOTPOINT ELECTRIC WATER HEATERS.
Also manufacturers of Hotpoint Electric Household Appliances. Architects' handbook on request.

For Edison Electric Commercial Cooking and Baking Equipment, Hotpoint Electric Air Heaters and Electric Ranges, see Manufacturers' Index.

*Hotwater
by
Hotpoint*

Wiring, etc.

All wiring in both models is enclosed in a readily accessible wiring channel inside the heater case, and a standard outlet box is fixed to the top rear of the heater, easily accessible for the wiring connections. This outlet box and the hot and cold

water pipe connections are offset so that vertical lines may be run parallel without interference. Automatic temperature control. Thermostat controls the unit current direct without external relays or contactor.

Accelerator or Circulation Tube Models

Deliver hot water to the top of tank as heated, insuring *quick hot water*. Made in four sizes: 10-gallon, No. W28; 18-gallon, No. W41; 30-gallon, No. W43; 50-gallon, No. W44.

Each model provided with automatic temperature control (thermostat) giving uniform temperature hot water. An externally operated switch is also a part of each heater.

Heaters of this type deliver a maximum hot water service for a given tank capacity.

Obtainable in wattage rating up to 5 kw.

Finish and Insulation

The two-tone Alabastic white and gray trim glyptal baked enamel provides a finish that is highly attractive, easily cleaned and retains a permanent high gloss.

Balsam wool is used to insulate these heaters. It is highly efficient, light in weight and odorless.

Tanks are extra heavy and built to 250 lb. test pressure.

Plain Storage Heaters

These models raise the tank temperature uniformly. Made in three sizes: 30-gallon, No. W49; 50-gallon, No. W50 and 100-gallon, No. W38.

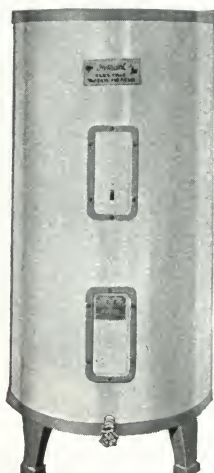
May be obtained in 500 to 6000-watt capacity.

Voltage

Standard voltage 230 a-c. carried in jobbers' stocks. Special voltages of 115, 125, 200, 250, obtainable on factory orders. All 5 kw. units are supplied in 230-250 volts only.

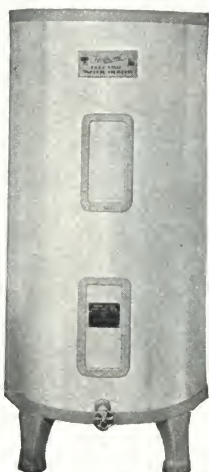
Address nearest district office for specific recommendations to meet requirements of clients.

Style No.	Capacity, gal.	Over-all dimensions, in.		Wattage		Shipping weight, lbs.
		Height	Diameter	Upper Unit	Lower unit	
W28	10	50 1/4	17 1/2	1000—2000—3000—5000	1000—2000—3000—5000	210
W41	18	52 1/2	20 3/4	1500—3000—5000	1500—3000—5000	300
W43	30	52 1/2	24 3/4	1700—3000—5000	1700—3000—5000	400
W43	30	52 1/2	24 3/4	1000—1500	500—600	400
W44	50	52 1/2	28 3/4	1000—2000	1700—3000—5000	500
W44	50	52 1/2	28 3/4	1000—2000	500—1000	500
W49	30	49 3/4	22 3/4	1000—1500—1500	1000—1500	315
W49	30	49 3/4	22 3/4	1000—1500—1500	500—500—750	325
W50	50	60 3/8	24 3/8	1000—1500—1500	1000—1500	385
W50	50	60 3/8	24 3/8	1000—1500—1500	500—500—750	400
W38	100	75	28 3/4	2000—3000	2000—3000	500
W38	100	75	28 3/4	2000—3000	2000—3000	500
W5	15	30 1/2	17 3/4		1000	142



Accelerator Tube Models

W41—18-gallon
W43—30-gallon
W44—50-gallon

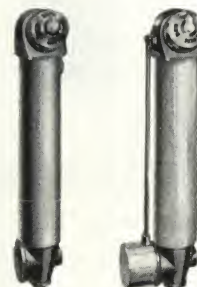


Plain Storage Models

W49—30-gallon
W50—50-gallon
Also obtainable in 100-gallon size. Particularly suited to "off peak heating"



W5—The Idaho Non-pressure Farm Heater



W23 Non-automatic
W24 Automatic
Side Arm Circulation Heaters

Side Arm Circulation Heaters

Automatic or non-automatic side arm heaters may be connected to any well insulated hot water tank. Obtainable in 2000, 3000, 5000 watts.

WESTINGHOUSE ELECTRIC & MFG. CO.

EAST PITTSBURGH, PA.

For Branch Offices, see our Lighting Catalogue. For References to Other Products, see Index to Manufacturers

ELECTRIC WATER HEATERS

Wide Range of Types

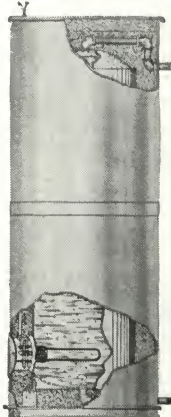
These heaters have been designed to meet the requirements of the central station and the home owner. They are made in a wide range of types to meet different wattages requirements, methods of operation and to provide ease of installation and servicing. The automatic types are controlled by the Spencer thermostat, especially adapted for water heater service.

The corox heating element, which is used in all but the Strap-on Heaters, is a special Westinghouse development designed particularly to meet the requirements of water heating service. It operates at a temperature only a few degrees above the surrounding water and has a slight expansion and contraction in operation, which tends to flake off scale and adds considerably to the life of the element.



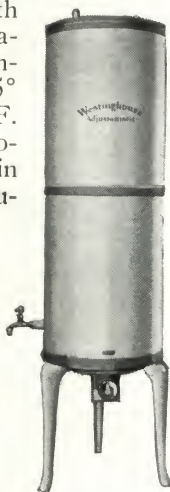
The Adapt-o-matic—This leader of the Westinghouse line is a complete, insulated tank, with immersion type elements automatically controlled. Made in 30 and 52-gal. sizes and can be operated at various wattages by simply changing the terminal connections on the elements. The tank is thoroughly insulated with the highest grade balsam wool. The thermometer is set to maintain a water temperature of approximately 160° F.

The Adjust-o-matic—Another complete tank installation with a single heating element controlled by a three-heat snap switch, and regulated within temperature limits by the Spencer thermostat. With switch turned to "low" a water temperature of approximately 135° F. is maintained, on "medium" approximately 155° F., and on "high" approximately 180° F. Once the switch is set, the Spencer thermostat keeps the water temperature within predetermined limits without further regulation. The Adjust-o-matic is made only in the 18-gal. size.



The Aut-o-matic

—A complete tank heater with one heating element, at the bottom of the tank, controlled by a Spencer disc thermostat. In the 18-gal. size the Aut-o-matic is constructed with a circulation tube and the heating element installed from the bottom. In the larger sizes no circulation tube is used in the tank and the heating element is inserted from the side near the bottom. The 18,

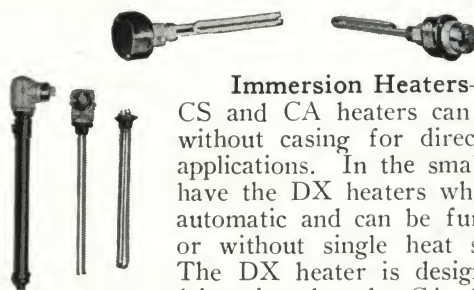


30 and 52-gal. sizes are carried in stock. Shipments of the 85 and 100-gal. sizes can be made with but a few days delay.



Strap-on Heaters—Designed for installation on existing water tanks and are applicable for any tank of 12-in. diameter. The complete installation of this type consists of two heating units, with automatic thermostatic control, and an asbestos tank cover, properly cut to receive the heaters. "On-and-off" switch is mounted integrally with each heating unit in such a way that the switch projects through the tank covering, providing easy manual control of the heater.

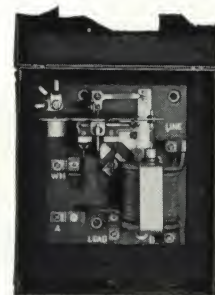
Side Arm or Circulation Heaters—The Type CA is a full-automatic circulation heater, equipped with Spencer thermostatic control, and regulated by a three-temperature snap switch. The thermostat and switch are mounted at the head of the heater effecting easy manual control and heating element protection. A drain plug at the bottom of the unit permits easy removal of sediment. Threaded pipe connections in the outer shell take the standard 3/4-in. pipe.



Immersion Heaters—The Types CS and CA heaters can be obtained without casing for direct immersion applications. In the smaller sizes we have the DX heaters which are non-automatic and can be furnished with or without single heat snap switch. The DX heater is designed to fit a 1-in. pipe thread. CA, CX and DX heaters will stand 25 lb. steam pressure and are frequently used for heating liquids other than water. Information regarding special applications should be requested from the nearest district office.

Current Limiting Switch

This device is used to limit the combined load of water heater and electric range. It is a magnetically operated switch of the enclosed mercury tube type, non-radio interfering and unaffected by temperature changes. The switch is enclosed in a heavy box equipped with knock-outs for easy wiring. A flexible adjustment is provided.



For specification see Water Heater Catalogue 282

ESTABLISHED IN 1841

E. B. BADGER & SONS CO.

Manufacturers of Hot Water Tanks and Pantry Sinks

75 Pitts Street, BOSTON, MASS.

BRANCH OFFICES

ATLANTA, GA., Red Rock Building
CHARLOTTE, N. C., 1408 Independence BuildingCHICAGO, ILL., 2831 South Parkway
CINCINNATI, OHIO, Union Trust Building
CLEVELAND, OHIO, Guardian Building
DETROIT, MICH., 402 Ford Building

SEATTLE, WASH., 415 Lenora Street

HOUSTON, TEX., 1308 Second National Bank Building

INDIANAPOLIS, IND., 823 Occidental Building
KANSAS CITY, MO., 1336 Oak StreetLOS ANGELES, CAL., 517 Hollingsworth Building
MINNEAPOLIS, MINN., 732 Building Exchange

MONTREAL, QUE., CAN., Cement Building

ST. LOUIS, MO., 3605 Laclede Avenue

NEW ORLEANS, LA., 419 Maritime Building
NEW YORK, N. Y., 271 Madison Avenue

PHILADELPHIA, PA., 1500 Walnut Street, Room 901

PITTSBURGH, PA., Union Trust Building

SALT LAKE CITY, UTAH, Kearns Building

SAN FRANCISCO, CAL., Sharon Building

Products

BADGER ALL-COPPER HOT WATER STORAGE TANKS for building and industrial purposes; also domestic tanks and boilers to be used in connection with heating apparatus.

BADGER COPPER and WHITE METAL PANTRY SINKS.

Also Badger Expansion Joints for low and high pressure lines.

All-copper Tanks

Badger All-copper Tanks are made from the best of copper by expert coppersmiths.

Interiors are thoroughly tinned to insure clean water. There is only one longitudinal seam, this being brazed and hard hammered. The heads have the correct radii. They are riveted to the shell with a generous lap. In riveting the copper is first drawset and then the rivets are upset and buttoned. Finally the seam is thoroughly sweated on the inside with solder.

Furnished complete with special size connections, manholes and steam coils, if desired.

Every tank is subjected to a hydrostatic test of at least 200 lbs. Boilers of 250 or 300 lbs. test can be furnished, if required. The working pressure of a tank should never exceed 42½% of its hydrostatic test.

Tank Specifications—to Facilitate Ordering

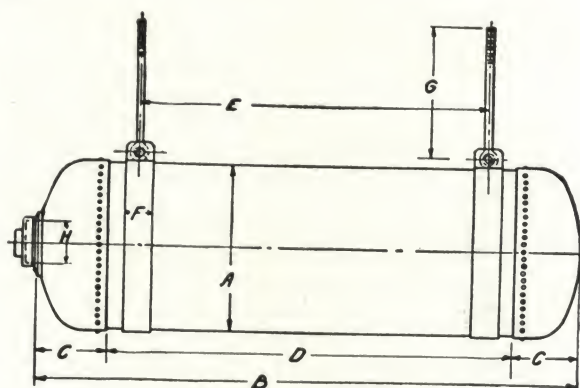
The following is frequently used by architects and found to be very satisfactory:

Furnish ... gal. Badger Copper Tank to be ... diameter x ... long; shell to be made of sheet copper weighing ... lbs. per sq. ft.; to have one longitudinal seam, said seam to be brazed and hard hammered; heads to be made of copper weighing ... lbs. per sq. ft.; said heads to be half-round type, riveted to the shell and thoroughly sweated on the inside with solder; one head to be fitted with ...x... composition manhole and cover; all connections on shell to be standard flanged type riveted on outside.

Material in tank to be tinned on the inside with block tin, and all seams and connections to be heavily backed with solder.

Tank to be tested to ... lbs. hydrostatic pressure.

Note: This company will supply weights for this specification to any architect who will furnish information regarding volume of hot water required and the water pressure.

***DIMENSIONS HORIZONTAL PRESSURE TANK**

Wall brackets may be used instead of hangers

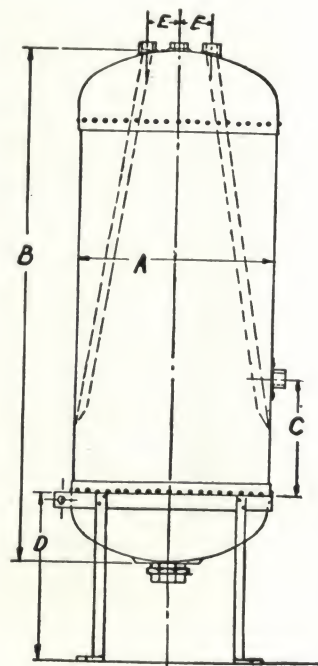
Size, gal.	A	B	C	D	E	F	G	H
30	12	62	5	52	47	3	15	3
40	14	61¾	6	49¾	45	3	15	3
50	16	60½	6½	47½	42	4	15	3
60	17	65	7	51	45	4	15	3
70	18	66½	7	52½	47	4	15	3
80	20	62	8¼	45½	40	4	16½	3
90	20	70	8¼	53½	48	4	16½	3
100	20	78	8¼	61½	56	4	16½	3
125	22	81	9¾	60½	55	4	18½	4½
150	24	80	10	60	54	4	18½	4½
175	28	72	11	50	44	4	18½	6
200	30	72	12	48	42	4	18½	6
225	30	80	12	56	50	4	18½	6
250	30	90	12	66	60	4	18½	6
275	30	97½	12	73½	68	4	18½	6
300	30	106½	12	82½	77	4	18½	6

*All dimensions are in inches.

***DIMENSIONS VERTICAL PRESSURE TANK**

Size, gal.	A	B	C	D	E
125	22	81	24	20	4
150	24	80	24	20	4½
175	28	72	24	20	4½
200	30	72	24	20	5
225	30	80	24	20	5
250	30	90	24	20	5
275	30	97½	24	20	5
300	30	106½	24	20	5

*All dimensions are in inches.
The 125-gal. size has bent side and bottom connections.
All others as shown.



DAHLQUIST MFG. COMPANY

Coppersmiths and Metal Workers

A, 2nd and 3rd Streets, SOUTH BOSTON, MASS.

Products

COPPER BOILERS including Heavy Pressure Boilers, Direct or Street Pressure Boilers, Tank Pressure Boilers, Wash Boilers and Pressure Barber Boilers.

DAHLQUIST AQUATHERM COPPER RANGE BOILER (patented), with or without water heater.

DAHLQUIST SUPER AQUATHERM COPPER AUTOMATIC STORAGE SYSTEMS; DAHLQUIST TURBO-AQUATHERM (Patented).

Also Steam Jacketed Copper Kettles, Corrugated Copper Expansion Joints, Metal Spinning of all kinds, Boiler Stands and Gas Water Heaters.

Dahlquist Copper Boilers

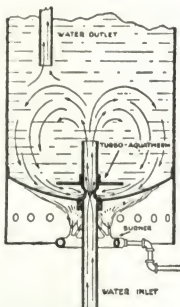
Satisfaction is assured. In durability, neat appearance and cleanliness, copper is beyond comparison. Copper resists rust and corrosion as no other tank metal can.

Dahlquist Turbo-Aquatherm (U. S. Pat. No. 1,762,-215, June 10, 1930)

A new invention and great improvement in hot water boiler design. Completely eliminates cause of burnouts in boilers, heating coils and waterbacks.

Hot water boilers and heating units have always suffered from a gradual accumulation of sediment and scale. This accumulation gradually insulates the water from the source of heat and, if allowed to remain, eventually causes a burned-out boiler, heating coil or waterback.

The Turbo-Aquatherm (patented) completely prevents this trouble by causing a turbulent circulation of the water in the bottom of the boiler whenever water is drawn from the system. This action is entirely automatic and is accomplished by natural flow of water through inlet pipe.



Automatic Gas Unit with Side Arm

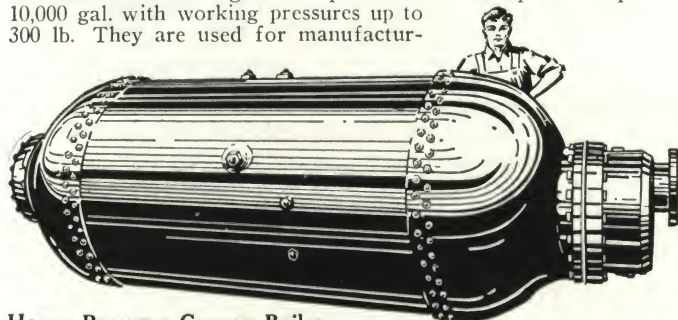
The Turbo-Aquatherm (patented) is a specially designed venturi tube inserted in the inlet pipe adjacent to the bottom of the boiler. When water flows through the inlet pipe and the venturi, it reduces the pressure in the neck of the venturi which therefore draws water through apertures to satisfy this lowered pressure. This water is drawn along the bottom of the boiler with a scouring action and thus carries away any sediment which may have accumulated. Thus no sediment can possibly remain.

Four important things are therefore accomplished by means of this simple device. First, greatly lengthened life due to elimination of burnouts. Second, greatly increased thermal efficiency because of the elimination of the insulating blanket of sediment. Third, fresh hot water because no stale water is allowed to accumulate. Fourth, quicker hot water supply due to circulation system which permits heated water to be drawn off without giving up its heat to colder water in boiler.

Dahlquist Turbo-Aquatherm (patented) may be supplied on any Dahlquist range boiler or automatic storage unit.

Dahlquist Heavy Pressure Copper Boilers for Large Industrial Uses

Dahlquist heavy pressure copper industrial boilers are built to architects' and engineers' specifications in capacities up to 10,000 gal. with working pressures up to 300 lb. They are used for manufactur-



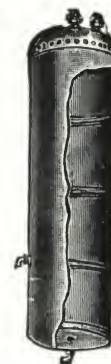
Heavy Pressure Copper Boiler

ing establishments, office buildings, hospitals—in fact wherever there is an exceptionally large demand for a constant supply of hot water. They are furnished with or without coils. Material and workmanship is of the highest grade, and each unit is thoroughly inspected and given full pressure tests at factory before delivery.

The illustration shows one of five 1000-gal. boilers for New York Life Insurance Building, New York, N. Y., Cass Gilbert, architect.

PRICES OF MASSACHUSETTS STANDARD COPPER PRESSURE BOILERS

Capacity, gallons	Test, lb.		
	200	250	300
25	\$ 30.00	\$ 35.00	\$ 45.00
30	36.00	42.00	54.00
40	48.00	56.00	72.00
50	60.00	70.00	90.00
60	72.00	84.00	108.00
70	84.00	98.00	126.00
80	96.00	112.00	144.00
100	120.00	140.00	180.00
125	150.00	175.00	225.00
150	180.00	210.00	270.00
200	240.00	280.00	360.00
250	300.00	350.00	450.00
300	360.00	420.00	540.00
350	420.00	490.00	630.00
400	480.00	560.00	720.00
450	540.00	630.00	810.00
500	600.00	700.00	900.00
600	720.00	840.00	1080.00
700	840.00	980.00	1260.00
800	960.00	1120.00	1440.00
900	1080.00	1260.00	1620.00
1000	1200.00	1400.00	1800.00



Direct or Street Pressure Boiler

Dahlquist Direct or Street Pressure Boilers

Made in two qualities: (1) Massachusetts Standard with 5-year guarantee, and (2) extra heavy with 25-year guarantee.

Both qualities meet the severe requirements of Massachusetts Range Boiler Law which permits use of boilers on a working pressure not exceeding 42½% of test pressure.

Boilers furnished with either low, "hilow," or universal tap.

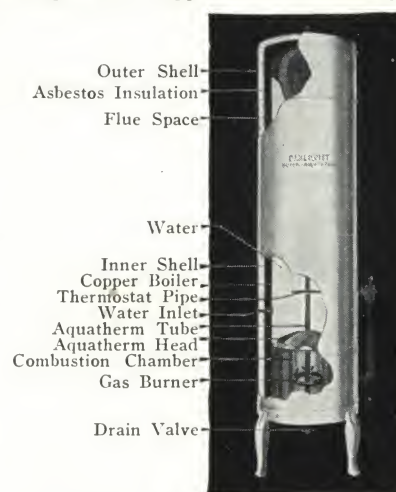
Dahlquist Super Aquatherm Copper Automatic Storage Heaters

The Dahlquist Super Aquatherm copper automatic storage heater has been designed to furnish the home owner with a constant, never-failing source of steaming hot water without attention, and at low cost for initial installation, upkeep and fuel.

The boiler is made of copper of 250 lb. Massachusetts standard test. Surrounding the boiler is a heavy protective covering of asbestos insulation. The circulation of water in the boiler is controlled by the patented Aquatherm which gives the utmost in thermal efficiency and prevents the accumulation of sediment in the bottom of the boiler with consequent danger of failure and burnouts.

The heating unit is a powerful gas burner with pilot flame or an efficient electric heater for use where gas is not available.

The heating unit is controlled by an automatic thermostat which keeps the temperature of the water at the required degree of heat.



No.	Capacity, gal.	Heating unit	Price
20	20	Gas burner.....	\$110.00
20	20	Electric heater.....	150.00
30	30	Gas burner.....	150.00
30	30	Electric heater.....	200.00
40	40	Gas burner.....	200.00
40	40	Electric heater.....	250.00

Prices of larger sizes on application.

H. GERSTEIN & SONS

Manufacturers of Copper Boilers and Storage Tanks

205-211 First Street
SOUTH BOSTON, MASS.

NEW YORK, N. Y., 511 Fifth Avenue

Products

COPPER RANGE BOILERS.
HOT WATER STORAGE TANKS.
HOT WATER STORAGE HEATERS with Removable Heating Elements.
STEAM JACKETED COPPER KETTLES.
GENERAL COPPERSMITHING; Expansion Joints.
Coils, Copper Floats, etc.
Also Copper and White Metal Sinks.

Gerstein Service

Copper is generally recognized as the most enduring material for water service, especially at high temperatures. The proper handling of this metal during manufacture, however, and the skill and care devoted to the design of copper equipment is of very great importance. Good metal must be thoroughly well handled if its fine qualities are to be realized in the ensuing product.

H. GERSTEIN & SONS are eminently qualified in skill and experience for meeting the high standards of workmanship essential to the copper-smithing craft.

Copper Range Boilers

Gerstein offers a full line of copper range boilers in standardized designs.

Our boilers are thoroughly riveted, soldered, and tested to at least 200 lb. hydrostatic pressure, in addition to a thorough mechanical inspection before shipment.

Gerstein boilers are built to Massachusetts standard regulation for direct or street pressure. Test pressures are carefully supervised to meet the 42½% requirement of working pressure to test pressure. In no case is the test less than 2.36 times the working pressure. Range boilers are furnished—200 lb. test, 85 lb. working pressure; extra heavy 250 lb. test, 106¼ lb. working pressure; and double extra heavy 300 lb. test, 127½ lb. working pressure.

Copper Kettles

H. GERSTEIN & SONS manufacture an extremely substantial line of steam jacketed copper kettles for general process work. These kettles are furnished complete with supports and are of extra heavy construction throughout.

Storage Tanks and Heating Elements

Gerstein storage tanks are built to Massachusetts regulations, or higher test if required. Horizontal tanks may be supported by standard base castings, or may be suspended by adjustable hangers. Vertical



Gerstein Storage Heater

tanks should almost invariably be supported on standard bases.

Heating coils of any desired capacity may be provided in connection with either vertical or horizontal tanks. These coils may be calculated to supply only enough heat to offset radiation losses, or they may be designed to heat the water at any reasonable desired rate.

In specifying coils, the quantity of water and temperature rise (gallon per hour, and temperature of incoming and outgoing water) should be stated, also the steam pressure available for heating.



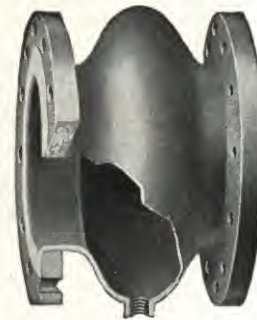
Gerstein Copper Boiler



Gerstein Copper Storage Tank

Low Pressure Copper Expansion Joints

These joints will efficiently care for expansion up to ¼ in. The flanges or rings being adjustable allow for easy alignment of bolts. Made in two styles, No. 315 and 316. No. 315 has cast iron rings for pressure systems. No. 316 has steel split rings and is especially recommended on high vacuum systems, as its construction provides against collapsing, due to external or atmospheric pressure. Both are furnished face and drilled. In 27 sizes, 4 to 48 in. Sizes 16 in. and smaller up to 25 lb. steam working pressure; sizes 18 and larger, up to 15 lb.



No. 315 Expansion Joint

General Coppersmithing

The Gerstein organization of designers and skilled workmen are especially qualified for executing difficult special work in copper. In many instances our advice in meeting severe conditions by careful design has proven very useful to our customers.

We are prepared to build expansion joints, special boilers, gas heater coils, stills, chemical equipment, fractionating columns and a wide range of other work.

ECONOMY PUMPING MACHINERY CO.

GENERAL OFFICES
3431 West 48th Place, CHICAGO, ILL.

DISTRICT SALES OFFICES

BALTIMORE, MD., W. I. COLLIER & Co., 522 Park Avenue
DALLAS, TEX., SMITH & WHITNEY, INC., 2017 Cedar Springs Road
DETROIT, MICH., H. J. CLEMENS, 517 E. Larned Street
FORT WAYNE, IND., P. & H. SUPPLY Co., 225 E. Columbia Street
INDIANAPOLIS, IND., A. C. MECKLENBURG, 4527 Central Avenue
JACKSONVILLE, FLA., R. H. JOHNSON, 660 College Street
KANSAS CITY, MO., U. S. WIND ENGINE & PUMP Co., 11th and Hickory Streets

NEW YORK, N. Y., ROWLAND & BURNS, 39 Cortlandt Street
PEORIA, ILL., ROBERT P. NAILON, 701 Lehman Building
PHILADELPHIA, PA., HAYNES SELLING Co., INC., 1518 Fairmount Avenue
PITTSBURGH, PA., JOS. A. LEIENDECKER, Fulton Building
SAGINAW, MICH., ENGINEERING SALES Co., Second National Bank Building
SAN FRANCISCO, CALIF., J. HARRY RUSSELL, Monadnock Building

ALSO DISTRIBUTED BY PLUMBING AND HEATING SUPPLY JOBBERS—THROUGHOUT CANADA BY CRANE CO.

Products

FOR THE BUILDING INDUSTRIES:

Water Supply Pumps.
Drainage and Sewage Pumps.
Return Line Vacuum Pumps.
Condensation Pumps.
Caisson Sinking Pumps.
Cast Iron Blow-off and Sump Tanks.

FOR OTHER APPLICATIONS:

Municipal Water Works and Sewage Pumps.
High Pressure Boiler Feed Pumps.
Paper Stock Pumps.
Axial Flow Pumps (capacities to 50,000 g.p.m.).
Special Centrifugal Pumps of all kinds.

The Company

The Economy Pumping Machinery Co. is a pioneer manufacturer of high efficiency centrifugal pumps for buildings. It is constantly improving its products and broadening its field to cover every pumping requirement of the modern building.

The company maintains a corps of engineers

Economy Pumps

who are ready to assist in the solution of any pumping problem. Consultation with Economy engineers frequently reduces the cost of the pumping installation and, at the same time, results in lower operating costs.

Guarantee

All Economy Pumps are guaranteed to deliver the full rated capacity at the specified head. Workmanship and material are guaranteed against defects for a period of one (1) year from date of shipment. In event of such defects we will replace free, f.o.b. our works, such defective part or parts.

Shop Tests

Each pump is tested before shipment and a permanent record made of its capacity and mechanical performance. The results of these tests are always available to the customer so that if at any future date changes are made in the operating head, complete information may be obtained concerning the capacity under the new conditions. The stringency with which the equipment is inspected under test assures the customer of satisfactory operation.

CHECKING LIST FOR CONVENIENCE IN SPECIFYING PUMPS FOR BUILDINGS

I—GENERAL WATER SUPPLY

Wherever city water pressure is inadequate, centrifugal booster pumps should be installed.

- (a) *Overhead Tank Systems* Pages 2-4
Recommended for all commercial and industrial buildings which afford facilities for supporting tank.
- (b) *Pneumatic Systems* Page 5
Recommended for use in residential buildings, apartment buildings and other establishments where the requirements are less than 100 g.p.m.
- (c) *Tankless Water System* Page 6
Recommended where low pressures occur at infrequent periods. Provides booster service with a minimum investment.

II—DRAINAGE PUMPS OR SEWAGE EJECTORS

Used wherever plumbing fixtures are below sewer or where seepage is encountered below sewer level.

- (a) Pumps for handling surface water and other clear liquids Page 8
- (b) Pumps for handling dirty water and sewage. Pages 9-10

III—PUMPS FOR HEATING SYSTEMS

- (a) *Return Line Vacuum System* Page 11
Return Line Vacuum and Boiler Feed Pumps are used where it is desired to accelerate steam circulation at low pressures by maintaining a vacuum on the return line.
- (b) *Air Line System* Page 12
An Air Line Pump is used to remove air from Air Line or Paul System.
- (c) *Gravity Heating System* Page 12
Condensation Pumps and Receivers are used for drainage of radiation below the water line of the boiler and for acceleration of circulation.

IV—MISCELLANEOUS PUMP APPLICATIONS

- (a) *Air Washer Pumps* Page 4
Used to circulate spray water in the Air Washer System. Capacities and pressures are specified by the air washer manufacturer.
- (b) *Brine Pumps* Page 4
Used to circulate brine through the individual boxes or coils of a central refrigerating system. Capacities and pressures are specified by the refrigerator manufacturer.
- (c) *Hot Water Circulating Pumps* Page 4
A small pump is frequently used to keep the hot water in circulation, eliminating cold and hot pockets.
- (d) *Fire Pumps* Page 4
Selection of fire pumps and capacities should be made after consultation with local underwriter.
- (e) *Hydraulic Elevator Pumps* Page 4
Capacity and pressures should be obtained from the elevator manufacturer.
- (f) *Swimming Pool Circulation Pumps* Page 4
Wherever swimming pool water is filtered and re-used, it must be circulated by a pump. Pump should be of the same capacity as the filters and should be capable of discharging against the maximum filter pressure.
- (g) *Drinking Water Circulating Pumps* Page 4
Circulating Pumps are used to maintain uniform temperatures in the drinking water system. The capacity is usually very small—5 to 10 g.p.m. will maintain circulation in a large system. Consumption may be figured at one (1) quart per worker per hour.

PUMP SELECTION FOR WATER SUPPLY SYSTEMS

Determination of Pump Capacity From Curves

- (1) Tabulate the number and type of fixtures.
- (2) Obtain recommended pump capacities for each type of fixture from the curves shown at the right.
- (3) Add these values and multiply by the constant for the type of building under consideration, as found in the table below the curve.

EXAMPLE: 200-room commercial hotel.

Fixtures	Recommended Pump Capacity
200 lavatories	50 g.p.m.
200 water closets	70 g.p.m.
100 bath tubs	45 g.p.m.
25 showers	45 g.p.m.
20 slop sinks	85 g.p.m.
6 urinals	10 g.p.m.
	305 g.p.m.

305x.80 (Multiplier for commercial hotels) = 244 g.p.m.
the required pump capacity.

Note: These recommended pump capacities are based on peak requirements and provide for operation of pumps only part of time.

Various conditions found in certain installations may further modify the capacity. For example, if the number of occupants of any building is abnormally large or small for the number of fixtures installed, the water consumption per fixture will be materially increased or decreased.

Determination of Pump Pressure or Head

The pressure or head, which the pump must develop, is made up of the following four factors:

- (1) The height from the pump to the highest fixture.
- (2) The pressure required at the highest fixture.
- (3) Pipe friction.
- (4) Any pressure available on the pump suction, such as city water pressure (to be subtracted from the sum of the other three items).

Note: The above values must be in feet of head. To convert pounds per square inch into feet of head multiply by 2.31.

EXAMPLE: For the 200-room commercial hotel assume—

- (1) 250 g.p.m. capacity.
- (2) Height from pump to highest fixture = 100 ft.
- (3) 15 lb. pressure required at the highest fixture.
- (4) An overhead tank system is used, the piping between the pump and tank being composed of 150 ft. of 4-in. pipe and 6 elbows.
- (5) City water available at pump suction at 20 lb.

SOLUTION:

Height to highest fixture	100 ft.
Pressure on highest fixture (15x2.31)	35 ft.
Friction through 150 ft. 4-in. pipe and 6 elbows (10 + 6) (see pipe friction table on next page)	16 ft.
Total required head	151 ft.
City water pressure (20x2.31)	46 ft.
Required pump pressure	105 ft.

Selection of Pump

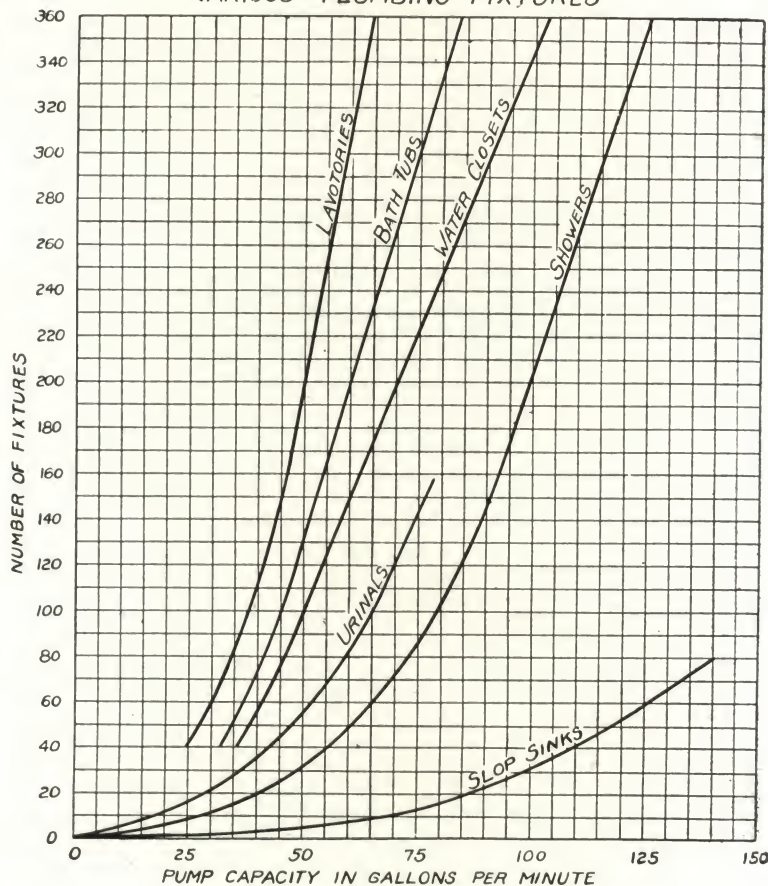
Turn to page 4 for the pump selection table. The recommended pump for this job is No. SA-73, 3-in. double suction pump with a 15-hp. motor.

Note: If smaller piping had been used the friction loss would be more, necessitating a larger size of pump and motor besides increasing the power costs. The proper selection of pipe sizes is essential for an efficiently designed water system.

Type of System

Overhead Tank Systems—Are recommended where the required pump capacity exceeds 100 g.p.m. The tank capacity should be from 20 to 40 times the pump capacity in g.p.m. For the job in the above example, having a pump capacity of 250 g.p.m., the tank capacity would vary from 5,000 to 10,000 gallons. In a more elaborate type of system both pump and tank are installed in duplicate. The tank should be located a sufficient height above the highest fixture to give the required pressure to that fixture (2.31 by required pressure). For buildings over 25 stories in height, it is advisable to have storage tanks at intermediate points in

PUMP CAPACITIES REQUIRED TO SERVE VARIOUS PLUMBING FIXTURES



Multipliers for Use with Above Chart

Apartments .....	.50	Public Comfort Stations	2.00
Apartment Hotels .....	.60	Golf Clubs (showers only)	3.00
Commercial Hotels .....	.80	(other fixtures)	1.00
Office Buildings (without heavy peak loads) .....	.60	Factories (no process water)	1.50
(With peak loads or with a large number of occupants per fixture) .....	.80	Female	1.00
		Male	1.00

order to avoid excessive pressure as well as to provide for more efficient pumping. The pumps recommended for Overhead Tank Systems are listed in the table on page 4. The tanks are furnished by either the plumber or general contractor.

Pneumatic Systems—May be used for capacities less than 100 g.p.m. (Such systems are frequently used for larger capacities, but are recommended only where the appearance of the building or some structural difficulty would prevent the use of an overhead tank.) Where these systems are used the pump manufacturer furnishes the entire system complete. For a list of units and installation diagrams of these systems see page 5.

Tankless Systems—Should be used only in small buildings or where the pump is required to operate only at frequent intervals. For this service they are both reliable and practical besides being the least expensive system. The pump manufacturer usually furnishes the entire system complete with automatic controls. See page 6 for a table of recommended pumps and installation diagram.

Circulating Pumps for Hot Water Supply Systems

Circulation—Is usually by gravity with acceleration by means of a pump which prevents the forming of cold and hot pockets in the system.

Capacity—Approximately 20% of the capacity of the main supply pump (cold water pump).

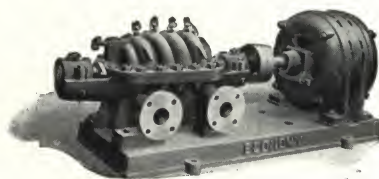
Pressure—Only from 10 to 20-lb. pressure are needed for circulation, but the pump must be designed to withstand the maximum pressure in the system.

ECONOMY WATER SUPPLY PUMPS

The Economy line includes all types of single and multi-stage pumps for clear liquids.

Capacities of the various styles overlap so that it is possible to select five or six pumps for identical conditions. All will operate satisfactorily, but with varying efficiencies and differences in costs.

In order to avoid confusion from multiplicity of types, we are showing tables which list only one style of pump for each capacity and power cost. This table gives type of pump which we con-



Type MS, Large Capacity

sider most practical for the given condition.

Complete information on alternate types of equipment for every capacity are available from our nearest district office.

All of the pumps shown in the table are of sturdy mechanical construction and improved hydraulic design which insure satisfactory service with low maintenance. Their use insures noiseless and efficient handling of the water supply.

DETAILS OF CONSTRUCTION

Economy Clear Water Pumps

The description below will show principal differences in construction between the various types listed in the tables.

	Type DS Double suction pumps	Type MS multi-stage pumps		Type SS Single suction pumps
		Small capacity, 10-70 g.p.m.	Large capacity, 80-400 g.p.m.	
CASING	Casing is split horizontally with pipe connections in the lower half so that interior is accessible without breaking pipe connections. Castings are of alloy gray iron. Mechanical design is simple and rigid; feet are of ample size to hold the pump firmly. The two halves dovetailed to insure alignment.	Casing is of alloy cast iron vertically split and held together by through bolts. Each section is registered to insure alignment. Careful design gives good efficiency even at these small capacities.	Casing is horizontally split. Suction and discharge nozzles are both located in the lower half casing. Interior is accessible without breaking pipe connections. Castings are of alloy cast iron. A volute in every stage, together with the solid bronze diaphragms, makes possible unusually high efficiency.	Casing is vertically split with both pipe connections in the stand side of the case. This design is well adapted for pumps of small capacities. The end plate may be removed for access to the pump exterior without breaking the pipe connections, a feature which gives the same accessibility as the horizontally split case design.
IMPELLERS	Impellers are bronze, one piece castings machined all over and the interior hand-filed. They are double suction type with renewable bronze case wearing rings, which fit closely around the hub. Every impeller is carefully balanced, keyed to the shaft and locked in position between two shaft sleeves.	Impellers are bronze enclosed single suction machined all over, hand-filed on the interior and balanced. The entire assembly locked between shoulders and nuts.	One piece bronze castings machined all over; interiors hand-filed and the impeller accurately balanced, single suction enclosed non-overloading design. Each impeller is keyed to the shaft and locked in place between shoulders and nuts. Case wearing rings are of bronze.	Impellers are bronze enclosed single suction machined all over, hand-filed on the interior and balanced. The entire assembly locked between shoulders and nuts.
BEARINGS	Two renewable bearings are used on opposite sides of the case. They are mounted in split brackets with large oil wells. Special precautions have been taken to exclude dirt from bearing and to prevent escape of oil. Ball thrust bearings are used on the high speed pumps.	Ring oiling, renewable bronze sleeves, mounted in brackets with large oil reservoir which insures ample supply of cool oil at all times. Mounting designed to prevent entrance of dust and water, and to retain oil. Two bearings are used on opposite sides of the pump case.	Bearings are renewable ring oiling, babbitt lined sleeve type, mounted in split housings. Oil reservoirs are designed to return the warm oil to the bottom of the well so that an abundance of clean, cool oil is always available at the ring.	Outboard, deep groove ball bearing mounted in dust-proof housing; grease lubricated. Bearing carries both thrust and radial load. This bearing operates in conjunction with bronze renewable stand bearing, located on the interior of pump case. Both bearings on the driving side of the unit.
SHAFT	Shafts are of nickel alloy steel of ample size to transmit the maximum power required. They are turned, ground and threaded to precision limits. Shafts are encased in bronze sleeves extending through the stuffing boxes.	Shaft is of nickel alloy or stainless steel, of ample size. It is turned, ground and threaded to precision limits.	Shaft is of nickel alloy steel, turned, ground and threaded to precision limits. It is of ample size to transmit maximum power. All portions of shaft coming in contact with the water are encased in bronze shaft sleeves.	Medium carbon open hearth steel turned and ground with threads chased in lathe. Impellers and ball bearing assemblies are held in place between shoulders and nuts.

FRICTION OF WATER IN PIPES

Loss of Head per 100 Ft. in Straight C. I. Pipes of Various Sizes

¾-in. Pipe		1-in. Pipe		1¼-in. Pipe		1½-in. Pipe		2-in. Pipe		2½-in. Pipe		3-in. Pipe		4-in. Pipe		5-in. Pipe		6-in. Pipe		8-in. Pipe	
g.p.m.	Feet	g.p.m.	Feet	g.p.m.	Feet	g.p.m.	Feet	g.p.m.	Feet	g.p.m.	Feet	g.p.m.	Feet	g.p.m.	Feet	g.p.m.	Feet	g.p.m.	Feet	g.p.m.	Feet
2	1.9	3	1.26	4	0.57	5	0.40	10	0.50	40	1.1	100	5.0	100	1.2	180	1.2	200	.59	600	1.20
3	4.1	4	2.14	5	0.84	10	1.43	15	1.08	50	3.3	120	7.0	125	1.9	220	1.8	300	1.40	700	1.50
4	7.0	5	3.25	10	3.05	15	3.0	20	1.82	60	4.7	140	9.2	150	2.6	250	2.2	400	2.30	800	2.10
5	10.5	10	11.7	15	6.50	20	5.2	25	2.73	70	6.2	160	11.8	175	3.4	300	3.1	500	3.16	900	2.50
10	38.0	15	25.0	20	11.10	25	7.8	30	3.84	80	7.9	180	14.8	200	4.4	350	4.2	600	5.00	1000	2.80
15	80.0	20	42.0	25	16.6	30	11.0	35	5.1	90	9.8	200	17.8	225	5.9	400	5.4	700	6.10	1200	4.20
20	136.0	25	64.0	30	23.5	35	14.7	40	6.6	100	12.0	225	22.2	250	6.7	450	6.7	800	8.10	1400	5.50
		30	89.0	35	31.2	40	18.8	45	8.2	110	14.5	250	28.1	275	7.9	500	8.1	900	10.90	1500	6.50
		35	119.0	40	40.0	45	23.2	50	9.9	120	16.8	275	32.3	300	9.3	550	9.6	1000	12.90	1600	7.60
		40	152.0	45	50.0	50	28.4	70	18.4	140	22.3	300	38.0	325	10.8	600	11.3	1100	14.60	1800	9.00
				50	60.0	70	53.0	75	20.9	160	29.0	325	44.1	350	12.4	650	13.2	1200	18.10	2000	11.50
				70	113.0	75	60.0	100	35.8	180	35.7	350	50.6	400	16.0	700	15.1	1300	20.20	2200	13.00
						100	102.0	120	50.0	200	43.1	375	57.5	450	19.8	800	19.4	1400	22.50	2400	15.10
						120	143.0	150	76.0	225	54.3	400	65.0	500	24.0	900	24.0	1500	25.90	2500	16.10

FRICTION OF WATER IN 90° ELBOWS

Equivalent Number of Feet Straight Pipe

Size of elbow, in.	½	¾	1	1¼	1½	2	2½	3	4	5	6	8
Friction equivalent feet straight pipe	5	6	6	8	8	8	11	15	16	18	18	24

CAPACITY TABLE

Horizontal Centrifugal Pumps for Clear Liquid

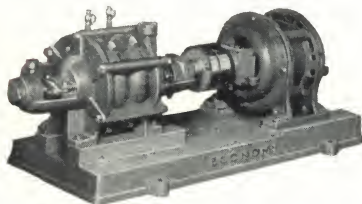
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Uses

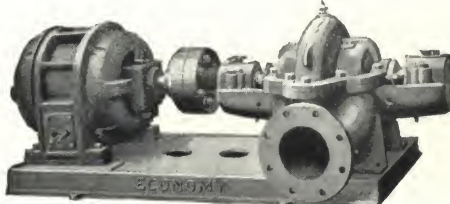
Water Supply (Overhead Tank).
Air Washer Circulation.
Brine Circulation.
Swimming Pool Circulation.

Hot Water Circulation.
Hydraulic Elevator.
Drinking Water Circulation.
Tank Filling.

Also for pneumatic and tank-less water systems in the combinations shown on pages 5 and 6.



Multi-stage Single Suction
Centrifugal Pumps,
"MS" Type



Single Stage Double Suction Cen-
trifugal Pumps, "DS" Type



Single Stage Single Suction
Centrifugal Pumps,
"SS" Type

This table shows only one type of pump for each head capacity condition; frequently several types are available. We have, therefore, shown only the type which our experience indicates to be the

most suitable for the average job. Our district offices will be glad to submit complete information on alternate types and sizes for any capacity.

Unit No.	Capacity gallons per minute	Total head in feet water	Size discharge and type of pump	Number of stages	Motor hp.	Approximate floor space, in.	Unit No.	Capacity gallons per minute	Total head in feet water	Size discharge and type of pump	Number of stages	Motor hp.	Approximate floor space, in.
SA-1	10	20	1" -SS	1	1/4	16x30	SA-61	200	30	3" -DS	1	3	22x49
SA-2	10	35	1 1/2" -SS	1	1/2	16x30	SA-62	200	50	2 1/2" -DS	1	5	20x53
SA-3	10	45	1 1/2" -SS	1	3/4	16x32	SA-63	200	80	2 1/2" -DS	1	7 1/2	20x55
SA-4	10	70	1 3/4" -MS	2	1	20x38	SA-64	200	100	3" -DS	1	10	22x58
SA-5	10	110	1 3/4" -MS	3	2	20x44	SA-65	200	150	2 1/2" -DS	1	20	24x60
SA-6	10	160	1 3/4" -MS	4	3	20x55	SA-66	200	200	2 1/2" -DS	1	25	25x60
SA-7	10	200	1 3/4" -MS	5	5	20x58	SA-67	200	260	3" -MS	3	25	34x69
SA-8	10	275	1 3/4" -MS	2	5	20x46	SA-68	200	375	3" -MS	5	30	34x74
SA-9	10	325	1 3/4" -MS	3	5	20x48	SA-69	200	550	3" -MS	6	50	34x89
SA-10	10	375	1 3/4" -MS	3	7 1/2	20x48	SA-70	200	700	3" -MS	8	60	34x97
SA-11	20	20	1" -SS	1	1/4	16x30	SA-71	300	30	3" -DS	1	5	22x54
SA-12	20	35	1 1/2" -SS	1	1/2	16x30	SA-72	300	70	3" -DS	1	7 1/2	22x56
SA-13	20	45	1 1/2" -SS	1	3/4	16x32	SA-73	300	100	3" -DS	1	15	26x58
SA-14	20	70	1 3/4" -MS	2	1	20x38	SA-74	300	130	2 1/2" -DS	1	20	26x62
SA-15	20	110	1 3/4" -MS	3	2	20x44	SA-75	300	150	3" -DS	1	25	26x62
SA-16	20	160	1 3/4" -MS	4	3	20x55	SA-76	300	200	3" -DS	1	30	30x65
SA-17	20	200	1 3/4" -MS	5	5	20x58	SA-77	300	300	3" -MS	4	40	34x81
SA-18	20	240	1 3/4" -MS	6	5	20x60	SA-78	300	375	3" -MS	5	50	34x87
SA-19	20	325	1 3/4" -MS	3	7 1/2	20x48	SA-79	300	450	3" -MS	6	60	34x98
SA-20	20	375	1 3/4" -MS	3	7 1/2	20x48	SA-80	300	600	3" -MS	8	75	34x100
SA-21	50	20	1 1/2" -SS	1	1 1/2	16x30	SA-81	400	20	4" -DS	1	3	23x54
SA-22	50	40	1 1/2" -SS	1	1	16x32	SA-82	400	30	4" -DS	1	5	23x54
SA-23	50	70	1 1/2" -SS	1	2	19x34	SA-83	400	50	4" -DS	1	7 1/2	23x54
SA-24	50	110	1 3/4" -MS	4	3	20x55	SA-84	400	70	4" -DS	1	10	23x54
SA-25	50	160	1 3/4" -MS	5	5	20x58	SA-85	400	100	4" -DS	1	15	23x56
SA-26	50	200	1 3/4" -MS	6	5	20x60	SA-86	400	120	4" -DS	1	20	26x62
SA-27	50	250	1 3/4" -MS	3	7 1/2	20x50	SA-87	400	140	3" -DS	1	25	26x62
SA-28	50	275	1 3/4" -MS	3	10	20x50	SA-88	400	160	3" -DS	1	30	30x65
SA-29	50	375	1 3/4" -MS	5	15	24x64	SA-89	400	180	3" -DS	1	30	30x65
SA-30	50	450	1 3/4" -MS	5	20	24x68	SA-90	400	200	3" -DS	1	40	30x68
SA-31	80	30	2" -DS	1	1 1/2	20x46	SA-91	500	20	4" -DS	1	5	23x54
SA-32	80	40	2" -DS	1	2	20x46	SA-92	500	40	4" -DS	1	7 1/2	23x54
SA-33	80	60	2" -DS	1	3	20x48	SA-93	500	50	4" -DS	1	10	23x54
SA-34	80	110	1 1/2" -DS	1	5	22x44	SA-94	500	80	4" -DS	1	15	23x56
SA-35	80	150	1 1/2" -DS	1	7 1/2	22x46	SA-95	500	110	4" -DS	1	20	23x58
SA-36	80	200	1 1/2" -DS	1	10	24x44	SA-96	500	120	3" -DS	1	25	26x62
SA-37	80	275	1 1/2" -MS	4	15	24x61	SA-97	500	140	3" -DS	1	30	30x65
SA-38	80	350	1 1/2" -MS	6	15	24x65	SA-98	500	160	3" -DS	1	40	30x68
SA-39	80	400	1 1/2" -MS	6	20	24x68	SA-99	500	180	3" -DS	1	40	30x68
SA-40	80	500	2 1/2" -MS	8	25	24x73	SA-100	500	200	3" -DS	1	40	30x68
SA-41	100	30	2" -DS	1	1 1/2	24x46	SA-101	600	20	5" -DS	1	5	25x55
SA-42	100	50	2" -DS	1	3	22x46	SA-102	600	30	5" -DS	1	7 1/2	25x55
SA-43	100	80	2" -DS	1	5	22x51	SA-103	600	40	5" -DS	1	10	25x56
SA-44	100	100	2" -DS	1	5	22x51	SA-104	600	60	4" -DS	1	15	23x56
SA-45	100	150	1 1/2" -DS	1	7 1/2	24x41	SA-105	600	80	4" -DS	1	15	23x56
SA-46	100	200	1 1/2" -DS	1	10	24x44	SA-106	600	100	4" -DS	1	20	23x58
SA-47	100	275	1 1/2" -MS	5	15	24x61	SA-107	600	120	3" -DS	1	30	30x65
SA-48	100	350	1 1/2" -MS	6	20	24x68	SA-108	600	150	3" -DS	1	40	30x68
SA-49	100	425	2 1/2" -MS	7	20	24x70	SA-109	600	180	3" -DS	1	40	30x68
SA-50	100	500	2 1/2" -MS	8	25	24x73	SA-110	600	200	5" -DS	1	50	32x76
SA-51	160	20	2 1/2" -DS	1	2	20x48	SA-111	800	20	6" -DS	1	7 1/2	28x60
SA-52	160	60	2 1/2" -DS	1	5	20x53	SA-112	800	40	6" -DS	1	10	28x60
SA-53	160	100	2 1/2" -DS	1	7 1/2	20x55	SA-113	800	50	5" -DS	1	15	25x56
SA-54	160	150	1 1/2" -DS	1	10	24x44	SA-114	800	70	5" -DS	1	20	25x58
SA-55	160	200	1 1/2" -DS	1	15	24x47	SA-115	800	90	5" -DS	1	25	25x60
SA-56	160	280	2 1/2" -MS	6	20	24x67	SA-116	800	110	6" -DS	1	30	28x66
SA-57	160	400	2 1/2" -MS	8	30	24x76	SA-117	800	140	4" -DS	1	40	25x71
SA-58	160	500	3" -MS	6	40	34x87	SA-118	800	160	4" -DS	1	50	25x73
SA-59	160	650	3" -MS	7	50	34x92	SA-119	800	190	5" -DS	1	60	32x78
SA-60	160	750	3" -MS	8	60	34x97	SA-120	800	200	5" -DS	1	75	32x81

PNEUMATIC WATER SYSTEMS

For convenience of selection, we are listing on this page pumps complete with all necessary equipment (not including piping) for Pneumatic Water Systems.

The pumps listed with these systems are the same as shown in the table on page 4 and as described on page 3.

Selection

In order to select the system required for an apartment or residential building, it is only necessary to count over the number of fixtures and select the unit listed for the desired pressure boost. (If the building is other than an apartment or similar building reference should be made to the table of multipliers shown with the curve on page 2. These multipliers will indicate whether a larger or smaller system is required.)

Specifications

The table below gives all the necessary data for the specifications, it being only necessary to specify whether single or duplex units are desired and the current characteristics of the motor.

Floor Space

In figuring the floor space required, it will be necessary to provide space for the pump, tank and air compressor; the location of each piece of apparatus may be arranged to suit the space available. Smaller tanks may be stood on ends to save space.

Apparatus Furnished

The complete equipment consists of pump, driving motor, pressure gauge, pressure regulator, automatic starter, relief valve, tank, cork and wood base for the pump, rubber connections, air compressor and water gauge for tank.

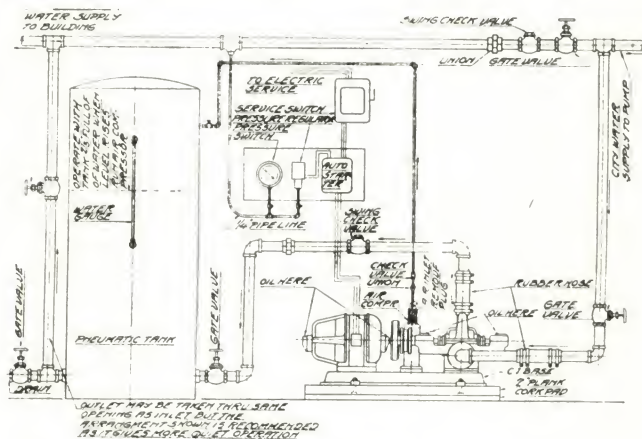
If it is desired to reduce the cost of the apparatus to a minimum, the air compressor may be driven from the pump motor. In this case, one-half of the pump coupling is arranged to form a pulley over which a belt is slipped whenever it is desired to replenish the air in the tank.

Duplex Units

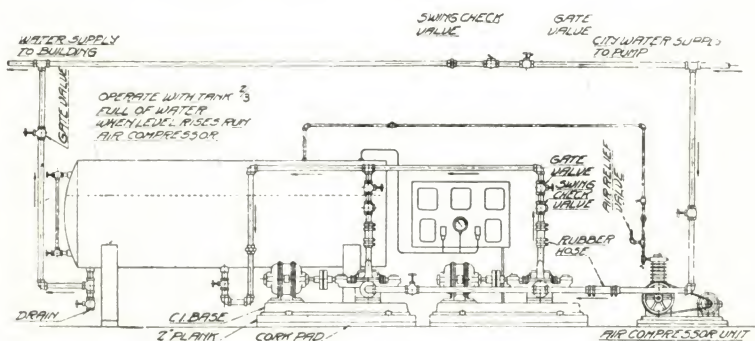
The Duplex Unit consists of two pumps and motors, duplex control, panel and accessories, but only one tank and one air compressor.

Properly Engineered

Economy Pneumatic Water Systems are properly engineered to give satisfactory service. The rubber pump connections, vibration absorbing foundation, and other accessories have been selected after careful experimentation. They are marketed on the basis of performance and not upon extravagant claims or fantastic nomenclature.



Single Pneumatic Water System



Double Pneumatic Water System

PNEUMATIC WATER SYSTEM SELECTION TABLE

Unit No.	Number of fixtures system will supply	Cap. of pump, gal. per min.	Net pressure boost		Motor hp.	Tank		Floor space pump and motor in.	Floor space air compressor, in.	Unit No.	Number of fixtures system will supply	Cap. of pump, gal. per min.	Net pressure boost		Motor hp.	Tank		Floor space pump and motor in.	Floor space air compressor, in.
			Lb.	Ft.		Cap., gal.	Size, in.						Lb.	Ft.		Cap., gal.	Size, in.		
PW-1	15-40	20	10	23	1½	295	30x96	20x8	9x24	PW-51	160-250	100	20	46	3	2400	60x192	46x22	16x30
PW-2	15-40	20	15	35	¾	295	30x96	30x12	9x24	PW-52	160-250	100	30	69	5	2400	60x192	51x22	16x30
PW-3	15-40	20	20	46	¾	295	30x96	30x12	9x24	PW-53	160-250	100	40	92	5	2400	60x192	51x22	16x30
PW-4	15-40	20	30	69	1	295	30x96	38x16	9x24	PW-54	160-250	100	55	127	7½	2400	60x192	41x24	16x30
PW-5	15-40	20	45	104	2	295	30x96	48x16	9x24	PW-55	160-250	100	75	173	10	2400	60x192	44x24	16x30
PW-6	15-40	20	70	161	3	295	30x96	54x16	9x24	PW-56	160-250	100	95	219	10	2400	60x192	44x24	16x30
PW-7	15-40	20	100	230	5	295	30x96	59x16	9x24	PW-57	160-250	100	120	277	15	2400	60x192	61x24	16x30
										PW-58	160-250	100	150	346	20	2400	60x192	68x24	16x30
PW-11	40-60	30	20	46	1	720	42x120	29x12	9x24	PW-61	250-400	125	40	92	5	2400	60x192	51x22	16x30
PW-12	40-60	30	30	69	1½	720	42x120	37x16	9x24	PW-62	250-400	125	55	127	7½	2400	60x192	41x24	16x30
PW-13	40-60	30	45	104	3	720	42x120	47x16	9x24	PW-63	250-400	125	85	196	10	2400	60x192	44x24	16x30
PW-14	40-60	30	60	133	3	720	42x120	54x16	9x24	PW-64	250-400	125	100	230	15	2400	60x192	61x24	16x30
PW-15	40-60	30	75	173	5	720	42x120	56x16	9x24	PW-65	250-400	125	120	277	20	2400	60x192	68x24	16x30
PW-16	40-60	30	100	230	5	720	42x120	59x16	9x24										
PW-21	60-75	40	15	35	1	940	48x120	29x12	12x32	PW-71	400-600	150	25	58	5	3000	72x168	51x22	48x23
PW-22	60-75	40	30	69	1½	940	48x120	37x16	12x32	PW-72	400-600	150	45	104	7½	3000	72x168	41x24	48x23
PW-23	60-75	40	50	115	3	940	48x120	54x16	12x32	PW-73	400-600	150	75	173	10	3000	72x168	44x24	48x23
PW-24	60-75	40	75	173	5	940	48x120	56x16	12x32	PW-74	400-600	150	85	196	15	3000	72x168	48x24	48x23
PW-25	60-75	40	100	230	5	940	48x120	59x16	12x32	PW-75	400-600	150	100	230	15	3000	72x168	61x24	48x23
										PW-76	400-600	150	140	323	20	3000	72x168	68x24	48x23
PW-31	75-100	50	10	23	¾	1130	48x144	29x12	12x32	PW-81	600-800	200	20	46	5	3500	72x192	41x24	48x23
PW-32	75-100	50	20	46	1½	1130	48x144	29x12	12x32	PW-82	600-800	200	40	92	7½	3500	72x192	41x24	48x23
PW-33	75-100	50	30	69	2	1130	48x144	39x16	12x32	PW-83	600-800	200	65	150	15	3500	72x192	55x21	48x23
PW-34	75-100	50	50	115	3	1130	48x144	54x16	12x32	PW-84	600-800	200	85	196	20	3500	72x192	60x25	48x23
PW-35	75-100	50	75	173	5	1130	48x144	56x16	12x32	PW-85	600-800	200	165	381	30	3500	72x192	68x20	48x23
PW-36	75-100	50	100	230	7½	1130	48x144	59x16	12x32										
PW-41	100-160	75	20	46	1½	1880	48x240	39x16	12x32	PW-91	3000-3500	600	30	69	15	7600	96x240	55x20	48x23
PW-42	100-160	75	30	69	3	1880	48x240	39x16	12x32	PW-92	3000-3500	600	45	104	20	7600	96x240	58x20	48x23
PW-43	100-160	75	50	115	5	1880	48x240	13x37	12x32	PW-93	3000-3500	600	75	173	40	7600	96x240	68x23	48x23
PW-44	100-160	75	75	173	7½	1880	48x240	42x13	12x32	PW-94	3000-3500	600	100	230	60	7600	96x240	77x27	48x23
PW-45	100-160	75	100	230	10	1880	48x240	22x56	12x32										

TANKLESS WATER SYSTEMS

Uses

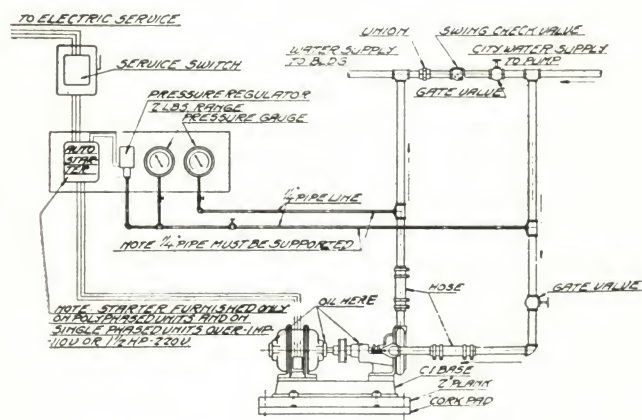
In apartments or similar buildings where shortage of water may occur for only short periods. In such installations the tankless system is used to boost the pressure during the period of low pressure.

Tankless systems are also used for special applications where the demand for higher pressure is continuous, but for only a short period each day. Golf courses, amusement parks, race tracks and some industrials are examples. They have heavy demands for water for short periods. Tankless systems are frequently used in such places for boosting pressure obtained from overhead tanks or other source of supply.

As might be expected the tankless system is the cheapest type of booster system. It is thoroughly satisfactory when properly applied, but is not recommended for buildings such as hotels which have a twenty-four hour demand for water.

Equipment Furnished

Pump and motor, automatic starter, panel with pressure regulator, suction and discharge pressure gauge, rubber connections and vibration absorbing base. All piping and valves are furnished by the plumbing contractor.



Tankless Water System

Types of Pumps Used

The pumps used in Economy Tankless Water Systems are of the same high grade construction as is used in the overhead and pneumatic systems. The only difference in the systems is the omission of the tanks and air compressors.

Selection

For apartments and similar buildings it is only necessary to count over the total number of fixtures and select the system listed for that number of fixtures. For other types of buildings select a larger or smaller system as indicated by the table of multipliers, shown with the curve on page 2.

TANKLESS WATER SYSTEMS

Unit No.	Number of fixtures	Pump capacity gal. per min.	Net pressure boost		Motor hp.	Pump size	Descriptive Bulletin No.	Floor space of pump and motor in.
			Ft.	Lb.				
1	1-15	10	23	10	1/4	1SS	416	20x9
2	1-15	10	35	15	1/4	1 1/4 SS	416	30x12
3	15-40	20	23	10	1/4	1SS	416	20x9
4	15-40	20	35	15	1/4	1 1/4 SS	416	30x12
5	15-40	20	46	20	3/4	1 1/2 SS	416	30x12
6	15-40	20	69	30	1	1 1/4 MS	415	40x16
7	40-60	30	35	15	3/4	1 1/2 SS	416	30x12
8	40-60	30	46	20	1	1 1/2 SS	416	30x12
9	40-60	30	69	30	1 1/2	1 1/4 MS	415	40x16
10	60-75	40	35	15	1	1 1/2 SS	416	30x12
11	60-75	40	46	20	1 1/2	1 1/2 SS	416	30x12
12	60-75	40	69	30	1 1/2	1 1/4 MS	415	40x16
13	75-100	50	35	15	1	1 1/2 SS	416	30x12
14	75-100	50	46	20	1 1/2	1 1/2 SS	416	30x12
15	75-100	50	69	30	2	1 1/2 SS	416	40x16
16	100-150	70	46	20	1 1/2	1 1/2 SS	416	40x16
17	100-150	70	69	30	3	1 1/2 SS	416	40x16
18	150-200	80	46	20	1 1/2	1 1/2 SS	416	40x16
19	150-200	80	69	30	3	1 1/2 SS	416	40x16
20	150-200	80	92	40	5	2DS	408	51x22
21	150-200	80	127	55	5	2x1 1/2 DS	408	38x12
22	200-250	90	46	20	2	1 1/2 SS	416	40x16
23	200-250	90	69	30	3	1 1/2 SS	416	40x16
24	250-300	100	46	20	2	1 1/2 SS	416	40x16
25	250-300	100	69	30	3	1 1/2 SS	416	40x16
26	250-300	100	92	40	5	2DS	408	51x22
27	350-500	150	69	30	5	2DS	408	51x22
28	350-500	150	104	45	7 1/2	2 1/2 x 2 1/2 DS	408	41x24
29	350-500	150	148	65	10	2x1 1/2 DS	408	41x24
30	500-700	180	92	40	7 1/2	2x2 1/2 DS	408	41x24
31	500-700	180	116	50	10	2x1 1/2 DS	408	41x24
32	500-700	180	173	75	15	2x1 1/2 DS	408	41x24
33	700-1000	225	92	40	10	2x2 1/2 DS	408	41x24
34	700-1000	225	148	65	15	3x2 1/2 DS	408	55x21
35	700-1000	225	185	80	20	3x2 1/2 DS	408	60x25

ECONOMY CAISSON SINKING PUMPS

Capacities up to 1000 Gal. Per Min.—Heads up to 300 Ft.

Caisson Pumps are used in construction work wherever shafts must be sunk through wet soils or gravel.

They were especially developed for foundation work in the lake regions where caissons are sunk 100 to 125 ft. to bed rock. They are also adapted to cofferdam work, mine sinking, etc. They have proved themselves one of the most useful types of equipment for the Excavating Contractor. They not only handle the accumulated water, but also pump a large amount of material which would otherwise be removed by other means. In fact, it is not unusual to see two men shoveling sand from the discharge outlet of a 3-in. pump.

These pumps have been used, to the exclusion of all others, on many of the country's largest construction projects. They are made in a large variety of sizes and weights which make



them adaptable for all kinds of construction drainage.

Their shape is such that they fit between narrow ledges and into shafts of small diameter.

CONDENSED CAPACITY TABLE SINKING PUMPS

Capacity g.p.m.		Total head in feet				
		50	100	150	200	300
100	Size	2	2	3	2 1/2	2 1/2
	hp.	3	5	10	15	20
150	Size	3	3	3	2 1/2	2 1/2
	hp.	5	10	15	20	25
250	Size	3	3	3	2 1/2	2 1/2
	hp.	7 1/2	15	20	25	40
500	Size	4	5	3	3	4
	hp.	10	25	40	50	75
1000	Size	6	6	5	5	6
	hp.	20	40	60	75	125

SELECTION OF DRAINAGE AND SEWAGE PUMPS

Types and Application

STANDARD SUMP PUMPS FOR SUBMERGED INSTALLATIONS

For drainage applications where the water is free from large solids.

NON-CLOGGING SUMP PUMPS FOR SUBMERGED INSTALLATIONS

For ordinary domestic and industrial sewage without the use of a strainer.

OPEN SHAFT PUMPS FOR DRY CHAMBER INSTALLATIONS

For handling unscreened sewage in the more elaborate type of public buildings.

Determination of Pump Capacities

Capacity for Seepage

Where seepage is to be handled an estimate must be made of the area to be drained and the maximum rise of water in any given length of time. A cubic foot contains $7\frac{1}{2}$ gallons. This figure can be used in computing pump capacity. For instance: an area 50×25 ft. fills with water to a depth of 6 in. in one hour during the heaviest rainfall. It is desired to keep this area dry.

$$50 \times 25 = 1250 \text{ sq. ft.} \times \frac{1}{2} = 625 \text{ cu. ft.}$$

$$625 \times 7\frac{1}{2} = 4688 \text{ gals. approx.}$$

The pump operating continuously and keeping this area dry must have a capacity of 4688 divided by 60 minutes, or 78 gallons per minute. Under flood conditions pump would operate continuously, but at all other times operation would be occasional.

Capacity for Sewage

The pump capacity which should be allowed for various fixtures is given below. These allowances are based upon the frequent use of all the different fixtures, such as would be the case in hotels, railroad depots, office buildings, etc.

Water Closets	6 g.p.m.
Urinals	5 g.p.m.

Lavatories	5 g.p.m.
Bath Tubs	5 g.p.m.
Shower Baths	8 g.p.m.
Slop Sinks, etc.	15 g.p.m.
Half Inch Hose Connections	5 g.p.m.
Automobile Wash Racks	15 g.p.m.
Floor Drains	5 g.p.m.

Example: Assume a job having the following fixtures draining into the pump pit:

6 Closets at 6 g.p.m.	36
6 Lavatories at 5 g.p.m.	30
2 Shower Baths at 8 g.p.m.	16
1 Sink at 15 g.p.m.	15
2 Half Inch Hose at 5 g.p.m.	10

Pump Size 107 g.p.m.

The above is the required capacity if no provision need be made for seepage. A pump should, therefore, be selected having a capacity of from 100 to 150 g.p.m. against a head equal to the difference in elevation between the low water level in the pump pit to the highest point of the pump discharge, plus the pipe friction.

In some buildings such as warehouses, private apartment houses, etc., where the number of occupants are few compared to public buildings, capacity may be scaled down from figures given above.

Determination of Head

The head given in the table is the total obtained by taking the distance from the low water level in the sump to the highest point of discharge, and adding to it the friction in the intervening piping.

For example: Consider a pump having a capacity of 150 g.p.m. installed in a sump 5 ft. deep and discharging into a sewer line 20 ft. above the pump

floor level through a discharge pipe 150 ft. long and 4 in. in diameter.

Total head = 4 ft. (depth of lowest water level in sump) + 20 ft. (static head) + 4 ft. (friction through 150 ft. of 4 in. pipe, as determined from standard friction table) = $4 + 20 + 4 = 28$ ft. total head.

Determination of Basin Size

It is advisable to make the basin size as large as practicable for the individual job, but under no circumstances should the basin be so small that the operation of the pump will be less than two minutes. In other words, the contents of the basin or sump between high and low water level should be approximately twice the capacity of the pump in gallons per minute. In selecting the depth it must be remembered that the high water level must be somewhat lower than the lowest drain and that the low water level will be approximately one foot above the bottom of the basin. The correct basin depth will, therefore, be the distance between high and low water level plus the distance from the floor to the lowest drain or inlet, plus one foot.

For example: Consider a 150 g.p.m. pump having the lowest drain two feet below the floor level. A pump of this capacity requires approximately 300 gallons storage. If a 48-in. basin is used having a capacity of 94 gallons per foot of depth the distance between high and low water level, to give the proper

storage, will be $300 \div 94 =$ approximately $3\frac{1}{4}$ ft. To this depth must be added 2 ft., the distance to the lowest drain and 1 ft., pump clearance at the bottom of the basin, giving us a total depth of $6\frac{1}{4}$ ft. Either a basin 6 ft. in depth or $6\frac{1}{2}$ ft. in depth should then be used. If a larger diameter basin is used the depth will be less, while if a smaller basin is used the depth for the required capacity will, of course, be greater.

CAPACITIES OF BASINS IN GALLONS

Basin depth,* in.	Basin diameter, in.							
	24	30	36	42	48	54	60	72
30	59	92	132	180	235	298	368	528
36	71	110	158	216	282	358	441	632
42	82	129	185	252	330	417	514	740
48	94	147	211	288	376	477	588	844
60	118	184	264	360	470	595	735	1056
72	141	221	317	432	565	715	882	1268
96	188	294	423	576	753	954	1175	1692
120	235	368	528	720	940	1190	1470	2112

*To this depth must be added one foot at bottom for pump and floor clearance, plus the depth of lowest inlet. If the lowest inlet is 12 in. down, then 24 in. must be added to the depth required to give the required capacity in gallons.

ECONOMY STANDARD SUMP PUMPS OR EJECTORS

For Clear Seepage*

Capacities Up to 350 Gal. Per Min.—Heads Up to 100 Ft.



Single Unit

Standard Sump Pumps are used for handling clear seepage and screened sewage.

They are ruggedly built with many refinements of mechanical design. Renewable bronze bearings with high pressure grease lubrication, ball bearing driving heads with built-in motors, turned and ground shafts, guided floats and cover plates separable from pump are only a few of the many features found in the Economy design.

All motors operate at conservative speeds and ratings. Proper overload protection is provided. Every pump is tested before shipment.

The installation may consist of one or more pumps in a single sump. A duplex set of pumps is frequently installed when there is danger of heavy overload or floods which would tax the capacity of a single unit. In a duplex unit, one pump is always in reserve for emergencies. Under normal conditions, the operation of the pumps would be alternated, so that each would be in service only half of the time, thus very materially lengthening the life of the apparatus.

If, at any time, the water level in the sump continued to rise during the operation of one unit, the standby unit would start automatically.

Standard Sump Pumps are of the self-contained or drop leg type designed for easy, simple erection.

Architects' Specifications

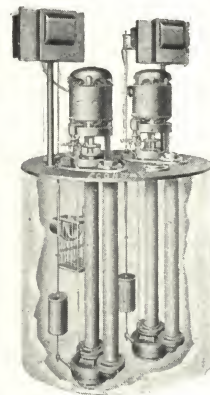
Furnish and install where shown on the plans a No. (single or duplex) Economy Standard Sump Pump, having a capacity of g.p.m. against a total head of feet.

The motor current characteristics shall be phase, cycle, volt. The motors and electrical controls shall conform to the National Electrical Code.

Each pump shall be equipped with adjustable radial ball thrust bearings at the motor floor level, bronze renewable guide bearings and bronze impeller. Each pump shall be independently mounted on its motor base plate, and shall be removable without disturbing the basin cover. A complete set of automatic control equipment including float shall be provided for each pump. Float rods shall be of brass. Lubrication to all bearings shall be from a single high pressure gun.

Provide a diameter by deep cast iron pump basin with inch inlets. Cast iron basin cover to be furnished by the pump manufacturers. Provide a swing check valve and a gate valve in the discharge from each pump.

The manufacturers shall guarantee the capacity and efficiency of the pump as well as its mechanical operation.



Duplex Unit

CONDENSED SELECTION TABLE—STANDARD SUMP PUMPS

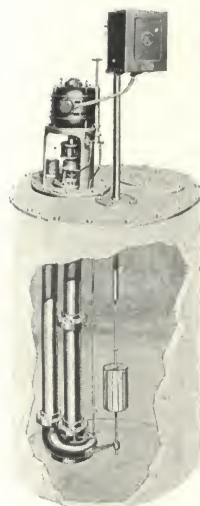
Unit No.	Capacity g.p.m.	Total head in feet	r.p.m.	Pump size	Motor hp.	Recommended sump diameter in inches		Unit No.	Capacity g.p.m.	Total head in feet	r.p.m.	Pump size	Motor hp.	Recommended sump diameter in inches	
						Single	Duplex							Single	Duplex
SC-13	15-20	15	1750	1" -VS	3/4	18	30	SC-117	100-125	40	1750	2 1/2" -VS	3	42	48
SC-14	15-20	10	1150	1 1/2" -VS	1 1/2	30	42	SC-171	100-125	40	1150	4" -VS	3	48	60
SC-16	15-20	25	1750	1 1/2" -VS	3/4	30	42	SC-213	100-125	40	850	4" -VSH	3	48	60
SC-28	15-20	25	1150	1 1/2" -VS	3/4	30	42	SC-219	100-125	60	1150	4" -VSH	5	48	60
SC-35	15-20	30	1750	1 1/2" -VS	3/4	30	42	SC-126	100-125	70	1750	2 1/2" -VS	5	42	48
SC-46	15-20	50	1750	1 1/2" -VS	1	30	42	SC-146	150-175	15	1150	4" -VS	1 1/2	48	60
SC-30	25-30	15	1150	1 1/2" -VS	3/4	30	42	SC-151	150-175	15	850	4" -VS	1 1/2	48	60
SC-19	25-30	20	1750	1 1/2" -VS	3/4	30	42	SC-95	150-175	20	1750	2 1/2" -VSL	2	36	42
SC-36	25-30	25	1750	1 1/2" -VS	3/4	30	42	SC-154	150-175	20	1150	4" -VS	2	48	60
SC-48	25-30	40	1750	1 1/2" -VS	1	30	42	SC-159	150-175	20	850	4" -VS	2	48	60
SC-53	25-30	50	1750	1 1/2" -VS	1 1/2	30	42	SC-98	150-175	25	1750	2 1/2" -VSL	3	36	42
SC-21	35-40	15	1750	1 1/2" -VS	3/4	30	42	SC-118	150-175	30	1750	2 1/2" -VS	3	42	48
SC-32	35-40	15	1150	1 1/2" -VS	3/4	30	42	SC-215	150-175	30	850	4" -VSH	3	48	60
SC-41	35-40	20	1150	1 1/2" -VS	3/4	30	42	SC-174	150-175	40	1150	4" -VS	3	48	60
SC-38	35-40	25	1750	1 1/2" -VS	3/4	30	42	SC-222	150-175	40	850	4" -VSH	5	48	60
SC-49	35-40	30	1750	1 1/2" -VS	1	30	42	SC-128	150-175	50	1750	2 1/2" -VS	5	42	48
SC-55	35-40	50	1750	1 1/2" -VS	1 1/2	30	42	SC-220	150-175	50	1150	4" -VSH	5	48	60
SC-22	50-60	10	1750	1 1/2" -VS	3/4	30	42	SC-131	150-175	60	1750	2 1/2" -VS	7 1/2	42	48
SC-60	50-60	15	1750	2" -VS	3/4	36	42	SC-191	150-175	80	1750	4" -VS	7 1/2	48	60
SC-63	50-60	15	1150	2" -VS	3/4	36	42	SC-201	150-175	100	1750	4" -VSS	10	48	60
SC-67	50-60	20	1750	2" -VS	1	36	42	SC-155	200-250	10	1150	4" -VS	2	48	60
SC-100	50-60	20	1150	2 1/2" -VS	1	42	48	SC-160	200-250	10	850	4" -VS	2	48	60
SC-50	50-60	25	1750	1 1/2" -VS	1	30	42	SC-230	200-250	15	850	5" -VSS	2	60	72
SC-104	50-60	30	1150	2 1/2" -VS	1 1/2	42	48	SC-166	200-250	25	1750	4" -VS	3	48	60
SC-57	50-60	40	1750	1 1/2" -VS	1 1/2	30	42	SC-177	200-250	25	1150	4" -VS	3	48	60
SC-110	50-60	50	1750	2 1/2" -VS	2	42	48	SC-236	200-250	25	850	5" -VSS	3	60	72
SC-114	50-60	70	1750	2 1/2" -VS	3	42	48	SC-186	200-250	30	1150	4" -VS	5	48	60
SC-120	50-60	80	1750	2 1/2" -VS	5	42	48	SC-181	200-250	40	1750	4" -VS	5	48	60
SC-70	75-100	10	1750	2 1/2" -VSL	3/4	36	42	SC-245	200-250	40	1150	5" -VSS	5	60	72
SC-73	75-100	10	1150	2 1/2" -VSL	3/4	36	42	SC-224	200-250	40	850	4" -VSH	5	48	60
SC-76	75-100	15	1750	2 1/2" -VSL	1	36	42	SC-264	200-250	50	1150	5" -VSS	7 1/2	60	72
SC-80	75-100	15	1150	2 1/2" -VSL	1	36	42	SC-193	200-250	60	1750	4" -VS	7 1/2	48	60
SC-86	75-100	25	1750	2 1/2" -VSL	1 1/2	36	42	SC-203	200-250	80	1750	4" -VSS	10	48	60
SC-107	75-100	30	1150	2 1/2" -VS	1 1/2	42	48	SC-207	200-250	100	1750	4" -VSS	15	48	60
SC-170	75-100	40	1150	4" -VS	3	48	60	SC-167	300-350	10	1750	4" -VS	3	48	60
SC-116	75-100	50	1750	2 1/2" -VS	3	42	48	SC-233	300-350	10	1150	5" -VSS	3	60	72
SC-123	75-100	80	1750	2 1/2" -VS	5	42	48	SC-231	300-350	10	850	5" -VSS	2	60	72
SC-77	100-125	10	1750	2 1/2" -VSL	1	36	42	SC-237	300-350	15	850	5" -VSS	3	60	72
SC-81	100-125	10	1150	2 1/2" -VSL	1	36	42	SC-184	300-350	25	1750	4" -VS	5	48	60
SC-135	100-125	10	850	3" -VS	1	42	48	SC-256	300-350	25	850	5" -VSS	5	60	72
SC-88	100-125	20	1750	2 1/2" -VSL	1 1/2	36	42	SC-249	300-350	30	1150	5" -VSS	5	60	72
SC-139	100-125	20	1150	3" -VS	1 1/2	42	48	SC-195	300-350	40	1750	4" -VS	7 1/2	48	60
SC-149	100-125	20	850	4" -VS	1 1/2	48	60	SC-228	300-350	40	850	4" -VSH	7 1/2	48	60
SC-158	100-125	25	850	4" -VS	2	48	60	SC-205	300-350	60	1750	4" -VSS	10	48	60
SC-92	100-125	30	1750	2 1/2" -VSL	2	36	42	SC-209	300-350	80	1750	4" -VSS	15	48	60

*When any of the above pumps are used on sewage a strainer bucket must be specified for each inlet.

See next page for non-clogging pumps

ECONOMY NON-CLOGGING SUMP PUMPS OR SUBMERGED TYPE SEWAGE EJECTORS

Capacities Up to 3000 Gal. Per Min.—Heads Up to 65 Ft.



Single Unit

Non-clogging pumps are used for drainage which contains solids or sewage. They are made in larger sizes and of somewhat more elaborate construction than the Standard Sump pumps. Capacities less than 100 g.p.m. are not listed because smaller capacities do not permit the use of waterways sufficiently large to pass solids.

All sizes are equipped with shaft sleeves and lower bearings which extend around the impeller hub. This construction lowers maintenance cost and increases the life of the apparatus.

These pumps are built both as single and duplex units. Mechanically they are of the same general design as the Standard Sump Pump, except that they are built sturdier and stronger throughout to resist the strain which may be thrown on the parts when solids enter the pump.

Size of Solids Handled

- 3-in. SSV—2½-in. spheres
 4-in. SSV—2½-in. spheres
 6-in. SSV—3¾-in. spheres
 8-in. SSV—5 -in. spheres
 10-in. SSV—7 -in. spheres
 12-in. SSV—9 -in. spheres

Occasionally piping is not large enough to handle solids passed by the pump. In this case trash screens should be provided.

Architects' Specifications

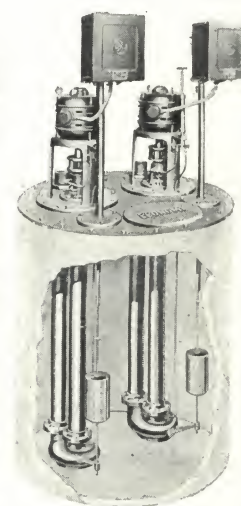
Furnish and install where shown on the plans a No. (single or duplex) Economy Non-Clogging Sump Pump, having a capacity of g.p.m. against a total head of feet.

The motor current characteristics shall be phase, cycle, volt. The motors and electrical controls shall conform to the National Electrical Code.

Each pump shall be equipped with adjustable radial ball thrust bearings at the motor floor level and bronze renewable guide bearings lubricated by a high pressure gun. The impellers shall be of bronze, two-blade, wide waterway type, designed to pass rags, stringy material, etc., without clogging. Each pump shall be independently mounted on its motor base plate, and shall be removable without disturbing the basin cover. A complete set of automatic control equipment including brass float shall be provided for each pump. Float rods shall be of brass.

Provide a diameter by deep cast iron pump basin with inch inlets. Cast iron basin cover to be furnished by pump manufacturer. Provide a swing check valve and a gate valve in the discharge from each pump.

The manufacturer shall guarantee the capacity and efficiency of the pump as well as its mechanical operation.



Duplex Unit

CONDENSED SELECTION TABLE—NON-CLOGGING SUMP PUMPS

Unit No.	Capacity g.p.m.	Total head in feet	r.p.m.	Pump size	Motor hp.	Recommended sump diameter in inches	
						Single	Duplex
SC-301	100	10	1150	3"-SSV	1½	48	60
SC-303	100	15	850	3"-SSV	1	48	60
SC-304	100	20	1150	3"-SSV	1½	48	60
SC-405	100	25	850	4"-SSV	2	48	60
SC-306	100	30	1150	3"-SSV	2	48	60
SC-407	100	30	850	4"-SSV	3	48	60
SC-308	100	35	1150	3"-SSV	3	48	60
SC-409	100	35	850	4"-SSV	5	48	60
SC-410	100	50	1150	4"-SSV	5	48	60
SC-411	100	55	1150	4"-SSV	7½	48	60
SC-312	150	10	1150	3"-SSV	1½	48	60
SC-313	150	10	850	3"-SSV	1	48	60
SC-314	150	15	1150	3"-SSV	1½	48	60
SC-315	150	15	850	3"-SSV	1½	48	60
SC-416	150	20	850	4"-SSV	2	48	60
SC-317	150	25	1150	3"-SSV	2	48	60
SC-318	150	30	1150	3"-SSV	3	48	60
SC-419	150	30	850	4"-SSV	3	48	60
SC-420	150	35	1150	4"-SSV	3	48	60
SC-421	150	45	1150	4"-SSV	5	48	60
SC-422	150	55	1150	4"-SSV	7½	48	60
SC-323	200	10	1150	3"-SSV	2	48	60
SC-424	200	15	850	4"-SSV	1½	48	60
SC-325	200	20	1150	3"-SSV	2	48	60
SC-426	200	20	850	4"-SSV	2	48	60
SC-327	200	25	1150	3"-SSV	3	48	60
SC-428	200	25	850	4"-SSV	3	48	60
SC-429	200	30	1150	4"-SSV	3	48	60
SC-430	200	30	850	4"-SSV	5	48	60
SC-431	200	45	1150	4"-SSV	5	48	60
SC-432	200	50	1150	4"-SSV	7½	48	60
SC-441	300	10	1150	4"-SSV	3	48	60
SC-442	300	15	850	4"-SSV	2	48	60
SC-443	300	20	1150	4"-SSV	3	48	60
SC-444	300	20	850	4"-SSV	3	48	60
SC-445	300	30	850	4"-SSV	5	48	60
SC-446	300	35	1150	4"-SSV	5	48	60
SC-447	300	45	1150	4"-SSV	7½	48	60
SC-448	300	50	1150	4"-SSV	10	48	60
SC-457	400	10	1150	4"-SSV	3	48	60
SC-458	400	10	850	4"-SSV	3	48	60
SC-459	400	25	1150	4"-SSV	5	48	60
SC-460	400	25	850	4"-SSV	5	48	60
SC-661	400	30	850	6"-SSV	7½	48	60
SC-662	400	35	850	6"-SSV	10	48	60
SC-463	400	40	1150	4"-SSV	7½	48	60
SC-464	400	45	1150	4"-SSV	10	48	60
SC-665	400	60	1150	6"-SSV	15	48	60
SC-666	400	65	1150	6"-SSV	20	48	60
SC-467	500	15	1150	4"-SSV	5	48	60
SC-468	500	15	850	4"-SSV	5	48	60
SC-669	500	20	850	6"-SSV	5	48	60
SC-470	500	25	1150	4"-SSV	7½	48	60
SC-671	500	30	850	6"-SSV	7½	48	60
SC-672	500	35	1150	6"-SSV	10	48	60
SC-673	500	55	1150	6"-SSV	15	48	60
SC-674	500	65	1150	6"-SSV	20	48	60
SC-675	600	15	850	6"-SSV	5	48	60
SC-676	600	25	850	6"-SSV	7½	48	60
SC-677	600	30	850	6"-SSV	10	48	60
SC-678	600	35	1150	6"-SSV	10	48	60
SC-679	600	50	1150	6"-SSV	15	48	60
SC-680	600	60	1150	6"-SSV	20	48	60
SC-681	750	20	850	6"-SSV	7½	48	60
SC-682	750	25	1150	6"-SSV	10	48	60
SC-683	750	30	850	6"-SSV	10	48	60
SC-684	750	45	1150	6"-SSV	15	48	60
SC-685	750	60	1150	6"-SSV	20	48	60
SC-686	1000	15	850	6"-SSV	7½	48	60
SC-687	1000	20	850	6"-SSV	10	48	60
SC-688	1000	25	1150	6"-SSV	10	48	60
SC-889	1000	30	850	8"-SSV	15	*	*
SC-690	1000	35	1150	6"-SSV	15	48	60
SC-891	1000	40	850	8"-SSV	20	*	*
SC-692	1000	50	1150	6"-SSV	20	48	60
SC-8103	1500	15	670	8"-SSV	10	*	*
SC-8104	1500	25	850	8"-SSV	15	*	*
SC-8105	1500	25	670	8"-SSV	15	*	*
SC-8106	1500	35	850	8"-SSV	20	*	*
SC-8107	1500	45	850	8"-SSV	25	*	*
SC-8116	2000	10	670	8"-SSV	10	*	*
SC-8117	2000	15	670	8"-SSV	15	*	*
SC-8118	2000	20	670	8"-SSV	20	*	*
SC-8119	2000	25	850	8"-SSV	20	*	*
SC-1120	2000	25	670	10"-SSV	25	*	*
SC-8121	2000	35	850	8"-SSV	25	*	*
SC-8122	2000	40	850	8"-SSV	30	*	*
SC-1123	2000	45	850	10"-SSV	40	*	*
SC-1124	2000	55	850	10"-SSV	50	*	*
SC-1125	2000	60	850	10"-SSV	60	*	*

*Sump diameters for these larger sizes must be proportioned for the individual job. The sumps should be of sufficient size to permit 10 to 15-minute flow from sewers between pump operation.

ECONOMY NON-CLOGGING DRY CHAMBER PUMPS OR SEWAGE EJECTORS

Uses

For the ejection of drainage which contains solids or sewage. Their function is the same as that of the submerged non-clogging pumps described on page 9. They are used in the more elaborate type of building where first cost is not a major consideration.

Advantages

These pumps are not submerged in the sewage, but are accessible during operation and naturally are favored by attendants because of easier inspection and maintenance.

Design

Pumps are of full ball bearing type, adjustable for wear without disassembling. Hand holes are provided in both suction and discharge for inspection of interior; shock bearings and shaft sleeves are provided in the interior of the pump.

Types of Installations

Two types of installations are offered. One has the sewage receptacle located between the pumps (type CB) and the other type consists of a single large tank divided vertically in the center, one half housing the pumps and the other half housing a sewage receptacle (type OB).

Both types of apparatus are factory erected and knocked down for shipment.

Type OB

This is the most popular dry chamber design as it combines accessibility with the maximum capacity of wet or sewage chamber.

Type CB

This type of installation affords maximum accessibility as the pumps are conveniently located at the sides of the sewage receptacle.

Equipment Included

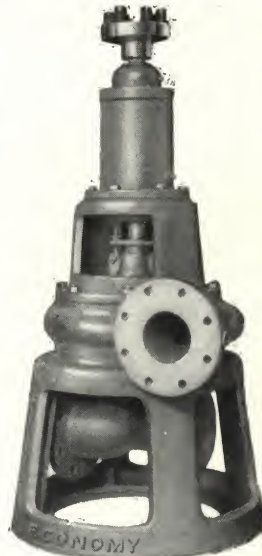
With either type of installation the following equipment is included:

- (1) Pumps
- (2) Tank
- (3) All necessary valves and piping from the sewage tank to the pumps and up to the floor level.
- (4) All electrical apparatus including suitable panel board, high water alarm, etc.

Architects' Specifications

Furnish and install where shown on the plan a No. Economy Open Shaft Vertical Dry Chamber, Non-clogging Ejector, Type OB or Type CB, having a capacity of g.p.m. when discharging against a total head of feet at a speed of r.p.m.

The motor current characteristics shall be phase, cycle, volt. The motor and electrical control shall conform to the National Elec-

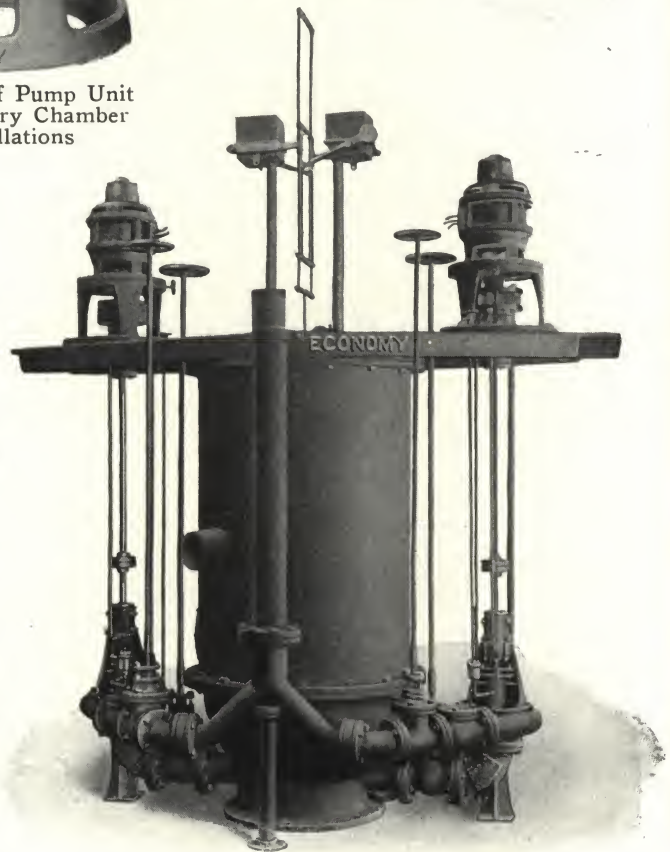


Close-up of Pump Unit
Used in Dry Chamber
Installations

trical Code and shall be complete with overload and under-voltage protection.

The pump shall be suitable for handling sticks, stones, rags and raw sewage without clogging. The impeller shall be of bronze, two blade, wide waterway type. The rotor assembly shall be carried in two widely separated radial ball bearings mounted in a tight housing with provision for grease lubrication from the driving floor level. A bronze shock bearing shall be provided at the impeller hub to prevent shaft deflection in case of stones or other heavy objects entering the impeller. The suction elbow shall be of the cast iron flanged type with a large clean-out opening for removal of any solids which enter the suction piping and are too large to enter the pump. The pump shall be filled and painted in Duco before shipment.

The manufacturers shall guarantee the capacity and efficiency of the pump as well as its mechanical operation.

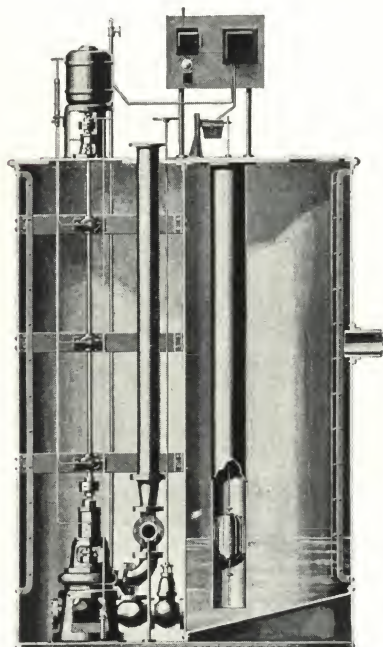


Type CB Center Tank Ejector

TABLE OF CAPACITIES COVERING BOTH
TYPE CB AND TYPE OB

Pump number	1	2	3	4
Capacity g. p. m.	150	250	350	500
H. P. at 15' head	2	3	5	5
H. P. at 25' head	3	5	5	7½
H. P. at 40' head	5	5	7½	10
H. P. at 60' head	7½	10	15	20
Dia. of pit in feet	8	8	8	10
Wet well capacity gallons per foot of depth below inlet	Type CB	53	72	94
	Type OB	188	188	188
Size discharge duplex unit	4	6	6	8

Sump should be of sufficient size to permit 10 to 15 minute flow from sewers between pump operations.



Cross Section and Plan of Duplex
Steel Tank Ejector Type OB

ECONOMY HORIZONTAL NON-CLOGGING PUMPS

Capacities up to 3000 Gal. Per Min.—Heads up to 60 Ft.

Horizontal Sewage Pumps may sometimes be substituted for Vertical Dry Chamber or Submerged designs.

They offer the advantage of accessibility, but are not always suitable for building use because of floor space or because of high suction lifts. They are extensively used in buildings located on the sides of hills, in subdivisions, municipal sewage pumping plants and other installations where peculiar conditions justify their use.

They are equipped with the same efficient non-clogging impellers as are used in the Vertical designs. Hand holes are provided for access to the interior of the pumps. Shock bearings are provided around the impeller hub. Double outboard ball bearings carry the normal load.

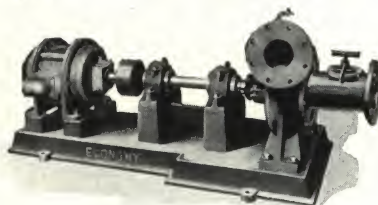
Architects' Specifications

Furnish and install where shown on the plan Economy Horizontal Non-clogging Pump having a capacity of g.p.m. when discharging against a total head of feet at a speed of r.p.m.

The motor current characteristics shall be phase, cycle, volt. The motor and electrical control shall conform to the National Electrical Code and shall be complete with overload and undervoltage protection.

The pump shall be suitable for handling raw sewage without clogging. The impeller shall be bronze, two blade, wide waterway type. The weight of the shaft and impeller shall be carried on two widely separated anti-friction bearings of the self-aligning type. They are to be enclosed

in split dust-proof housing, designed for grease lubrication.



The suction fitting shall be flanged with a large clean-out for removal of any solids which are too large to enter the pump. The pump shall be filled and painted with Duco before shipping.

The manufacturers shall guarantee the capacity and efficiency of the pump as well as its mechanical operation.

CONDENSED SELECTION TABLE HORIZONTAL NON-CLOGGING PUMPS

Capacity gallons per minute	TOTAL HEAD IN FEET					
	15	20	25	30	40	50
100	Size hp. 3	3	3	3	4	4
	r.p.m. 1150	1150	1150	1150	1150	1150
150	Size hp. 3	4	4	4	4	4
	r.p.m. 850	850	850	850	1150	1150
300	Size hp. 4	4	4	4	4	4
	r.p.m. 850	850	850	850	1150	1150
500	Size hp. 4	6	6	6	6	6
	r.p.m. 850	850	850	850	1150	1150
750	Size hp. 6	6	6	6	6	6
	r.p.m. 850	850	850	850	1150	1150
1000	Size hp. 6	6	8	8	8	8
	r.p.m. 850	850	850	850	850	850
1500	Size hp. 8	8	8	8	8	10
	r.p.m. 670	670	670	850	850	850
2000	Size hp. 8	8	10	8	8	10
	r.p.m. 670	670	670	850	850	850
3000	Size hp. 10	10	10	10	10	10
	r.p.m. 670	670	850	850	850	850

PUMPS FOR HEATING SYSTEMS

Return Line Vacuum Pumps

Uses

These pumps perform three duties:

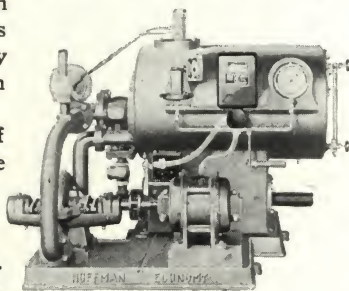
- 1—Remove air from the heating system
- 2—Maintain a vacuum on the return main, thus accelerating circulation at low pressures
- 3—Return condensate to the boiler

All Hoffman-Economy Vacuum Pumps are capable of establishing a maximum vacuum of 24 in. in the smaller sizes, and higher in the larger sizes. This makes them particularly adaptable for use on automatically fired systems where there is a possibility of a high induced vacuum on the boiler.

They are capable of handling water almost at the boiling point.

Standard Equipment

The units come complete, ready to run, including full automatic control for both vacuum and float operations, built-in accumulator tank, vacuum gauge, strainer, water level gauge, etc.



Single Return Line Vacuum Pump

Duplex Units

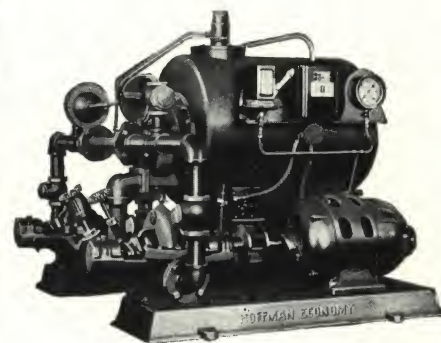
Description

Duplex Units are of the same general design as a single unit and consist of one tank, one float switch, two pumps, two motors and two vacuum regulators. Each pump is valved.

Easy to Install and Service

Return inlet centre lines are located 8½ in. to 15½ in. above floor; in the majority of installations it is possible to have water returned by gravity, whereas with other pumps lift fittings or pit would be required.

All operating parts are readily accessible.



Duplex Return Line Vacuum Pump

For complete description, outline dimensions, etc., see Index for Hoffman-Economy Pumps

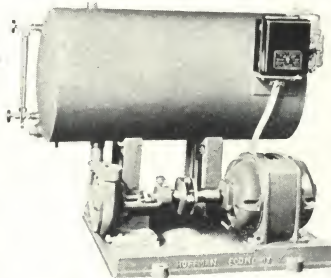
Low Pressure Condensation Pumps

Uses

For drainage or radiation below water line and for acceleration of circulation in low pressure gravity heating systems, vapor systems, etc.

Description

The unit consists of a pump, motor and receiving tank with float control, which starts the pump whenever the water level in the tank rises. The unit is sturdily and compactly designed and assembled on a cast iron base. The pump is of the enclosed impeller, bronze fitted type with both suction and discharge connections in stand side of the case. Access may be had to the impeller and other working parts without breaking any pipe connections.



Low Pressure Condensation Pump

LOW PRESSURE PUMPS AND RECEIVERS

Unit No.	Capacity in sq. ft. direct C. I. rad. or equiv.	Capacity in lb. condensate per hour	Pump capacity gal. per minute	10 lb. discharge pressure Motor hp.	15 lb. discharge pressure Motor hp.	20 lb. discharge pressure Motor hp.	30 lb. discharge pressure Motor hp.
LP-10	1,000	250	2	1/4	1/4	1/4	1/4
LP-30	3,000	750	5	1/4	1/4	1/4	1/4
LP-60	6,000	1,500	12	1/4	1/4	1/4	1/4
LP-100	10,000	2,500	20	1/4	1/4	1/4	1/4
LP-150	15,000	3,750	30	1/4	1/4	1/4	1/4
LP-200	20,000	5,000	40	1/4	1/4	1/4	1/4
LP-300	30,000	7,500	60	1/4	1/4	1/4	1/4
LP-400	40,000	10,000	80	1/4	1/4	1/4	1/4
LP-700	70,000	17,500	135	1/4	1/4	1/4	1/4

Vertical Underground Pumps and Receivers

Uses

On gravity heating systems, where returns are located below floor level or otherwise too low for horizontal pumps.

Installation

Cast iron receiver is installed below floor and is cemented in, flush with floor. No provision need be made for access to tank. All apparatus is removable through the cover.

Duplex Unit

Duplex unit consists of two pumps, two motors and two sets of automatic control installed in a single tank.

Description

Pumps are special vertical centrifugals with enclosed bronze impellers of the non-overloading type. The upper shaft bearing is of the ball bearing type mounted in dust-proof housing; lower bearing is self-lubricated and is easily renewable without moving impeller from shaft or dismantling pump; shaft is protected in lower bearing by renewable sleeve, turned, ground and locked to shaft.

VERTICAL UNDERGROUND PUMPS AND RECEIVERS

Unit No.	Capacity sq. ft. direct C.I. rad. or equiv.	Capacity in lb. condensate per hour	Discharge pressure lb. per sq. in.	Pump capacity gal. per minute	Motor hp.	Receiver dimensions, in.
U-30	3,000	750	10	6	1/4	16x30
U-31	3,000	750	15	6	1/4	20x30
U-32	3,000	750	20	6	3/4	20x30
U-50	5,000	1,250	10	10	1/4	16x30
U-51	5,000	1,250	15	10	1/4	20x30
U-52	5,000	1,250	20	10	3/4	20x30
U-80	8,000	2,000	10	16	1/4	18x30
U-81	8,000	2,000	15	16	1/4	20x30
U-82	8,000	2,000	20	16	3/4	20x30
U-120	12,000	3,000	10	24	1/4	24x36
U-122	12,000	3,000	20	24	3/4	24x36
U-200	20,000	5,000	10	40	1/4	24x36
U-201	20,000	5,000	15	40	3/4	24x36
U-202	20,000	5,000	20	40	1	24x36
U-300	30,000	7,500	10	60	1	30x36
U-301	30,000	7,500	15	60	1 1/2	30x36
U-302	30,000	7,500	20	60	2	30x36



Underground Pump

Medium Pressure Condensation Pumps

Uses

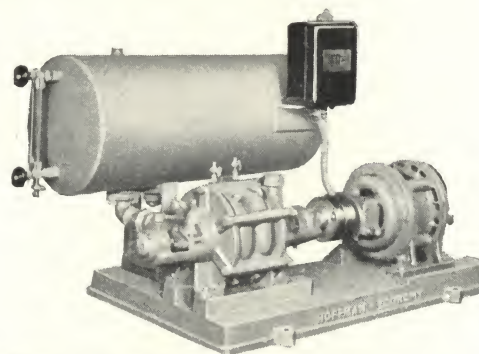
In laundries, cleaning and dyeing plants, greenhouses, textile mills, power plants, etc., where it is desired to return condensate to medium and high pressure boilers or heaters.

Advantages

Motor driven pumps have a great advantage over steam pumps, as they operate at either high or low pressure. This is a great advantage where fires are banked at night, or over the week end. Where steam pumps are used, it is always necessary to maintain sufficient pressure for pump operation. This consumes a great deal of fuel which would be saved if pressure were allowed to drop during shut-down periods.

Description

The assembly is very similar to that of the low pressure pumps described above except that a bronze fitted high pressure multi-stage pump is used in place of the low pressure pump.



Medium and High Pressure Condensation Pump

MEDIUM AND HIGH PRESSURE PUMPS AND RECEIVERS

Unit No.	Capacity in sq. ft. direct C. I. rad. or equiv.	Capacity in lb. condensate per hour	Pump capacity gal. per minute	40 lb. discharge pressure Motor hp.	60 lb. discharge pressure Motor hp.	100 lb. discharge pressure Motor hp.	175 lb. discharge pressure Motor hp.
MP-60	6,000	1,500	12	1 1/2	3	5	7 1/2
MP-100	10,000	2,500	20	1 1/2	3	5	7 1/2
MP-150	15,000	3,750	30	2	3	5	10
MP-200	20,000	5,000	40	2	3	5	10
MP-300	30,000	7,500	60	3	5	10	15
MP-400	40,000	10,000	80	5	5	10	20
MP-700	70,000	17,500	135	7 1/2	10	10	25

The above is a condensed table. Complete range of sizes to 300,000 sq. ft. radiation capacity and 400-lb. pressure.

Air Line Vacuum Pumps

Uses

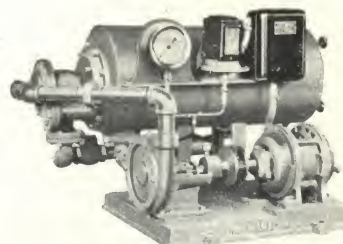
On Air Line gravity heating systems, such as "Paul" systems, the pumps remove air only and do not handle condensate or act as a boiler feed pump.

Description

The pump is extremely simple, consisting only of a horizontal centrifugal pump, circulating water tank and vacuum producer. The pump is bronze fitted with bottom pipe connections arranged so that access may be had to the interior without breaking any pipe connections. Control is full automatic.

Duplex Units

All sizes are made in duplex units, having one tank, two pumps, two motors and two sets of automatic control.



Airline Vacuum Pump

AMERICAN STEAM PUMP COMPANY

Single and Multistage Centrifugal Pumps; Simplex and Duplex Steam Pumps

BATTLE CREEK, MICHIGAN, U. S. A.

NEW YORK OFFICE, 17 Battery Place

CHICAGO OFFICE, 926 Monadnock Building

SALES AND SERVICE AGENCIES THROUGHOUT THE WORLD

Products

CENTRIFUGAL and STEAM PUMPING EQUIPMENT of all types, including:

Centrifugal Pumps (Ball Bearing) Single Stage, Split Case, Bulletins 61 and 64.

Centrifugal Pumps, Single Stage, Split Case, Bulletin 38.

Centrifugal Pumps, Multistage, Split Case, Bulletins 44 and 53.

Steam Pumps, Simplex and Duplex, Bulletins 24, 26 and 28.

Automatic Condensation Pumps and Receivers, Bulletins 27 and 32.

Automatic Bilge Pumps and Sewage Ejectors, Bulletin 41.

Also Air Compressors and Jet Condensers.

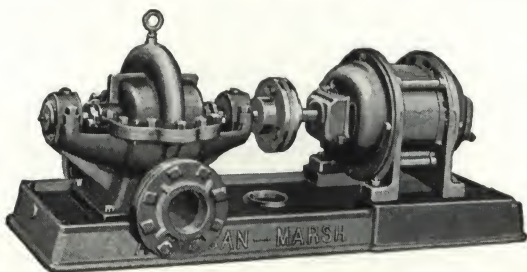
Centrifugal Pumps

Built both single and multistage, a complete line for low, medium and high heads to meet practically all requirements. Furnished split or solid case, single or double suction, with enclosed or open impellers, for direct drive from motor, turbine, gas engine, etc., and for belt drive. Recommended for all classes of pumping. Special pumps can be furnished for special conditions.

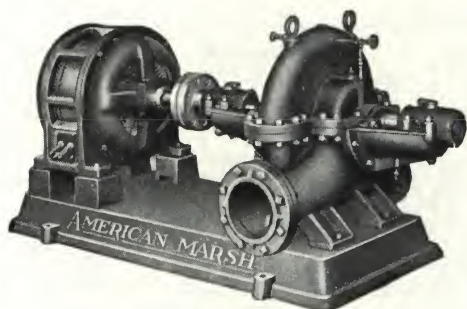
New Type HL (low head) ball bearing pump specially designed for 1750 r.p.m. motor drive, offering unusually high efficiency, and a non-overloading characteristic which permits the use of smaller, less expensive motors. Also new Type HS (high head) ball bearing pump for 3450 r.p.m. motor drive, offering same operating advantages. Both pumps are fully bronze fitted.

Type HBM single stage pumps and all of the multistage pumps are equipped with babbitted, ring-oiling bearings. Special balance piston feature eliminates thrust on multistage pumps.

On all American-Marsh centrifugal pumps, impellers are hydraulically and dynamically balanced.



Type HL Single Stage Ball Bearing Centrifugal Pump



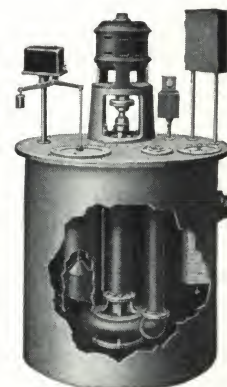
Type HBM Centrifugal Pump



Automatic Bilge Pumps and Sewage Ejectors

Designed for elevating sewage and drainage water from points below sewer levels. Electrically driven and entirely automatic in operation—pump runs only as required to keep water below set level in sump basin.

Built in sizes handling 5 to 500 g.p.m., in both single and duplex types. Simple in design and all parts extra heavy, for dependable service without attention.



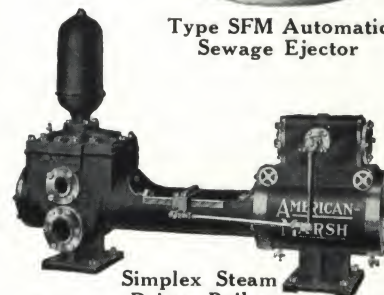
Type SFM Automatic Sewage Ejector

Steam Pumps

As one of the largest builders of steam pumps, this company offers a complete line in both simplex and duplex types with sizes in each type to meet all requirements.

Simplex pumps are fully bronze fitted. Steam valve is of the balanced piston type with semi-rotative disc auxiliary valve—no internal stuffing boxes, no tappets or slide valves. Construction extra heavy, resulting in unusually low upkeep cost.

Duplex pumps have special steam ends that insure maximum economy and quiet operation at high speeds. Built with fittings to meet service conditions.



Simplex Steam Driven Boiler Feed Pump

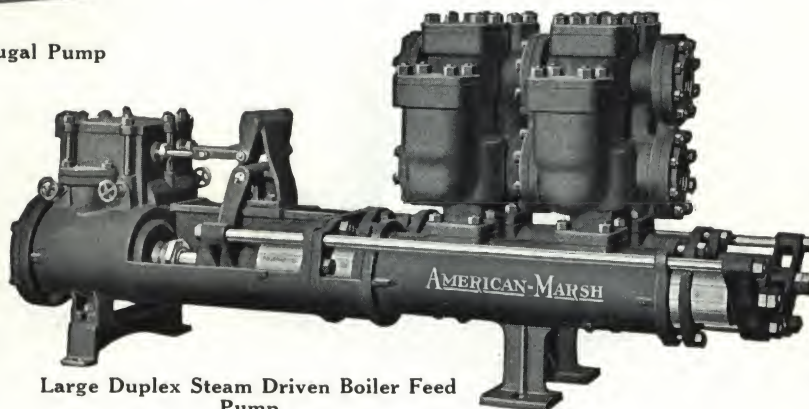
Automatic Condensation Pumps and Receivers

A complete line in both centrifugal and steam driven types with sizes to meet every heating requirement.

Operation entirely automatic, using control equipment which is standard and dependable.

Engineering Service

We welcome inquiries in connection with any pumping problem. Engineering recommendations furnished without obligation. Write for Bulletins.



Large Duplex Steam Driven Boiler Feed Pump

AMES PUMP COMPANY, INC.

90 West Street, NEW YORK, N. Y.

Ames Vacuum Heating Pump

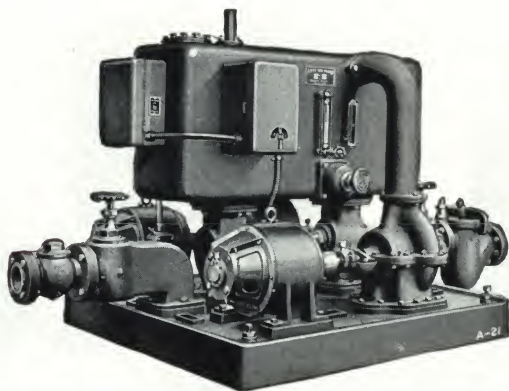
The Ames Pump is *distinctively different* from the average pump used in vacuum heating. It is a unit which develops a *high vacuum*, entrains all the *condensable gases*, has a *liberal air capacity* and discharges all condensate, *regardless of temperature*, to the boiler.

This pump has been designed on the venturi-nozzle principle with a conscientious effort to combine the very best and most modern engineering refinements. It is made in single and duplex units, the latter being preferred since it not only saves space and cost of installation, but provides the all-important feature of a stand-by pump. Control valves permit the dismantling of either pump without disturbing any piping or shutting down the heating system.

Basically, this pump consists of two centrifugal impellers mounted on a single shaft, and a vented dual compartment receiver. The first impeller creates a high vacuum in the suction line and delivers the condensate together with all non-condensable gases into the receiver from which air and gases are vented to atmosphere. The other impeller returns condensate from the receiver to the boiler. Following is given in greater detail a description of the various operations involved, and the special construction of the Ames Pump that makes it distinctively different from others.

Operation—Suction impeller (11) is the essential operating part of this pump. This impeller is constantly submerged in water which flows from chamber (8) through compartment (5) by way of base channel (4). An automatically controlled motor, actuated either by the amount of vacuum in the heating system or by a float switch controlled by the water level in the discharge end of the receiver (7), sets impeller (11) in motion. This discharges a high velocity jet of water across an ejector gap and through spaced stationary diffuser or compression plates which surround the periphery. This forms the most efficient, yet simple and durable, hydraulic high vacuum producing element.

By this vacuum, condensate and vapor in the heating system (1) is drawn through the suction strainer and check valve, compressed through ejector plate (25) into the volute chamber of the pump, and finally is discharged to the upper part of the receiver through manifold passage (6). Here air is separated and vented to the atmosphere, without back pressure, through vent opening (20), and the condensate flows to storage chamber (7).



Ames Vacuum Heating Pump—Duplex Unit

From this chamber the stored condensate flows into the control valve passage (9) which connects to port (10) leading to the revolving boiler feed impeller (14). The condensate is then driven through the discharge line, check valve and finally into boiler feed line (26). There is no vapor binding of boiler feed impeller (14) as this is eliminated by manifold passage (15) which leads to the upper part of chamber (8). Water gauge (16) indicates by plate (24) the level of the condensate in storage chamber (7) required for priming before starting.

On and off switch on control box (19) disengages vacuum regulator while switch on auto starter (18), when placed in proper position, makes float switch ineffective, thus permitting of continuous operation of the unit. To eliminate frequent stopping and starting when on night operation, valve (17) at side of tank is opened.

To operate within the limit of predetermined maximum vacuum desired on the system, vacuum breaker (22) is accordingly adjusted. Vacuum is indicated by compound gauge (21).

Thermometer (27) serves as a valuable aid to ascertain condensate temperature.

The diagram below, while of the duplex unit, differs only from the single unit in that it contains dual-ported control valves. The ports shown closed lead to parallel passages which connect to the companion pump.

Guarantee—Each Ames Vacuum Heating Pump is guaranteed to maintain a vacuum of not less than 5 in. of mercury (referred to 30-in. barometer) with condensate at 200° F. when connected to a heating system that is reasonably free from air leaks, and which is laid out and installed in accordance with American Society of Heating and Ventilating Engineers' standards.

During a period of 3 years from date of shipment, any part or parts, found defective or worn sufficiently to impair the successful operation of the pump, will be replaced free of charge, f.o.b. works, providing claim is promptly submitted in writing to the Company.

Specifications

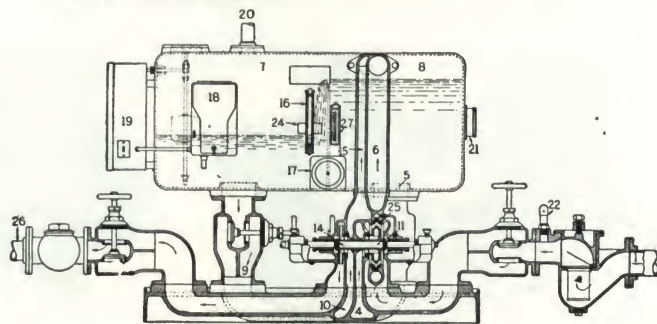
The following, incorporated in the heating specification, will insure securing a standard Ames Return Line Vacuum and Boiler Feed Unit.

Vacuum Pump—Furnish and erect in space provided by engineer's plans and in accordance with manufacturer's drawing to be approved by engineer:

..... size No.* single (duplex) Ames Vacuum Heating Pump with automatic and manual control.

Each pump shall be of the multi-rotor, centrifugal type, fitted with bronze internal parts, bronze split

*Specify single or duplex.



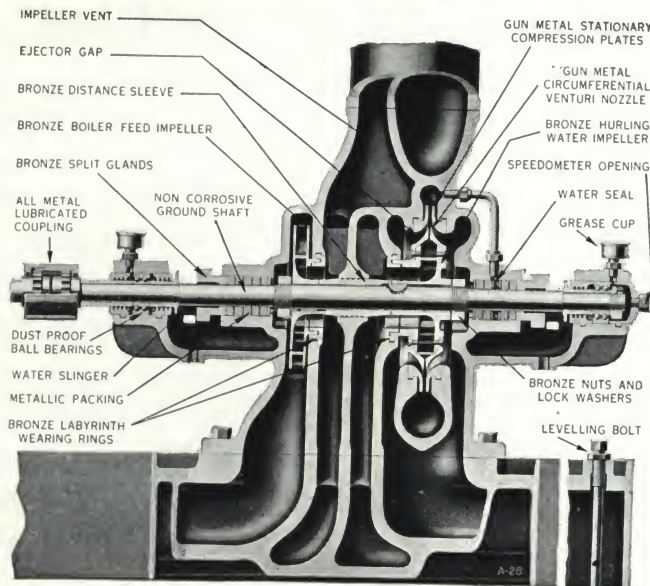
Flow Diagram of Ames Duplex Pump

stuffing box glands, and Monel Metal shaft with deep-groove, ball bearings, direct connected through all metal lubricated flexible coupling to:

..... hp., current,
..... volt, phase,
..... cycle, 40° C. ball bearing motor.

Each pump shall have a rated capacity of sq. ft. of equivalent direct radiating surface with a water capacity of gal. per min. when discharging against lb. pressure at the unit discharge nozzle. It shall also be capable of maintaining a vacuum of not less than 5 in. of mercury (referred to 30-in. barometer) with condensate at 200° F. when connected to a heating system reasonably free from leaks, and deliver same, regardless of temperature, to the boiler.

A complete unit shall be supplied to include pump, motor, cast iron receiver and air separator tank, protected water gage glass, compound gage, thermometer, vacuum breaker, discharge check valve



Sectional View of Horizontal Split Case Multi-rotor Pump

STANDARD RATINGS

Size No.	Sq. ft. equivalent direct radiation	Equivalent g.p.m. at 1/2 lb. per sq. ft. hr.	Pump capacity gal. per min.	Cu. ft. air per min. at 10" vacuum	Motor h.p. at 20 lbs.	Pipe sizes, in.		
						Suction	Discharge	
							Single	Duplex
*5	5,000	3	12	3	1	2	1 1/2	1 1/2
*8	8,000	5	16	4	1	2	1 1/2	1 1/2
*12	12,000	8	24	6	2	2	1 1/2	1 1/2
†18	18,000	12	37	9	3	3	2	2 1/2
†26	26,000	17	50	13	3	3	2	2 1/2
†40	40,000	26	75	18	5	4	2 1/2	3
†65	65,000	43	115	30	7 1/2	4	2 1/2	3
†100	100,000	66	175	44	10	6	3	4
†150	150,000	100	250	66	15	6	3	4

*See Bulletin No. 532. †See Bulletin No. 522.

Data for other pressures on application.

All units guaranteed to produce a vacuum of 24-26 in. if tightness of system and temperature of returns permit. Selection of units must be made on basis of square feet of radiation or equivalent gallons per minute and not pump capacity.

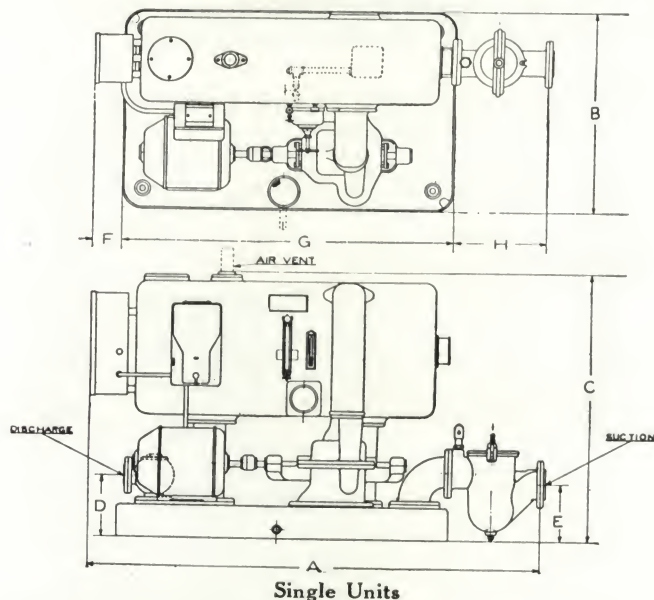
and self-cleaning strainer.

The unit shall be assembled complete with pump tank and motor mounted on one heavy cast iron base having raised edge at top, screened drain pocket tapped for drain connection, foundation grout holes and levelling bolts.

Suction, discharge, and air vent shall be provided with companion flanges, bolts, nuts and gaskets.

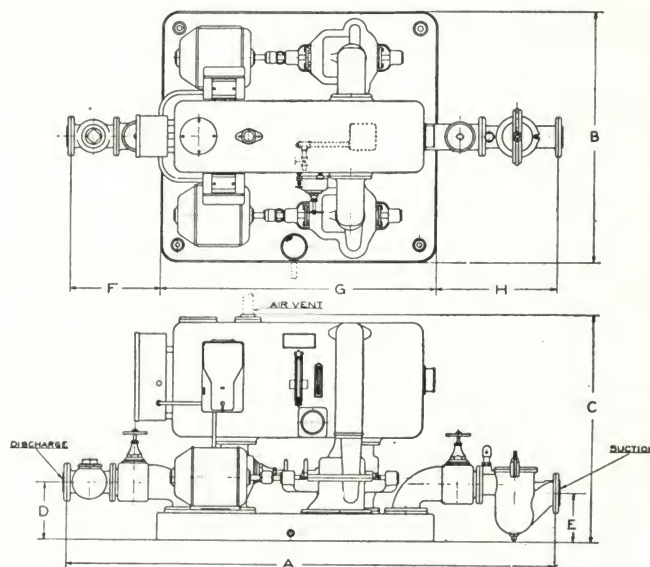
Dual electric control shall be included and shall consist of *vacuum regulator* with *on and off switch*, and *float* with *float switch* controlling an *automatic starter*. Starter shall also be equipped with *manual control* to permit *continuous operation*. All equipment shall be enclosed, wired and conveniently mounted on receiving tank by the pump manufacturer.

The pump manufacturer shall guarantee to the building owner the pumping equipment against wear for a period of 3 years from date of shipment.



Single Units

Size No.	DIMENSIONS, INCHES										Suction	Discharge	Air vent
	A	B	C	D	E	F	G	H					
12	62 3/8	32 1/2	48 1/4	9 3/8	8 5/8	...	48 3/4	14 1/8	3	2	1 1/2		
16	62 3/8	32 1/2	48 1/4	9 3/8	8 5/8	...	48 3/4	14 1/8	3	2	1 1/2		
26	67 1/4	32 1/2	48 1/4	9 3/8	8 5/8	4 3/8	48 3/4	14 1/8	3	2	1 1/2		
40	78 3/4	37	49 5/8	11 1/4	10 7/8	4	57 1/2	17 1/4	4	2 1/2	1 1/2		
65	81 3/4	37	49 5/8	11 1/4	10 7/8	7	57 1/2	17 1/4	4	2 1/2	1 1/2		
100	96 3/4	50	58	13 3/8	14	4	72	20 3/4	6	3	1 1/2		
150	96 3/4	50	58	13 3/8	14	4	72	20 3/4	6	3	1 1/2		



Duplex Units

Size No.	DIMENSIONS, INCHES													Suction	Discharge	Air vent
	A	B	C	D	E	F	G	H								
12	85	49 1/2	48 1/4	10 7/8	9 1/8	14 3/8	48 3/4	21 5/8	3	2 1/2	1 1/2					
16	85	49 1/2	48 1/4	10 7/8	9 1/8	14 3/8	48 3/4	21 5/8	3	2 1/2	1 1/2					
26	85	49 1/2	48 1/4	10 7/8	9 1/8	14 3/8	48 3/4	21 5/8	3	2 1/2	1 1/2					
40	106 1/2	53 1/2	49 5/8	12 3/4	10 7/8	19 1/4	60 1/2	26 3/4	4	3	1 1/2					
65	106 1/2	53 1/2	49 5/8	12 3/4	10 7/8	19 1/4	60 1/2	26 3/4	4	3	1 1/2					
100	135	72	58	16	14	27	72	36	6	4	1 1/2					
150	135	72	58	16	14	27	72	36	6	4	1 1/2					

CHICAGO PUMP COMPANY

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Colorado
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MCALLEN, HARRY L. DRAPER
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Washington
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West Virginia
CHARLESTON, H. DE B. MINER, 1616 Virginia St.

Wisconsin
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MILWAUKEE, ALLAN ENGINEERING Co., 480 Market Street

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"AUTOMATIC ALTERNATORS" for Duplex Pumps
"FLUSH KLEEN," "NON-CLOG" and STANDARD SEWAGE
EJECTORS; BILGE PUMPS; CELLAR DRAINERS.
CONDENSATION PUMPS, Horizontal and Vertical.
"CONDO-VAC" RETURN LINE VACUUM and BOILER FEED
PUMPS.

HORIZONTAL SPLIT SHELL CENTRIFUGAL PUMPS for Fire,
Booster, Sprinkler-filling, House Circulating, Brine, Sugar
House and Various Commercial Services.

PNEUMATIC and TANKLESS WATER SYSTEMS.
General Catalogue filed under A.I.A. No. 29d5.

"Automatic Alternator" (Patented)

The "Automatic Alternator" is a simple mechanical device
which automatically alternates the operation
of any duplex set of electric motor driven
pumps.

The Alternator supplants the conventional
four-pole double throw transfer switch generally
used to manually alternate duplex pump
units.

The Alternator automatically transfers the
operation from one pump to another, thereby
equalizing the wear on both pumps, and increasing
the life of both pumps.

It prevents rusting of idle pump, thereby
avoiding constant blowing of fuses, and possible
burning out of motors and starters.

It keeps both pumps in good running
order, thereby maintaining a much higher effi-
ciency, and saving operating expenses and repair
bills.

Bulletin 142 gives complete information and
specifications.



Fig. C-73
Automatic
Alternator

"Little Giant" Automatic Electric Cellar Drainer

The "Little Giant" is a small bilge
pump made primarily to drain cellars.
"Little Giant" is complete including
cord and plug for connecting to light
socket. Fig. 1870 is provided with
tripod legs for standing on cellar
floor. Fig. 1871 is provided with a
floor plate for use with a basin.
Either style is portable and may be
transported from place to place.
Either style will fit in a 3-ft. deep
tile, 15 in. in diameter where Fig.
1870 is used, and 12 in. in diameter
when Fig. 1871 is used.

"Little Giants" are as thoroughly
and precisely built as the big "Chi-
cago" Pumps. Full ¼ hp. motors
are used. Orange helmet protects motor from dam-
age. Switch is simple and positive. Flexible cou-
pling connects motor to pump shaft. Shaft is covered from
top to bottom. Three bearings insure smooth operation.
Bronze impeller is of the non-overloading type.

CHICAGO PUMP COMPANY manufactures a complete line of
bilge pumps in single and duplex. Capacities range from
15 to 2000 gal.—motors at speeds of 870, 1140, 1425, 1725 r.p.m.

Bulletins 119, 120 and 122 give complete information and
specifications.

CAPACITIES AND HEADS FOR "LITTLE GIANT"

1750 r.p.m. (d.c. or 60 cycle a.c.)				1450 r.p.m. (25 or 50 cycle a.c.)			
Capacity, g.p.m.	Head, ft.	Capacity, g.p.m.	Head, ft.	Capacity, g.p.m.	Head, ft.	Capacity, g.p.m.	Head, ft.
10	22	35	14	10	17	35	10
20	20	40	12	20	15	40	7
25	18	45	8	25	15		
30	16	50	5	30	12		



Fig. No.
1870



Fig. No. 1871

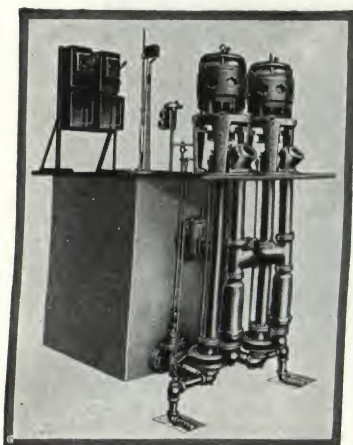
"Flush-Kleen" Sewage Ejector with Self-cleaning Strainer

Fig. 2045
Duplex "Flush-Kleen" Ejector,
Dry Basin Type

too great for one pump to handle, the second pump automatically cuts in. Made with square or round basins, either submerged or dry basin type. *Bulletin 125 gives complete tables, layouts and specifications.*

Three Major Claims for "Flush-Kleen" Sewage Ejector—(1) The "Flush-Kleen" Sewage Ejector will discharge larger and heavier materials than other ejectors of similar size and horsepower.

(2) The "Flush-Kleen" Sewage Ejector will pump successfully into the sewer any sewage or foreign material which can run into basin from sanitary waste lines.

(3) The "Flush-Kleen" is equipped with an "Automatic Alternator." This operates first one pump and then the other. It is the only device of its kind, and is manufactured solely by CHICAGO PUMP COMPANY.

Rags, Sticks, Papers, Cannot Clog a "Flush-Kleen"—Sewage Never Touches the Impeller—The "Flush-Kleen" Sewage Ejector eliminates the objectionable work of emptying and cleaning strainer baskets. Sewage is automatically strained as it enters the basin. Strainer is cleaned on each operation of pump by a reversal of flow in the discharge pipe. Sewage may flow into basin continuously whether pumps are idle or operating. When the inflow becomes

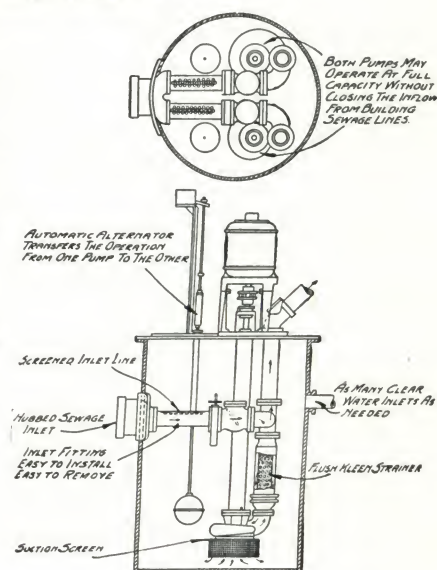


Fig. 2044
Diagram of "Flush-Kleen" Ejector

Duplex Submerged "Flush-Kleen" Sewage Ejector Specifications

Furnish and install where indicated on plans, one duplex set of CHICAGO PUMP COMPANY's automatic, electric motor driven, Submerged "Flush-Kleen" Type Sewage Ejectors, each ejector to have a capacity of gallons per minute when discharging against a head of feet. Ejectors to be inches heavy duty Sewage Pumps, fitted with individual "Flush-Kleen" strainers employing the flow-reversal principle. Pump shafts shall be fitted with stuffing boxes; also with bronze intermediate bearings if basin depth exceeds 5 ft.

Motors—Pumps to be direct connected by flexible couplings to horsepower, 40 degree, volt, current, 1140 r.p.m. vertical type electric motors. Motors must be capable of operating continuously without undue heating, sparking or sign of overload.

Automatic Control Equipment—Furnish and install near pumps, a duplex automatic control panel arranged for floor mounting and having mounted thereon two enclosed fused, main line switches, and two enclosed type current automatic starters, providing overload and undervoltage protection. Two cast iron pedestals 40 in. in height will be mounted on basin cover.

Automatic Alternator—Provide a CHICAGO PUMP COMPANY's Automatic Alternator which will automatically transfer the operation from one pump to the other. This Alternator shall also start the pump not in service in event of failure of the pump first in service to handle the load.

High Water Alarm—Install a complete self-contained high water alarm which will ring a 4-in. bell in event of failure of pumps or electric motors.

Ejector Basin—Furnish and install a cast iron basin inches in diameter and 48 in. deeper than the lowest inlet entering it. Basin to be provided with a heavy cast iron cover having a 12x18-in. manhole, and necessary openings for pumps, automatic control apparatus, high water alarm and 4-in. vent opening which shall run to stack. All sewage and sanitary waste shall enter the basin through (one) sewage inlet opening.

Pipe Connections—Make connections to discharge fittings of pumps, placing in each discharge line near the pumps, a union, a check valve and a gate valve. The unions to be located nearest the pumps, and the check valves between the unions and the gate valves.

Electrical Wiring and Connecting—The electrical contractor will bring his service to within 10 ft. of pumps and make connections to main line switches. He shall also make electrical connections of the high water alarm transformer which shall be connected with the lighting service of the building, and not with the power service.

"Non-clog" and Standard Sewage Ejectors

CHICAGO PUMP COMPANY's line of ejectors is complete in sizes and styles. There is a line of Standard Ejectors, another line of "Non-clog" Ejectors and still another in "Flush-Kleen" Ejectors. Chicago Ejectors are made up in single and duplex. Capacities up to 3000 g.p.m.

The "Flush-Kleen" line is recommended wherever possible. Its efficiency, dependability and cleanliness as compared with the old-fashioned strainer basket type make it the first choice of all sewage ejectors. (See description above.)

Tables of capacities and horsepowers in next column are accurate for "Flush-Kleen" Ejectors, but can be used to approximate sizes in the Standard and "Non-clog" lines.

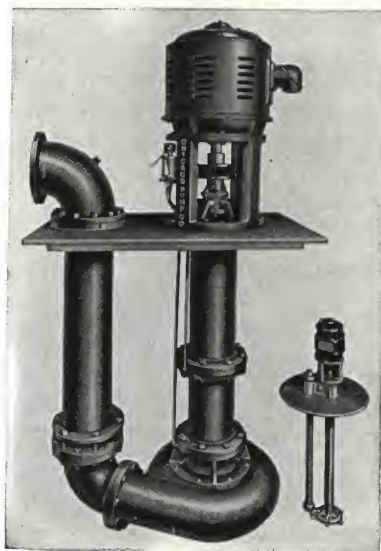


Fig. No. 2062
Non-Clog Vertical Pump

Standard Ejectors completely described in Bulletins 122, 123, 128.
"Non-clog" Ejectors completely described in Bulletins 126, 128.
"Flush-Kleen" Ejectors completely described in Bulletin 125.

"FLUSH-KLEEN" SEWAGE EJECTOR ENGINEERING TABLES—PARTIAL ONLY

Partial Table of Capacities and Horsepower at 1140 r.p.m.

Unit No.	Type and frame No. of pump	Inlet and discharge connections, in.	Fittings between wet basin, and sewage inlet and discharge connections, in.	Capacity, g.p.m.	Will pump against a total head, ft.	Hp. motor
K1000	L3	6	4	100	16	1½
K1007	LL4	6	4	100	104	15
K1008	L3	6	4	125	14	1½
K1015	LL4	6	4	125	98	15
K1016	L3	6	4	150	17	2
K1024	LL4	6	4	150	100	20
K1025	L3	6	4	200	16	3
K1030	LL4	6	4	200	94	15
K1031	L4	6	4	250	17	3
K1036	LL4	6	4	250	92	20
K1037	L4	6	4	300	13	3
K1042	LL4	6	4	300	85	20
K1043	L4	8	6	400	20	5
K1049	LL4	8	6	400	74	25
K1050	L4	8	6	500	16	5
K1053	L5	8	6	500	51	15
K1054	L5	8	6	500	56	20
K1055	L5	8	6	750	16	7½
K1058	L5	8	6	750	51	20
K1059	L5	8	6	1000	14	10
K1061	L5	8	6	1000	33	20
K1062	L5	8	6	1000	41	25

*Partial list only.

Other tables at motor speeds of 1425 and 1720 r.p.m. for "Flush-Kleen," "Non-clog" and Standard Ejectors gladly furnished on request.

"Condo-Vac" Vacuum and Boiler Feed Pump

"Condo-Vac" Features—(1) "Condo-Vac" has a centrifugal air pump.

(2) Does not depend on close clearances for efficiency. No adjustments are necessary.

(3) Has "sustained efficiency"—uses same amount of power and gives same results, year after year.

(4) Low inlet—10 in. off floor.

(5) Pump casing horizontally split.

(6) Unit is complete, connected up ready to work.

(7) Duplex and single units in sizes up to 100,000 sq. ft. of direct radiation.

"Condo-Vac" Specifications

Furnish and install, where indicated on plans, one CHICAGO PUMP COMPANY'S "Condo-Vac" centrifugal return line vacuum pump and receiver complete with all apparatus necessary for automatic vacuum and float switch control. This equipment shall be [single] [duplex] and shall have a capacity of sq. ft. of direct radiation and shall be capable of discharging the condensate to the boiler against a pressure of lb.

Further complete specifications will be sent on request.

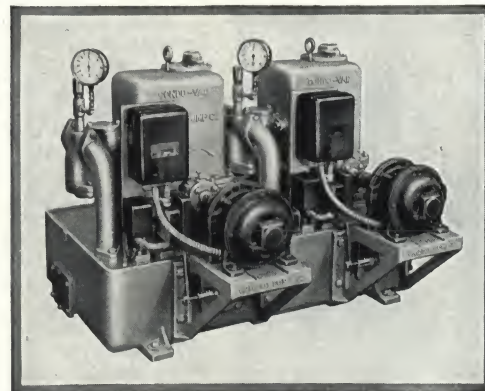


Fig. 1981

Duplex "Condo-Vac" Vacuum and Boiler Feed Pump**CONDO-VAC TABLES—PARTIAL ONLY—SINGLE AND DUPLEX—FOR 10 LB. PRESSURE AT 1720 R.P.M.**

Unit No.	Direct radiation, sq. ft.	Hp. motor furnished per pump	Air capacity, c.f.m., per pump*	Water pump capacity, g.p.m. per pump	Dimensions, in.		Receiver capacity, gals.		Radiation listed will condense, g.p.m.	Approx. shipping weight, lbs.		Approx. floor space, duplex, sq. ft.
					Return inlet	Pump discharge	Single	Duplex		Single	Duplex	
2501	8,000	1	5	12	2	1 1/4	30	54	4	1225	2440	48x56
2502	16,000	1 1/2	9	24	3	1 1/4	40	72	8	1400	2800	56x60
2503	26,000	2	15	39	3	1 1/2	52	100	13	1650	3350	60x62
2504	40,000	3	19	60	4	2	70	120	20	1900	4000	66x62
2505	65,000	5	34	96	4	2	88	165	32	2250	4550	74x66
2506	100,000	7 1/2	52	140	6	3	122	250	50	2700	5300	86x68

*10-in. vacuum.

Bilge Pumps

For pumping water out of basements located below the sewer level.

They are fitted with oil lubricated bronze bearings every 4 ft.; self-aligning ball thrust bearing, flexible couplings, a double carbon contact type float switch and a Square D main line switch. All mounted on one pedestal. Automatic apparatus is totally enclosed.

Made in all sizes from 15 to 1500 gal. per minute and in single or duplex.

Duplex Bilge Pump Specifications

Furnish and install where indicated on plans, one duplex set of CHICAGO PUMP COMPANY'S Automatic Electric Bilge Pumps. Each pump to have a capacity of gallons per minute when pumping against a head of feet. Pumps to be fitted with oil lubricated adjustable radial ball thrust bearing contained in a dustproof housing located above floor plate of pump, and intermediate guide bearings every 4 ft. to guide the shaft. Suction of pumps to be fitted with strainer of large area.

***CAPACITIES, HORSEPOWER AND FLOOR SPACE, AUTOMATIC ELECTRIC BILGE PUMPS AT 1720 R.P.M.**

Unit No.	Type and frame No. of pump	Dis-charge, in.	Capacity, g.p.m.	Will pump against a total head, ft.	Hp. motor	Floor space req'd	
						Diam. basin, single pump, in.	Diam. basin, duplex set of pumps, in.
SK153	L-1	1 1/2	30	21	1/2	30	42
SK159	L-1C	1 1/2	50	24	3/4	30	42
SK180	L-1D	2 1/2	100	19	1 1/2	36	42
SK199	L-1D	2 1/2	150	20	2	42	48
SK206	L-3	3	200	22	3	42	48
K222	L-5	5	300	100	20	48	60
K236	L-5	5	400	100	25	48	60
K244	L-5	5	500	82	25	60	72
K250	L-5	6	750	80	40		
K256	L-5	6	1000	68	40		

Units include pump, motor, automatic apparatus. Cast iron basin cover and basin are extra.

All basins should be 36 in. deeper than lowest inlet.

Bilge pumps up to 1500 g.p.m. are also manufactured; write for complete catalogue. Tables for higher heads and other speeds on request.

*Partial list, ask for Bulletin 122.



Fig. No. 1957

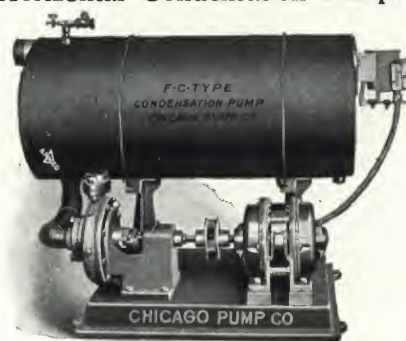
Automatic Electric Bilge Pump**Horizontal Condensation Pumps and Receivers**

Fig. No. 1931

Condensation Pump and Receiver***CAPACITIES, HORSEPOWER AND FLOOR SPACE, LOW PRESSURE AUTOMATIC CONDENSATION PUMP AND RECEIVER**
For 10 lb. pressure at 1720 r.p.m.

Unit No.	Max. direct radiation, sq. ft.	Hp. motor	Size, in.		Pump capacity, g.p.m.	Radiation listed will condense g.p.m.	Receiver, in.	Capacity of receiver, gal.	Approx. floor space required, in.	Highest water level in receiver from floor line, in.	Type and frame No. of pump	Approx. shipping wt., lb.
			Dis-charge	Inlet								
K1575	3000	1/2	1	3	5	1 1/2	17x20	20	17x50	23	V1	500
K1576	6000	1/2	1	3	10	3	17x20	20	17x50	23	V1	500
K1577	10000	1/2	1	3	15	5	24x30	59	24x60	29	V1	525
K1579	20000	3/4	1 1/4	3	30	10	24x30	59	24x60	29	V1	550
K1581	35000	1	1 1/2	3	50	17 1/2	30x42	128	61x34	39	V1	670
K1582	50000	1 1/2	2	3	75	25	30x48	147	65x36	41	V2	780

*Partial list only, see Bulletins 129 and 131.

Vertical Condensation Pumps and Receivers

Where the piping arrangement requires a pump pit, no longer is it necessary to allot a great amount of space for a horizontal pump.

The Chicago Vertical Condensation Pump is ideal where the returns come back below the floor. Some manufacturers sell ordinary bilge pumps for this class of service, but we recommend an especially designed pump to handle the varying temperatures of the condensate.

Ask for Bulletin 133.



Fig. 1940

Vertical Condensation

Horizontal Pumps

Made in both styles of casings—horizontally and vertically split—in single and multistage. They are manufactured for numerous purposes, including: boiler feed; booster service for hotel, hospital, apartment and office buildings; pneumatic systems (in connection with air compressors); ice water circulating

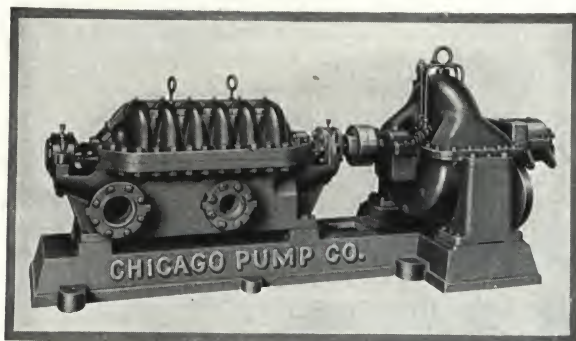


Fig. No. 1907

Type H-S 6-Stage Pump for High Pressures

ing and hot water circulating, and various Industrial services. Drive may be Electric Motor, Gas Engine, or Steam Turbine.

Complete details and tables in Bulletins 101 and 101A.

Duplex Gravity Tank House Pump Specifications

Furnish and install on concrete foundation where indicated on plans, two CHICAGO PUMP COMPANY's automatically controlled centrifugal house pumps, each having a capacity of gallons per minute when pumping into gravity tank against a head of feet, not including friction and with city pressure figured at not more than pounds at suction of pumps. Pumps shall be CHICAGO PUMP COMPANY's type inch full bronze fitted centrifugal pumps, each mounted on a heavy machine cast iron subbase and direct connected by flexible coupling to electric motor.

Fire Pumps—Electric or Gas Engine Driven, Centrifugal—Underwriters Approved

"Chicago" Fire Pumps were the first ball bearing fire pumps to pass Underwriters' tests. "Chicago" Fire Pumps are approved by National Board of Fire Underwriters and Associated Factory Mutual Fire Insurance Companies as well as State and municipal fire prevention bureaus.

*CAPACITIES, HORSEPOWER AND FLOOR SPACE, TYPES M, D AND HS HORIZONTAL PUMPS—PARTIAL ONLY

Unit No.	Type of pump and frame No.	Size of pump, in.	Number of stages	Capacity, g.p.m.	Will pump against a head, ft.	Hp. motor	Approx. floor space required in.
SK-4	MA	1	1	10	56	1	18 x 39
SK-6	MA	1	2	10	112	2	19 x 45
SK-7	MA	1	3	10	168	3	19 x 50
SK-2903	DS	1½	1	25	55	1½	19 x 44
SK-23	MA	1½	2	25	71	2	19 x 45
SK-28	MA	1½	5	25	265	7½	24 x 58
SK-43	MA	1½	2	50	87	3	19 x 46
SK-45	MA	1½	3	50	147	5	19 x 53
SK-61	MB	2	4	50	345	15	30 x 65
SK-53	MA	1½	3	75	107	5	19 x 53
SK-56	MA	1½	5	75	210	10	30 x 62
SK-3113	DS	2½	1	100	143	10	24 x 58
S-4205	HS	2	3	100	258	20	25 x 60
SK-84	MB	2½	5	100	420	30	30 x 76
SK-3120	DS	2½	1	150	117	10	24 x 58
SK-3128	HS	2	4	150	422	40	30 x 84
S-4125	HS	2	2	200	93	10	24 x 58
SK-3136	DS	2½	1	200	197	20	26 x 72
S-4227	HS	2	3	200	384	40	30 x 79
S-4414	HS	3	3	250	77	10	24 x 58
SK-3144	DS	2½	1	250	234	30	30 x 79
SK-3313	DL	3	1	250	351	60	38 x 94
SK-3405	DL	4	1	350	46	10	24 x 58
SK-3413	DL	3	1	350	112	20	28 x 61
SK-4752	HS	5	2	400	190	40	31 x 72
SK-3413	DL	4	1	400	344	75	40 x 100
SK-4755	HS	5	2	500	45	10	31 x 64
†SK-3428	DL	4	1	500	304	75	40 x 100
†SK-3435	DL	4	1	700	32	10	31 x 64
†4764	HS	5	2	700	180	60	31 x 75
†4771	DS	6	1	1000	70	20	26 x 69
†4764	HS	5	2	1000	285	125	44 x 106
†4745	DS	6	1	1500	99	50	32 x 82
†4748	DS	6	1	1600	38	25	34 x 84

*Partial list.

†Limited space does not permit showing medium capacities and heads in 700, 1000 and 1500 g.p.m. Write for Bulletin 101-A for complete engineering data.

"Chicago" Fire Pumps are made in both single-stage and multistage with capacities ranging from minimum of 500 g.p.m., to as large as required. Fire pump fittings as required by Underwriters and local fire authorities are furnished. Illustration shown is that of a typical fire pump with fittings required by the Underwriters.

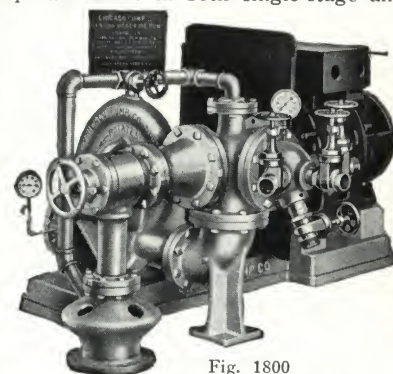


Fig. 1800

CHICAGO PUMP COMPANY also manufactures a complete line of booster and tank filling pumps as well as gas engine driven fire pumps for subdivisions, villages, factory and auxiliary use. Installation diagrams are furnished for each job by the Engineering Department. Fire, booster and tank filling pumps are described in detail in Bulletin 104.

Underwriters Fire Pump Equipment Specifications

Fire Pump—Furnish and install where indicated on plan, one automatic electric motor driven approved fire pump with all auxiliary apparatus to make a complete fire pump installation.

Pump to be CHICAGO PUMP COMPANY's approved centrifugal fire pump having a capacity of gallons per minute when discharging against a pressure of pounds with city pressure figured at zero. The pump shall be mounted on a heavy cast iron subbase and direct connected by flexible coupling to the electric motor. Mount pump and motor on a concrete foundation of proper dimensions, installing between them in an approved manner, sheet iron splash partition.

Furnish complete automatic and manual enclosed fire pump control panel.

Pump motor, panel and method of installation to conform to National Board of Fire Underwriters, Associated Factory Mutual Fire Insurance Companies, and State and local fire prevention bureaus.

Pneumatic Water Supply Systems

Pneumatic water supply systems are used where it is desired to supply water automatically in any size or style of building without the use of a roof or gravity tank. Apartment buildings, schools, hotels, clubs, mercantile buildings and factories use pneumatic systems where city water pressure is insufficient to supply the building. "Chicago" Pneumatic Sys-

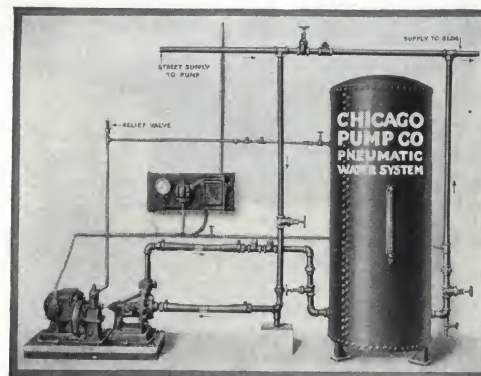


Fig. 2016

Pneumatic Water System

tems can be had with any size pump in either single or duplex systems and are furnished complete with pump, compressor, tank and control apparatus.

Units are made up to provide any desired amount of water at any pressure. Ask for Bulletin 111.

Tankless Systems—Another method of supplying water to buildings is the tankless system. This system is placed in a building where the city water pressure takes care of the requirements under ordinary conditions, but is too low on extremely hot days or at peak load periods. The tankless system is recommended for this periodical service. See Bulletin 113.

GOULDS PUMPS, INCORPORATED

SENECA FALLS, N. Y.

BRANCHES

NEW YORK, N. Y., 16 Murray Street and 19 Park Place
BOSTON, MASS., 194 Congress Street
PITTSBURGH, PA., 636 H. W. Oliver Building
HOUSTON, TEX., 1902 Second National Bank Building

TULSA, OKLA., 213 E. Archer Street
REPRESENTATIVES IN ALL OTHER PRINCIPAL CITIES

CLEVELAND, OHIO, 627 Union Trust Building
CHICAGO, ILL., 12-14 South Clinton Street
PHILADELPHIA, PA., 111 North 3rd Street
ATLANTA, GA., Citizens & Southern Bank Building

Products

CENTRIFUGAL PUMPS of all kinds, including:
Single and Multi-stage, Single or Double Suction
Pumps for Booster and House Service.
Condensation Return Pumps for Heating Systems.
Underwriters' Fire Pumps, single and multi-stage.

Sump Pumps and Cellar Drainers.
Automatic Water Systems for country and sub-urban houses.

Also Reciprocating and Triplex Pumps, High Lift Pumps, Deep Well Pumps, Rotary Pumps, Contractors' Pumps, etc.

CENTRIFUGAL PUMPS FOR BOOSTER AND HOUSE SERVICE

Single Stage, Single and Double Suction

Ball Bearing Type

These are high grade centrifugal pumps for a wide range of capacities, high heads and high efficiencies at medium and high speeds—ratings formerly obtainable only with the more expensive multi-stage pumps. They are particularly suitable for house pumps in hotels, apartment houses and office buildings and as general service pumps.

Construction of these three pumps is similar: Casing is cast iron, divided horizontally, the two castings bolted together; the lower half of the casing also

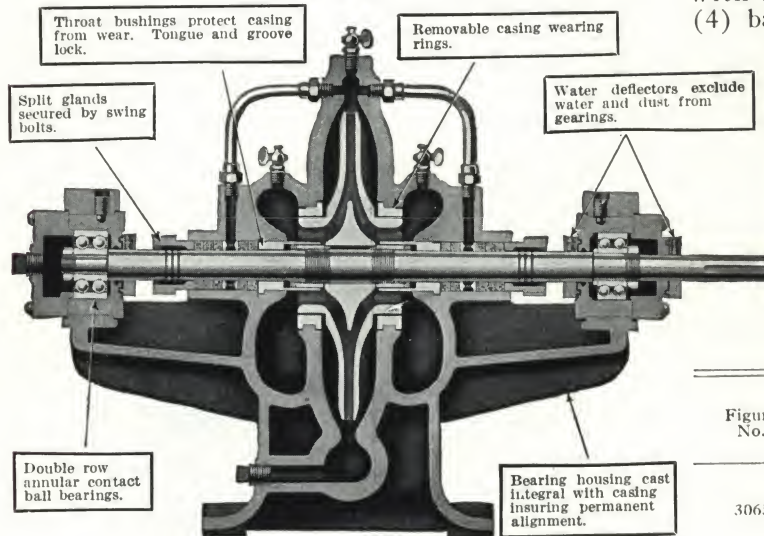


Fig. 3480. Sectional View of Single-stage, Ball Bearing Centrifugal Pump

contains the suction and discharge nozzles; casing is provided with air cocks and with openings for priming and draining.

The chief features are shown in the accompanying sectional view. They are supplied standard fitted, bronze fitted, all iron, or all bronze.

Figure No.	Pump size, in.	Pipe sizes, in.		Approx. capacity gal. per min.	
		Discharge	Suction	Min.	Max.
3480	1½	1½	2	15	200
3450	2	2	2	50	120
3470	3	3	3	75	375
3480	2½	2½	3	100	475
3450	4	4	5	300	600
3450	6	6	8	500	2000
3450	*14	14	16	2200	12,000
3450	*16	16	18	3000	15,000

*Companion flanges not furnished on pumps larger than 12 in.

Sleeve Bearing Type

Sound mechanical design ranks with high efficiency in these pumps which are the result of over 19 years of research and development in the centrifugal pump field.

Features of Construction—(1) Close grained cast iron casing divided horizontally; (2) balanced impeller; (3) ring oiling type bearings with split cast iron shells lined with babbit metal; (4) ball thrust bearings; (5) special alloy steel shaft; (6) extra long stuffing box with brass water seal ring; (7) horizontally split glands adjusted by swing bolts; (8) bronze casing wearing rings; (9) flexible pin-and-buffer type coupling; (10) pump and prime mover mounted on cast iron bedplate with drip canal.

Four constructions same as ball bearing type.

FOR HEADS UP TO 231 FT.

Figure No.	Pump size, in.	Pipe sizes, in.		Approx. capacity gal. per min.	
		Discharge	Suction	Min.	Max.
3065	5	5	6	400	800
	6	6	8	600	1300
	8	8	10	1000	2700
	10	10	12	2000	4400
	12	12	14	3000	6000
3075	5	5	6	400	900
	6	6	8	600	1500
	8	8	10	1100	2900
3085	2	2	3	50	325
	3	3	4	150	350
	4	4	5	250	750
	5	5	6	400	1000
	6	6	8	800	1700
	8	8	10	1300	3000
3095	2	2	3	50	250
	3	3	4	200	450
	4	4	5	400	800
	6	6	8	500	2000

Bulletin No. 200 with Charts

This bulletin will prove invaluable when selecting a single stage centrifugal pump for any condition. It is devoted to those types and sizes which take care of the average pump requirements and contains charts showing the extremely wide range of capacities and heads covered by these pumps. Sent upon request.

MEDIUM PRESSURE MULTI-STAGE CENTRIFUGAL PUMPS—VOLUTE TYPE, SINGLE SUCTION

These pumps are designed for use against very high heads and are therefore suited for use as house service pumps in very high buildings.

Features of Construction

Spiral water passages give free flow of water from suction to discharge without abrupt turns. Due to the construction of the casing, the energy conversion from velocity head to pressure head takes place in the volute itself. High efficiencies are the result.

These pumps have very few so-called sealing surfaces. This reduces the possibility of leakage from high pressure to lower pressure chambers and makes for high continued efficiency.

It is of very simple construction: by removing the upper half of the casing, the entire pump is opened for inspection. The rotating element may be removed and replaced with the same ease as in an ordinary single-stage pump. Wearing rings are held in position by lugs which fit snugly into the casing.

Every wearing surface is protected by a renewable part. It is not necessary to renew or rebore the casing because of wear.

Each impeller is hydraulically balanced. A double acting ball thrust bearing takes care of any unbalancing due to wear.

Two volutes of equal size are placed diametrically opposite each other in each stage. This gives more perfect transformation of velocity into pressure, makes the pump more efficient and results in a strong symmetrical casing.

Types of Construction

Bronze Fitted Pumps—Have single suction enclosed type impellers, casing wearing rings, shaft sleeve water seal rings and bushings of bronze, shaft of alloy steel, heat treated, casing and glands of cast iron.

All-iron Pumps—Have all parts coming in contact with the liquid made of bronze.

Bulletin No. 201 with Charts

Bulletin No. 201 contains invaluable information for selecting a multi-stage centrifugal pump for any condition. It is devoted to types and sizes which will take care of the average pump requirements and contains charts showing the extremely wide range of capacities and heads covered by these pumps. Sent upon request.

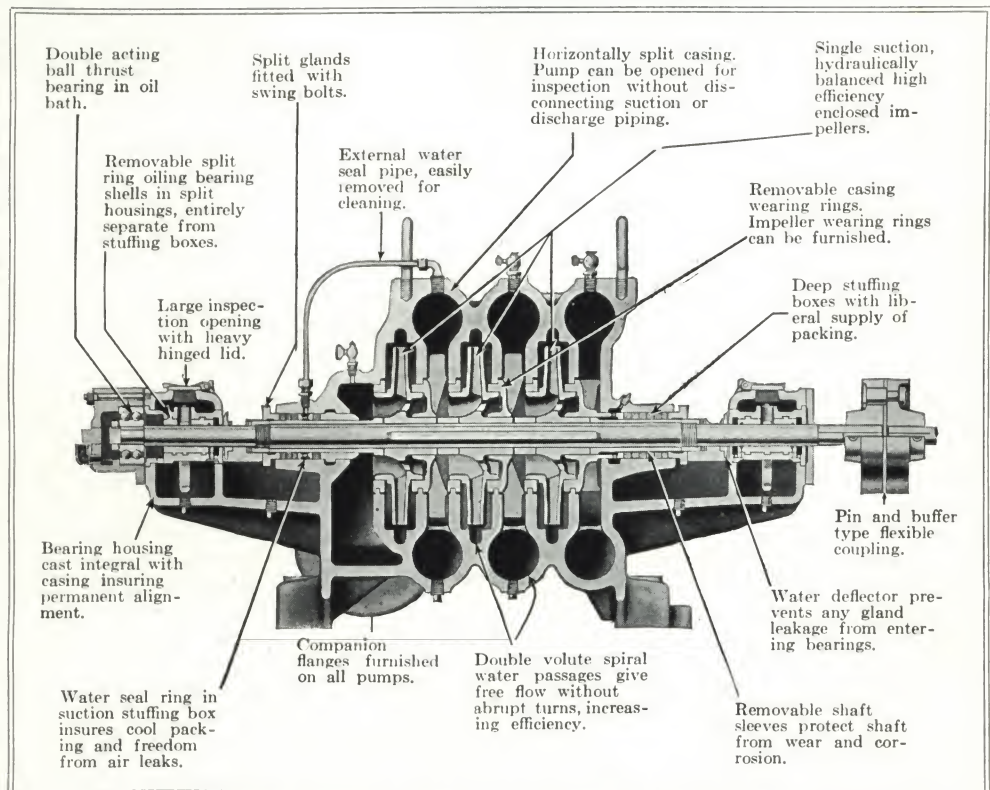


Fig. 3330 Sectional View of Multi-stage Centrifugal Pump

All Ball Bearing Type Fig. 3335

Designed for high speed. Deep groove, double row ball bearings, securely locked to shaft, are mounted in cart-ridge type shells and are sealed against moisture and dust.

Thrust bearing, mounted in outboard housing, securely locked in position against end movement.

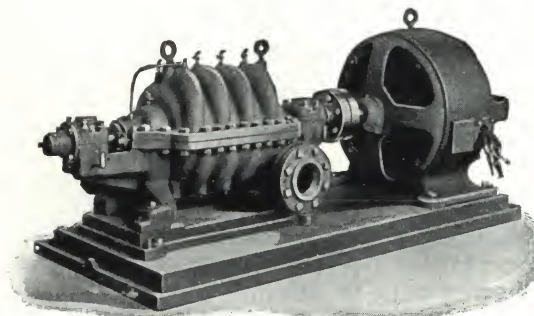


Fig. 3330 Direct Connected to Electric Motor

Sleeve Bearing Type Fig. 3330

Bearings, horizontally split, cast iron shells, bab-bitted, bored, seamed and scraped to a running fit. Ring oiled and protected against moisture and dirt.

Double acting ball thrust bearing, mounted in the out-board bearing housing, runs in.

SIZES AND CAPACITIES FIG. 3335

Pump size, in.	Pipe size, in.		Approx. cap. gal. per min.		Maximum number stages
	Suction	Discharge	Minimum	Maximum	
3	3	3	100	280	6
4	4	4	120	500	6
5	5	5	200	900	5
6	6	6	300	1100	5

SIZES AND CAPACITIES FIG. 3330

Pump size, in.	Pipe size, in.		Approx. cap. gal. per min.		Maximum number stages
	Suction	Discharge	Minimum	Maximum	
3	3	3	40	280	6
4	4	4	120	500	6
5	5	5	200	900	5
6	6	6	300	1700	5
8	8	8	350	2000	4

GOULDS UNDERWRITERS' FIRE PUMPS

Centrifugal Fire Pumps

Goulds Single and Multi-stage Centrifugal Pumps are built to the specifications of the National Fire Protection Association and have been tested and listed as standard by the Underwriters' Laboratories, Inc., and the Associated Factory Mutual Fire Insurance Companies.

Goulds Centrifugal Fire Pumps can be used to discharge direct into hose lines, or in connection with automatic sprinkler systems. They are built for direct connection to electric motors, gasoline engines or steam turbines.

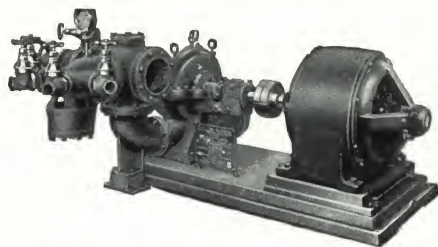


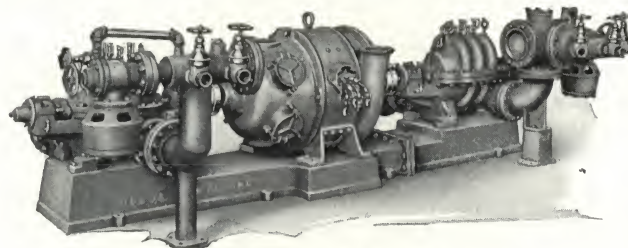
Fig. 3099. No. 6 1000-gal. Single-stage Fire Pump

Special Fire Pumps

Special conditions often require special fire pump units which are designed and built for each individual installation. Local boards of fire underwriters pass on such units for approval. Unit shown below was approved for 40-story building. It consists of a Fig. 3330, 6-in., 3-stage pump complete with Underwriters' fittings. Capacity 750 g.p.m., 175 lb.; and a Fig. 3330, 5-in., 2-stage pump complete with Underwriters' fittings. Capacity 500 g.p.m., 100 lb.

Operated either singly or in series giving 1250 gal. for low pressure service and 500 gal. for 275 lb. service.

Quotations and full recommendations furnished upon receipt of full information regarding requirements.



Goulds Special Fire Pumping Unit

TABLE SHOWING THE PUMP TO USE FOR ANY CONDITION

Type of drive	Capacity, g.p.m.	Number of 1½-in. fire streams	Speed, r.p.m.	100 lb. total head		125 lb. total head		150 lb. total head	
				Pump	Hp.	Pump	Hp.	Pump	Hp.
Electric motor	500	2	1450 1750	Fig. 3014 No. 4—3 stage Fig. 3014 No. 4—2 stage	50 50	Fig. 3014 No. 4—3 stage	75	Fig. 3014 No. 4—3 stage	75
	750	3	1450 1750	Fig. 3014 No. 5—3 stage Fig. 3014 No. 5—2 stage Fig. 3099 No. 5	75 75 75	Fig. 3014 No. 5—3 stage	100	Fig. 3014 No. 5—3 stage	125
	1000	4	1150 1450 1750	Fig. 3014 No. 6—3 stage Fig. 3014 No. 6—2 stage Fig. 3014 No. 6—2 stage Fig. 3099 No. 6	100 100 100 100	Fig. 3014 No. 6—2 stage	125	Fig. 3014 No. 6—3 stage Fig. 3014 No. 6—2 stage	150 150
	1500	6	1150 1450 1750	Fig. 3014 No. 8—3 stage Fig. 3014 No. 8—2 stage Fig. 3014 No. 8—2 stage Fig. 3089 No. 8	150 150 150 150	Fig. 3014 No. 8—2 stage	200	Fig. 3014 No. 8—3 stage Fig. 3014 No. 8—3 stage	200 200
Steam turbine	500	2	1950	Fig. 3014 No. 4—2 stage	52	Fig. 3014 No. 4—2 stage	66	Fig. 3014 No. 4—2 stage	80
	750	3	1950	Fig. 3014 No. 5—2 stage	73	Fig. 3014 No. 5—2 stage	96	Fig. 3014 No. 5—2 stage	115
	1000	4	1950	Fig. 3099 No. 6	90	Fig. 3014 No. 6—2 stage	123	Fig. 3014 No. 6—2 stage	151
	1500	6	1950	Fig. 3089 No. 8	131			Fig. 3014 No. 8—2 stage	200
Gasoline engine	500	2	1200	Fig. 3014 No. 4—3 stage	54				
	1000	4	1200	Fig. 3014 No. 6—3 stage	94				
	1500	6	1200	Fig. 3014 No. 8—3 stage	131	Fig. 3014 No. 8—3 stage	166		

GOULDS CONDENSATION OUTFITS

These outfits are designed to handle the condensate from a steam or vapor heating system. They consist of a vertical centrifugal pump mounted on a galvanized iron receiver, a ball float and automatic control switch.

They are exceptionally well built and will give years of satisfaction.

The same material and careful workmanship go into these outfits as into the larger pumps.

The vertical type is superior to the horizontal type because it requires less floor space, is simpler in construction, more positive in operation, requires no concrete pit and when necessary to install below the floor level requires a much smaller excavation.

Features—(1) Compact and self-contained requiring very little floor space; (2) easy to install, the outfits being shipped as complete units; (3) automatic in operation, a dependable float switch starting and stopping the pump automatically; (4) vapor-tight so that they may be used under pressure if desired.

Capacity—These outfits will handle condensation from 10,000 sq. ft. of direct radiation based on ½ lb. of condensation per square foot per hour or 15,000 sq. ft. of radiation based on ⅓ lb. per square foot per hour.

They will discharge 20 gal. of hot water per minute against 17 lb. pressure.

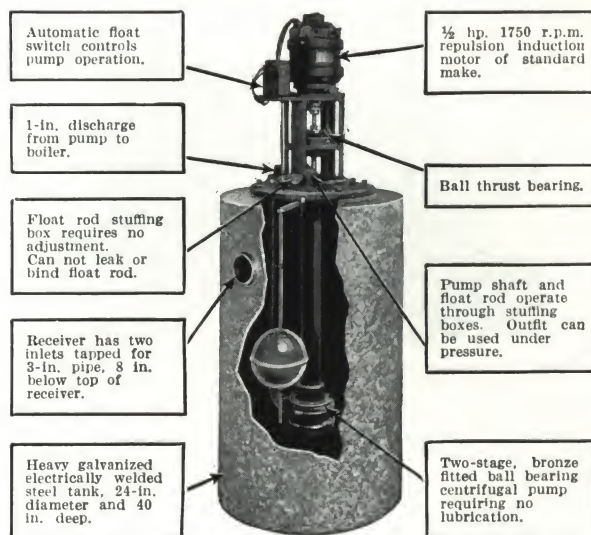


Fig. 3354. Condensate Return Pump and Receiver

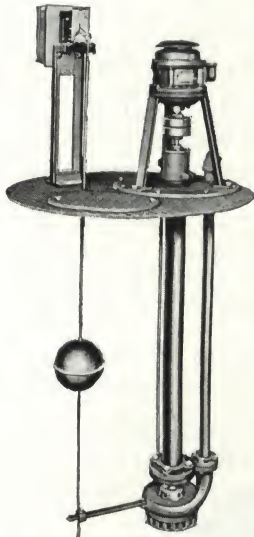
GOULDS SUMP PUMPS AND CELLAR DRAINERS

These pumps are designed to elevate to street sewers the drainage in buildings where the basement floors, boilers and elevator pits are below sewer level and for any other service where the liquid to be pumped accumulates in a catch basin, pit or tank. This service requires a pump that is automatic in operation, needs a minimum of attention, occupies little floor space and is of the simplest, most rugged construction.

Goulds pumps fulfill all these requirements. They are made in several types and sizes.

Goulds New No. 3047 Sump Pumps

Goulds new sump pump, using a new type, non-clogging, high efficiency impeller, eliminates pumps requiring large expensive motors and control apparatus. It will permit the use of motors one or two sizes smaller, and in many cases, motors can be used which are only one-half the size generally required by vertical type pumps.



No. 3047 Sump Pump

Non-clogging Impeller— The new non-clogging impeller is the most efficient type yet developed for handling water containing coarse, stringy or fibrous materials.

The two vanes, warped and joined together to make a well rounded, continuous surface at the inlet, provide smoother surfaces, which easily pass any long, stringy or fibrous material without clogging.

Construction— Pumps are constructed of light weight steel with maximum strength. Welded assembly gives permanent, unalterable alignment.

Made in 4 sizes to handle from 20 to 650 gal. per minute against 25 ft. head. Will operate up to 70 ft. head. Motor and automatic float switch are mounted on steel pit cover. Pit cover is of circular or rectangular shape to suit requirements, of "Safety Tread" steel and, on sizes of 40 in. diam. or 36x36 in. square or larger rectangular covers, will include an 11x15 in. manhole with cover. Pit covers have circular openings to accommodate the small pit cover plate and will allow removal of pump and motor unit without disturbing the pit cover.

Pumps arranged for pit depths from 5 to 14 ft. Pump can also be furnished for pit depths of less than 5 ft. and for any intermediate depth up to 14 ft. in accordance with customer's specifications.

Motor and Control— We recommend ordering complete pump, motor and control apparatus. The control mounting bracket will be securely attached to the main pit cover and motor and control will be approximately 2 ft. above the cover.

Motors, float switches, floats, thermal protective cutouts, and magnetic starters for stock motors are carried in stock and shipment of the proper control



**Non-clogging Impeller
Used on All Goulds
Nos. 3047 and 3048
Centrifugal Sump
Pumps**

Heavy duty radial and thrust ball bearing mounted in an adjustable oil and dust sealed housing.

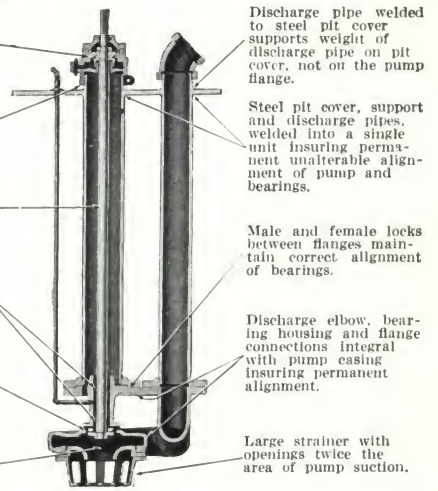
Bearing housing threaded to support pipe. Impeller clearance adjustable to micrometer exactness. Through bolt securely locks housing.

Steel shaft enclosed in steel support pipe. Pipe welded to steel pit cover and flanged at pump casing.

Two non-seizing, non-scoring bronze bearing bushings, grease packed, form long lower bearing.

Lubrication is retained and entrance of grit into bearing prevented by pressure relief chamber.

New maximum efficiency, non-clogging, two-vane, open type impeller with no shaft nut or other projection to obstruct the inlet. Made of bronze to prevent corrosion during prolonged idle periods.



No. 3047 Sump Pump Structural Details

apparatus mounted upon a structural steel motor support, can be quickly made.

No. 3048 Duplex Sump Pumps

For installations where the use of two complete pumping units is desirable, No. 3048 is made up of two single units of pump and motor mounted on a large main pit cover. This main pit cover is made of "Safety Tread" plate steel with 11x15 in. manhole, and separate float, float switch and control for each pump unit are mounted on the pit cover. Either unit is readily removable and floats can be set so that second pump operates when conditions are abnormal.

No. 3029 Sump Pump

A small outfit with capacity from 10 to 23 gal. against heads from 24 to 11 ft. and pit depth of 2 and 5 ft.

No. 1776 New "Minute Man" Cellar Drainer

This outfit will handle 25 gal. per minute against 15 ft. head and will operate satisfactorily against heads up to 23 ft. A concrete or brick pit is recommended but a sewer tile may be used as a sump.

Features— Attractively finished in bronze and black; can be used for pits from 1½ to 5 ft. deep; pump is self-priming centrifugal with bronze impeller and stainless steel shaft; galvanized foot valve and strainer prevent foreign matter entering the pump.

Complete outfit includes ¼ hp. motor of standard make, 8 ft. lamp cord with plug, sentinel circuit breaker for motor protection, foot valve, 3-ft. suction pipe and float switch.



**"Minute Man" Cellar Drainer,
No. 1776**

GOULDS AUTOWATER SYSTEMS PROVIDE RUNNING WATER ANYWHERE

These systems are made in two general types and in several sizes in each type to meet every condition and every home from the small cottage to the large country estate, from roadside lunch stands to hotels, camps, schools, country clubs, industrial plants, mills, warehouses, etc.

They are built with electric motor for use where

electricity is available and with gasoline engine for use where it is not.

Sources of water supply may be divided generally into (1) shallow wells, springs, streams, lakes, etc., where the total suction lift does not exceed 22 ft. and (2) deep wells where the suction lift exceeds 22 ft. and may be as deep as 640 ft.

"Ever-Oiled" Shallow Well Water Supply Outfits

These outfits pump water into pneumatic pressure tanks whence it is delivered to the fixtures at a maximum pressure of 43 lb. They may also be used with open or gravity tanks whence the water is delivered to the fixtures by gravity.

Fresh Drinking Water—All Goulds shallow well outfits can be installed so that fresh water for drinking purposes can be pumped direct from the well without entering the tank, while water for household purposes is taken from the tank.

Automatic Operation—All Goulds electric driven outfits will start and stop automatically without any attention. Those for pressure tank service have an automatic pressure regulation, while those for open tank service require an automatic float switch, both of which give automatic operation. Engine driven outfits stop automatically but must be started each time.

"Ever-Oiled" Water System W-40

The "Ever-Oiled" System W-40 meets the modern demand for completely assembled, attention-free, fresh water supply equipment. Has capacity of 210 gal. per hour, suction lift of 22 ft., and discharge pressure of 43 lb. Automatic and quiet in operation. It can be installed and forgotten, with assurance of steady uninterrupted service.

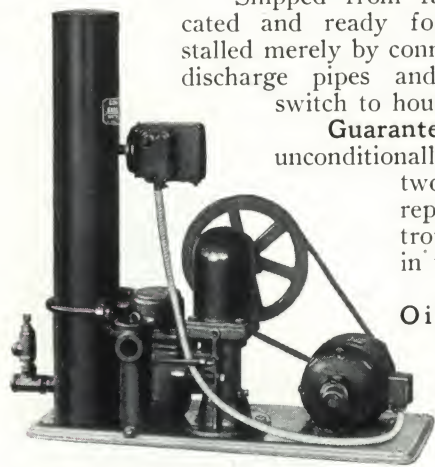
The complete system includes a full-powered $\frac{1}{4}$ hp. 60 cycle, repulsion induction motor, built for frequent stopping and starting and for long runs, V-belt, pressure switch, relief valve, and pressed steel base.

Shipped from factory fully lubricated and ready for installation. Installed merely by connecting suction and discharge pipes and wiring pressure switch to house service.

Guaranteed—The pump is unconditionally guaranteed for two years. It will be replaced if operating trouble develops within that period.

Larger "Ever-Oiled" Systems—

Complete water systems with tanks, and in larger sizes than our water system W-40 can be furnished.



"Ever-Oiled" System W-40 for Shallow Well Water Supply

"Automatic Oiling" Deep Well Water Supply Outfits

As the name implies, these outfits are for use in wells where the suction lift of the water exceeds 22 ft.

They can be furnished separately with tight and loose pulleys or single tight pulleys; in pumping units or complete systems with V-belt, enclosed flat belt or silent chain electric motor drives; and in pumping units with engine drive—for wells up to 660 ft. in depth, and for capacities up to 1836 gals. per hour.

The Figure 1782 "Automatic Oiling" Pump is a distinct advance in deep well power head construction. In place of the old small double gears is a large single reduction gear which makes overloading impossible.

An improved method of lubrication assures a continuous flood of oil to every bearing in the working head. A tight-fitting cover completely encloses all working parts and fully protects them from water and dirt.

The well head is securely held on top of an extension of the working head base. It cannot break loose and there is no danger of pipe dropping from its support down into the well.

The air pump is now connected to an extension of the walking beam and operates in perfect alignment with the plunger.

These and other superior construction features of Goulds Deep Well Water Supply Outfits are described in our new Deep Well Bulletin. Copies mailed on request.

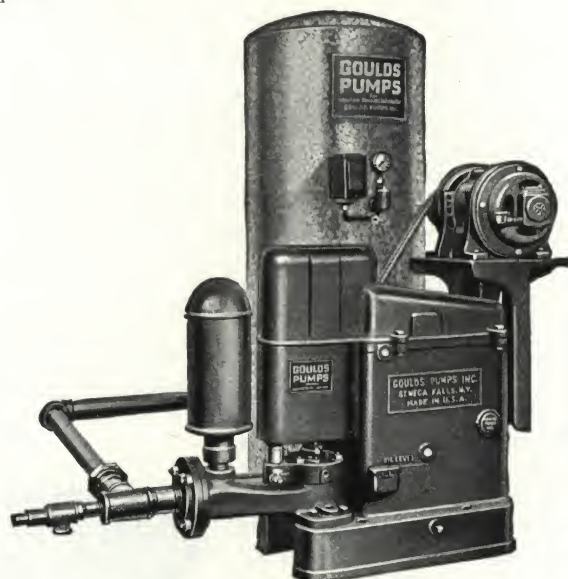


Fig. 1782. Deep Well Power Unit

DATA BOOKS

GOULDS PUMPS, INCORPORATED also issue two complete reference books on pumps and pumping.

Copies of each of the books gladly sent on request.

Bulletin No. 400 "Pump-Fax"—A handy data book covering pumping in general. Description of the various types of pumps, their uses, etc., are included

together with a large number of tables of useful data.

Bulletin No. 401 "The Centrifugal Pump"—Goes to considerable detail on the theory, design and operation of centrifugal pumps—an invaluable book for any one interested in the fundamentals of centrifugal pump practice.

SKIDMORE CORPORATION

Manufacturers of Vacuum Pumps and Condensation Pumps and Receivers

MAIN OFFICES AND FACTORY
ST. JOSEPH, MICH.

SALES AND SERVICE OFFICES

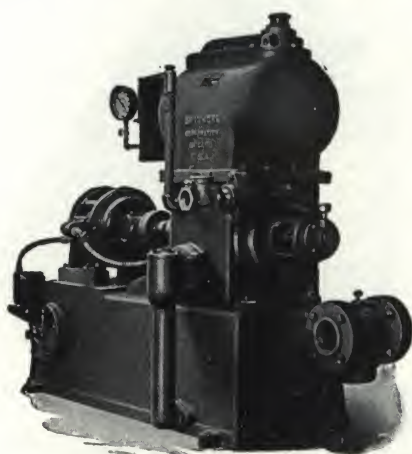
ATLANTA, GA., 209 Glenn Building
BALTIMORE, MD., Whitaker Building
BOSTON, MASS., 69 A Street, So. Boston
BRIDGEPORT, CONN., 128 Stella Street
BUFFALO, N. Y., 304 Curtiss Building
BUTTE, MONT., 951 Caledonia Street
CHARLOTTE, N. C., Independence Building
CHATTANOOGA, TENN., 221 W. 7th Street
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LOS ANGELES, CALIF., 734 12th Street
MEMPHIS, TENN., 715 Fidelity Building
MILWAUKEE, WIS., 307 Loan & Trust Building
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MONTREAL, QUE., 120 Prince Street
NEW ORLEANS, LA., 2204 Jefferson Avenue
NEW YORK, N. Y., 369 Lexington Avenue
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OMAHA, NEB., 307 Gardner Building
PHILADELPHIA, PA., 1612 Vine Street

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ST. LOUIS, MO., 610 First National Life Building
SEATTLE, WASH., 532 First Avenue, So.
SPRINGFIELD, ILL., 1201 So. College Avenue
SPOKANE, WASH., Empire State Building
TACOMA, WASH., 501 Bankers Trust Building
TAMPA, FLA., 602 Jackson Street
TOLEDO, OHIO, 1 St. Clair Street
TULSA, OKLA., 18½ W. 3rd Street
WARRENSBURG, N. Y., A. P. SANBORN

Vacuum Pump for Return Line Steam Heating Service

Removes the condensate and air from the returns of a heating system, increasing steam circulation and efficiency. The unit consists of a vacuum creating rotor and a centrifugal impeller mounted on one shaft which is direct connected to an electric motor or steam turbine (can be furnished for belt drive). The shaft is carried on outside annular ball bearings. The rotor and impeller are enclosed in a case above which is a separating tank. When operating, both case and separating tank are under atmospheric pressure. The



Skidmore Automatic Vacuum Pump

The vacuum producing rotor handles the air, vapor and condensate and discharges them to the separating chamber where the air is released to the atmosphere through a float operated vent valve and the water is discharged to the boiler by the centrifugal impeller.

- (1) Unit is bronze fitted throughout.
- (2) Furnished for continuous or full automatic service as single or duplex units.

VACUUM PUMP TABLE OF CAPACITIES

No. of pump	Capacity sq. ft. radiation	G.p.m.	Hp., 10 lb. unit	Hp., 20 lb. unit	Approx. floor space, in.	Approx. shipping weight, lb.
0	5000	8	¾	1	18x34	500
1	8000	11	1	1½	18x46	600
2	16000	22	1½	2	18x48	700
3	26000	35	2	3	18x50	775
4	40000	60	3	5	18x52	800
5	65000	90	5	7½	20x60	1350
6	100000	150	7½	10	20x66	1650
7	150000	200	10	15	20x68	1725

Pumps for 30 to 60 lb. pressure furnished for same capacities.



Condensation Pump and Receiver

The condensation pump and receiver pumps the condensate from the returns back to the boiler after accumulating it in the receiving tank. The Skidmore unit is so designed as to give lowest possible drainage without placing the unit in a pit beneath the floor level. For this reason the motor and shaft are placed vertically at the end of a heavy cast iron receiving tank. This arrangement allows the feed connection to the centrifugal impeller to be at a point only an inch or so above the ground.

The pump is automatically operated by a float switch



Skidmore Condensation Pump

located on the top of the receiver. This places all the electrical equipment (motor and float switch) high above the floor and out of the way of possible flood waters. The unit is made of heavy cast iron and is fitted throughout with a special hard bronze. This pump and receiver is one of the quietest pieces of pumping equipment made and is very easy to install. Inspection and cleaning of the unit may be accomplished by removing six cap screws and without disturbing the return or discharge pipings.

TABLE OF CONDENSATION PUMP CAPACITIES

Size	Capacity sq. ft. radiation	Hp., 10 lb. unit	Hp., 20 lb. unit	Gallons between float	G.p.m. pumped	Inlet, in.	Discharge, in.	Height of inlet, in.	Shipping weight, lb.	
									10-lb. unit	20-lb. unit
C-2	2000	¾	1	9	4	2	1	11½	325	350
C-4	4000	1	1½	9	6	2	1	11½	325	350
C-6	6000	1½	2	9	8	2	1	11½	325	350
C-8	8000	2	3	9	11	2	1½	11½	325	350
C-10	10000	2½	3½	18	13	2½	1½	13	440	460
C-12	12000	3	4	18	16	2½	1½	13	460	470
C-16	16000	4	5	18	22	2½	1½	13	460	470
C-26	26000	7	10	25	35	3	1½	13	495	515
C-40	40000	11½	15	25	60	3	2	13	525	550

Information on units for higher pressures on request.

THE F. E. MYERS & BRO. COMPANY

Manufacturers of Pumps

ASHLAND, OHIO

Products

DEEP WELL POWER PUMPS; SHALLOW WELL POWER PUMPS.

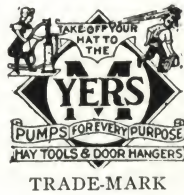
For Myers Private Water Supply Systems, see Manufacturers' Index.

Myers Self-Oiling Deep Well Power Pumps

Myers Self-Oiling Deep Well Power Pumps are designed for general service. The range of sizes in which they are built adapts them to all kinds of installations. The smaller sizes are ideal for homes, farms, country estates, cottages and similar places. Larger sizes are adapted for creameries, dairies, summer resorts, parks, golf courses, hotels, laundries, centralized schools and colleges, hospitals, public and private buildings and institutions, ice plants, mills, mines, factories, railroads, contractors, etc.

They are lifting water from wells or other sources of greater depth than 22 ft. and delivering it to ground level, forcing it into open or pressure tanks, or elevating it to overhead tanks for reservoirs. Made in sizes 6, 9, 12, 18 and 24-in. strokes.

All working parts are fully enclosed and run in oil. Main frame forms oil



TRADE-MARK

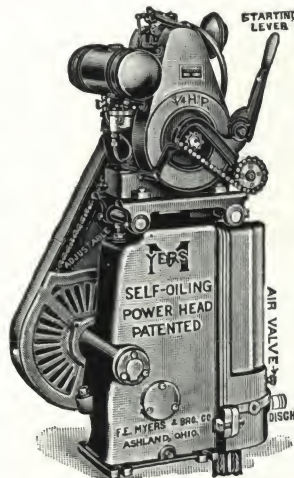


Fig. 2251. Myers Self-Oiling Engine Driven 6-in. Stroke Deep Well Power Pump with Air Cylinder
For pressure tank service

reservoir from which the gears distribute oil to all moving parts. Bearing shafts are high grade machinery steel. Gears are double, machine cut from solid cast iron. Pinions are steel. All parts are easily removed for adjustments or replacements.

Regularly fitted with tight and loose pulleys for engine drive or single pulley and belt tightener for motor drive. Are supplied with air cylinder for pressure tank service at small additional cost. Anti-freezing set length for all styles furnished extra when desired.

Myers Self-Oiling Deep Well Power Pumps Complete with Motor or Engine for Belt or Chain Drive

Complete units, except lower cylinder and down or suction pipe, ready to connect to power and water lines. Sizes 6, 9 and 12-in. stroke for belt or chain drive, with high class motor of standard make

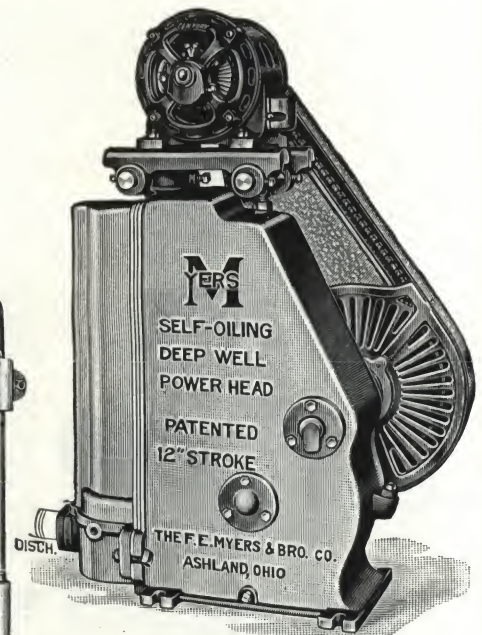


Fig. 2562. Myers Self-Oiling Motor Driven 12-in. Stroke Deep Well Power Pump Complete with Motor and Silent Chain Drive
Furnished in sizes 6, 9, 12 and 18-in. stroke. Motor on engine drive

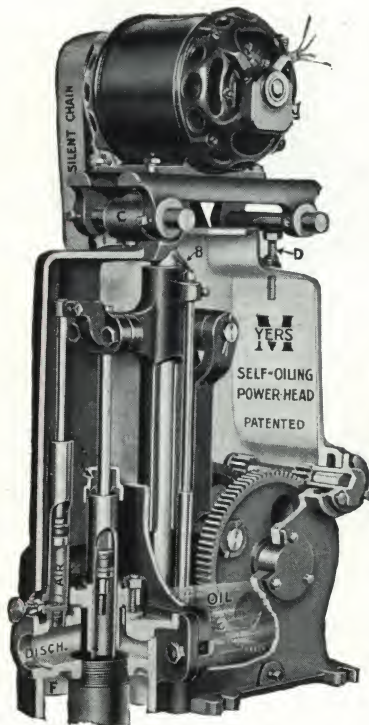


Fig. 2492. Sectional View of Deep Well Self-Oiling Power Pump

Air cylinder and motor mounted on head.
For silent chain drive

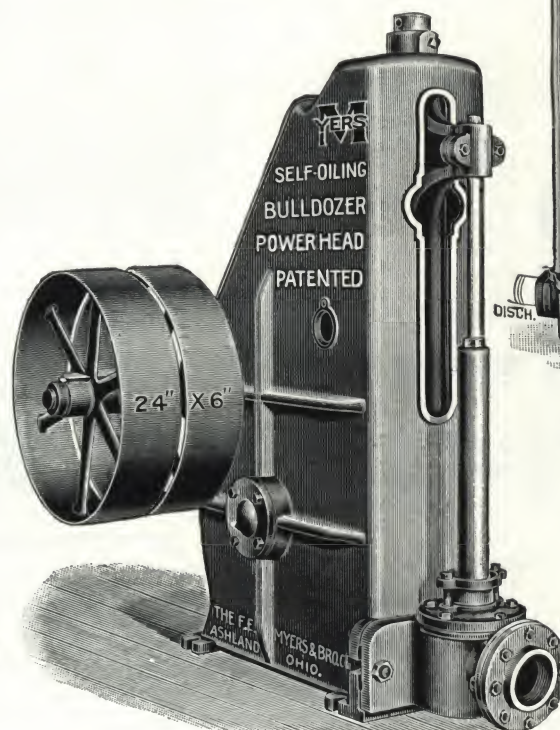


Fig. 2473. 18-in. Deep Well Self-Oiling Power Pump

Engine drive, with differential piston

mounted on head; belt or chain drive; with or without air cylinder; all moving parts fully enclosed; positive self-lubrication; machine cut gears; back geared 7 to 1 for open or tubular wells. Compact, easily and quickly installed, economical and dependable.

Myers Brass and Brass Lined Working Barrels

Designed for use with Myers Power Pumps and working heads for pumping water from deep wells. They are furnished with brass poppet, bronze spool or bronze ball valves. Shell is heavy wrought steel, lined with special heavy seamless drawn brass tube, swaged out at upper end and tapered to form seat for check valve. Made in different styles and all standard sizes, meeting depth capacity and operation requirements.



Fig. 2450
Brass-lined Working
Barrels



Fig. 2460

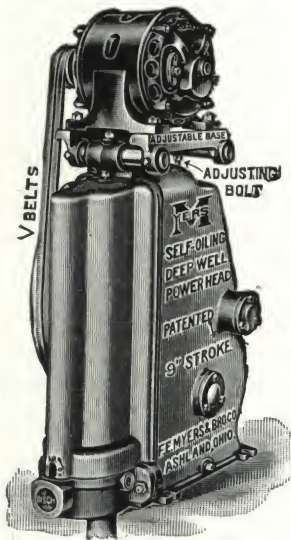


Fig. 2629. Myers V-Belt Driven Self-Oiling Deep Well Power Pump Complete with Motor

Myers Self-Oiling Shallow Well Pumps

These pumps are of the horizontal double acting self-oiling type. They are designed for lifting water from wells, cisterns, etc., 22 ft. or less in depth and forcing it to an elevation. Suitable for general service, such as pumping hot or cold water, oil, gasoline and similar liquids. They are also excellent boiler feed or booster pumps.

Construction—Bulldozer Pumps are extremely simple in construction, easily installed and economically operated by either hand power, motor or engine drive. The power end consists of a one-piece casting forming the base of the pump and oil reservoir and enclosing all working parts. The brass-lined cylinder is a one-piece casting attached to the power end by heavy bolts. The large valves, liberal and direct waterways and positive self-oiling system insure safe and economical operation against heavy pressures or at high speeds, securing large volume with largely increased efficiency. All sizes are equipped with air valve for pneumatic water systems, where desired.

Sizes and Capacities—Bulldozer Pumps are made in twelve sizes from 2½x3 in. to 8x8 in., having capacities from 500 to 9000 gal. per hour.

Types—They are furnished in two general types: standard type, for pressures up to 100 lb. or 230-ft. elevation; high duty type, for pressures up to 250 lb. or 580-ft. elevation.

FIG. 2347—COMPLETE WITH MOTOR—V-BELT DRIVE—AIR LINE—100 LBS. PRESSURE

Pump No.	Cylinder brass lined		Capacity		Tank pressure, lb.	A-c. motor, 1 phase 110-220 volt, 60 cycle hp.	Suction and disch., in.	Floor space, in.
	Diam., in.	Stroke, in.	Plgr. speed, r.p.m.	Max. gal. per min.				
912AM	2½	3	70	9	50	½	1½	15 x 35
913AM	3	4	70	17	50	1	1½	16 x 45
914AM	4	5	52	28	50	2	2	20 x 55
915AM	5	5	52	44	50	3	2½	20 x 57
916AM	6	6	45	66	50	5	3	24 x 67

Also furnished with motor and silent chain drive.

FIG. 2374—HIGH PRESSURE—BACK GEARED 5 TO 1

Pump No.			Cylinder brass lined		Capacity		Pulleys in.		Chain drive hp, a-c. motor, 1 phase 110-220 volt, 60 cycle	Suc. and disch. in.	Lb. pres.
Engine belt drive	Motor belt drive	Complete with motor chain drive	Diam. in.	Stroke in.	Max. plgr. speed, r.p.m.	Max. gal. per min.	Engine belt drive	Motor belt drive			
931	931M	C931M	1¾	3	70	4½	12x2	15x2½	1	1	100
932	932M	C932M	2¼	4	70	9	14x2½	20x3	2	1½	200
933	933M	C933M	3	5	60	18	16x4	24x4	5-3Ph.	1½	250
934	934M	C934M	4	6	50	32	24x4	30x4	7½-3Ph.	2	250

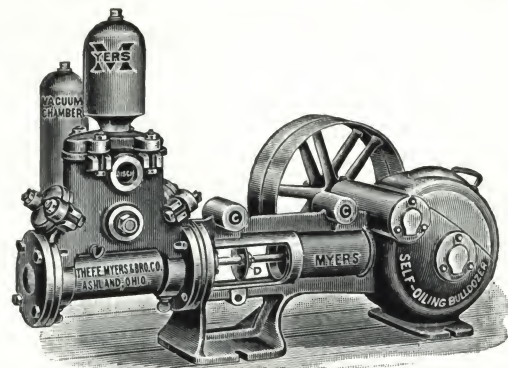


Fig. 2430. Myers Self-Oiling Bulldozer Power Pump

With extra length main frame and motor pads.

Two styles—one for service up to 100 lb. pressure or 230 ft. elevation, the other up to 250 lb. pressure or 580 ft. elevation

FIG. 2430—FOR ENGINE OR MOTOR DRIVE—100 LBS. PRESSURE

Pump No.		Cylinder, brass lined		Capacity				Engine drive Max. hp.	Engine drive Pulleys tight and loose in.	Engine drive Floor space, in.	Motor drive Tight pulley, in.	Motor drive Floor space, in.
Engine drive	Motor drive	Diam. in.	Stroke in.	Disp. each rev. of plgr. gal.	Usual plgr. speed, r.p.m.	Max. at speed, r.p.m.	Max. gal. per min.					
912	912M	2½	3	.128	60	70	9	1	12x2	15x34	15x2½	13x34
913	913M	3	4	.245	60	70	17	2	14x2½	18x42	20x3	16x44
914	914M	4	5	.544	55	65	35	4	16x4	24x54	24x4	20x54
915	915M	5	5	.85	50	60	51	5	16x4	24x56	24x4	20x56
916	916M	6	6	1.47	40	52	76	7	24x4	28x66	30x4	23x66

Any of above pumps furnished with air valve for pressure tanks at small additional cost.

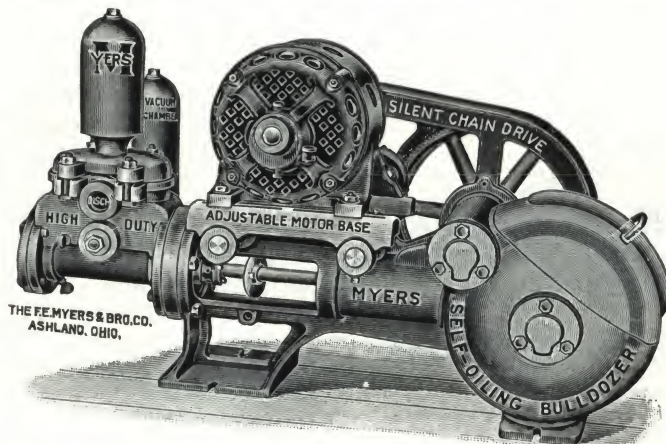


Fig. 2374. Myers High Pressure Self-Oiling Bulldozer Power Pump

For service against 250 lb. pressure or 580 ft. elevation

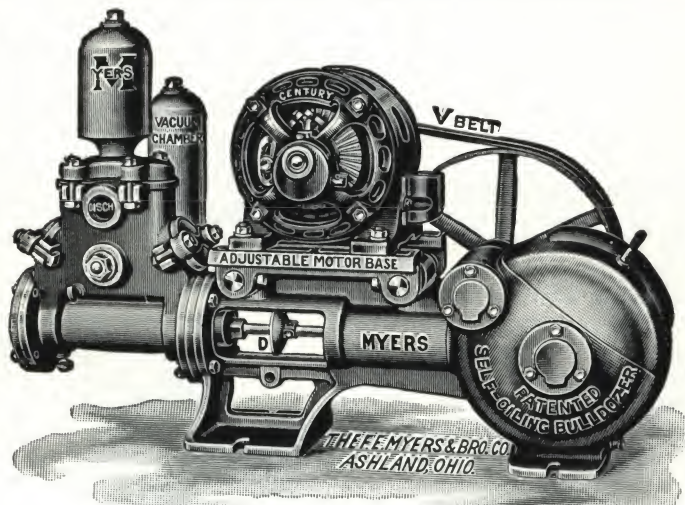


Fig. 2634. Myers Self-Oiling Bulldozer Power Pump

For service against 100 lb. pressure or 230 ft. elevation
V-Belt or silent chain drive

THE NASH ENGINEERING COMPANY

PLANT AND GENERAL OFFICES
SOUTH NORWALK, CONN.

SALES OFFICES

ATLANTA, GA., 152 Nassau St. N. W.
BIRMINGHAM, ALA., 2224 Comer Bldg.
BOSTON, MASS., 25 Huntington Ave.
BUFFALO, N. Y., 317 Chamber of Commerce
BUTTE, MONT., 910 Arizona St.
CHATTANOOGA, TENN., 1104 James Bldg.
CHICAGO, ILL., 925 Monadnock Block
CLEVELAND, OHIO, 1600 Union Trust Bldg.
DALLAS, TEX., 1117 Mercantile Bank Bldg.
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MONTREAL, QUE., 660 St. Catherine St.,
West
NEW ORLEANS, LA., 344 Camp St.
NEW YORK, N. Y., Graybar Bldg.
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PORTLAND, ORE., 224 Pine St.
RICHMOND, VA., 301 American National
Bank Bldg.
ST. LOUIS, MO., 4200 Forest Park Boulevard
SALT LAKE CITY, UTAH, Dooly Bldg.
SAN ANTONIO, TEX., 411 Builders Ex-
change Bldg.
SAN FRANCISCO, CAL., Sharon Bldg.
SEATTLE, WASH., 518 Fourth Avenue
TORONTO, ONT., 1123 Bay St.
VANCOUVER, B. C., 410 Homer St.
WASHINGTON, D. C., Barr Bldg.
WICHITA, KAN., 808 Brown Bldg.

Products

Return line and air line VACUUM STEAM HEATING PUMPS; CONDENSATION PUMPS; CENTRIFUGAL PUMPS, standard and suction; HOUSE SERVICE PUMPS; COMPRESSORS and VACUUM PUMPS for air and gases; SEWAGE EJECTORS; SEWAGE PUMPS; SUMP PUMPS; FLAT BOX PUMPS.

Return Line Vacuum Steam Heating Pump

Removes air and condensation from the return line of vacuum steam heating systems, discharges the air to the atmosphere, and returns the water to the boiler.

The pump consists of two independent units combined in a single casing—an air unit and a water unit. Impellers of both units are mounted on the same shaft, supported on annular ball bearings outside the casing.

The pump is bronze fitted throughout.

The air unit exhausts air and vapors and delivers these to the atmosphere without back pressure. The water unit removes the condensation and pumps it directly into the boiler. By handling the air independently of the water, power is saved.

Supplied either direct connected to standard electric

motors, for belt drive, or for steam turbine drive. For continuous operation, or with automatic control. For boiler pressures not exceeding 40 lb.

Furnished in standard sizes with capacities ranging from 4 to 400 g.p.m. of water and 3 to 171 cu. ft. per minute of air. For serving up to 300,000 sq. ft. of equivalent direct radiation.

Condensation Pump

Removes the condensation from radiators in return line steam heating systems, particularly radiators set below the boiler waterline level, and pumps the condensation back to the boiler.

By making the pump casing a part of the returns tank, and bolting the motor base to the tank, floor space is conserved. The rectangular construction permits installation in a corner against the wall.

Supplied in standard sizes with capacities ranging from 4 to 200 g.p.m. of water. For



serving up to 150,000 sq. ft. of equivalent direct radiation.

Double Suction Centrifugal Pump

For (a) circulating hot and cold water; (b) boosting city water pressure to supply top stories in tall buildings; (c) circulating water to and from swimming pools, through filtering and purifying apparatus, etc.; (d) handling water in air washing and conditioning; (e) for hydraulic elevators, etc.; (f) promoting circulation in pressure hot water heating systems; (g) pumping feed water from the hot well, water softener, etc., to the boiler; (h) removing condensate from heating systems, blow-down from soot blowers and superheaters, exhaust drips from steam ejector air pumps and other auxiliaries, etc.

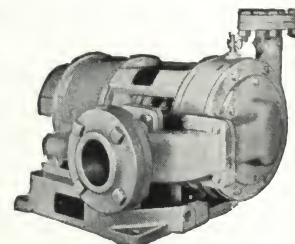
Easily installed—inlets and outlets can be assembled in a number of positions. The number of elbows and fittings and the labor required for installation are reduced to a minimum. Compact—motor armature and pump impeller are mounted on the same shaft. Simplified—no bearings in pump casing, only one stuffing box. Accessible—pump impeller can be removed without breaking pipe connections, touching packing, or disturbing shaft alignment.

Sizes 2, 3, 4 and 6 in. Capacities to 550 g.p.m., heads to 320 ft. Bronze fitted standard construction; also all-bronze or all-iron for special service.

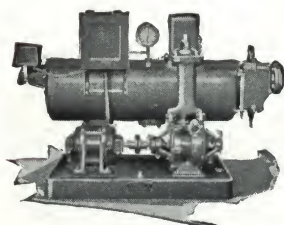
Centrifugal Pump Operating with Suction Lift

When the Jennings Suction Centrifugal is started, the built-in Nash Hytor Vacuum Pump exhausts the air from the casing and suction piping. Water is quickly drawn into the pump. Full rated capacity is delivered without delay.

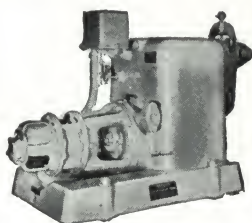
Successful performance is assured under conditions where water level is likely to fall, or where air or gas is handled together with the water being pumped. Intermittent operation is possible without a foot valve.



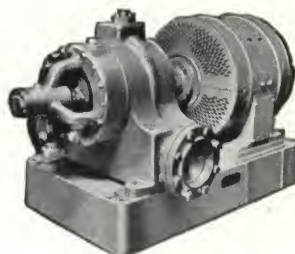
Jennings Double Suction Centrifugal Pump



Jennings Return Line Vacuum Steam Heating Pump



Jennings Condensation Pump



Jennings Suction (Self-priming) Centrifugal Pump

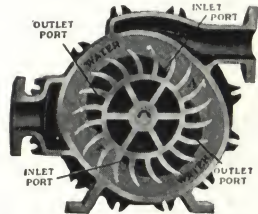
Furnished in 2, 3, 4 and 6-in. sizes for capacities up to 1200 g.p.m. Heads up to 120 ft.

Supplied either bronze fitted or all-bronze construction.

Compressors and Vacuum Pumps for Air and Gases

Operation is as follows: The rotor, consisting of a cylindrical hub, around the periphery of which are chambers or spaces formed by heavy shrouds cast integrally, revolves freely in an elliptical casing or housing filled with water.

As the rotor turns, it carries the water around with it. The water, under the influence of centrifugal force, is compelled to follow the contour of the casing, and alternately to enter and to leave the rotor chambers, twice in each revolution.



Nash Hytor Compressor or Vacuum Pump

Showing the unique principle of hydro-turbine operation

As the water recedes from the rotor, air is drawn into the chambers through the inlet port. As the water is subsequently forced back into the rotor by the converging casing, the air is compressed and then discharged from the rotor through the outlet port.

A separator, supplied with each compressor, frees the delivered compressed air of entrained moisture.

Supplied in several standard sizes for handling up to 5000 cu. ft. of free air per minute. For discharge pressures up to 20 lb.; vacuums up to 20 in. of mercury.

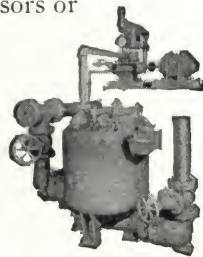
Cast iron standard construction. Bronze fitted, solid bronze and other alloys furnished special.

Sewage Ejector

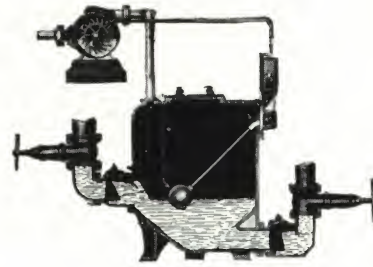
For pumping unscreened sewage or drainage from basements below the street sewer level, handling crude sewage from low level districts, pumping effluent, sludge and other heavy liquids.

The Jennings Sewage Ejector is of the pneumatic type. Air, compressed to the necessary working pressure by a Nash Hytor Air Compressor, is used as the motive power to pump the accumulated sewage from a pot to the sewer. Air is compressed only to the pressure at which it is used. There are no air storage tanks, reciprocating air compressors or screens. Air valves and reducing valves are avoided.

Operation is as follows: Sewage, under the action of gravity, flows through the inlet check valve into the pot. As it accumulates, it raises a ball float which, when the pot is full, actuates a float switch, thereby starting up the Nash Hytor Air Compressor.



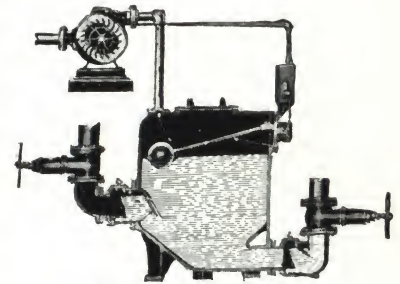
Jennings Pneumatic Sewage Ejector



Ejector Filling

Compressed air is delivered into the top of the pot, closing the inlet check valve and expelling the sewage through the outlet check valve. When the pot has been emptied, the float, having reached the lower limit of its travel, opens float switch stopping compressor, through which, then, the air in the pot is vented. Sewage again flows by gravity into the pot, repeating the cycle.

Furnished in several standard sizes for handling crude sewage, drainage, or similar heavy liquids, up to 1500 gal. per minute against heads up to 50 ft.



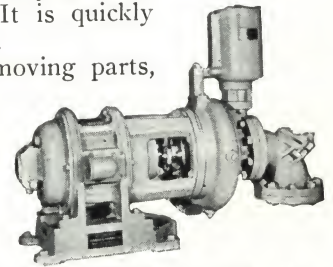
Ejector Discharging

Suction (Self-priming) Sump Pump

The Jennings Suction Sump Pump is an open impeller self-priming centrifugal pump for handling seepage water and liquids reasonably free from solids. It is mounted entirely above and either near to or removed from the sump. Only the suction pipe is submerged. It is quickly and conveniently accessible.

There are only two moving parts, the centrifugal impeller and the vacuum priming pump rotor. Both rotate without metal-to-metal contact in the casing. Both are mounted on the same shaft that carries the rotor of the driving electric motor, making possible a single compact assembly.

Capacities up to 250 g.p.m. Heads up to 60 ft.

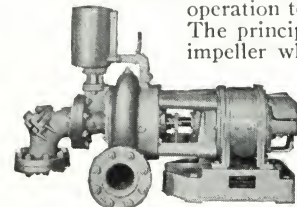


Jennings (Self-priming) Suction Sump Pump

Suction (Self-priming) Sewage Pump

The Jennings Suction Sewage Pump is similar in design and operation to the Jennings Suction Sump Pump. The principal difference lies in the centrifugal impeller which is of the two-bladed, non-clog, enclosed type. Solids passing through the eye of the impeller will pass through entire wheel. Sand, dirt, sticks and rags are readily handled without damage to the pump and without clogging.

Furnished in 2, 4 and 6-in. sizes. Capacities up to 450 g.p.m.; heads up to 75 ft.



Jennings (Self-priming) Suction Sewage Pump

Bulletins

- No. 10 Nash Hytor Compressors
- No. 11 Nash Hytor Vacuum Pumps
- No. 15 Jennings Return Line Vacuum Steam Heating Pumps, piped-up type
- No. 17 Jennings Air Line Vacuum Steam Heating Pumps
- No. 40 Jennings Flat Box Pumps
- No. 52 Jennings Standard Centrifugal Pumps
- No. 85 Jennings Return Line Vacuum Steam Heating Pumps, manifold type.

- No. 87 Jennings Return Line Vacuum Steam Heating Pumps, unit manifold type
- No. 97 Jennings Suction Sump Pumps
- No. 99 Jennings Condensation Pumps
- No. 103 Jennings Sewage Ejectors, Type B
- No. 108 Jennings Sewage Ejectors, Type A
- No. 113 Jennings Suction Sewage Pumps
- No. 124 Jennings Suction Sewage Pumps

PENBERTHY INJECTOR CO.

Automatic Electric Sump Pumps and Automatic Cellar Drainers—
All-brass Construction

DETROIT, MICH.

CANADIAN PLANT: WINDSOR, ONTARIO

Penberthy Automatic Electric Sump Pumps

Used Wherever Water Accumulates

In spite of our efficient municipal sewerage systems, there are numerous places where water accumulates by seepage, overflow, flood or backing up, that can not be drained off directly, either because the flow line of the sewer is not deep enough or because obstacles intervene between the sump and the sewer.

Among the more common instances may be mentioned the cellars of residences where no sewers exist or where the sewer line is above the basement floor level or deep cellars of buildings, boiler rooms, settling basins, fly-wheel and elevator sumps, tunnels, and scale pits.

While ordinarily this seepage may amount to only a small trickle, its flow is continuous and if neglected the accumulated water soon becomes a real menace to health and property.

To keep such places dry, the incoming water is most economically disposed of as it accumulates, either by an automatic cellar drainer (water or steam operated) or an automatic sump pump (electrically operated). Local conditions determine which is preferable.

Penberthy manufactures a complete line of both types, and can consequently supply the unit best suited to meet requirements.

Conditions favoring the electric pump are:

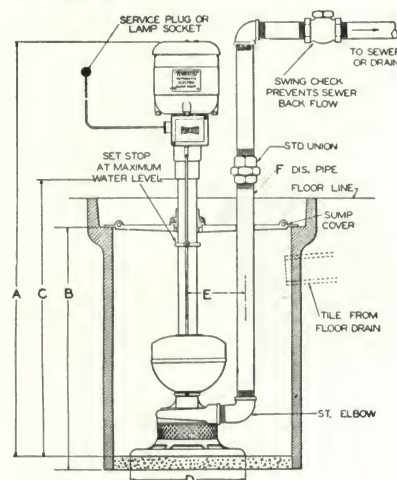
- (1) For districts where city water pressure is not available, or at least very low.
- (2) Larger quantities of seepage water to be handled.
- (3) Discharge heads up to 20 ft.
- (4) Low cost of operation.

Installation

The automatic electric sump pump is set in a floor sump which can be conveniently made by taking a piece of 15 to 24-in. sewer crock 2 ft. long. A sump cover is recommended. The pump outlet is piped to the nearest and lowest sewer or surface outlet. The motor switch cord is plugged into the nearest plug or light socket and the pump is ready for operation. Be sure that the electric current is left permanently connected to the motor switch, and that the electric current is entirely suitable to the motor furnished with the pump. General instructions accompany each pump. There are no projecting arms or delicate parts to require special supports or projection. The entire unit is simple and easily installed and operated. It meets all the requirements of the various building codes.



Penberthy Automatic Electric Sump Pump



Installation Details

DIMENSIONS OF SUMP PUMPS

Size No.	A Height of pump, ft. in.	B Depth of sump, ft. in.	C Base to motor, ft. in.	D Diameter of base, in.	E Cent. cut-outs in cover, in.	F Discharge pipe, in.
1G	3 5	2 —	2 3 3/4	10 3/4	6	1 1/4
2G	3 7 1/4	2 —	2 4	11 3/4	6	1 1/4
3G	5 6	4 —	4 3	11 3/4	6	1 1/4
4G	7 6	6 —	6 3	11 3/4	6	1 1/4
5G	9 10	8 6	8 7	11 3/4	6	1 1/4

Specifications

Motor—Repulsion induction, 110 volts a-c. 60-cycle; ball thrust bearings. No. 1G—1/8 hp.; No. 2G, 3G, 4G and 5G—1/4 hp.

Motors to suit other current characteristics at a slight additional cost.

Switch—Reliable and durable. Mercury tube switch specially adapted for float operation. Well insulated. No sparking. No mechanical contacts to wear. Controlled by large heavy copper float.

Adjustable bronze ring governs starting water level.

Fully Enclosed Tobin Bronze Impeller Shaft—Held to perfect alignment and supported by ball bearings—motor shaft relieved of all undue strain.

Pump—Bronze throughout, centrifugal type, high capacity and efficiency, see table of capacities below.

Material—Copper and bronze throughout.

Sump—Preferably sewer crock 15 in. in diameter or larger—larger sizes preferable. Prevent undercutting, settling and exclude dirt by cementing bottom of crock, this also provides a foundation for pump.

Sump Cover

A sump cover is recommended to exclude ashes, coal dust and other solid material from accumulating in sump. Penberthy Sump Pump Covers provide proper working clearances for the automatic control mechanism.

LIST PRICES, SIZES, CAPACITIES, ETC., OF PENBERTHY ELECTRIC SUMP PUMPS

Size No.	List prices	Pipe connection, in.	Sump depth, ft.	Height of pump ft. in.	Approximate capacity, gallons per hour against discharge head of					Operation cost per hour, cts.	Size motor, hp.	Weight boxed, lb.
					1 ft.	5 ft.	10 ft.	15 ft.	20 ft.			
1G	\$ 65.00	1	2	3 5	1200	1000	750	500	...	.08	1/8	89
2G	85.00	1 1/4	2	3 7 1/4	3000	2500	2000	1500	600	1.6	1/4	102
3G	100.00	1 1/4	4	5 6	3000	2500	2000	1500	600	1.6	1/4	128
4G	125.00	1 1/4	6	7 6	3000	2500	2000	1500	600	1.6	1/4	144
5G	150.00	1 1/4	8 1/2	9 10	3000	2500	2000	1500	600	1.6	1/4	195



Model "L"
Automatic Cellar
Drainer
Sizes 3, 4 and 5

Penberthy Automatic Cellar Drainers—Water Operated

The Penberthy Automatic Cellar Drainer has been on the market for years and is of distinct service for installations such as office buildings, residence or factory basements, sumps, tanks, settling basins, flywheel, elevator, coal and scale pits, or wherever it is desired to remove seepage, flood or backwater from point below the natural drainage level of sewer.

For conditions such as these the Penberthy Automatic Cellar

Drainer offers a desirable solution, as it operates by city water pressure and the drainer itself is ideally constructed to occupy the least possible space. It is also entirely automatic and requires no attention after installation.

Special Notice: The capacities given are the actual capacities of water taken from sump and not the combined discharge of operating and drainage water as given in most tables. For higher elevations than shown above, special drainers can be made.



Model "R"
Automatic
Cellar Drainer
Sizes 1 and 2

CAPACITIES AT DIFFERENT PRESSURES AND ELEVATIONS, PIPE SIZES, ETC., MODEL "R"

Size and model	Pipe sizes, in.		Working head, ft.	Maximum net capacities from sump in gallons per hour at 10 to 100 lbs. water pressure									
	Supply	Discharge		10	15	20	25	30	40	60	80	100	
				MODEL "R"									
No. 1 Model "R"	½	1	3	80	210	300	340	400	510	700	720	700	
			6	.....	90	140	240	300	390	570	670	690
			9	.....	.....	90	150	210	330	480	620	660
			12	.....	.....	.....	100	150	220	390	550	630
			15	.....	.....	.....	.....	90	190	300	450	600
18	.....	.....	.....	.....	.....	.....	120	250	320	550		
No. 2 Model "R"	¾	1¼	3	190	390	550	620	750	910	1180	1240	1220	
			6	.....	210	340	420	600	750	1020	1140	1200
			9	.....	.....	210	300	380	540	900	1090	1150
			12	.....	.....	.....	210	300	420	780	1020	1110
			15	.....	.....	.....	.....	210	370	570	940	1050
18	.....	.....	.....	.....	.....	.....	300	510	850	970		

CAPACITIES AT DIFFERENT PRESSURES AND ELEVATIONS, DIMENSIONS AND PIPE SIZES, MODEL "L"

Size and model	Pipe sizes, in.		Working head, ft.	Actual capacities in gallons of water per hour taken from sump and not total amount of discharged water			
	Supply	Discharge and suction		At 25 lbs. will elevate	At 40 lbs. will elevate	At 60 lbs. will elevate	At 80 lbs. will elevate
No. 3 Model "L"	1	1 1/2	3	660	1100	1440	1650
			6	520	860	1230	1440
			9	.....	720	1050	1320
			12	.....	.....	840	1040
			18	.....	.....	.....	760
		
No. 4 Model "L"	1 1/4	2	3	960	1600	2020	2400
			6	760	1240	1880	1980
			9	.....	1040	1600	1800
			12	.....	.....	1280	1440
			18	.....	.....	.....	1050
		
No. 5 Model "L"	1 1/2	2 1/2	3	1280	2100	2700	3200
			6	1000	1620	2300	2820
			9	.....	1260	1960	2600
			12	.....	.....	1560	2060
			18	.....	.....	.....	1500
		

WATER CONSUMPTION, MODEL "R"

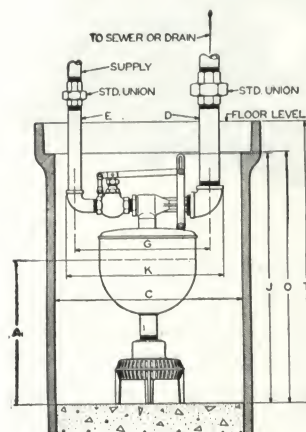
Working head, ft.	Approximate gals. or fractional gals. of pressure water required to pump 1 gal. from sump with a Model "R" Drainer							
	10 lb.	15 lb.	20 lb.	30 lb.	40 lb.	60 lb.	80 lb.	100 lb.
3	.80	.50	.40	.38	.35	.30	.30	.35
690	.75	.50	.42	.38	.38	.40
9	1.00	.65	.50	.45	.40	.41
1290	.65	.52	.45	.42
15	1.20	.85	.60	.50	.43
18	1.00	.70	.55	.45

Unless otherwise specified, the Model "R" drainer is supplied and used for all conditions above the heavy line running through the table of capacities (see table above).

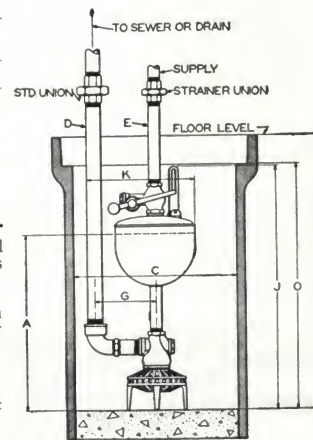
For conditions below the black line we furnish a low pressure drainer. The Model "R" drainer requires 5-lb. water pressure or more for each foot of elevation, while the low pressure drainer will work on 2 to 4-lb. per ft. of elevation.

PRICE LIST

Model "R"			Model "L"		
Size.....	1	2	3	4	5
List price.....	\$25.00	\$40.00	\$55.00	\$80.00	\$110.00



Model "L" Cellar Drainer
Sizes 3, 4 and 5



Model "R" Cellar Drainer
Sizes 1 and 2

DIMENSIONS OF PENBERTHY AUTOMATIC CELLAR DRAINERS

Nos. Models "R" and "L"	A	C	D		E	G	K	J	O	T
	High water, in.	Diameter cock, in.	Iron pipe diam., in.		.....	Centers of cutouts in cover, in.	Diam. of drainer, in.	Height of drainer valve open, in.	Height to seat of socket, in.	Height to floor level, in.
R1	13 1/2	15	1	1/2	.....	6	10 3/8	21 1/2	21	23 1/2
R2	13 1/2	15	1 1/4	3/4	.....	7 1/2	12 7/8	21 1/2	21	23 1/2
L3	12 3/4	20	1 1/2	1	.....	13	15 1/8	25 3/8	33	36
L4	14 1/2	24	2	1 1/4	.....	15 7/8	18 1/2	27 1/2	33	36
L5	14 1/2	27	2 1/2	1 1/2	.....	17 1/2	20 9/16	27 5/8	33	36

QUIMBY PUMP CO., INC.

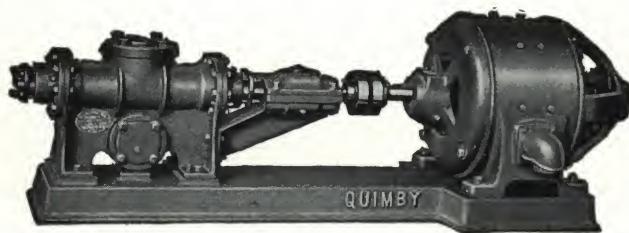
MAIN OFFICE AND WORKS
343 Thomas Street, NEWARK, N. J.

BRANCH OFFICES AND SALES REPRESENTATIVES IN PRINCIPAL CITIES

QUIMBY HOUSE AND SPRINKLER PUMPS

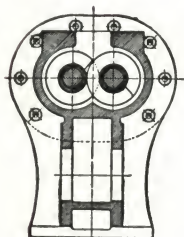
Quimby Screw Pumps

House Pumps—There are hundreds of Quimby Screw Pumps on house service in New York City alone. For many years the unique features of this pump have appealed to architects and engineers, who have specified it because of its simplicity, durability, quiet operation and efficiency under conditions where a centrifugal pump is unsuitable. Our sales engineers are showing new people every day how to reduce their operating cost by the use of Quimby Screw Pumps for house or booster service.

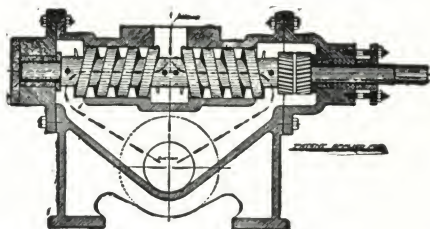


Quimby Standard Screw Pump

The construction of the Quimby Screw Pump is extremely simple. There are no valves and no air chamber, for the discharge is pulseless and will not cause noise in the piping.



Cross Section



Longitudinal View

Construction of Quimby Screw Pump

The water enters through a suction chamber below the pump directly from the street mains or from a surge tank, and passes to the two ends of the cylinder where it is trapped by the screws and forced to the center discharge chamber. Shaft stuffing boxes are on the suction side so that there is no danger of blowing out packing. Foundation bolts are not required because there is no vibration.



The Only Two Moving Parts in a Quimby Screw Pump

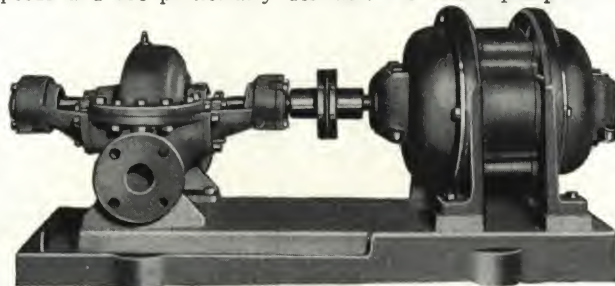
The Quimby Screw Pump is built in sizes suitable for all house pump applications for pressures up to 200 lb. per sq. in.

Sprinkler Pumps—For sprinkler service the Quimby Screw Pump has long been recognized as particularly suitable. Centrifugal pumps are apt to overload on this service due to the two conditions required, but the screw pump serves both purposes without overload and with reduced power consumption. Quimby Screw Pumps are built for pressures up to 300 lb. per sq. in. for this service.

Quimby Centrifugal Pumps

Quimby Single Stage Centrifugal Pumps—These pumps are suitable for house service in moderate sized buildings. Running at 1700 r.p.m., they are built for capacities up to 800 g.p.m. and heads up to 170 ft. At 3400 r.p.m. they are built for capacities up to 1600 g.p.m. and heads of 680 ft.

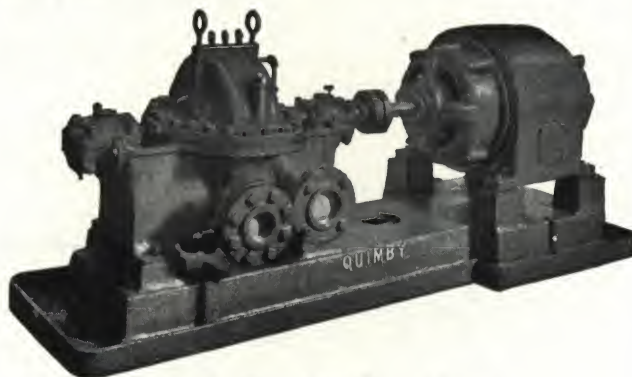
These pumps are built in accordance with a new design and give unusually high efficiencies. They are all of the horizontal split case type, with double suction impellers, ball bearings, and are fully bronze fitted. They operate without noise at high speeds and are particularly desirable for house pump service.



Quimby Single Stage Type Pump

Quimby Multistage Centrifugal Pumps—Made in three sizes for capacities up to 500 g.p.m. at heads up to 1400 ft. at 1750 r.p.m.

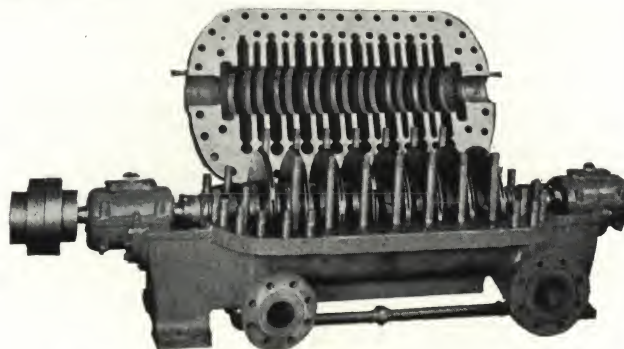
These pumps embody all the latest improvements in centrifugal pump design and have many unique features. Impellers are of the side suction balanced type, of enclosed construction. These pumps are bronze fitted throughout and designed to give maximum efficiency and long life. A perfect balance is maintained at all times by the use of an automatic hydraulic balancing disc.



Quimby Two-stage House Pump

All types of Quimby House Pumps are designed to give satisfactory service without the use of aids, such as mats and rubber hose connections used to deaden noise or absorb vibration.

Our sales engineers are always at the service of architects and engineers and will welcome the chance to study any pumping problems.

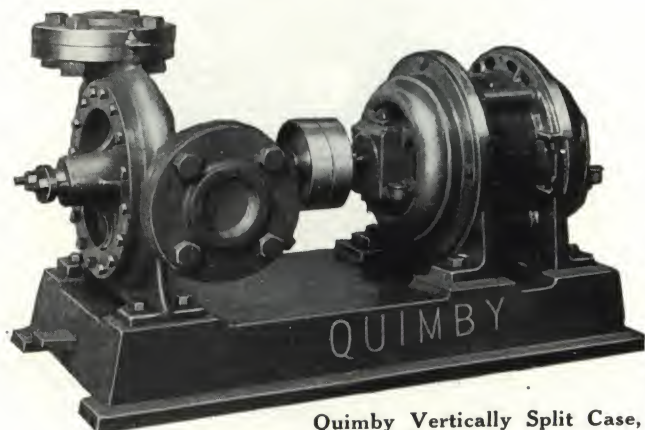


Eight-stage Pump with Top Half of Casing Raised

QUIMBY CIRCULATING PUMPS

Type E—Open Impeller

The Quimby Vertically Split Case Open Impeller Type E Pumps were especially designed to meet many building needs. They are suitable for service as circulating pumps for hot or cold water, and for calcium or salt brine in either open or balanced systems. Their construction also renders them suitable for swimming pool circulation and cleaning pumps.



Quimby Vertically Split Case,
Type E Centrifugal Pump

They are mechanically balanced for either a suction lift or a suction pressure, and are capable of operating with a suction lift up to 15 ft. when primed and a foot valve is used. Built in four sizes—Nos. 1, 1¼, 1½ and 2 for direct connection to motors. Capacities up to 500 g.p.m. at heads up to 150 ft.

Construction—For clear water these pumps are bronze fitted; for calcium brine, all-iron to avoid electrolysis; and for salt brine, all-bronze. Impellers are open type, balanced suction, mechanically and dynamically balanced, rigidly keyed to shaft and may be removed easily without disturbing piping connections. The close-grained cast iron, accurately machined, and vertically split casings will withstand a pressure of 200 lb. per sq. in.

The shaft is keyed for impeller and coupling; stuffing boxes are liberal in depth and water sealed for suction lifts; bed plate is cast iron, box type, ribbed, stiffened and machined.

No. 1 pump has 2-in. suction and 2-in. discharge.

No. 1¼ pump has 2½-in. suction and 2½-in. discharge.

No. 1½ pump has 3-in. suction and 3-in. discharge.

No. 2 pump has 4-in. suction and 4-in. discharge.

Type RS—For Large Capacities

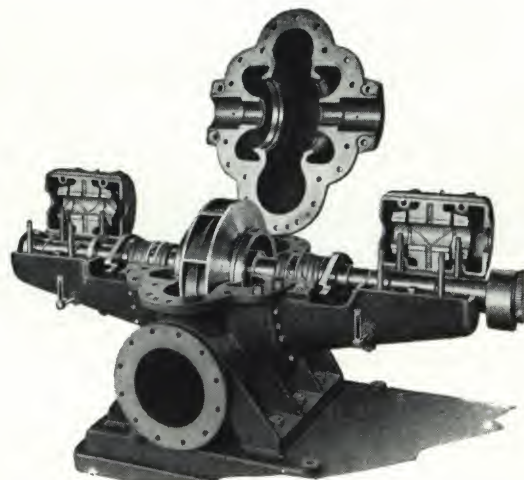
The Quimby Type RS Balanced Centrifugal Pump is suitable for large capacities. For service as swimming pool filling pumps and other applications where large capacity pumps are required, their advantages are many.

Designed especially for applications where dependability under continuous operation is essential. An almost perfect balance for the rotating elements is obtained by the use of a special dynamic balancing machine. Efficient and quiet in operation.

Built in sizes having capacities from 35 to 16,000 g.p.m. at heads from 15 to 250 ft. Suitable for direct connection to motors and steam turbines.

Construction—Fittings of bronze or iron as required. Impellers are statically and dynamically balanced; inside, hand finished; outside, machine finished.

Impeller wearing rings are furnished around both impeller entrances to hydraulically balance any axial thrust.



Type RS Centrifugal Pump

Bronze sleeves on the shaft extend through stuffing boxes to protect the shaft from liquid being pumped. Stuffing boxes are deep and water sealed. Gland is split and held by swing bolts, making packing easily accessible. Bed plate has planed pads for pump and motor. Bearings are equipped with ring oilers in large oil reservoir. Flexible couplings allow for slight variations in alignment.

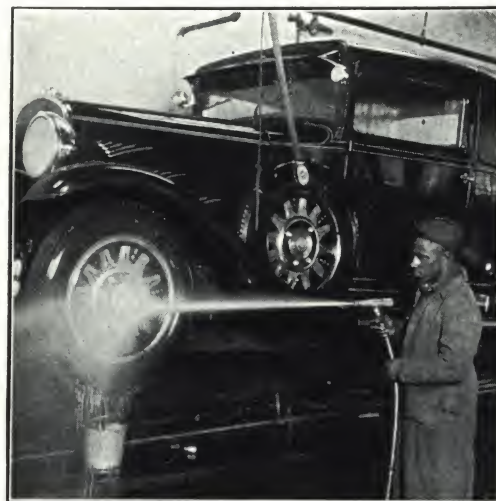
QUIMBY HIGH PRESSURE PUMPS FOR WASHING SERVICE

Architects and engineers writing specifications for garages will be interested in the Quimby High Pressure Screw Pumps for washing service.

Quimby Standard Screw Pumps are used for this service, mounted on bed plates complete with motors of the proper current characteristics for the job. Since they take the water direct from the supply tanks or the city mains, they can be placed in any location which best meets the needs of the user.

The most important requirement of a pump for this service is that it delivers a stream of water under pressure without pulsation. The Quimby Screw Pump meets this requirement and eliminates the excessive high pressures hitherto used. The cleansing action of water is most effective and rapid at 10 g.p.m. per nozzle at a pressure of 200 lb. per sq. in.

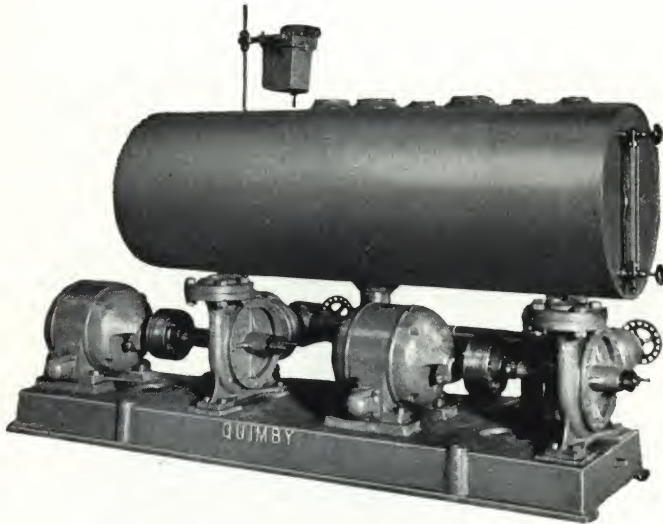
Complete units can be furnished with valves, hose and as many nozzles as are required. The nozzle furnished is a patented one designed to give the best service with this type of pump. It is of rugged construction and cannot be harmed by dropping it on floors. It is equipped with a hardened steel chisel for scraping mud from under fenders.



Pressure Stream from Quimby Pump

QUIMBY CONDENSATION RETURN UNITS

In many buildings it is necessary to set some of the radiation so low that the hot water of condensation will not return to the boiler by gravity. The Quimby Condensation Return Unit is designed to collect the hot water in such cases and pump it back into the boiler. The saving of fuel is greatest when the water is returned to the boiler hottest. The Quimby Unit takes advantage of this saving and does not allow water to remain in the receiver long enough to get cold.



Condensation Return Unit with Horizontal Tank

There are many types of Quimby Condensation Return Units, which can be made to suit every need and space requirement. They are furnished for any capacity depending on the area of radiation, and for any boiler pressure.

In all Quimby Units a common bed plate is used to carry all the equipment. Pumps, tank, valves and float switches are all assembled ready for piping and wiring.

The pumps used in Quimby Units were designed especially for hot water service and have years of experience behind them.



Condensation Return Unit with Horizontal Tank and Pumps on Different Sides

In every type of unit—whether low or high pressure, small or large capacity, vertical or horizontal tank, single or duplex pumps—the advantages of the Quimby Condensation Return Unit are always found. Water is not allowed to lose its heat, flexibility of design, and unified mounting of all equipment on a common bed plate.



High Pressure Unit with Vertical Tank

QUIMBY ELECTRIC SUBMERGED VERTICAL SUMP AND BILGE PUMPS

Quimby Sump Pumps are always ready for service, automatic, accessible in all parts and capable of handling dirty water containing more or less solids. A centrifugal pump has to be primed. By having the starting device set so that the pump will not start until it is submerged, the certainty of priming is automatically assured and the necessity of a foot valve eliminated.

These sump pumps are designed to run at either 1150 or 1750 r.p.m. without noise or vibration. Complete fully automatic units can be furnished when desired with tank, cover, float switches, starters, and high water alarm.

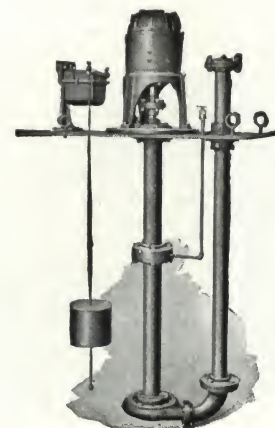
Quimby Sump Pumps are built for capacities up to 1000 g.p.m. at heads up to 150 ft.

Construction—The self-aligning roller bearing which carries the impeller and vertical shaft is situated at the level of the sump pit cover instead of being at the pump and thus underneath the gritty water. The pump is suspended from the cover plate by a steel tube through which the vertical shaft passes. The discharge pipe also passes through the cover plate. The plate is removable with its attachments which permits free access to all parts. For pumps more than 6 ft. long, one or more bearings are used to steady the shaft.

Motor is of the vertical type, direct connected to the pump by a flexible, noiseless coupling.

Heavy angle iron safety curbs for square or rectangular pits, and cast iron curbs for circular pits carry the cover plates and can be furnished gastight to specification.

Pump Nos. 1, 1¼, 1½, 2, 3 and 4 have respective discharge sizes of 2, 2½, 2½, 3, 4 and 6 in.



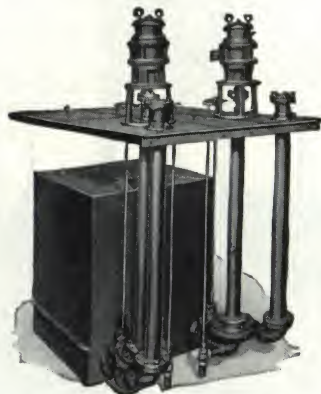
Quimby Sump Pump

QUIMBY SEWAGE EJECTORS

Quimby Electric Single and Duplex Dry Pit Sewage Ejectors

Capacities from 30 to 1000 gal. of sewage per minute.

Advantages of the Quimby Ejector are simplicity in construction, few moving parts and economy of operation. All moving parts, except the automatic control, are outside the sewage chamber and easily accessible. Vertical pump shaft is covered to prevent accidents if it is necessary to enter pump chamber while the pump is running.



Quimby Duplex Sewage Ejector

Sewage Receiver—Is a gastight steel tank with a manhole, gastight cover and steel bar screen.

Ejector Pump—Is substantially the same as the sump pump, but fitted with non-clogging impeller.

Emergency Pump Connection—Supplied to drain pit in case it becomes flooded.

Duplex Ejectors—Have great advantages over single type. In case repairs are needed on one pump, motor, or automatic control, the other handles the sewage without interruption.

Each pump is usually large enough to handle the ordinary amount, but in case of an unusual flow both pumps operate until the receiver is empty.

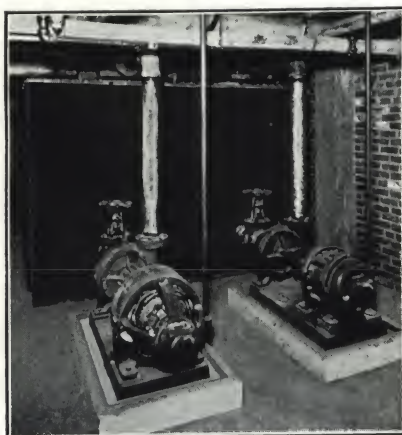


Non-clogging Impeller

Used in small size Quimby Sewage Pumps

Horizontal Ejectors

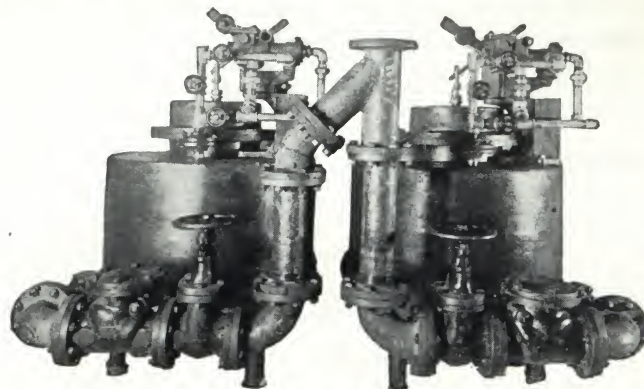
Horizontal ejectors are used when all the fixtures from which the tank fills are above the floor level. This type of ejector obviates the necessity for a pit. In construction it is very similar to the Dry Pit type. The pumps can be attached to the tank in any way that best meets space requirements.



Horizontal Ejector

Quimby Pneumatic Sewage Ejectors

Where the conditions of service are too heavy for the centrifugal type of electric sewage ejector, Quimby Pneumatic Sewage Ejector is used. This is built in a wide range of sizes



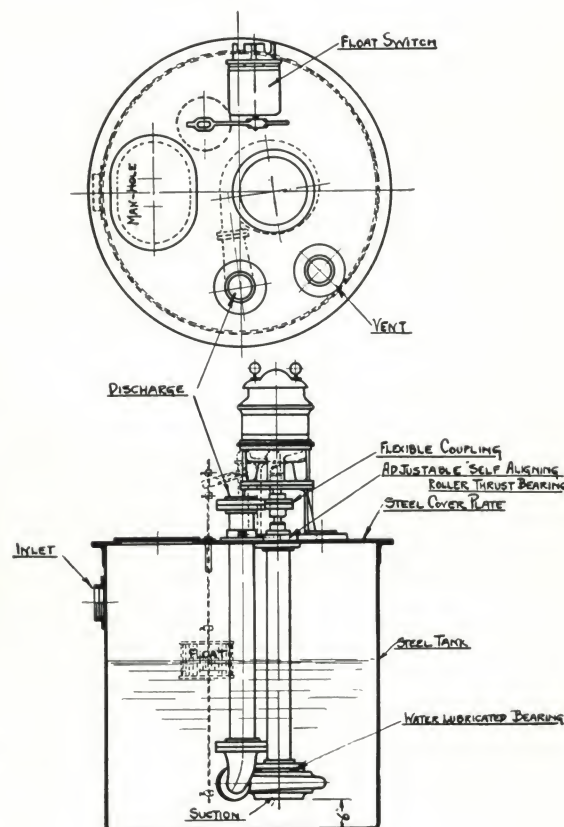
Quimby Duplex Pneumatic Sewage Ejector

and for almost any discharge head. Its operation is controlled by a patented valve. This installation has proved satisfactory under all conditions where other types of ejectors are unable to perform the work.

Submerged Ejectors

Submerged ejectors are used when there is no place for the large pit required by the Dry Pit type. The pumps are of the same construction, except for the fact that they take their suction from the bottom, as in a sump pump, instead of from the side. Non-clogging impellers are standard equipment.

No screens are required on any Quimby Sewage Ejector.



Single Submerged Ejector

TABER PUMP CO.

295 Elm Street, BUFFALO, N. Y.

Products

TABER STANDARD SUMP PUMPS; TABER STANDARD SEWAGE PUMPS; TABER MIDGET SUMP PUMPS.

Also Taber Booster and Circulating Pumps, Taber Centrifugal and Rotary Pumps, and Specially Engineered pumps.

Standard Sump Pumps

Self-contained single units suspended from substantial sump cover plates. Duplex units suspended from auxiliary elliptical plates mounted on main cover plates. Built for pits 5 ft. deep which allows for 3 in. of clearance at bottom. Pumps can be built for other diameters or for special depths at a nominal extra cost. Pumps are provided with automatic control. Auxiliary automatic starters furnished as additional equipment.

Standard Sewage Pumps

Wide open type impellers pass sewage and toilet tissue. As a protection against clogging, caused by cloths, etc., we urge the use of a strainer basket which we can furnish.

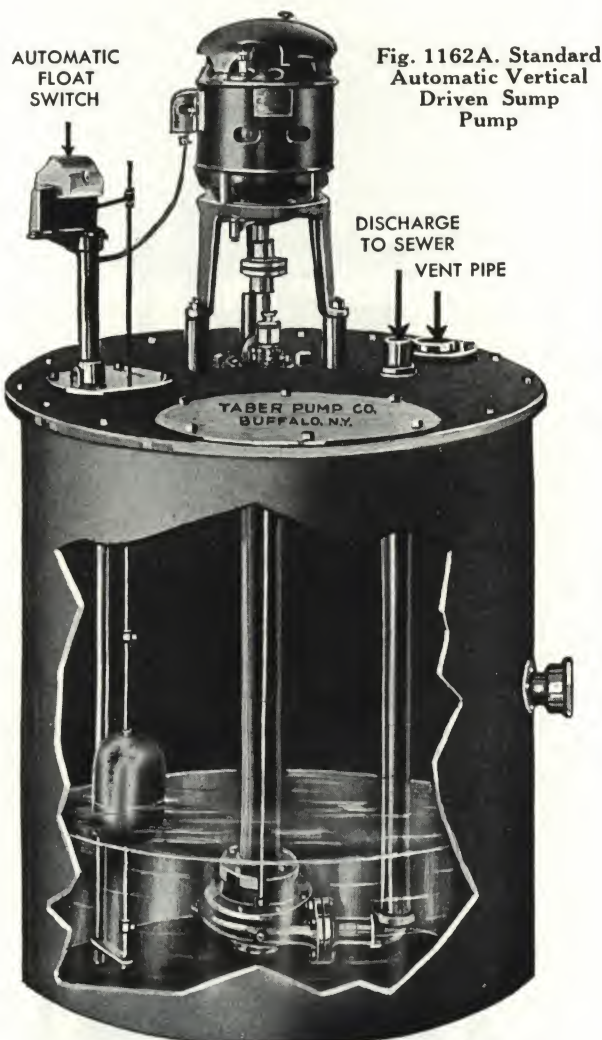
Taber Standard Sewage Pumps are built for pits 5 ft. deep, but can be furnished for other depths. Cover plate is fitted for a 3-in. vent pipe and with a manhole and cover. Entire mechanism, including float can be removed for adjustments without going into pit.

RATINGS PER PUMP—STANDARD SEWAGE PUMPS—SINGLE AND DUPLEX

Type No.	Cap., gal. per min.	Head, ft.	Cover plate diam., in.	Motor hp.	Type No.	Cap., gal. per min.	Head, ft.	Cover plate diam., in.	Motor hp.
No. 1 Single Units—1750 R.P.M., 60-cycle or D-c.					No. 1 Duplex Units—1750 R.P.M., 60-cycle or D-c.				
SA-1	75	25	36	1½	DSA-1	75	25	54	1½
SA-2		20		1½	DSA-2		20		1½
SA-3		15		1	DSA-3		15		1
No. 2 Single Units—1150 R.P.M., 60 or 40-cycle or D-c.					No. 2 Duplex Units—1150 R.P.M., 60 or 40-cycle or D-c.				
SC-1	100	32	36	3	DSC-1	100	32	66	3
SC-2		22		2	DSC-2		22		2
SC-3		17		1½	DSC-3		17		1½
SC-4	150	30	36	3	DSC-4	150	30	66	3
SC-5		20		2	DSC-5		20		2
SC-6		10		1½	DSC-6		10		1½

RATINGS PER PUMP—STANDARD SUMP PUMPS—SINGLE AND DUPLEX

Type No.	Cap., gal. per min.	Head, ft.	Cover plate diam., in.	Motor hp.	Type No.	Cap., gal. per min.	Head, ft.	Cover plate diam., in.	Motor hp.
Single Units—1750 R.P.M., 60-cycle and D-c.					Duplex Units—1750 R.P.M., 60-cycle and D-c.				
AL-25-2	25	20	24	½	XL-25-2	25	20	48	½
AL-50-1		10		½	XL-50-1		10		½
AL-50-2	50	20	32	¾	XL-50-2	50	20	48	¾
AL-50-3		25		1	XL-50-3		25		1
AL-75-1		10		¾	XL-75-1		10		¾
AL-75-2	75	20	36	1	XL-75-2	75	20	54	1
AL-75-3		25		1½	XL-75-3		25		1½
AL-100-1		10		1	XL-100-1		10		1
AL-100-2	100	20	36	1½	XL-100-2	100	20	54	1½
AL-100-3		30		1½	XL-100-3		30		1½
AL-150-1		10		1½	XL-150-1		10		1½
AL-150-2	150	20	36	1½	XL-150-2	150	20	66	1½
AL-150-3		30		2	XL-150-3		30		2
AL-200-1		10		2	XL-200-1		10		2
AL-200-2	200	20	36	2	XL-200-2	200	20	66	2
AL-200-3		30		3	XL-200-3		30		3
AL-300-1		10		3	XL-300-1		10		3
AL-300-2	300	20	36	3	XL-300-2	300	20	66	3
AL-300-3		30		5	XL-300-3		30		5
Single Units—1150 R.P.M., 60 or 40-cycle or D-c.					Duplex Units—1150 R.P.M., 60 or 40-cycle or D-c.				
CL-100-1	100	10	36	1	ZL-100-1	100	10	54	1
CL-100-2		16		1	ZL-100-2		16		1
CL-150-1		10		1½	ZL-150-1		10		1½
CL-150-2	150	20	36	1½	ZL-150-2	150	20	66	1½
CL-150-3		25		2	ZL-150-3		25		2
CL-200-1		10		2	ZL-200-1		10		2
CL-200-2	200	20	36	2	ZL-200-2	200	20	66	2
CL-200-3		30		3	ZL-200-3		30		3
CL-250-1		10		2	ZL-250-1		10		2
CL-250-2	250	20	36	2	ZL-250-2	250	20	66	2
CL-250-3		30		5	ZL-250-3		30		5



These pumps are used for drainage purposes below sewer level and are made for handling either drainage water or sewage. It also has many industrial applications, such as conserving condensate and returning it to the boiler feed water supply tank. The pump is sold with or without tank



Fig. 1161. Duplex Unit of Fig. 1162A

We are in position to successfully solve any pump problems within the limitations of types and sizes of pumps we construct. All data received is held strictly confidential. Send your pumping problems to us on a Taber Data Sheet

Taber Midget Sump Pump No. 1

"Dry Cellar Insurance" for the smaller buildings. G.-E. ¼ hp., ball bearing, moistureproof, repulsion induction motor. Complete 24-in. cover plate fits top of an 18-in. tile. Nothing but water enters the sump. Taber engineered throughout.

Simply plug into lamp socket to operate. The pump needs no servicing after installation.

RATINGS OF MIDGET SUMP PUMPS

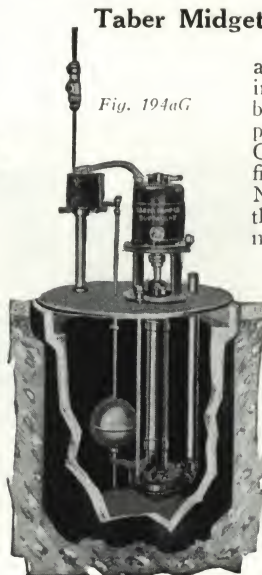
10-25 G.P.M.

For 60-cycle, 1750 R.P.M.

Gal. per min.	10	15	20	25
Total head, ft.	23	21	20	18

For 25-cycle, 1450 R.P.M.

Gal. per min.	10	15	20	25
Total head, ft.	15	14	12	10



ESTABLISHED 1898

YEOMANS BROTHERS COMPANY

Sewage Ejectors, Pumping Machinery, Air Compressors

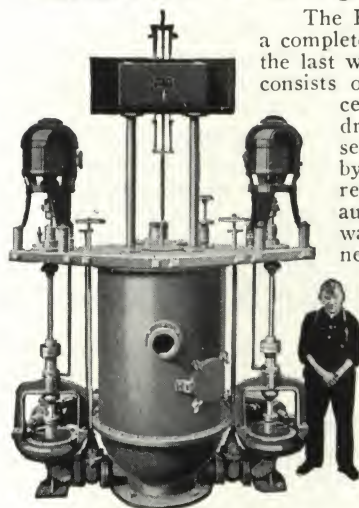
1419 Dayton Street, CHICAGO, ILL.
REPRESENTATIVES IN PRINCIPAL CITIES

Products

YEOMANS FORM "A" SCREENLESS DUPLEX CENTRIFUGAL ELECTRIC SEWAGE EJECTORS; SHONE PNEUMATIC SCREENLESS SEWAGE EJECTORS; YEOMANS SINGLE and DUPLEX ELECTRIC BILGE or SUMP PUMPS; YEOMANS SUBMERGED TYPE SCREENLESS SEWAGE EJECTORS.

Also Yeomans Horizontal Centrifugal Pumps; Yeomans Condensation Return Pumps; Automatic Lubricators; Rotary Air Compressors and Dry Vacuum Pumps.

Yeomans Form "A" Sewage Ejector (Screenless)



Form "A" Duplex Ejector (Screenless)

The Form "A" Sewage Ejector is a complete pumping unit and represents the last word in quality equipment. It consists of two vertical, non-clogging centrifugal pumps operating in dry pit, connected to cast iron sewage receiver. Pumps driven by vertical motors mounted on receiver cover. Equipped with automatic controllers, high water alarm, pit-drainage connections, gate and flush back check valves. Top plate of pump casing can be raised without disturbing shafting, bearings or impellers.

No accumulation of solids in receiver, requires minimum space, high efficiency, noiseless, sanitary and reliable. Non-clogging impeller does away with screens. Complete details given in Bulletin A-2300.

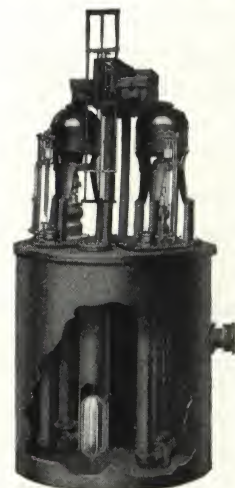
FORM "A" DUPLEX EJECTOR (SCREENLESS).

No.	3	4	5	6
Capacity each unit.....g.p.m.	100-125	150-200	250-350	400-500
Pit diameter.....ft.	8	8	8	10
Depth of pit below inlet.....ft.	4	4	4	5

Yeomans Heavy Duty Bilge or Sump Pumps

Automatic, self contained, heavily constructed, slow speed machines, with submerged centrifugal pumps, vertical direct connected motors and automatic controllers, equipped with standard open impellers. Unsurpassed for handling waste water, seepage, drainage, flood water, boiler blowoff heating returns. Will handle any hot drainage with absolute certainty. No priming devices required.

Furnished with either moderate or slow speed, continuous or intermittent duty motors and with high water alarms, pipe casing for float, force feed lubricated bearings, automatic oil economizers, etc., as desired. Write for Bulletin B-3400.



Yeomans Heavy Duty Duplex Bilge Pump

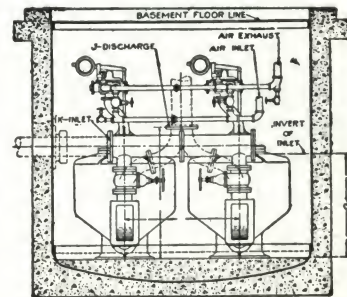
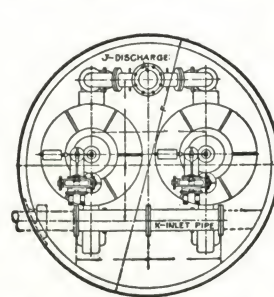
HEAVY DUTY BILGE PUMPS

No.	Single	Duplex
Capacity, g.p.m.		
1 1/4	15-25	30-50
1 1/2	35-50	70-100
2	60-75	120-150
3	100-125	200-250
4	150-200	300-400
5	250-350	500-700
6	400-500	800-1000
Basin diam., in.		
1 1/4	24	36
1 1/2	36	36
2	36	42
3	36	48
4	36	60
5	48	60
6	48	72



Shone Pneumatic Sewage Ejector (Screenless)

Well known as a most reliable pneumatic sewage ejector. Unsurpassed for simplicity, reliability, durability, substantial design, and economy of operation. No screens required; no accumulation of solids; special non-clogging check valves; no airtight floats; bronze pressure operated piston valves located outside of ejector pit; no electric float switches. Piston valves prevent sewage from getting into compressors. Furnished with either motor or steam driven air compressors. Compressors can be located at any desired distance from ejectors. Ejectors can be operated from air supply maintained for general purposes. Especially recommended for municipal work. Write for complete Bulletin P-4400.



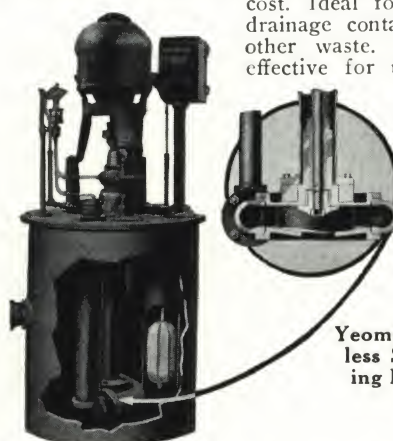
Dimension Diagram of Shone Duplex Ejector (Screenless)

G. p. m. each unit	G. ft. in.	Single Ejectors			Duplex Ejectors	
		F, ft.	J, in.	K, in.	F, ft.	J and K, in.
50	3-1	6	4	6	8	6
100	3-7	7	5	6	9	8
150	4-5	7	5	6	9	8
200	4-11	8	6	8	11	8
250	5-6	8	6	8	11	8
300	7-0	8	6	8	11	8
400	7-3	13	12	12	14	12
500	8-0	13	12	12	14	12
600	8-9	13	12	12	14	12
750	8-0	14	14	14	16	14
1000	9-0	14	16	16	16	16

Yeomans Heavy Duty Screenless Submerged Type

Sewage Ejector can be furnished in wide range of sizes and capacities. Absolutely reliable, high-grade machine. Has the well-known Yeomans non-clogging impeller which eliminates all screens—gives years of dependable service at low maintenance cost. Ideal for handling sewage and drainage containing rags, solids and other waste. Engineers will find it effective for use in deep basements, subdivisions, subways, disposal works, power stations and industrial plants.

Write for Bulletin B.S.-8000.



Yeomans Submerged Screenless Sewage Ejector Showing Non-clogging Impeller

YEOMANS SUBMERGED SCREENLESS SEWAGE EJECTORS

No.	Capacity, g.p.m.		Basin diam., in.	
	Single	Duplex	Single	Duplex
3	100-125	200-250	36	48
4	150-200	300-400	36	60
5	250-350	500-700	48	60
6	400-500	800-1000	48	72

WESTCO-CHIPPEWA PUMP COMPANY

Manufacturers of Pumps for Handling Commercial Liquids, for Circulating, and General Service

FACTORY AND GENERAL OFFICES
DAVENPORT, IOWA

BRANCH OFFICES

ALBUQUERQUE, N. M.
ATLANTA, GA.
BALTIMORE, MD.
BIRMINGHAM, ALA.
BOSTON, MASS.
BUFFALO, N. Y.
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CLEVELAND, OHIO
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ST. LOUIS, MO.

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LOUISVILLE, KY.
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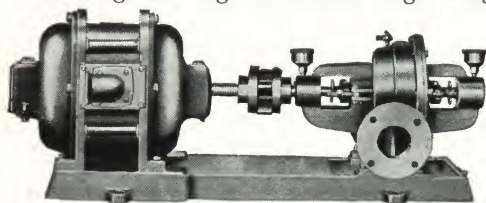
Products

WESTCO SINGLE STAGE TURBINE TYPE PUMPS for low and high head duty; WESTCO CONDENSATION PUMPS and RECEIVERS; BOOSTER SYSTEMS; DOMESTIC WATER SYSTEMS; REFRIGERATING PUMPS for brine and water circulation.

Also Westco Deep Well Turbine Pumps.

Westco Pumps (Turbine Type)

The application of the turbine principle to pumping liquids is an exclusive feature of Westco pumps and is broadly covered by patents. It is the one important improvement in pump design since the development of the centrifugal. The Westco possesses distinct advantages in providing high efficiency performance in small capacities, plus the ability of each individual pump to deliver against high heads in single stage and against



Westco
Turbine
Pump
Motor
Driven

widely varying pressures with little change in capacity or efficiency. The power requirements are comparable to the piston or reciprocating type pump in that power consumption decreases with a decrease in discharge head.

Wide Operating Range—On account of its wide operating range, variations in pumping head, due to

fluctuation of city pressure or change in discharge conditions, affect only slightly the capacity or efficiency of the Westco pump. When pump and motor are selected in accordance with maximum head requirements, any decrease in head will have only slight effect on discharge volume and power requirements will decrease.

Only One Moving Part—The impeller is the only moving part of the Westco pump. It is of bronze or such other material as has been proven most suitable for the individual purpose for which the pump is to be used, and is carried on a shaft of monel metal mounted on outboard ball bearings.

Accessibility—The pump casing is split vertically which permits disassembly without disturbing suction or discharge connections.

Perfect Hydraulic Balance—Westco pumps are of the double suction type, providing equal pressure on both sides of the impeller and a free running clearance without the use of complicated balancing devices. There is no metal-to-metal contact in the interior of the pump to cause friction or loss of efficiency.

Other Features—Westco Turbine Pumps are particularly suited for the following pump duties in modern buildings:

Booster pump—The Westco Turbine Pump can be installed directly in the line, insuring a steady, adequate stream without any pulsations. Delivers against heads up to 250 ft. in single stage at 1725 r.p.m.

Circulating pump for drinking water—Casings are built to withstand high static pressures in balanced systems in high buildings.

Brine circulating pump—Wide operating range eliminates the necessity for accurately computing the pump head. Simply select the pump and motor for the maximum head you

CONDENSED SELECTION TABLE, WESTCO SINGLE STAGE PUMPS

Performance when operating at full load speed of 1725 r.p.m., motors pumping clear water at normal temperatures

Capacity, g.p.m.		Total head, feet											
		20 or less	30	40	50	60	80	100	125	150	175	200	235
5	Model.....	3H6	4H6	4H6	4H6	4H6	4H6	4H6	5L7	5L7	4H6S-1	4H6S-1	5L7S-1½
	Motor hp.....	¼	¼	¼	¼	¼	¼	¼	¾	1	1½	1½	1½
10	Model.....	4H6	4H6	4G7	4G7	4G7	4G7	4G7	5K8	5K8	5K8	5K8	6K7
	Motor hp.....	¼	¼	½	½	½	½	¾	1	1½	1½	1½	3
15	Model.....	4G7	4G7	4G7	4G7	4G6	4G6	5K8	6K7	6K7	6K7	6K7	6K7
	Motor hp.....	¼	½	½	½	¾	¾	1	1½	1½	2	2	3
20	Model.....	4G6	4G6	4C6	4C6	4G6	6K7	6K7	6K7	6H7	6H7	6H7	6H7
	Motor hp.....	½	½	½	¾	¾	1	1½	1½	2	3	3	3
30	Model.....	4F6	4F6	4F6	4D7	4D7	6H7	6H7	6H7	6H6	6H6	6H6	6H5
	Motor hp.....	½	½	½	1	1½	1½	1½	2	3	5	5	7½
40	Model.....	4F5	4F5	4D7	4D7	4D6	5F8	6H6	6H6	6H5	6H5	6H5	7H8
	Motor hp.....	½	½	1	1	1½	2	2	3	5	5	5	7½
50	Model.....	4D7	4D7	4D6	4D6	5F8	5F6	6H5	6H5	6H5	6H5	7H8	7H8
	Motor hp.....	¾	¾	1	1½	1½	3	3	3	5	5	7½	7½
75	Model.....	4D5	4D5	4D5	5F5	5F5	6F8	6F7	6F7	7H8	7H8	7H7	7H7
	Motor hp.....	1	1½	1½	2	2	3	5	5	7½	7½	10	15
100	Model.....	5D7	5D7	5D7	5D7	5D7	6F6	6F6	6F5	7H7	7H7	7H7	7H6
	Motor hp.....	1½	2	3	3	3	5	5	7½	7½	10	10	15
125	Model.....	5D7	5D7	5D7	6F6	6F6	6F5	6F5	7H7	7H7	7H6	7H6	
	Motor hp.....	1½	2	3	3	3	5	5	7½	7½	15	15	
150	Model.....	5D6	5D6	5D6	5D6-5	6F5	7H6	7H6	7H6	7H5	7H5		
	Motor hp.....	2	3	5	5	5	7½	10	10	15	15		
200	Model.....	5D5	5D5	5D5	7H5	7H5	7H5	7H5	7H5	7H5			
	Motor hp.....	3	5	5	7½	7½	10	10	15	15			

Note: For intermediate sizes and for capacities larger than 200 g.p.m., and for pressures in excess of 100 lb., performance data will be furnished on request.

know will not be exceeded, and no matter how much less than this the head may actually be, the pump will deliver only a slightly increased volume and the power required will decrease with the head, thus removing the hazard of motor overload.

Westco's turbine design insures efficient operation in single stage against heads up to 250 ft., thus eliminating complicated and costly multistage installations.

The pump impeller is direct driven from motor through a flexible coupling. Westco performance is accomplished at standard motor speed up to 1725 r.p.m. against high or low heads.

Grease cups that require replenishment of lubricant but once a year are located on the bearing pedestals. In addition to slight adjustment of packing glands, no other attention is required.

In the bronze fitted or all bronze pump, the impeller is machined from a solid cast bronze disc and from cast iron in the iron fitted pump. It is also made from other metals when conditions demand.

Westco Turbine Pumps are sealed against leakage by a round rubber gasket which fits in grooves in casing and cover.

Due to Westco's compact, simple design, only minimum floor space and headroom are required for installation. Silent operation is a distinguishing characteristic of the throbless, humless, smooth-running Westco.

Write for copy of Architect's Specifications.

Westco Domestic Water Systems

Ideal for supplying the water needs of suburban or farm homes, estates, golf courses, greenhouses, etc., and are much used for booster service in apartment dwellings where normal city water supply does not deliver adequate pressure to upper floors. They will deliver all water needed under adequate pressure, even in case of fire.

The pump is of the turbine type, all-bronze construction, self-priming. It is simple in design, having only one moving part; there is no metal-to-metal contact to cause friction or wear. The pump operates silently and requires only minimum attention. The motor is direct connected. Speed, 1725 r.p.m. Because the pump is capable of pumping both air and water, an automatic air volume control is employed which makes the system truly automatic in every respect.

The tank is extra heavy steel, galvanized inside



Westco Domestic Water System

and outside. Automatic mechanical pressure regulator is supplied.

The standard setting provides that the switch will cut in at 20 lb. and cut out when the storage tank pressure reaches 40 lb.

Westco Water Systems are furnished in all sizes and also gasoline engine driven where electric current is not available.

Westco Condensation Pumps and Receivers

For automatically returning to low and high pressure steam plants, condensation from radiation systems, heaters, steam coils, etc.

They save the water supply, and to a considerable extent the fuel, by returning the condensate while hot. Through their aid proper circulation in the system is induced.

These units are entirely automatic in operation and consist of a Westco Bronze Fitted Pump equipped with two outboard ball bearings, and direct connected to an electric motor of approved make.

All pumps are of the double suction type, designed in such a manner that they can be entirely disassembled without disturbing the suction and discharge connections.

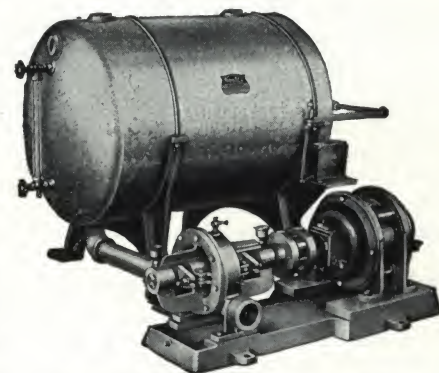
Receiver tank is made of heavy steel plate, galvanized inside and out, and is provided with a vent opening to allow the escape of any vapors that come back with the condensate.

The tank has an inlet opening at the top, also end. The suction pipe is connected in the bottom of the tank and extends up in the receiver sufficiently to allow liberal space for collection of sediment which can be cleaned out through drain opening.

Necessary piping and fittings between pump and receiver tank are furnished with all units.

The float control switch is of approved make—enclosed type—meets requirements of the Underwriters. It is mounted on a cast iron plate which is bolted to the head of the receiver and is actuated by means of a seamless copper float inside of tank.

Write for copy of Architect's Specifications.



Westco Condensation Pump and Receiver

SELECTION TABLE WESTCO CONDENSATION PUMP AND RECEIVER UNITS

Maximum direct radiation, sq. ft.	*Pump capacity g. p. m.	Pounds pressure—against which pump will discharge operating at 1725 r. p. m.										Approx. floor space, in.
		10	20	30	40	50	60	70	80	90	100	
1000 to 2000	5	C3H6-1/4	C4H6-1/4	C4H6-1/4	C5L7-3/4	C5L7-3/4	C5K8-1	C5K8-1 1/2	C5K8-1 1/2	C6K7-2	C6K7-3	36x40
2000 to 4000	10	C4G6-1/4	C4G6-1/4	C4G6-1/4	C5K8-1	C5K8-1	C6K7-1 1/2	C6K7-2	C6K7-2	C6K7-2	C6K7-3	
4000 to 6000	15	C4G6-1/4	C4G6-1/4	C6K7-1	C6K7-1	C6H7-2	C6H7-2	C6H7-3	C6H7-3	C6H7-3	C6H6-5	
6000 to 7500	20	C4F5-3/4	C4F5-3/4	C6H7-1 1/2	C6H7-1 1/2	C6H7-2	C6H6-3	C6H6-3	C6H6-5	C6H6-5	C6H5-5	
7500 to 10000	25	C4F5-1/2	C4D7-1	C5F8-1 1/2	C6H6-2	C6H5-3	C6H5-3	C6H5-5	C6H5-5	C6H5-5	C6H5-5	46x45
10000 to 15000	30	C4F5-1/2	C4D7-1 1/2	C5F6-2	C6H6-2	C6H5-3	C6H5-3	C6H5-5	C6H5-5	C6H5-5	C6H5-5	
15000 to 20000	40	C4D6-3/4	C4D5-1 1/2	C5F6-2	C6H5-3	C6F8-5	C6F8-5	C6H8-5	C6H8-5	C6H8-5	C6H8-5	
20000 to 25000	50	C4D5-1	C5F5-2	C5D7-3	C6F7-3	C6F7-5	C6F7-5	C6H7-7 1/2	C6H7-10	C6H7-10	C6H7-10	
25000 to 30000	60	C5F5-1 1/2	C5D7-3	C6F7-3	C6F6-5	C6F6-5	C6F6-5	C6H7-7 1/2	C6H7-10	C6H7-10	C6H7-10	62x50
30000 to 35000	70	C5D7-1 1/2	C5D7-3	C5D6-5	C6F6-5	C6F6-5	C6F6-5	C6H7-7 1/2	C6H7-10	C6H7-10	C6H7-10	
35000 to 40000	80	C5D7-1 1/2	C5D7-3	C5D6-5	C6F5-7 1/2	C6F5-7 1/2	C6F5-7 1/2	C6H7-7 1/2	C6H7-10	C6H7-10	C6H7-10	
40000 to 45000	90	C5D7-1 1/2	C5D6-5	C5D6-5	C6F5-7 1/2	C6F5-7 1/2	C6F5-7 1/2	C6H7-7 1/2	C6H7-10	C6H7-10	C6H7-10	
45000 to 50000	100	C5D6-2	C5D6-5	C6F5-5	C7H6-7 1/2	C7H6-10	C7H6-10	C7H5-15	C7H5-15	C7H6S-20	C7H6S-20	

*Pump capacity based on handling 190° F. water.

Note: The above-unit numbers indicate the model Westco pump and size motor. Example: Unit number C3H6 1/4 indicates a model 3H6 Westco double suction bronze fitted pump requiring a 1/4 hp. 1725 r.p.m. motor.

QUINCY COMPRESSOR CO.

Air Compressors and Dry Vacuum Pumps

313 Maine Street, QUINCY, ILL.

SALES AND SERVICE LOCATIONS

ATLANTA, GA.
BIRMINGHAM, ALA.
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WACO, TEX.
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ALSO IN OTHER IMPORTANT CENTERS

Products

AIR COMPRESSORS: Air, Hopper and Water Cooled; and Piston Type DRY VACUUM PUMPS for many purposes. Air compressors range from 1 to 128 cu. ft. displacement and from 100 to 200 lb. pressure according to size of compressor and requirements. Vacuum pumps are suitable for displacements of 10 to 40 cu. ft. and for maximum vacuum of approximately 28 in. at sea level.

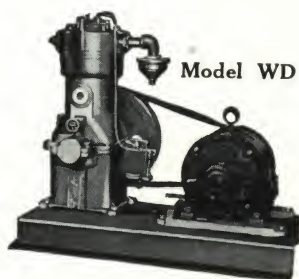
Quincy Air Compressors and Vacuum Pumps

Compressors and vacuum pumps are supplied individually or in complete built-up units in any desired style with or without pressure or vacuum control and either belt driven by V-belts, direct connected, chain or gear driven.

All belt driven units are equipped with single or multiple V-belts, are of special construction affording flexibility and capacity to absorb starting shocks. Because V-belts are intended to run loose and without slippage there is less bearing strain and consequently less wear on both compressor and motor bearings. V-belts will not jump off pulleys and there are no troublesome idlers. A positive power saving of from 20% to 30% by actual test results from the use of V-belts over the conventional flat type with idler or belt tightener. Quincy Compressors are built along the most advanced engineering lines and with the idea of producing a compressor having long life, low upkeep costs and with comparative freedom from trouble.

Model WD—Multiple V-belt driven, water cooled units, furnished with any required control. Full pressure lubrication.

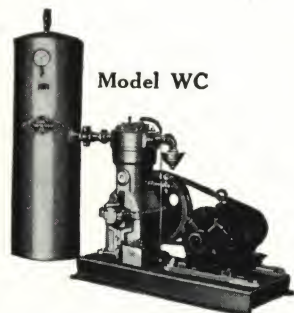
No.	Displacement, cu. ft.
WD-1	15-22
WD-2	25-39
WD-3	40-75



Model WD

Model WC—Complete automatic water cooled units with tanks, automatic water valves, pressure controls, and motor starters. Full pressure lubrication.

No.	Displacement, cu. ft.
WC-1	15-22
WC-2	25-39
WC-3	40-75
WC-4	83-128



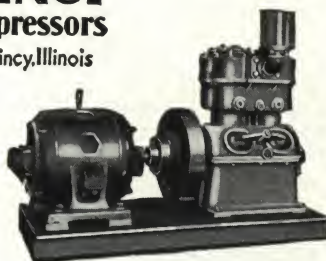
Model WC

Model R Dry Vacuum Pumps—Single cylinder, air cooled dry piston type vacuum pumps. Suitable for general industrial service where average vacuum of not to exceed 28 in. at sea level is required.

No.	Size, in.	Displacement, cu. ft.
R-1	4 x 2 1/2	10
R-2	4 1/2 x 3 1/2	19
R-3	6 x 4	36



Model WB-4

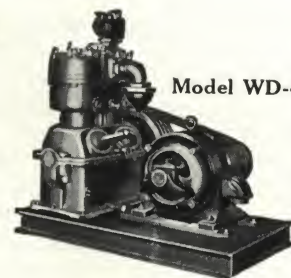


Model WD-4—Water cooled duplex, multiple V-belt drive with any controls desired. Full pressure lubrication.

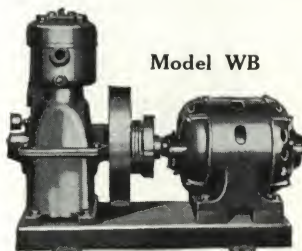
No.	Hp.	Displacement, cu. ft.
WD-4	15	83
WD-4	20	128

Model WB-4—Water cooled duplex, direct connected, any type of desired control. Full pressure lubrication.

No.	Hp.	Displacement, cu. ft.
WB-4	20	128



Model WD-4



Model WB

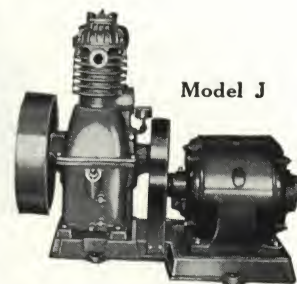
Model WB—Water cooled, direct connected single stage, any desired control. Full pressure lubrication.

No.	Hp.	Displacement, cu. ft.
WB-1	5	22
WB-2	10	39
WB-3	15	75

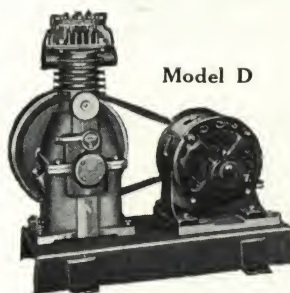
Model J—Gear driven air cooled unit for dry sprinkler systems and special fire protection service.

No.	Displacement, cu. ft.
J-1	4
J-2	6
J-2	8
JF-2	11

Other sizes up to 25 cu. ft. in air cooled types.



Model J



Model D

Model D—V-belt driven air cooled units for any special requirement, and any type of control.

No.	Displacement, cu. ft.
D-0	1
D-1	4
D-2	8
DF-4	15
DF-5	25

Descriptive Bulletins

The compressors and vacuum pumps illustrated and described here are but representative of the Quincy line. Descriptive bulletins of any or all types will be gladly sent on request, together with estimates or recommendations from our engineering department which is available for special service without obligation. Please state the requirements if engineering service is desired.

WESTINGHOUSE TRACTION BRAKE COMPANY

Westinghouse-National Air Compressors and Accessories

GENERAL OFFICES AND WORKS

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PITTSBURGH
SAN FRANCISCO

ATLANTA
ST. PAUL

CHICAGO
SALT LAKE CITY

ST. LOUIS
SEATTLE

LOS ANGELES
BOSTON

WASHINGTON
DENVER

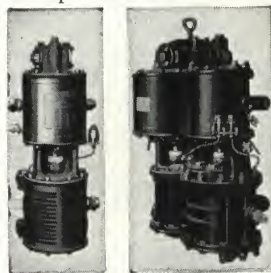
MEXICO CITY
COLUMBUS

HOUSTON
NEW YORK

Westinghouse-National Air Compressors

Westinghouse-National Air Compressors are made in a great variety of types and sizes to supply air for every conceivable need in factory or office buildings, such as: operating pneumatic tube systems and elevator doors; cleaning and general utility in engine rooms, etc. These machines are of simple and compact design, reliable in action, efficient, with an enviable record for durability and low maintenance.

Steam Driven Compressors—This line includes single stage and compound machines. The single stage type is made in three standard sizes: 8, 9½, and 11 in., with displacements of 35, 49, and 66 cu. ft., normally for 80 lb. air pressure and 100 lb. steam pressure. Other sizes for special steam and air requirements. Catalogue T-2036.

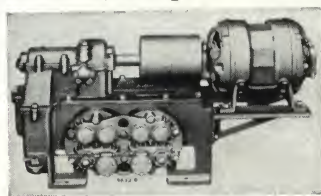


Single
Stage

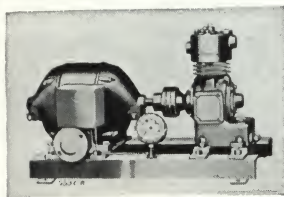
Cross
Compound

Cross compound compressors are of larger capacity, have higher efficiency, and are more economical in use of steam. The 8½ in.-120 cu. ft. is for 160 lb. steam and 140 lb. air. The 8½ in.-150 cu. ft. is for 200 lb. steam and 140 lb. air. The 10½ in.-150 cu. ft. is for 100 lb. steam and 80 lb. air. Catalogue T-2037.

Motor Driven Air Compressors—These are compact self-contained units that need no elaborate foundation nor heavy installation cost. Driven direct by motor, or through efficient herringbone gear and pinion, thus eliminating troublesome belts. Motors for any commercial circuit. Distinctive means for unloading during starting cycle. Start and stop method of control assures minimum operating cost. Flat washer type of inlet and discharge valve. Positive, automatic lubrication with but one place for oil refilling. Sizes 2½ to 727 cu. ft. displacement, for pressures up to 350 lb.



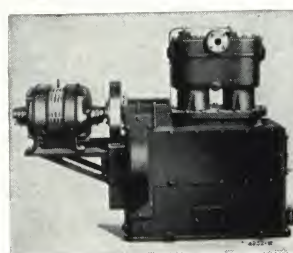
"N" Type



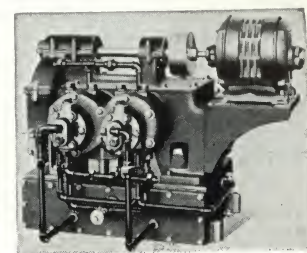
"SV" Type

"SV" Type—Direct-connected to motor with flexible coupling and mounted on common base, with air gage, and automatic controller. One or two cylinders, single stage, single acting. Air-cooled for intermittent operation, water-cooled cylinder head for continuous operation. Efficient, quiet running, and compactly arranged without sacrifice of accessibility. Sizes 2½ to 22¾ cu. ft. Maximum pressure 150 lb. Catalogue 830.

"N" Type—Two-cylinder, single stage, single acting, gear driven. Air-cooled for intermittent operation, water-cooled cylinder heads for continuous operation. Has positive and reliable unloader for alternating current motor drive. Sizes 12½ to 100 cu. ft. Pressures from 30 to 150 lb. Complete portable outfits also. Catalogue T-2048.



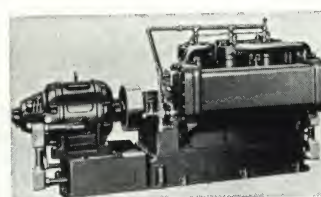
"2V" Type



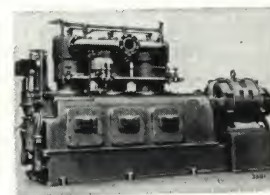
"QL" Type

"QL" Type—Two-cylinder compound with double trunk pistons, gear driven, water-cooled for continuous operation, with intercooler built in. Sizes 10 to 35 cu. ft. for 200 or 350 lb. pressures. Catalogue T-2048.

"2V" Type—Two-cylinder, single acting, gear driven. Sizes 75 to 200 cu. ft. and three forms, viz., 2VSA, single stage air-cooled for intermittent operation against 50 lb.; 2VSW, single stage water-cooled for continuous operation against 135 lb.; 2VCA, compound, for continuous operation, air-cooled for pressures up to 135 lb., water-cooled for 150 lb. maximum. Also made for 200 and 350 lb. pressure, 35 to 87 cu. ft. sizes. Portable outfits also. Catalogue T-2047.



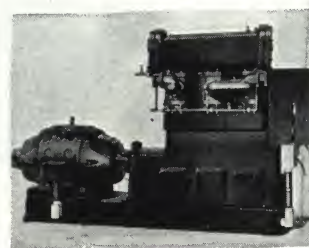
"Q3VS" Type



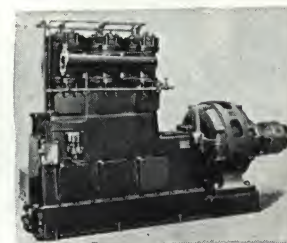
"3VS" Type

"3VS" Type—Three-cylinder, single acting, gear driven, single stage (3VS) or compound (Q3VS) as desired. Water-cooled for continuous operation. Sizes from 210 to 506 cu. ft., pressures from 75 to 350 lb. Compound machines have self-contained intercooler. Distinctive automatic control is integral part of the compressor outfit, provides valuable protective features, insures most economical operation, and simplifies installation, as the outfit is ready for use when connected to the electrical, water, and air mains. Can also be built for portable use. Catalogue T-2032.

"3VD" Type—Three-cylinder, double acting, gear driven, single stage (3VD) or compound (Q3VD) as desired. Water-cooled for continuous operation. Pressure range 100 to 350 lb. Compound machines have self-contained intercooler. Sizes 560 to 727 cu. ft. Equipped with same control as 3VS compressor. Catalogue T-2032.



"Q3VD" Type



"3VD" Type

CRANE CO.

Crane Water Supply Systems

836 South Michigan Avenue, CHICAGO, ILL.

For Branch Offices, see our Plumbing Section

Product

CRANE DEEP and SHALLOW WELL PUMPS and WATER SUPPLY SYSTEMS.

For our pages on Water Heaters, Water Softeners, Plumbing Fixtures and Gas Fired Boilers, see Manufacturers' Index.

Description

There is a Crane shallow well water system to meet every requirement. Capacities from 200 to 6000 gal. per hour. For deep or shallow wells. Electric or gasoline power.

Stoutly Constructed—The *oversized* parts of a Crane-Warlo system mean *underworked* parts with minimum strains and wear.

Quality Materials—Crankshafts forged and specially heat treated have double bearings of highest quality. Every bronze part is forged, not merely cast.

Perfected Design—Design is simple. No delicate or complicated parts to get out of order. Flood lubrication reduces wear. The patented device which prevents the oil from mixing with the water has no packing to wear, leak and need replacing.

Completely Accessible—In no other pump are parts so easy to get at. For example, the valves can be reached by merely removing one nut.

Parts Interchangeable—Bearings are machined to .005 in. So exact is the precision that parts are interchangeable without fitting.

Thoroughly Tested—Every Crane-system is tested for 5 hours under full working load. It must prove its ability to pump its full capacity with standard current consumption before it is allowed to leave the factory.

Styles Nos. 252 and 254A

Style 254A shown here, has a 40-gal. storage tank which obviates the

necessity for frequent starting and stopping. Style 252 is the same as 254A, except the storage tank is replaced by a cushion tank for fresh water service.

Both these systems offer splendid examples of the high quality of Crane engineering. Their capacities are 250 gal. an hour in place of the usual 200 gal. from a depth of 22 feet or less. This extra flow is enough to supply a line of hose under continuous pressure.

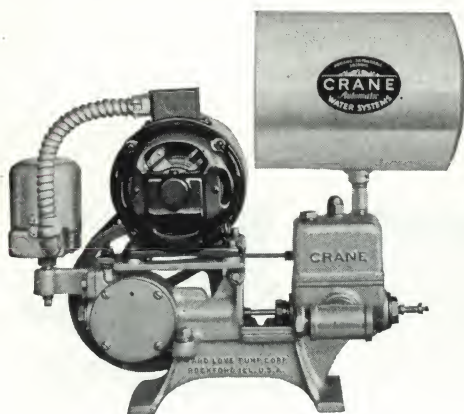
Every part of these systems is accessible; no unions, no pipe connections, no wires need be broken to get at both the suction and discharge valves. The motors are of heavy duty, refrigeration type with wool yarn packed bearings that need lubrication but twice a year; the self-oiling system on the pump requires attention but once a year. To reduce friction, operating costs, and increase the life of the pump, anti-friction bearings have been used to carry the crankshaft.

Crane Deep Well Systems

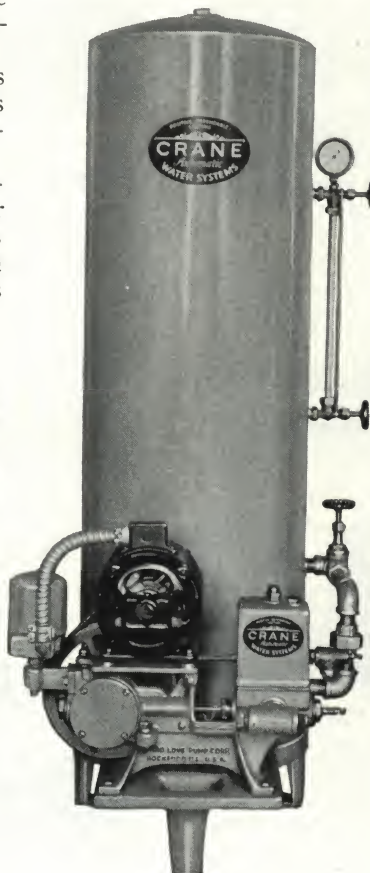
The Crane deep well systems Nos. 850 and 1050 are greatly improved types which have achieved widespread popularity. They are offered in types and capacities to pump from 125 to 1000 gal. of water from depths down to 550 ft. They are single stroke, self-oiled systems, built of the finest materials obtainable, machined to a precision not found in ordinary pumps. They have a positive overhead oiling system, the oil being carried by gravity to every pin and bearing. Every part is constructed for enduring, untroubled operation.

For electric power, either belt and idler or silent chain drive is supplied. The systems can also be supplied equipped for oil with gas engine power.

Among the many sizes and capacities of the Nos. 850 and 1050 is one for any set of conditions.



No. 252



No. 254A



Crane Deep Well System No. 850

THE DURO COMPANY

Manufacturers of Pumps and Electric Water Pressure Systems

DAYTON, OHIO

BRANCH OFFICES AND REPRESENTATIVES IN ALL THE IMPORTANT CITIES IN THE UNITED STATES AND CANADA

Products

DURO ELECTRIC, AUTOMATIC, SHALLOW and DEEP WELL PUMPS; complete ELECTRIC, AUTOMATIC WATER SUPPLY SYSTEMS.

Also Septic Tanks and Cellar Drainers.

For Duro Convertible Vitreous Porcelain and Rapid Flow Galvanized Water Softeners, see Manufacturers' Index.



TRADE-MARK

and stopping automatically. They are self-priming, self-oiling and economical in operation.

Duro tanks are galvanized armco ingot iron—non-corroding and rust resisting. The Duro Automatic Air Regulator prevents air-binding or water logging of the tank. This is a patented special Duro feature incorporated in all Duro Water Systems.

Where Duro Pumps and Systems Are Used

Duro meets every requirement for satisfactory water service. Duro Pumps and Water Systems automatically supply fresh running water under uniform, strong pressure from deep or shallow wells, lakes, streams, springs, cisterns, etc., for homes, farms, ranches, camps, country clubs, greenhouses, dairies, yachts, and scores of other installations.

Duro Pumps and Water Systems are completely automatic, silent and entirely carefree; starting

How to Specify

Simply state both horizontal and vertical distances from source of water supply to point where service fixtures will be installed.

Give approximate usage of water during peak period and the usual weekly consumption.

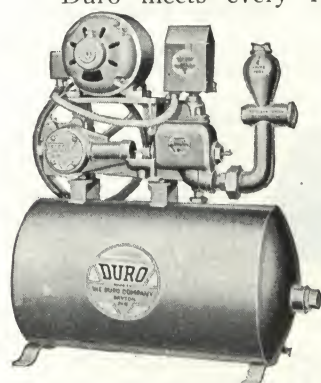
Consult Duro Advisory Service

Duro maintains an Engineering Advisory Service, operated by 200 factory trained experts. These engineers are at your service at all times to go over proposed jobs on the ground and make recommendations.

There is one near you who will work with you without obligation.

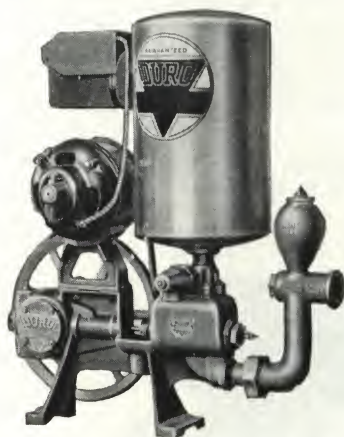
Warranty

Duro Products are warranted in writing for one year from date of purchase against defects in material and workmanship.



Duromatic Water System

Pumping capacities, 250, 300, 450 and 600 gal. per hour. Furnished with either 10, 20, 40 or 60-gal. tank



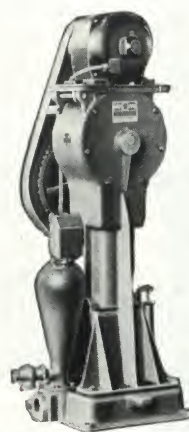
No. 250 "Fresh Flow" Shallow Well System

Pumping capacity, 250 gal. per hour



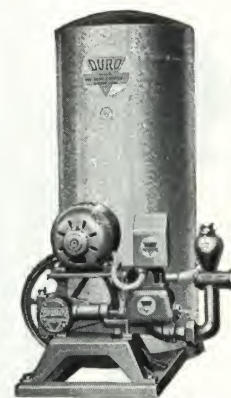
No. F-900 Deep Well System

Pumping capacity, 170 to 280 gal. per hour



No. 3200 Super Deep Well Pump

Pumping capacity, up to 2100 gal. per hour



No. Y-250 Shallow Well System

Pumping capacity, 250 gal. per hour

A FEW OF SCORES OF SIZES AND TYPES OF PUMPS AND WATER SYSTEMS

Deep Well Pumps				Shallow Well Pumps			
Pump No.	Pump capacity, gal. per hr.	Range of tank sizes, gals.	Description of use	Pump No.	Pump capacity, gal. per hr.	Range of tank sizes, gals.	Description of use
F-900	170- 280	Unit system	Fresh water system for small homes, cottages and camps.	250	250	Unit system	Fresh water system for homes, cottages, camps and yachts. For well or cistern.
900	170- 400	40- 525	Average size homes, small farms and institutions.	Fresh flow	250-600	Unit system	For all size homes.
3000	233-1143	120- 525	Large country estates, large farms, schools, country clubs, hotels and institutions.	Y-250	250	Unit system 30-220	Small homes, cottages, camps and yachts. For well or cistern.
3200	580-2100	120-1000	Apartment houses, dairies, greenhouses, large country estates, hospitals, large hotels, swimming pools and country clubs.	Y-300	300	30-315	Average size homes, farms.
				Y-500	450	30-525	Large homes, average size farms and small institutions.
				Y-600	600	30-525	Small estates, large homes, hotels, small truck and dairy farms and greenhouses.
				X-100	600-1500	120-525	Large estates, truck farms, small villages, greenhouses, factories, office buildings, hotels, etc.

THE DEMING COMPANY

Manufacturers of Hand and Power Pumps for All Uses

SALEM, OHIO

GENERAL AGENCIES IN ALL PRINCIPAL CITIES

Products

DEMING HYDRO-PNEUMATIC SYSTEMS, operated by Hand or Windmill, Gasoline Engine, or Electric Motor. Pumping Machinery, for operation by any power,

including SINGLE and DOUBLE ACTING TRIPLEX PUMPS for various services, DEEP WELL POWER WORKING HEADS, ARTESIAN WELL CYLINDERS.

Deming "Marvel" Water Systems Fig. 2085

For vertical suction lift of 25 ft. or less.

Fig. 2085 water systems are practically noiseless in operation and entirely automatic, requiring little attention, and only occasional replenishment of oil in the crankcase.

They are self-priming, self-lubricating, self-starting, self-stopping—self-operating in all respects.

Each "Marvel" Water System includes:

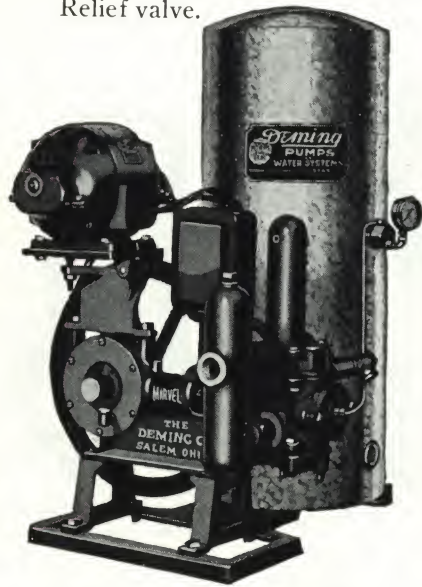
Deming Fig. 1685 "Marvel" Pump, with electric motor, endless V-belt, air valve, vacuum chamber and double-pole automatic electric switch.

Galvanized steel tank, of capacity as listed in table below.

Pressure gauge.

Automatic air control.

Relief valve.



"Marvel" System No. 2085

Check valve.
Fresh water outlet.

Pipe fittings to connect between pump and tank, as illustrated.

Cast iron sub-base or floor plate.

For complete information write for Water System Catalog "L."

When ordering, be sure to specify Fig. 2085, adding the system number as in the table below.

FIG. 2085 SIZES, WEIGHTS, ETC.

Size No.	Cap. of pump, gal. per hr.	Cap. of tank, gal.	*Hp. of motor	Max. working pressure, lb.	Ship. weight of system, lb.
1 - 42	265	42	1-6	50	230
1½ - 42	315	42	¾	50	240
2 - 42	480	42	1-3	50	275
2 - 120	480	120	1-3	50	410
2½ - 120	600	120	½	50	425

*Regularly furnished for 110-220 volt, 60-cycle, single phase, a-c. When current characteristics differ, be sure to so state, when ordering.

Deming "Oil-Rite" Double Acting Piston Pump Fig. 1809

For vertical suction lift of 25 ft. or less.

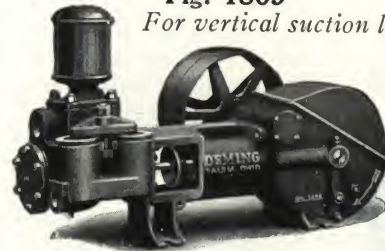


Fig. 1809—Size 2½ x 3 in.

Fig. 1809 is a single cylinder, double acting power piston pump, which is especially adapted for open or pneumatic tank service.

The enclosed type of crankcase is designed to meet an

increasing demand for a pump which has as few exposed working parts as possible, thereby securing maximum safety of operation as well as flood lubrication.

This pump is made in four sizes with a capacity range of from 9 to 50 gal. per min., meeting a great variety of pumping requirements, where the vertical distance to the lowest water level does not exceed 25 ft. and the total combined suction and discharge head does not exceed 100 lb. See table below.

Any one of the four sizes of Fig. 1809 pumps can be mounted together with motor, tank, fittings, etc., to make a complete water system. For detailed information ask for our Water System Catalog "L."

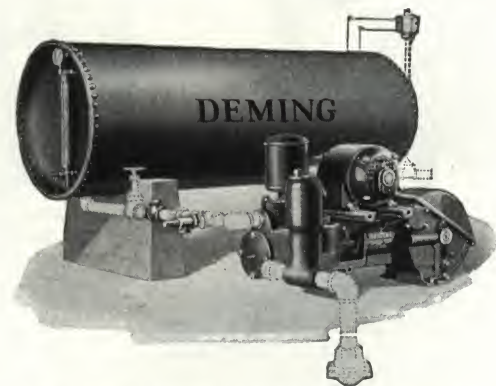


Fig. 1809, Typical "Oil-Rite" Water System

FIG. 1809 SIZES, WEIGHTS, ETC.

Piston		Gal. per min. at max. speed	Maximum working pressure, lb.	Pipe connections, in.		Weight, lb.
Diam., in.	Stroke, in.			Suction	Discharge	
2½	3	9.2	100	1¼	1¼	190
3	3½	15.5	100	1½	1½	320
4	4½	33.5	100	2	2	502
5	5	50.0	100	2½	2½	725

Gear ratio, all sizes 5 to 1.

Deming "Oil-Rite" Deep Well Working Head, Fig. 1062
For Use Where Water Level Is at a Greater Depth Than 25 Ft.

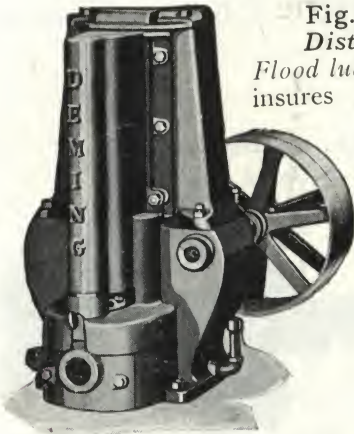


Fig. 1062 with Tight and Loose Pulleys

FIG. 1062 SIZES, WEIGHTS, ETC.

Stroke, in.	Maximum sizes of pipes, in.		Maximum strokes per min.	Size tight and loose pulleys in. "TL" drive	Weight, tight and loose pulleys, lb. "TL" drives
	Suction	Discharge pipe			
6	2½	1½	45	12x2	190
10	4	2½	40	16x3	460
14	5	3	35	20x4	875
18	6	3	30	24x5	1650

Fig. 1062 Pumping Head—Distinctive Features—

Flood lubrication and force feed insures positive, complete and continuous oiling. Helical cut gears, very quiet and efficient. Pinion and crank shaft bearings, extra large and renewable. Crankcase painted on inside with a special white paint that seals all pores. Frostproof set length, places discharge head below frost level. Extra when specified.

No. 1062 Pumping Units—

These deep well pumping units include one Fig. 1062 pumping head together with motor, air compressor and type of drive selected.

The motor may be mounted on top, as illustrated, or mounted at the side of the pump, depending on the condition.

Top motor units, 6 and 10-in. stroke only, may be driven by silent chain or V-belt.

Side motor units may be driven by silent chain or gear on all sizes; also by multiple belt on 14 and 18-in. sizes.

For complete information write for Deming Water System Catalog "L."

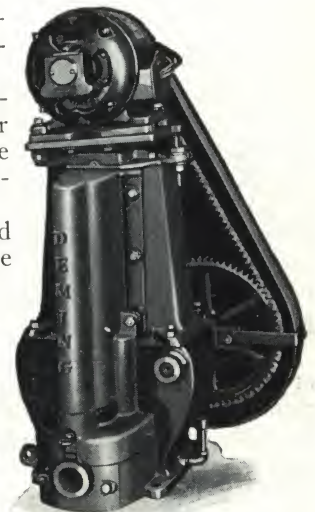


Fig. 1062 Pumping Unit with Top Motor Mounting

For the average sized home, an ample water supply is delivered by the Deming Deep Well Water System as illustrated. The arrangement of this system permits the tank of 42 or 120-gal. capacity to be located at any convenient place.

Furnished with either V-belt drive or silent chain drive.

For larger sized systems or different types of drive, write for Deming Water System Catalog "L."

Each system shown in the table below includes:

One 6-in. or one 10-in. Fig. 1062 "Oil-Rite" pumping head, with drive as selected, together with air compressor.

Fig. 1062 "Oil-Rite" Water System



One 42-gal. galvanized tank with 6-in. stroke system.

120-gal. galvanized tank with 10-in. stroke system.

One double-pole automatic pressure switch.

One electric motor of sizes shown in table below.

One brass-lined well cylinder of sizes shown in table below.

One pressure gauge.

One water gauge.

One combination union and check valve.

One gate valve; one relief valve.

Piping and wood rod are not included because their lengths vary in each installation; they should be ordered separately to meet the requirements.

Order by system number as given in table below.

FIG. 1062 "OIL-RITE" DEEP WELL WATER SYSTEMS

FIG. 1062 "OIL-RITE" DEEP WELL WATER SYSTEMS									
Pipe sizes, in.		Size wood rod recommended, in.	Cylinder, brass lined		Gal. per hour	Maximum lift in well, ft., with 40-lb. tank pressure	Hp. *motor furnished	System numbers	
Drop	Discharge		Inside diam., in.	Outside diam. of pipe coupling, in.				With Type TV drive (V belt)	With Type TD drive (silent chain)
6-in. Stroke Head with 42-gal. Galvanized Tank									
1½	¾	1½	1½	2½	100	220	1½	6101	6003
1½	¾	1½	1½	2½	100	375	¾	6111	6013
1½	¾	1½	1½	2½	180	120	1½	6121	6023
2	¾	1½	1½	2½	180	225	¾	6131	6033
2	¾	1½	1½	2½	180	325	¾	6141	6043
2	¾	1½	1½	2½	180	50	1	6151	6053
2½	¾	1½	1½	2½	275	120	1½	6161	6063
2½	¾	1½	1½	2½	275	170	¾	6171	6073
2½	¾	1½	1½	2½	275	170	1		
10-in. Stroke Head with 120-gal. Galvanized Tank									
2½	1	1½	2½	3½	405	160	1½	10101	10003
2½	1	1½	2½	3½	405	245	2	10111	10013
3	1½	1½	2½	3½	610	75	1½	10121	10023
3	1½	1½	2½	3½	610	130	2	10131	10033
3½	1½	1½	3½	4½	855	30	1½	10141	10043
3½	1½	1½	3½	4½	855	70	2	10151	10053
3½	1½	1½	3½	4½	855	30	2	10161	10063
4	1½	1½	3½	4½	1140	30			

*If different pipe sizes are specified, be sure to specify when ordering.

*Single phase, 60-cycle, 110-220-volt motor regularly furnished. If current characteristics are different, be sure to specify when ordering. Frostproof set length can be furnished on any of above systems at extra cost. Crank gear ratio 7 to 1 on all sizes.

KEWANEE PRIVATE UTILITIES COMPANY

Manufacturers of Water Supply, Sewage Disposal and Electric Lighting Systems

MAIN OFFICE AND FACTORY
KEWANEE, ILL.

NEW YORK, N. Y., 2106-7 News Building

BRANCH OFFICES

CHICAGO, ILL., 1515 Engineering Building

Representatives listed in Classified Telephone Directory of Principal Cities of United States

Products

KEWANEE SYSTEMS, which include:
WATER SUPPLY SYSTEMS, Complete Pumping Units, and Pneumatic Tanks.
SEWAGE DISPOSAL SYSTEMS.
Also Electric Lighting Systems.

Services

A competent Engineering Department will co-operate with architects in planning and selecting apparatus for each particular requirement, and layouts will be made and submitted without charge.

Water Supply Systems



Kewanee Automatic Motor Driven Pump

Furnished in capacities to take care of smallest requirements, up to largest country homes and estates, as well as towns. Also especially designed for consolidated schools, isolated institutions, country clubs, etc.

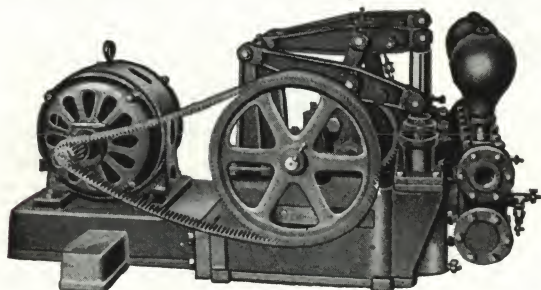
Furnished for shallow or deep well, for motor, gasoline engine, or belt drive from other power.

Complete Automatic Systems—The complete system starts and stops automatically. All parts are oversize. Finest materials that can be procured regardless of their cost, master designer minds

and master engineering skill all combine to make every KEWANEE high pressure plant as nearly perfect as it is possible to build them.

The line of high pressure systems permits the selection of an outfit for most any requirement.

All deep well models have the patented differential cylinder for furnishing air for pneumatic tank service, eliminating the use of an air compressor.



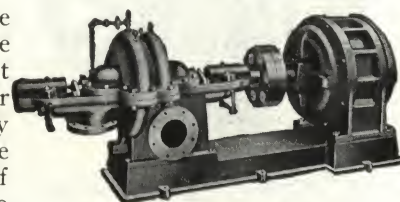
Type 75 Triplex Suction Pump, Silent Chain Drive

Kewanee Centrifugal Units

Maintaining that a single particular pump cannot be applied satisfactorily to an indefinite number of jobs, KEWANEE pumps have been designed in numerous models and sizes, each designed to meet certain conditions and give absolute satisfaction.

The Kewanee line of high-efficiency centrifugals includes open and closed impeller types, single and multistage units, bilge pumps, cellar drainers and deep

well turbines. These machines may be driven by direct connected motor or gasoline engines or by belt from outside power. A line of sewage ejectors is also manufactured.



Kewanee Centrifugal Unit

Pumps for special jobs in any sizes up to and including 72-in. discharge are also made.

KEWANEE engineers will make correct recommendations after analyzing each intended service.

Kewanee Sewage Disposal Systems

KEWANEE SEWAGE SYSTEMS represent a scientific and highly approved simplification of the sewage problem for buildings not served by public sewers. It accomplishes its results bacteriologically without the use of any chemicals. It converts raw sewage into liquid sewage and distributes it over a disposal field where it is changed to pure, clean inorganic matter, harmless to life or vegetation.

The system is recommended for installations having requirements of not over 100 persons on continuous 24-hour basis.

The system is entirely automatic and requires no attention whatsoever.

The system is unaffected by changes in temperature, and is vented through the soil pipe, all odors and gases being discharged through soil pipe stack above the roof.

A few KEWANEE operating specialties and installation instructions, together with necessary construction materials purchasable locally, make it possible for any mechanic properly to install this system.

Brief Description—The KEWANEE SYSTEM consists, primarily, of a septic tank, or anaerobian breeding plant, into which the sewage is first passed and in which it is liquefied, and of a subsurface disposal field through which the liquefied sewage is passed for exposure to air and aerobes, and consequent conversion into clean inorganic gases and pure water.

Summary

The KEWANEE PRIVATE UTILITIES COMPANY provides high grade equipment and dependable service for the average man in the out-of-the-way place.

The equipments go together without mistake, start without coaxing, run without skilled attention, wear the longest time possible, and can be repaired by the unskilled man without experience.

Bulletins

Bulletins covering all KEWANEE SYSTEMS will be sent to any architect on request.

Bulletins especially arranged for the A.I.A. System of Filing will be sent to any architect upon request.

THE F. E. MYERS & BRO. COMPANY

Manufacturers of Private Water Supply Systems

ASHLAND, OHIO

For Myers Power Pumps, see Manufacturers' Index

Myers Electric Driven Pneumatic and Open Tank Water Supply Systems

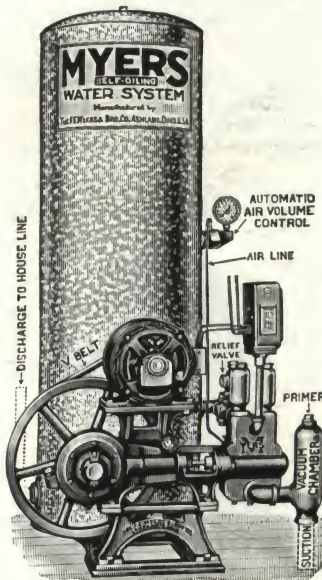


Fig. 2510. Myers Electric Driven Pneumatic Water Supply Outfit

No. 906AT—Capacity, 250 gal. per hour. Outfit consists of Myers electric house pump with vacuum chamber; relief valve, automatic air volume control valve, air valve, pressure controller, endless belt and $\frac{1}{4}$ hp., 110-volt, 60-cycle, single-phase a-c. motor or 32, 110 or 220-volt d-c. motor, with 42-gal. galvanized tank, base, pressure gauge and fittings, completely assembled ready to install. Suction and discharge are $\frac{3}{4}$ in. Floor space, 25x29 in.; height, 52 in.

No. 909AT—Capacity, 340 gal. per hour. Same as No. 906AT, except it is equipped with $\frac{3}{4}$ hp. motor, and the suction is 1 in., while the discharge is $\frac{3}{4}$ in.

Myers Self-Oiling Deep Well Water System

This Myers water system is designed for wells over 24 ft. in depth.

It is a complete unit, automatically controlled, being composed of a Myers self-oiling deep well working head, $\frac{1}{2}$ hp. motor and other equipment as listed here-with.

This is a large capacity outfit, the volume of water being governed by the depth of the well and the size of the lower cylinder used.

Myers self-oiling double acting electric house pumps are designed for pumping water from shallow wells, cisterns, springs, lakes or other sources not more than 22 ft. in depth and forcing it into pneumatic tanks or into open gravity tanks. Operate on any electric light or power current. An automatic pressure controller is furnished with pneumatic tank outfits; air chambers eliminate water hammer; relief valve protects pump and motor from excessive pressure; power end has long self-oiling, easily renewable bearings. Automatic control eliminates water-logged tanks.

Simple power transmission; few working parts fully enclosed; runs in oil; water end has liberal and direct waterways; large valves. These features result in high efficiency, long life and large pumping capacity at low current cost.

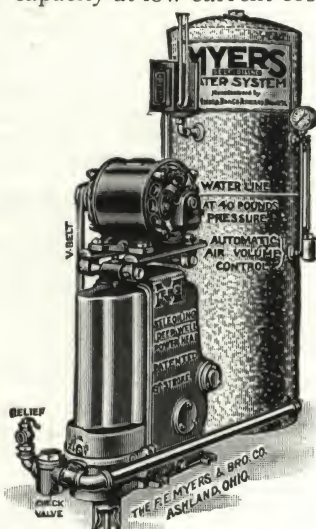


Fig. 2621. Myers Self-Oiling Deep Well Water System

With V-belt or chain drive. No. V2950AMT, complete as illustrated, with $\frac{1}{2}$ hp. 110-220 volt, 60-cycle, single-phase a-c. or 110 or 220-volt d-c. motor, automatic control pressure gauge, V-belt, electric switch and 42-gal. galvanized tank.

No. V2950AMTS, as above, with 4-ft. anti-freezing set length. Lower cylinder and down or suction pipe not included with above outfits

Myers "Direct from Well" Water Supply System

The Myers direct water system will supply an abundance of fresh water direct from the well. No storage tank is used. The opening of a faucet after discharging 1 gal. of water immediately starts the pump. Current is consumed only when water is drawn. The ordinary leakage of a defective faucet will not start the pump, as there is a gallon of water in reserve to take care of minor defects in the plumbing.

Shallow Well Direct Water Supply Outfit—Fig. 2353 direct water system is suitable for shallow wells not more than 22 ft. in depth. It will furnish 500 gal. of water per hour and has sufficient capacity to supply water for lawn sprinkling.

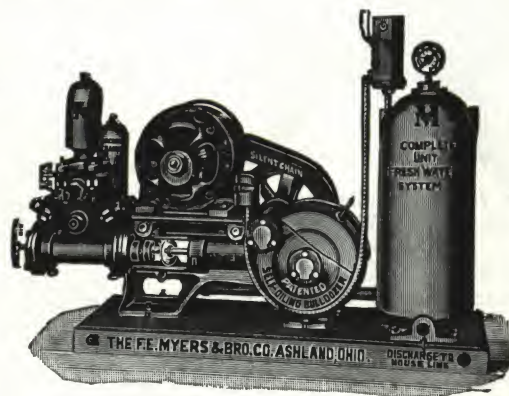


Fig. 2353. Myers Shallow Well Direct Water Supply Outfit

Capacity, 500 gal. per hour. Width, 15 in.; length, 50 in.; height, 25 in. Suction tapped $1\frac{1}{4}$ in.

With V-belt or silent chain drive. No. C92AM outfit consists of Myers No. 912AM self-oiling Bull dozer $2\frac{1}{2}$ x3-in. power pump, wood base, $\frac{1}{2}$ hp. 110-220-volt 60-cycle single-phase a-c. or 32, 110 or 220-volt d-c. motor, silent chain, pressure gauge, electric switch and air chamber for discharge

Deep Well Direct Water Supply Outfit

—Fig. 2626 direct water supply system is suitable for deep well service where depth is greater than 22 ft. Operates in same manner as Fig. 2423 outfit except that it is fitted with a Myers deep well self-oiling power working head. Will furnish 200 gal. of water per hour with 2-in. cylinder, 300 gal. with $2\frac{1}{2}$ -in. cylinder, and 450 gal. with 3-in. cylinder, and has sufficient capacity to supply water for lawn sprinkling at 30 lb. pressure.

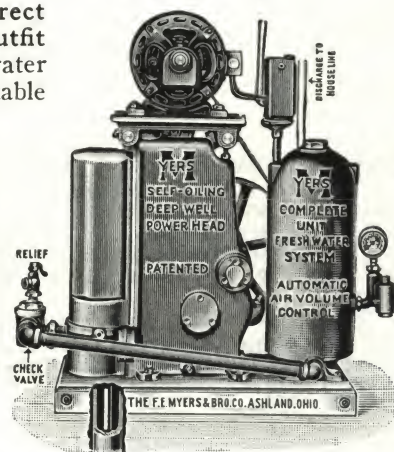


Fig. 2626. Myers Deep Well Direct Water Supply Outfit with Silent Chain Drive

Width, 15 in.; length, 32 in.; height, 35 in. Suction tapped $2\frac{1}{2}$ in. and bushed to $1\frac{1}{4}$ in. Discharge, 1 in.

No. V2955AM outfit consists of Myers self-oiling power working head, $\frac{1}{2}$ hp., 110-220-volt, 60-cycle single-phase a-c. or 32, 110 or 220-volt d-c. motor, V-belt, belt tightener, pressure gauge, electric switch, automatic air control, air chamber and wood base

WESTINGHOUSE ELECTRIC & MFG. CO.

EAST PITTSBURGH, PA.

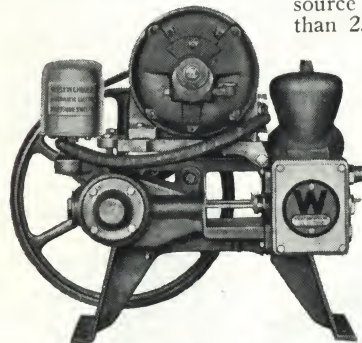
For Branch Offices, see our Lighting Catalogue. For References to Other Products, see Index to Manufacturers

ELECTRIC WATER SYSTEMS (AUTOMATIC)

Two Classes of Systems

Westinghouse Automatic Electric Water Systems pump water from shallow or deep wells, cisterns, streams, springs, or lakes, and deliver that water under pressure to any part of the home or farm. Also, they can be used as booster systems to increase city water pressure to 60 lb.

There are two distinct classes of Westinghouse Water Systems: the shallow-well type and the deep-well type. Shallow-well systems draw water from any source which is not more than 25 ft. (at sea level) below the pump. Deep-well pumps are used in all applications where the lowest water level is more than 25 ft. below the ground level.



Type W-600 Double Acting Duplex Shallow-Well Pump (Belt Drive)

Completely Automatic—Westinghouse Water Systems are made completely automatic by an automatic electric pressure switch and an automatic

air volume control and pressure gauge. The first device stops and starts the pump at the proper times. When the pressure gets down to 20 lb. this automatic switch starts the pump, and shuts it off when the pressure gets up to 40 lb. The automatic air volume control and pressure gauge keep the right proportion of air and water in the tank at all times, preventing the tank from becoming air bound or waterlogged.

Shallow-Well Systems

The type W-225-X, called the fresh flow system, furnishes 225 gal. of water an hour and is an ideal pump for summer cottages, small homes and summer camps, tourist camps, and roadside stands. This type of water system creates a partial vacuum in the line, and atmospheric pressure forces the water to the pump. They may be installed anywhere near the source of supply and are built to deliver 225, 300, 400, 600, 800 and 1000 gal. an hour; equipped with either belt or chain drives. They may be fitted with 42, 80, 120, or 220-gal. tanks or over.



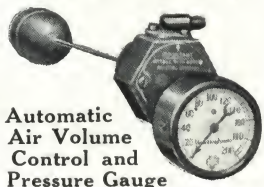
Automatic Electric Pressure Switch

Features—Shallow-Well Systems

Body—A perfectly balanced one-piece rugged casting, eliminating vibration and strains, and insuring constant alignment of all working parts.

Crank Shaft—Heavy drop forging; ground to size; two-bearing type.

Bearings—Bronze bushings; extremely heavy and grooved for proper oiling. Connecting rods and crosshead are bronze; piston rods are tobin bronze.

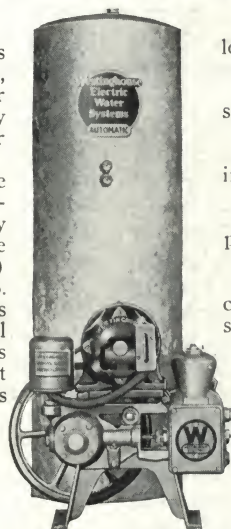


Automatic Air Volume Control and Pressure Gauge

SHALLOW-WELL SYSTEMS

System No.	Tank size, gal.	Gal. per hr.	Operating range, lb.	Suction, in.	Discharge, in.
W-225-A	42	225	20-40	3/4	3/4
W-225-B	80	225	20-40	3/4	3/4
W-225-C	120	225	20-40	3/4	3/4
W-300-A	42	300	20-40	3/4	3/4
W-300-B	80	300	20-40	3/4	3/4
W-300-C	120	300	20-40	3/4	3/4
W-400-A	42	400	20-40	1	1
W-400-B	80	400	20-40	1	1
W-400-C	120	400	20-40	1	1
W-400-D	220	400	20-40	1	1

Data on 600, 800, and 1000 gal. per hr. furnished on request.



Type W-300 Double Acting Shallow-Well System (Belt Drive)

Packing Gland Assembly—All brass with special long-life packing.

Piston—All brass; removable; complete.

Intake and Discharge Ports—Located high on side of body, making it impossible to lose priming.

Strainer—Brass; built-in.

Relief Valve—All-brass; built-in; positive acting. Prevents excessive pressures.

Switch—Automatic pressure control.

Fresh Water Connection—Located on body of pump.

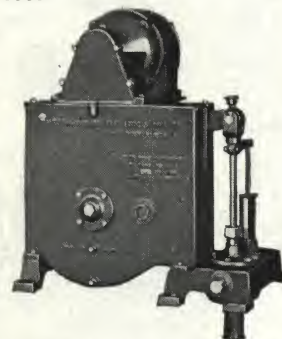
Belt—V-type. Chain drive, extra.

Valves—Special rubber. Valve location, vertical position, unusually accessible.

Motor—Westinghouse heavy-duty repulsion induction for alternating current. For direct current, compound wound motors.

Deep-Well Systems

This pump differs from a shallow-well pump in that the cylinder and piston are located below the surface of the water instead of being an integral part of the pump. The pump must be installed directly over the source of water supply. The eight types and sizes, with belt or chain drive, take care of the most exacting requirements. These pumps are produced by the latest manufacturing methods, insuring absolute standardization and employing the highest quality of material and workmanship.



Type WDC-41 Deep-well Pump (Chain Driven)

Features—Deep-Well Pumps

Body—Mounted on subbase channel irons for ease of installation and to insure perfect alignment.

Motor—Heavy duty repulsion induction type. Pump speed: WDC-41, 52 strokes per minute; WDB-41, 60 strokes per minute. Air chamber included with pump. Automatic switch. Piston rod, 1/2 in., 12-thread for wood sucker rod. Type WDB-41 has V-Belt; WDC-41 has enclosed silent chain driven working head. Water box, tapped for 3-in. drop pipe. Air pump, all-brass. Check valve, all-brass. Relief valve, built-in, metal to metal seats. Differential cylinder, all brass.

DEEP-WELL SYSTEMS

System No.	Motor hp.	Use 1 1/8-in. cylinder 130 gal. per hr.	Use 2 1/4-in. cylinder 225 gal. per hr.	Use 2 3/4-in. cylinder 325 gal. per hr.
WDC (Chain Drive)				
WDC-41	1/4	50	35	.....
WDC-42	1/2	100	75	50
WDC-43	1/2	175	125	100
WDC-44	3/4	225	175	150
WDB (Belt Drive)				
WDB-41	1/4	50	35	.....
WDB-42	1/2	100	75	50
WDB-43	1/2	175	125	100
WDB-44	3/4	225	175	150

Water Pressure Tanks

In addition to the size tanks mentioned, other sizes are available and the following comprise some of the line.

Capacity, gal.	Dimensions, in.		Ship. wt., lb.	Capacity, gal.	Dimensions, in.		Ship. wt., lb.
	Height	Dia.			Height	Dia.	
3	12	8	13	220	72	30	425
10	20	12	33	315	72	36	498
25	30	16	60	530	120	36	732
42	48	16	100	1000	144	42	1756
80	60	20	180	1500	192	48	2608
120	60	24	260	1880	240	48	3129

Tanks up to and including 220-gal. capacity are heavy galvanized type. Tanks above that capacity are black.

All sizes are designed for a working pressure of 75 lb. per sq. in. and are tested at 150 lb. hydrostatic.

ALBATROSS STEEL FURNITURE CO., LTD.

Manufacturers of Fire Hose Steel Cabinets

GENERAL OFFICE AND PLANT
WEST LOS ANGELES, CALIF.

SAN FRANCISCO, CALIF.

BRANCH OFFICES
OAKLAND, CALIF.

SEATTLE, WASH.

Agents in all Principal Coast Cities and in Hawaii

For our pages on Steel Cabinets for Hospitals and Bathrooms and Steel Toilet Partitions, see Manufacturers' Index

Albatross Fire Hose Steel Cabinets

These cabinets are constructed of heavy gauge copper-bearing, rust-resisting furniture steel.

Each side, top and bottom, including the facing and the flange, are constructed of one piece of steel without joints.

These sections are then mitered, heavily reinforced at the corners and welded, thus providing an especially rigid and durable construction.

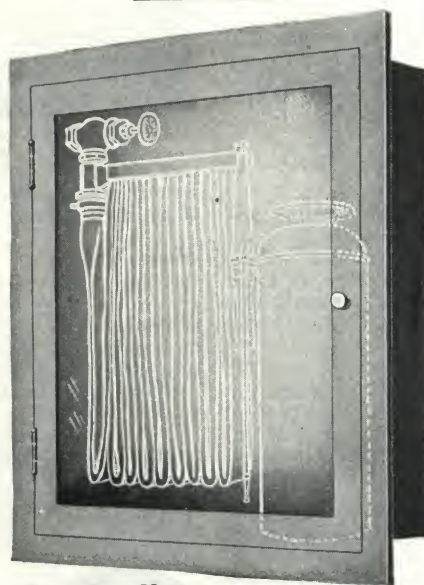
Doors—The doors are of hollow metal.

The front and back sections are stamped from one piece of steel.

There are no mitres in the corners.

They are fitted with double strength crystal glass, but plain plate glass or beveled plate glass may be specified at a slight additional cost.

Inlets—Inlets for the pipe valves are not provided in the cabinets, location of same being left to suit the individual job, and are easily provided by



Steel Fire Hose Cabinet, Recessed Type

the plumber at time of installation.

Cabinet No. 7000

This cabinet is more heavily constructed than Nos. 7001, 7002 or 7003, and is considerably deeper, so as to provide space for fire extinguisher can.

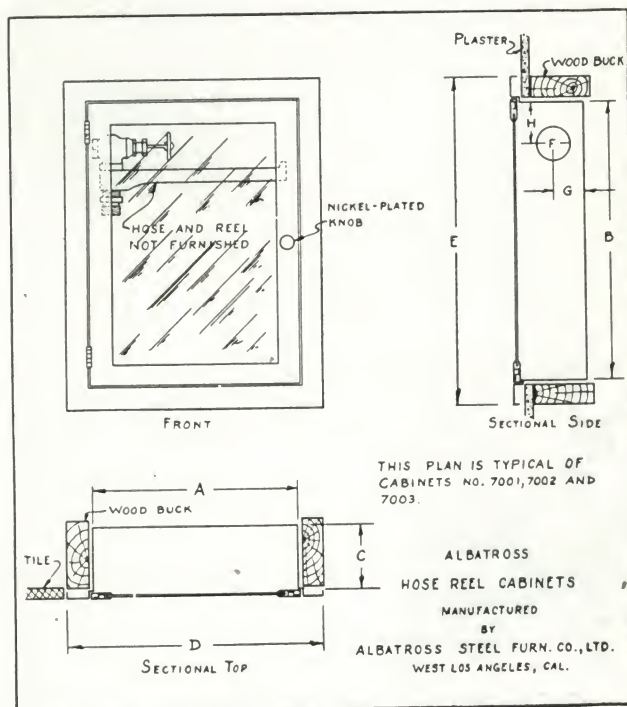
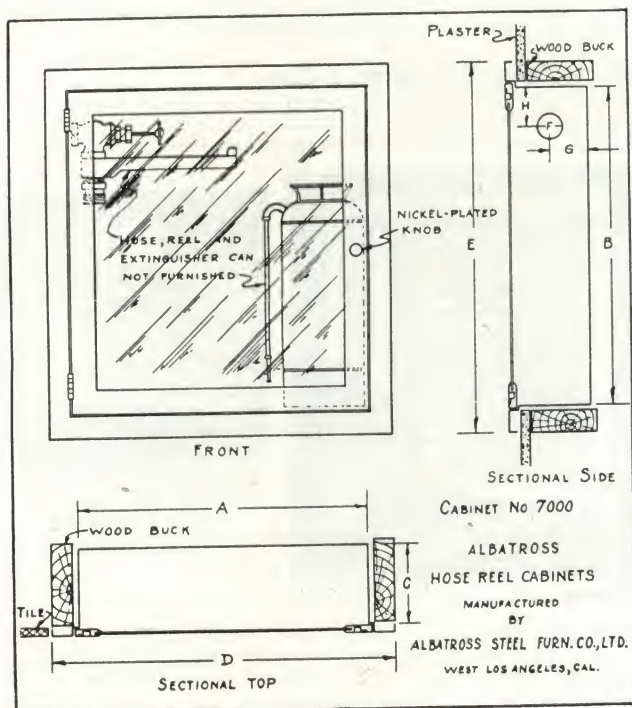
Standard Finish—Is baked white enamel, but cabinets may be supplied in shop coat only, at a small reduction. Special finishes will be supplied to order at slight additional cost.

Stencil Lettering

Stencil lettering, "Fire Hose," on the door, can be supplied at slight extra cost.

ALBATROSS FIRE HOSE CABINETS

No.	Capacity		Size of body, in.			Over all of trim, in.		Inlet opening, in.		Inlet location		Wall opening, in.		
	Hose, ft	Valve, in.	A	B	C	D	E	Valve	F	G	H	Width	Height	Depth
7000	50 or 75	1½	28¾	31¾	7¾	33	36	1½	2	3	Varies	29	32	8¾
7001	50	1½	20	27	6½	24½	31½	1½	2	3		20½	27½	7
7002	75	1½	26	30	6½	30½	34½	1½	2	3		26½	30½	7
7003	100	1½	26	40	6½	30½	44¾	1½	2	3		26½	40½	7



W. D. ALLEN MANUFACTURING CO.

Manufacturers of Fire Protection Equipment Since 1887

566-570 West Lake Street, CHICAGO, ILL.

NEW YORK, N. Y., 69 Warren Street
BOSTON, MASS., 77 Summer Street
SALT LAKE CITY, UTAH, Scott Building

BRANCH OFFICES

DENVER, COLO., U. S. National Bank Building
NEW ORLEANS, LA., 302 Interstate Building
CHICAGO, ILL. (Factory), 5630-58 Roosevelt Road

Products

GENERAL FIRE PROTECTION and STANDPIPE EQUIPMENT for interior and exterior use, comprising: Hose Racks and Reels; Fire Hose, linen and cotton rubber lined; Brass Hose Couplings, Valves and Nozzles; Steel Hose Cabinets; Fire Extinguishers; Brass Siamese Standpipe Connections; Hose Spanners, Fire Axes and other auxiliary equipment.

Facilities

Allen products include the most modern fire fighting appliances on the market. Over forty years' experience, harmonious co-operation with insurance companies and underwriters, coupled with a close study of their requirements, have enabled the W. D. ALLEN MANUFACTURING CO. to satisfy the most exacting specifications.

Literature and Co-operation

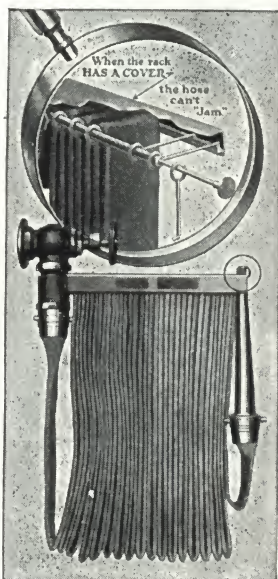
Our specification and detail brochure, No. 29A, "Allen on Interior Fire Protection," covering interior fire protection equipment in a most comprehensive way, will be mailed on request. Correspondence is also invited and our service department will co-operate in furnishing special data and information.

Bowes Hose Rack for Linen Hose

Regular Bowes Hose Racks are accepted in practically every city. However, certain municipalities require, and when in doubt specify, Bowes Underwriters' Labeled Semi-Automatic Hose Rack; this is accepted everywhere and also assures lowest insurance rates.

The Bowes Rack enables anyone to get water to the fire in the fewest seconds, is positive in action, efficient and simple in operation and practically "fool-proof." Finishes are duco, aluminum or gold bronze. Duco Red finish is optional. Also Nickel Plate or Chrome on steel or brass.

As unlined linen hose is simply a flexible woven fabric, the normal folds along the edges and the easy bends following installation in an Underwriters' Hose Rack do the hose no injury. Dampness and mildew are the chief enemies of unlined linen hose and when properly hung in a Bowes Rack the circulation of air between the loops prevents deterioration.



Bowes Hose Rack Alenco
Fig. 139

Fire Hose Reels (Unapproved)



Used in 1897

This illustration is from our catalogue printed in 1897, and while we still manufacture hose reels, we no longer recommend them for unlined linen hose. Up to this date no fire hose reel has been approved by the National Board of Underwriters, and credit cannot officially be given for their installation.

The normal method of operating a fire hose unit is to open the valve, grasp the nozzle and proceed to the fire. In the case of a hose reel, when the water is released it dis-

tends the hose, presses against the yoke of the reel, acting as a hydraulic brake, thus preventing the reel from revolving and defeating the purpose of the installation.

Underwriters' Unlined Linen Hose

Made in two grades, both approved and accepted by all municipal codes. Specify Flax Line Linen Hose with Underwriters' yellow label or Flax Tow Linen Hose with Underwriters' green label, properly coupled in lengths not longer than 50 ft. with Alenco Fig. 97, 12 in. brass nozzle attached.

Hose Valves

Under the recent ruling of the National Underwriters' Associations angle valves are now accepted for all classes of standpipe work. They are preferred on account of the absence of leakage and in the average installation they lend themselves to a more compact hose unit.

For pressures up to 100 lb. specify Alenco 100 lb. (angle) valves.

For pressures 100 to 150 lb. specify Alenco 150 lb. Underwriters' (angle or gate) valves.

For pressures 150 to 250 lb. specify Alenco 250 lb. Underwriters' (angle or gate) valves.

Pressures over 100 lb. should have the nozzle pressure reduced by means of restricting orifices placed inside the coupling.



Alenco Fig. 171
100, 150, 250 lb.
Angle Hose Valve
Female Hose Connection



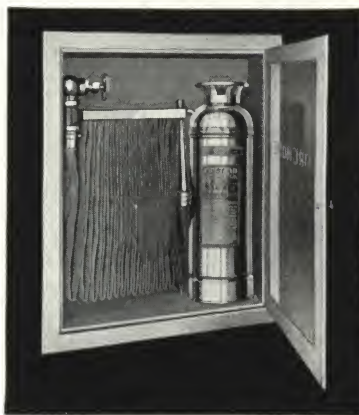
Alenco Fig. 170
100, 150, 250 lb.
Angle Hose Valve
Male Hose Connection



Alenco Fig. 358
150, 250 lb.
Hose Gate Valve

Alenco Steel Fire Hose Cabinet

Cabinet and door are pressed from furniture steel and being of hollow metal construction give strength and beauty without excess weight. The recommended finish is white en-



Alenco Fire Hose Unit Fig. 215



**Detail of Construction
of Alenco Hollow
Metal Steel Fire
Hose Cabinets**

amel inside with heavy priming coat outside to be finished on the job. Cabinets may be furnished with any color or grained to match any particular trim. Specify Alenco Hollow Metal with (Plate) or (DSA) glass panel.

Alenco Duo Panel Cabinet

Has bevel plate glass panel in upper portion of the steel cabinet door instead of full glass door. May be furnished on any Alenco Hollow Metal Hose Cabinet.

Nella Sheet Steel Hose Cabinet

Regular commercial type, made from 12 and 16 gauge steel and may be specified instead of the Alenco Hollow Metal Steel Cabinet.



Alenco Duo Panel Door—Fig. 220A

First Aid Fire Extinguisher

Underwriters' Approved 2½ gal. Soda and Acid Fire Extinguishers are required in most types of buildings. Many city ordinances call for their installation charged and ready for instant use before the building is occupied. Extinguisher may be hung on brackets with the upper rim five feet from the floor, or installed in an extinguisher steel cabinet (specifications on request), or placed in cabinets with the Fire Hose Unit.

For ordinary occupancy specify one Fig. 3080 First Aid Extinguisher to every 2500 square feet of floor area, and so arranged that one is always available within 35 ft.



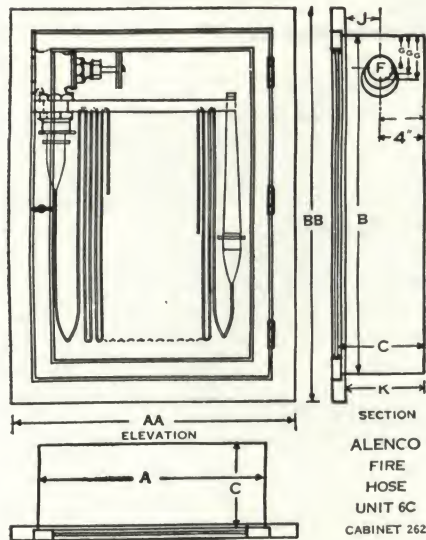
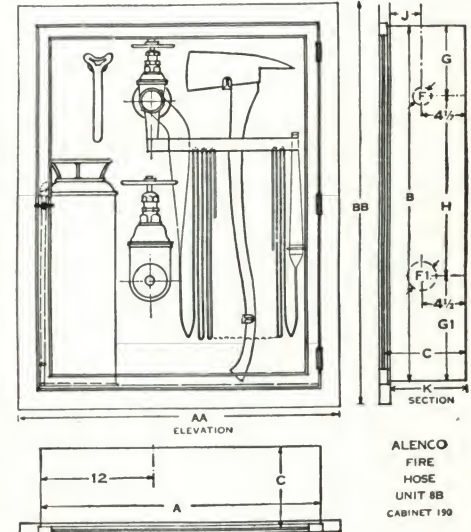
Fig. 3080

Minimum Hose Unit Requirements

Buildings 4 Stories or Less in Height—The recommended standard equipment is a 1½-in. valve with 1½-in. hose attached. In this class of buildings the fire department would fight the fire from the outside with their own equipment and the installation of a 2½-in. valve is, therefore, unnecessary.

Buildings 5 Stories or More in Height—Standard practice provides a 2½-in. valve for the use of the municipal fire department, and 1½-in. hose for the use of the occupants of building. This hose to be attached to the 2½-in. valve outlet by means of a Fig. 2113 reducing coupling.

Buildings 5 Stories or More in Height. New York Standard Requirements—In some cities 2½-in. hose is insisted upon by municipal authorities. When large hose is used, however, the matter of excessive pressure should be guarded against.

ALENCO
FIRE
HOSE
UNIT 6C
CABINET 262ALENCO
FIRE
HOSE
UNIT 8B
CABINET 190**Alenco Fire Hose Unit 6C, Cabinet 262**

With or without Alenco hollow metal hose cabinet.

Specifications—Furnish and install where shown on plan, one Fig. 139 Bowes Hose Rack with (50, 75 or 100 ft.) Underwriters' yellow or green Labeled Linen Fire Hose (1¼, 1½, 2 or 2½ in.) properly coupled in lengths not over 50 ft., with a Fig. 97 12 in. plain Hose Nozzle attached; all to be supported on a Fig. 171 (100, 150 or 250 lb.) Angle Hose Valve (1¼, 1½, 2 or 2½ in.) and Nipple. If 2½ in. hose valve, specify outlet to be threaded to agree with local fire department thread. If a 2½-in. Valve with 1½-in. hose is to be used, specify the 1½-in. hose to be connected to the 2½-in. Valve Nipple with a Fig. 2113 Reducing Coupling. If equipment is to be installed in hose cabinet, specify a Fig. 262 Alenco Steel Hose Cabinet having (Plate) or (DSA) (Full glass door) or (Duo Panel door).

Architects' Note: Cabinet is large enough to hold a quart Allen's "Reddy" Hand Fire Extinguisher which is a valuable first aid adjunct.

Alenco Fire Hose Unit 8B, Cabinet 190

Used only when the valve inlet is from the back.

Chicago standard with two hose gate valves with or without hollow metal hose cabinet.

Specifications—Furnish and install where shown on plans: one Fig. 139U Bowes Underwriters' Labeled Semi-Automatic Hose Rack, (50, 75 or 100 ft.) of 1½ in. Underwriters' (yellow) or (green) Labeled Fig. 97 12 in. plain Hose Nozzle, attached; one First Aid 2½ Gal. Underwriters' Approved Soda and Acid Tip-Over Type Fire Extinguisher, Fig. 3080, complete, charged and ready for instant use; one Fig. 20 Alenco Underwriters' Approved Fire Axe with brackets. One 2½x1½ in. combination spanner with brackets. At each point where indicated on plans install one Gate Valve, Fig. 358 (100, 150 or 250 lb.) with bronze cap and chain, for the exclusive use of the fire department, and one 1½ in. Alenco Underwriters' Pattern Hose Gate Valve (150 or 250 lb.) with ¼ in. drip. If equipment is to be installed in hose cabinets, specify Alenco Hollow Metal Hose Cabinet, Fig. 190, having a (Plate) or (DSA) (full glass door) or (Duo Panel door).

DIMENSIONS OF FIRE HOSE UNITS

DIMENSIONS OF THE HOSE UNITS																	
Capacity		Cabinet size, in.			Extreme size of trim, in.		Inlet opening, in.		Inlet distance inside, in.		Valve centers, in.	Wall to valve center, in.	Wall to outside cabinet, in.	Size of glass, in.	Opening required in wall, in.		
		Inside dimensions			Outside dimensions				From top	From bottom					Width	Height	Depth
Hose, ft.	Valve, in.	Width A	Height B	Back to glass	Width AA	Height BB	F	F1	G	G1	H	J	K		Width	Height	Depth
Cabinet 262. For Hose Unit 6C. With One Angle Valve																	
50	1½—1½	19¾	28¾	5½	24½	33½	2	.....	3¼	.....	.....	17½	5	15 x 24	20½	29½	5
50	2	19¾	28¾	7½	24½	33½	2½	.....	3¾	.....	.....	27½	7	15 x 24	20½	29½	7
50	2½	19¾	28¾	7½	24½	33½	3	.....	4	.....	.....	27½	7	15 x 24	20½	29½	7
75	1½—1½	20¾	30¾	5½	25½	35½	2	.....	3¼	.....	.....	17½	5	16 x 26	21½	31½	5
100	1½—1½	22¾	32¾	7½	27½	37½	2	.....	3¾	.....	.....	27½	7	18 x 28	23½	33½	7
75	2	22¾	32¾	7½	27½	37½	2½	.....	3¾	.....	.....	27½	7	18 x 28	23½	33½	7
75	2½	22¾	32¾	7½	27½	37½	3	.....	4	.....	.....	27½	7	20 x 30	25½	35½	7
100	2	24¾	34¾	7½	29½	39½	2½	.....	3¾	.....	.....	27½	7	20 x 30	25½	35½	7
100	2½	24¾	34¾	7½	29½	39½	3	.....	4	.....	.....	27½	7	20 x 34	25½	39½	7
125	1½—1½	24¾	38¾	7½	29½	43½	2	.....	3¼	.....	.....	27½	7	20 x 34	25½	39½	7
125	2	24¾	38¾	7½	29½	43½	2½	.....	3¾	.....	.....	27½	7	20 x 34	25½	39½	7
125	2½	24¾	38¾	7½	29½	43½	3	.....	4	.....	.....	27½	7	20 x 34	25½	39½	7
Cabinet 190. For Hose Unit 8B, Chicago Standard with Two Hose Gate Valves																	
50	1½ and 2½	30¾	38¾	8½	35½	43½	2	3	8	11	19¾	3¾	8	26 x 34	31½	39½	8
75																	
100																	

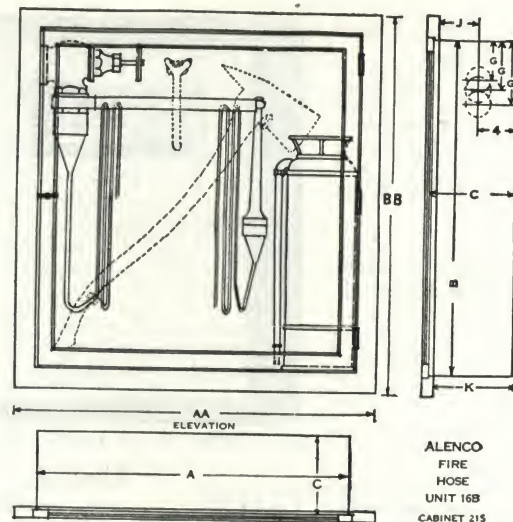
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Alenco Fire Hose Unit 16B, Cabinet 215

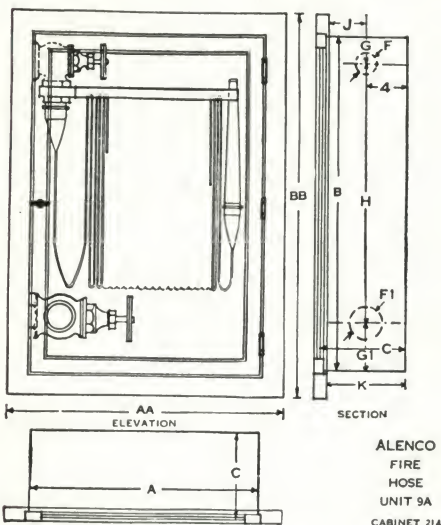
With or without Alenco hollow metal hose cabinet.

Specifications—Furnish and install where shown on plan, one Fig. 139 Bowes Rack with (50, 75 or 100 ft.) Underwriters' (yellow) or (green) Labeled Linen Fire Hose properly coupled in lengths not over 50 ft. with a Fig. 97, 12 in. plain hose nozzle attached; all to be supported on a Fig. 171 Angle Hose Valve (1¼, 1½, 2 or 2½ in.) (100, 150 or 250 lb.) and Nipple. If 2½ in. hose valves, specify outlet to be threaded to agree with local fire department thread. One First Aid Underwriters' Fig. 3080 Approved Soda and Acid Tip-Over Type 2½ gal. Fire Extinguisher, complete, charged and ready for instant use. If equipment is to be installed in cabinet, specify a Fig. 215 Alenco Hollow Metal Hose Cabinet having full (Plate) or (DSA) (full glass door) or (Duo Panel door).

Note: An additional 2½ in. Angle Valve (side supply) for use of Fire Department may be installed if required.

**NO. 215 CABINET DIMENSIONS FOR HOSE UNIT 16B**

Capacity		Cabinet, inside, in.			Extreme size of trim, outside, in.		Inlet from top inside, in.	Wall to valve center, in.	Wall to outside, back of cab., in.	Size of glass, in.	Opening required in wall, in.		
Hose, ft.	Valve, in.	Width A	Height A	Depth C	Width AA	Height BB	G	J	K		Height	Width	Depth
50	1¼, 1½	32¾	34¾	8½	37½	39½	6½	3¾	8	28 x 30	33½	35½	8
75	2						5	3½					
100	2½						4	3½					

**Alenco Fire Hose Unit 9A, Cabinet 214**

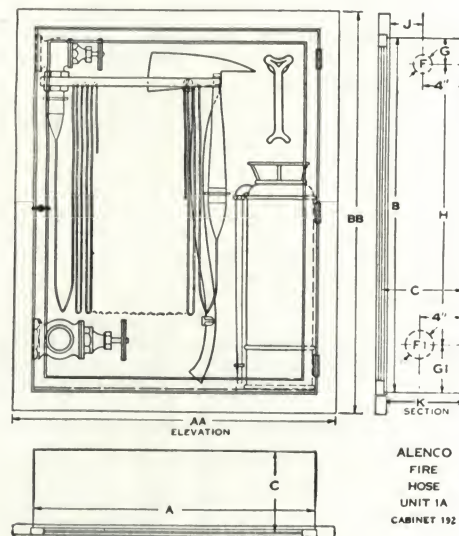
With or without Alenco hollow metal hose cabinet.

Specifications—Furnish and install where shown on plan, one Fig. 139 Bowes Rack with (50, 75 or 100 ft.) of 1½ in. Underwriters' (yellow) or (green) Labeled Linen Fire Hose properly coupled in lengths not over fifty feet with one Fig. 97, 12 in. plain hose nozzle attached; all to be supported on a 1½ in. Fig. 171, Angle Hose Valve (100, 150 or 250 lb.) and Nipple. One Fig. 170, 2½ in. Angle Hose Valve, with outlet threaded to match city fire department standard. If equipment is to be installed in cabinet, specify a Fig. 214 Alenco Hollow Metal Hose Cabinet having (Plate) or (DSA) (full glass door) or (Duo Panel door).

Alenco Fire Hose Unit 1A, Cabinet 192, Chicago Std.

Two angle valves with or without steel hose cabinets.

Specifications—Furnish and install where shown on plan, one Fig. 139 Bowes Semi-Automatic Underwriters' Labeled Rack with (50, 75 or 100 ft.) 1½ in. Underwriters' (yellow) or (green) Labeled Linen Fire Hose, properly coupled in lengths not over 50 ft. with one Fig. 97, 12 in. plain hose nozzle attached; all to be supported on a 1½ in. Fig. 171 Angle Hose Valve (100, 150 or 250 lb.) with Nipple. One Fig. 170, 2½ in. Angle Hose Valve (100, 150 or 250 lb.) with outlet threaded to match city fire department thread; the 2½ in. valve to be protected with cap and chain. One First Aid Underwriters' Approved Fig. 3080 Soda and Acid Tip-Over type 2½ gal. Fire Extinguisher complete, charged and ready for instant use. One Fig. 20 Alenco Underwriters' approved fire axe with brackets and one Fig. 5, 2½ in. and 1½ in. combination spanner. If equipment is to be installed in hose cabinets, specify a Fig. 192 Alenco Hollow Metal Hose Cabinet having (Plate) or (DSA) (Full glass door) or (Duo Panel door).



ers' Labeled Rack with (50, 75 or 100 ft.) 1½ in. Underwriters' (yellow) or (green) Labeled Linen Fire Hose, properly coupled in lengths not over 50 ft. with one Fig. 97, 12 in. plain hose nozzle attached; all to be supported on a 1½ in. Fig. 171 Angle Hose Valve (100, 150 or 250 lb.) with Nipple. One Fig. 170, 2½ in. Angle Hose Valve (100, 150 or 250 lb.) with outlet threaded to match city fire department thread; the 2½ in. valve to be protected with cap and chain. One First Aid Underwriters' Approved Fig. 3080 Soda and Acid Tip-Over type 2½ gal. Fire Extinguisher complete, charged and ready for instant use. One Fig. 20 Alenco Underwriters' approved fire axe with brackets and one Fig. 5, 2½ in. and 1½ in. combination spanner. If equipment is to be installed in hose cabinets, specify a Fig. 192 Alenco Hollow Metal Hose Cabinet having (Plate) or (DSA) (Full glass door) or (Duo Panel door).

DIMENSIONS OF ALENCO FIRE HOSE UNITS

Capacity		Cabinet inside, in.			Extreme size of trim, outside, in.		Diameter inlet opening, in.		Inlet distance inside, in.		Valve centers, in.	Wall to valve center, in.	Wall to outside back of cab., in.	Size of glass, in.	Opening required in wall, in.		
Hose, ft.	Valve, in.	Width A	Height A	Depth C	Width AA	Height BB	F	F1	From top	From bottom	H	J	K		Width	Height	Depth
Cabinet 214 for Fire Hose Unit 9A with Two Angle Valves																	
50	1¼ or 1½	20¾	30¾	8½	25½	35½	2	3	2¾	5	23	3¾	8	16 x 26	31½	21½	8
75	2	22¾	32¾	8½	27½	37½	2	3	2¾	5	25	3¾	8	18 x 28	33½	23½	8
100	2½	24¾	38¾	8½	29½	43½	2	3	2¾	5	31	3¾	8	20 x 34	39½	25½	8
Cabinet 192 for Chicago Standard Hose Unit 1A with Two Angle Valves																	
50	1½ and 2½	30¾	38¾	8½	35½	43½	2	3	2¾	5	31	3¾	8	26 x 34	31½	39½	8

Siamese Connections—Bronze, Chromium Plate, or White Metal

A Siamese connection can be made an ornament to any building.

Figs. 232 and 231 are made of bronze, well proportioned, highly polished; and are distinctively handsome.



Fig. 232

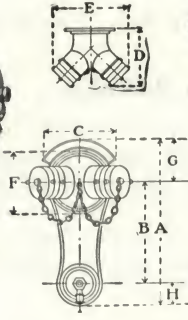
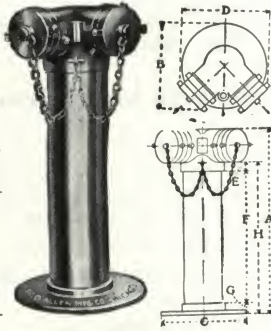


Fig. 231



Combination Siamese Connections

These connections are furnished with double clapper

Dimensions	Fig. 232		Fig. 231	
	4x2 1/2 x 2 1/2 in.	6x2 1/2 x 2 1/2 in.	4x2 1/2 x 2 1/2 in.	6x2 1/2 x 2 1/2 in.
A.....in.	18 5/8	21 3/4	24	24
B.....in.	10	11 13/16	11	14 1/4
C.....in.	10 1/2	11 1/4	10 1/4	12
D.....in.	9 3/8	10	12 1/2	14 7/8
E.....in.	12 1/2	12	17 3/4	17 3/4
F.....in.	10	12	1	1
G.....in.	5 15/16	6 7/8	19 3/8	19 3/8
H.....in.	2 15/16	2 15/16		

Specification for Siamese Connection—Run main .. in. pipe line from standpipe to street at front wall as directed, attach a Fig. .. W. D. ALLEN MANUFACTURING Co.'s double clapper Siamese with plugs or caps, with bronze plate with proper wording. On inside of main wall, located where frost can not affect it, not less than 10 ft. from wall, place .. in. check valve, to check against house tank or pump pressure, with automatic ball drip, placed at lowest point between check valve and Siamese connection. Means of draining risers shall be provided.

Concealed Flush Type Siamese Control Valve and Wall Hydrant



Fig. 283. Siamese (inlet) with Sill Cock (Pat. App. for)

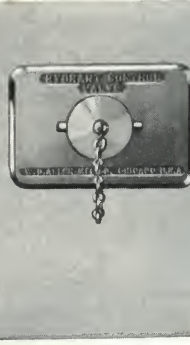


Fig. 274S. Hydrant Control Valve



Fig. 276WH. Wall Hydrant (Outlet)

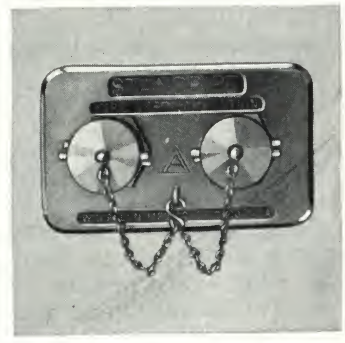


Fig. 276. Siamese, (inlet) Without Sill Cock. Can be substituted for Fig. 283 (Patent Applied for)

Concealed (or Flush) Type Siamese—Designed to solve the problem presented by the restricted sidewalk space in crowded metropolitan districts. The body of the Siamese with its two independent self-closing clapper valves can be built into wall of the building during construction. When the building is completed, the plate and the two independent swivel inlets are attached to the body of the Siamese by means of the required length pipe nipples. The Siamese is made of bronze, extra heavy throughout and will last as long as the building.

Specify—No. 283 Siamese with Sill Cock. Complete with plugs and chains.

(2 1/2 x 2 1/2-in. inlets, by 4-in. outlet.)

(2 1/2 x 2 1/2-in. inlets, by 6-in. outlet.)

(3x3-in. inlets by 6-in. outlet.)

Or specify in place of No. 283, No. 276 Siamese without Sill Cock. Complete with plugs and chains.

(2 1/2 x 2 1/2-in. inlets, by 4-in. outlet.)

(2 1/2 x 2 1/2-in. inlets, by 6-in. outlet.)

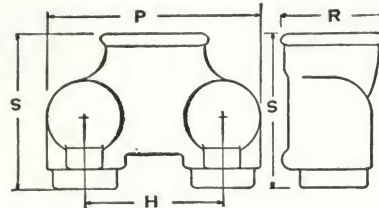
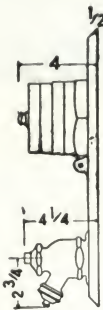
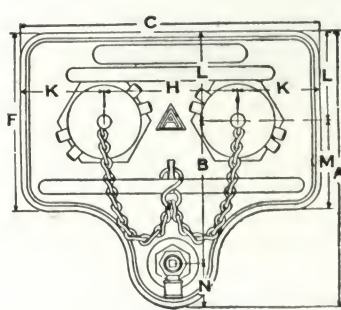
(3x3-in. inlets by 6-in. outlet.)

Dimensions—(For 2 1/2 x 2 1/2 x 4 in.). Write for larger sizes.

Dimension				A	B	C	D	E	F	H
No. 283, in.				14 $\frac{3}{4}$	7 $\frac{1}{2}$	15 $\frac{3}{4}$	5 $\frac{1}{2}$	10 $\frac{7}{8}$	9 $\frac{1}{2}$	7
No. 276, in.						15 $\frac{3}{4}$	5 $\frac{1}{2}$	10 $\frac{7}{8}$	9 $\frac{1}{2}$	7

Dimension	K	L	M	N	P	R	S	T	U	W
No. 283, in.	4 $\frac{3}{8}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	2 $\frac{1}{2}$	11	5 $\frac{3}{4}$	8	3 $\frac{3}{16}$	3 $\frac{3}{8}$	5 $\frac{3}{4}$
No. 276, in.	4 $\frac{3}{8}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	2 $\frac{1}{2}$	11	5 $\frac{3}{4}$	8	3 $\frac{3}{16}$	3 $\frac{3}{8}$	5 $\frac{3}{4}$

Fire Department Control Unit—For private high pressure systems. In addition to the regular Siamese, a wall hydrant outlet and exterior valve control will make the private high pressure system in a building available for the fire department. The fire department can pull up to the building, attach one or two leads of hose to the hydrant and with their wrench (which is the same as used on the corner fire hydrants), turn the stem (from the outside) and automatically start the Underwriters' fire pumps in the basement.



Be sure that at least 6 inches is allowed between the bottom of the sill cock and the ground for attaching hose.

Additional Information

Our Data Book "Allen on Interior Fire Protection," containing complete specifications and working drawings on standpipe installation, is yours for the asking. It contains information not heretofore available in print. The various tables are the result of forty years of experience together with informa-

tion from the best architects and engineers in the country. The book is informative rather than purely promotional and should be in your draftsman's hands. Write to W. D. ALLEN MANUFACTURING Co., 566 W. Lake Street, Chicago, Ill., to 69 Warren Street, New York, N. Y., or to the branch offices.

THE AMERICAN RUBBER MANUFACTURING CO.

Manufacturers of "Lightning" Fire Hose Racks and Cabinets

FACTORIES AND GENERAL OFFICES

OAKLAND, CAL.

BRANCH OFFICES

SAN FRANCISCO, CAL., Matson Building
LOS ANGELES, CAL., 458 South Spring Street
PORTLAND, ORE., 602 Bedell Building

Satisfy Mechanical and Artistic Requirements for Modern Buildings

The manufacture of "Lightning" fire hose racks and cabinets was begun almost a quarter century ago to help meet the urgent demand for efficient fire protection equipment in the modern buildings about to be constructed on the ruins of old San Francisco. We believe that today there is more fire protection equipment of "Lightning" brand installed on the Pacific

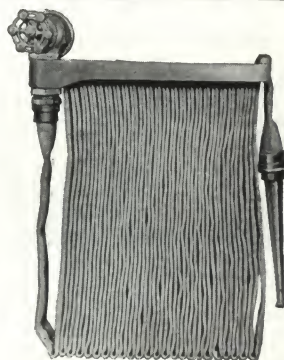
Coast than that of all other makes combined. This equipment is mechanically correct, complying with Underwriters' requirements and with all municipal building codes on the coast.

In addition to mechanical efficiency, "Lightning" equipment possesses the artistic merit demanded in modern buildings.

"Lightning" Racks for Linen Fire Hose Afford Sure Protection

Operation—A jerk of the nozzle releases the hose, which is then delivered as rapidly as desired, but fold by fold. It cannot become entangled in the frame or drop to the floor in a heap. This is due to the operating principle on which the construction of the "Lightning" hose rack is based.

Construction—The frame of the hose rack is made of the finest grade cast metal, either gray iron or brass. It is accurately machined and drilled so the rack will not sag under the weight of the hose. The hose supporting rods are accurately formed



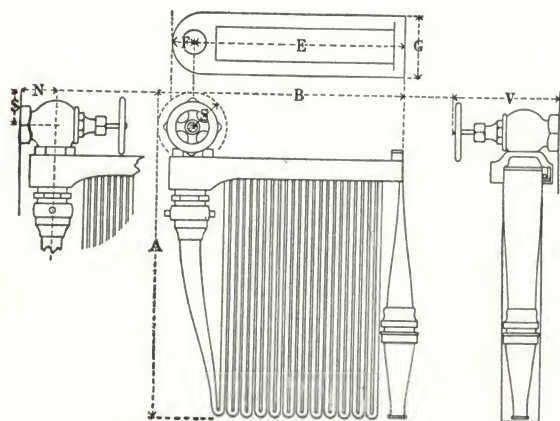
"Lightning" Hose Rack

on a punch press to insure uniformity of operation; they are heavily galvanized and will not rust.

Methods of Hanging—With Nipple Attachment—The rack illustrated is supported from the valve with a "Lightning" valve nipple, which also acts as a hinge, allowing the rack to swing the full 180°. This assembly is the most popular in the West because of the simplicity of installation and neatness of appearance.

With Wall Bracket or Pipe Clamp Support—We also supply a wall bracket or a pipe clamp support for this rack for use in installations where it is inconvenient

or undesirable to use our standard nipple attachment. **Finishes**—"Lightning" hose racks are carried in stock in the following finishes: Enamel (any color), bronzed (aluminum or gold), nickel plated, chromium plated and brass plated. There is only a slight extra charge for special finishes.



Details of "Lightning" Hose Rack

DIMENSIONS OF "LIGHTNING" HOSE RACKS

Hose		Dimensions, in.							Valve, in.		Wt., lb.
Length, ft.	Size, in.	*A	*B	E	F	G	N	S	Closed	Open	
25	1½	19	13	10¾	1¾	4	2½	2½	7¾	8¾	151½
25	2	19¾	16½	13¾	1¾	4½	2½	2¾	8¾	9½	22½
25	2½	21	17½	14½	2½	5½	2½	3½	10½	12½	31½
50	1½	21	15½	13½	1¾	4½	2½	2½	7¾	8¾	19½
50	2	21¾	16½	13¾	1¾	4½	2½	2¾	8¾	9½	28
50	2½	23	17½	14½	2½	5½	2½	3½	10½	12½	37¾
75	1½	26	20	17¾	1¾	4½	2½	2½	7¾	8¾	25
75	2	26¾	20½	17¾	1¾	4½	2½	2¾	8¾	9½	33½
75	2½	28	21½	18½	2½	5½	2½	3½	10½	12½	46½
100	1½	28¾	20	17¾	1¾	4½	2½	2½	7¾	8¾	28½
100	2	29½	20½	17¾	1¾	4½	2½	2¾	8¾	9½	39
100	2½	31	21½	18½	2½	5½	2½	3½	10½	12½	53

*Add 4 in. to "A" and "B" for recess.

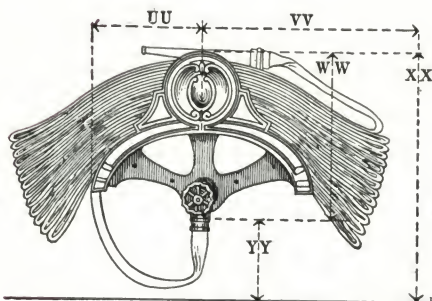
"Lightning" Saddle Racks Adapted to Frequent Use for Inspections and Drills

Saddle racks are recommended for use in school buildings, theaters, etc., where hose must be taken from rack frequently for inspections and fire drills.

Artistic Treatment—In the designing of this rack we have endeavored to fulfill the demand for a saddle rack that harmonizes with the surrounding architecture and color scheme.

DIMENSIONS OF "LIGHTNING" SADDLE RACKS

Hose Length, ft.	Size, in.	Dimensions, in.					Recess dimensions, in.		Depth, in.
		UU	VV	WW	XX	YY	Width	Height	
50 to 100	1½	11½	19	17¼	23¼	6	40	33	8
50 to 100	2	11½	19	17¼	23¼	6	40	33	9
50 to 100	2½	11½	19	17¼	25¼	8	40	35	11



Details of "Lightning" Saddle Rack

H. J. M. HOWARD MANUFACTURING CO.

Manufacturers of Hose Racks and Fire Protection Devices

148-150 Pierce Street, N. W.
WASHINGTON, D. C.

TELEPHONE: NATIONAL 8017

Products

FIRE PROTECTION DEVICES, including Peerless Swinging Hose Racks, Hose Couplings, Hose Pipes, Unlined Linen Hose.

Also Howard Chemical Fire Extinguishers and Cabinets.

Peerless Swinging Hose Rack

A very important feature of this rack is the fact that the operator can turn on the water before removing the hose. No ordinary force of water can possibly force the hose from the rack; it must be removed by the operator.

Peerless Racks for 1½-in. hose are approved by the Underwriters and will be labeled when so required and ordered.



Specifications

On each floor where indicated, at a height of 6 ft. above the floor, install a 2½-in. brass angle valve with brass milled edge wheel, removable soft disk for cold water, and 50 ft. of 2½-in. labeled Underwriters' linen hose with patent expansion ring couplings and 2½x12-in. hose nozzle with 7/8-in. outlet attached.

Hose to be supported on solid brass Peerless Swinging Hose Rack, as manufactured by the H. J. M. HOWARD MANUFACTURING Co., Washington, D. C.

All metal parts to be brass, heavily nickelplated and polished all over.

(Change length of hose, sizes and finish to suit requirements.)

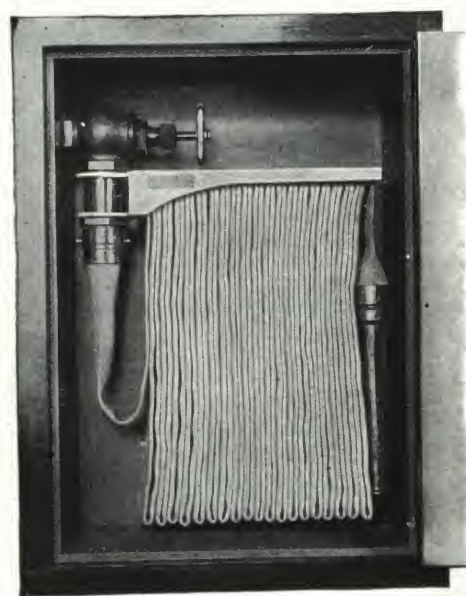
To be incorporated in specifications where cabinets are required:

Each fire hose outfit to be installed in a Howard [steel] [kalamein] [wood] cabinet of proper size to accommodate the outfits herein specified.

State whether cabinets are to be finished with priming coat only or completely enameled.

Cabinets

We make and furnish all types of cabinets: steel; Kalamein; and wood; with large glass panel doors, two panels or solid steel panel. Cabinet doors of flat metal or hollow type. Flat metal doors are less expensive and much more durable.



INSIDE DIMENSIONS OF CABINETS

Length of hose, ft.	Height, in.	Width, in.	Depth, in.	With extinguisher	
				Width, in.	Depth, in.
50	28	18	7	26	8½
75	30	21	7	29	8½
100	38	22	7	30	8½

Note: Allow ½ in. all around for wall opening.

Literature

Complete catalogued specifications, blue prints or information furnished on application.

ELKHART BRASS MFG. COMPANY

Manufacturers of Inside Fire Protection

ELKHART, IND.

Products

Complete Equipment for Inside Fire Protection: FIRE DEPARTMENT SUPPLIES, CHEMICAL FIRE EXTINGUISHERS.

Experience and Facilities

With our large modern factory and foundry and many years' experience, we are prepared to furnish highest quality equipment all guaranteed by the Elkhart registered trade-mark.

Distribution

Elkhart products are known and sold throughout the United States and Canada.

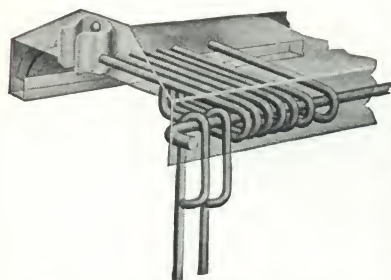
Elkhart equipment is a distinctive feature of many of the largest and finest buildings erected in the United States in recent years. Throughout the Middle West and South you will find our beautiful designs giving efficient service everywhere.

For Your Convenience

Blue prints and additional data gladly furnished on request.

Elkhart Hose Racks

The phantom view of hose rack shows channel pin support. Also note the curved spring attached to top of rack at left corner. This prevents pins from accidentally falling and releasing hose. The large loop on the pins promotes ease of operation and eliminates possibility of jamming.



Phantom View of Elkhart Rack
Plate 41, 42 and 45

(W) wall bracket, (C) combination wall bracket and escutcheon for use with gate valves.

These features apply to plates 41, 42 and 45 illustrated and described below.

Finish of Elkhart Hose Racks—Aluminum bronze, gold bronze, red lacquer, dead black or white enamel optional. Also furnished in nickel, brass, chromium and flat black plated, and in solid brass polished.

Methods of Attachment for All Elkhart Racks—Style (N) nipple, (P) pipe clamp,



Elkhart Underwriters' Labeled Hose Racks

Semi-automatic, Plate 41 (Patented)—Similar in appearance to Plate 45.

For 1¼ and 1½-in. unlined linen hose. Rack is sturdily built of one piece of pressed steel fastened to cast back.

The semi-automatic feature of this rack permits one to open the valve at once in case of fire and drag the hose by the nozzle right to the flames, because the last fold of the hose holds back 150 lb. water pressure. This feature makes the semi-automatic type of hose rack decidedly superior to non-automatic racks from which the hose must be entirely removed before the valve may be opened, causing a delay in reaching the fire that may prove disastrous.

Another advantage of this type of rack is that nothing serious can happen if the valve is opened accidentally or maliciously. It is therefore the correct type to specify for school and college buildings, etc.

Non-automatic, Plate 42—For 2 and 2½-in. unlined linen hose.

Rack is similar in construction to Plate 41 but without the semi-automatic feature. Fully approved and labeled.

Elkhart Covered Hose Rack

For 1½, 2 and 2½-in. linen hose. Plate 45 hose rack is similar in construction to Elkhart Underwriters' racks, Plates 41 and 42, but does not have either the semi-automatic feature or the Underwriters' label.

We invite comparison of our covered type of hose rack with other racks of similar appearance.

The body, together with the channel for supporting the pin, is formed from one piece of heavy furniture steel, which not only provides a very strong pin support but reinforces the entire rack. The solid top protects the hose from dust and controls its release. We have also given special attention to finish. The result is a handsome and efficient rack, acceptable in all installations where an Underwriters' label is not required. Also made with semi-automatic feature (Factory Mutual approved). Approved by Board of Standards and Appeals, New York, N. Y.

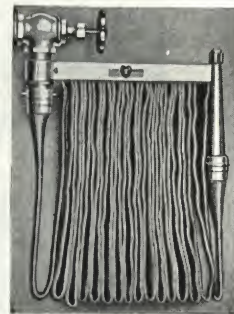


Plate 45

Elkhart Hose Valves

Elkhart-Crocker Pressure Reducing Valve (Patent Applied For)—Approved by National Board of Underwriters.

Designed for installation between hose valve and linen hose. Each valve set and locked so that nozzle pressure on each floor is restricted to 50 to 60 lbs. as desired, regardless of standpipe pressure.

Cannot be tampered with by the occupants of the building but may be easily operated by firemen to any desired flow by means of spanner wrench.

The only approved pressure controlling device that:

Opens allowing full, unrestricted waterway.

Is calibrated for standpipe pressure variations as low as 5 to 10 lbs.

Elkhart Underwriter Angle Valves—Angle valves are now approved by the National Underwriters' Association for all standpipe work. They are more satisfactory

than gate valves, as they are absolutely tight under all conditions.

As the hose rack can be directly attached by means of a nipple, the unit is more compact, and a smaller cabinet can be used than with gate valves.

Elkhart angle valves are specially designed for inside fire protection and high pressure work.

Plates 20U and 25U are made to Underwriters' specifications and approved in 1½ and 2½-in. sizes for 150 and 250-lb. pressure.

Elkhart Angle Valves—

Plates 20 and 25 are made in standard and extra heavy weights, acceptable in all cases where Underwriters' valves are not required.

Bronze Hose Gate Valves—Plate 88 is for use with inside standpipe. Has stationary stem, adjustable double disc. Every valve tested before leaving the factory. Standard weights, also extra heavy.



Plate 26



Plate 20U



Plate 88

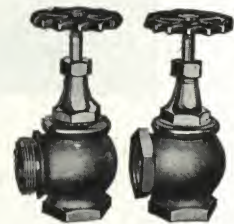
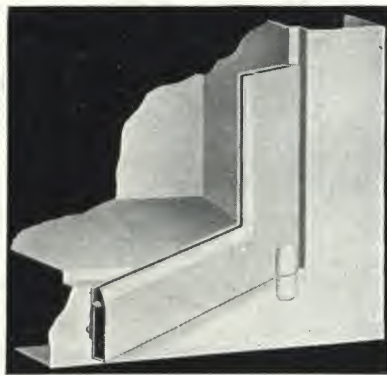


Plate 25 Plate 20

CONSTRUCTION FEATURES AND STYLES OF ALL ELKHART STEEL HOSE CABINETS

(Pressed Steel with Hollow Steel Door and Trim)

The sectional view shows the construction of Elkhart cabinets which are made of heavy rust resisting furniture steel. Door and trim are made from special hollow rolled and welded tubing. The corners are mitered and electric butt-welded with no seam showing. This is the last word in cabinet construction and results in a strong and rigid door frame. The frame actually reinforces the glass rather than the glass stiffening the door frame. This added strength reduces glass breakage to a minimum.



Sectional View Showing Sturdy Construction

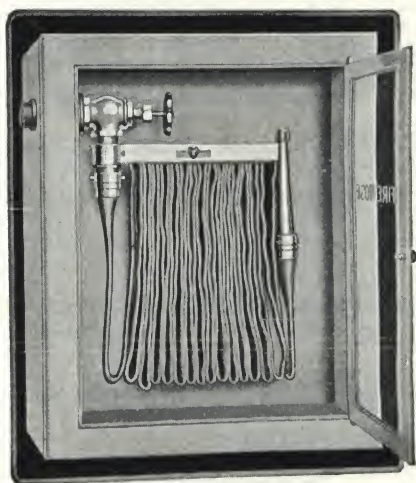
Knockout holes for inlet are partially punched as specified.

Dustproof construction, concealed hinges, ball and spring catches, polished plate or DSA glass complete this beautiful cabinet.

Standard finish is white baked enamel inside, white prime coat outside. Other finishes can be furnished when desired.

Any size cabinet can be furnished on order.

Three butt type hinges furnished on large cabinets.



Style S for Surface Mounting

Surface type or outside wall cabinet. Any Elkhart cabinet can be made up in this style, which is necessary where the depth of the wall is not sufficient to recess the cabinet in the usual way. Door is furnished with DSA or plate glass panel or with duo-panel when desired. Trim $1\frac{1}{2}$ in. wide. For outside dimensions add $3\frac{3}{4}$ in. to inside measurements.



Style E Elkhart Double Door Cabinet

The ultimate in cabinet design because:

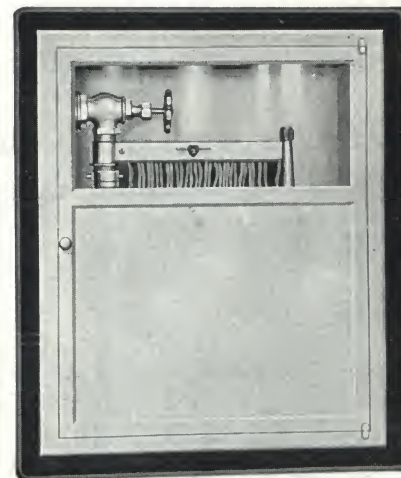
Hose more readily accessible in either direction.

Doors open in smaller space.

Less possibility of glass breakage.

Design more in keeping with modern interiors.

Lever handle bolts both doors securely at top and bottom.



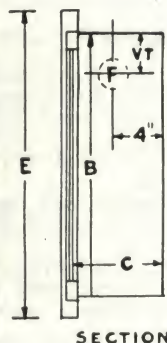
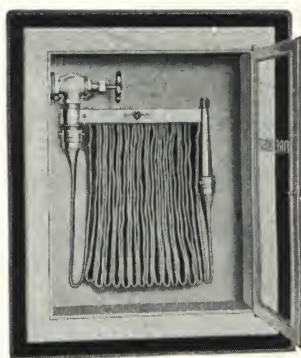
Style D with Duo-panel Door

Recessed type, as shown, or surface type. The duo-panel door, having steel section at the bottom and plate glass panel at top, affords some protection against breakage of glass.

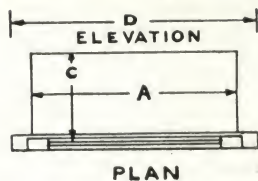
This type of door is for use where the cabinet is in an exposed position.

It can be furnished on any Elkhart cabinet

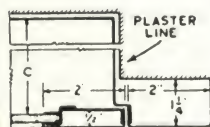
HOSE UNIT WITH ONE ANGLE VALVE (PLATE C-910)



SECTION



PLAN



DETAIL

For This Unit Specify

Elkhart standard cabinet, plate C-910.

Elkhart angle valve, plate No. 20 or plate 20-U.

Elkhart covered hose rack, plate No. 41 or 45, Style N with nipple.

The specified length of Underwriters' labeled linen hose of the proper size.

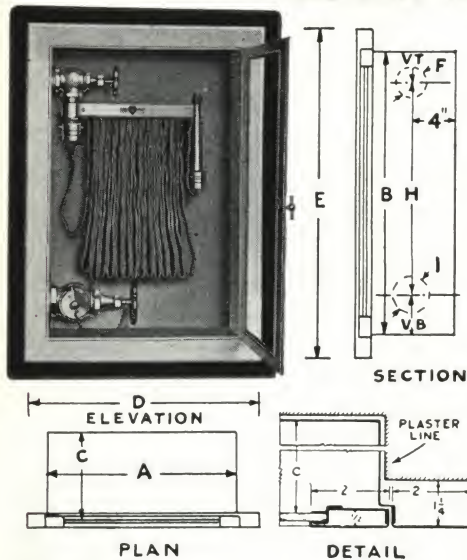
Elkhart polished brass expansion ring couplings and 12-in. plain nozzle.

Similar Units—Hose unit with two angle valves, plate C-920 and hose unit with two gate valves, plate C-925. See Elkhart catalogue No. 29 for dimensions.

Note: In buildings not over four stories high $1\frac{1}{2}$ -in. valve and $1\frac{1}{2}$ -in. hose are recommended. In buildings five or more stories high, a $2\frac{1}{2}$ -in. valve with local fire department thread should be installed to which $1\frac{1}{2}$ -in. linen hose can be attached by means of $2\frac{1}{2}$ x $1\frac{1}{2}$ -in. reducing coupling, plate 335.

Hose capacity, ft	Hose and valve size, in.	Glass, in.	Cabinet dimensions shown in diagram, in.						Valve opening (F), in.	Leave rough opening, in.	
			A	B	C	D	E	VT		Width	Height
50	$1\frac{1}{2}$, 2, $2\frac{1}{2}$	18x28	$20\frac{3}{4}$	$30\frac{3}{4}$	$7\frac{1}{2}$	$25\frac{1}{2}$	$35\frac{1}{2}$	$3\frac{1}{2}$	2, 3, 3	$21\frac{1}{2}$	$31\frac{1}{2}$
75	$1\frac{1}{2}$, 2, $2\frac{1}{2}$	20x30	$22\frac{3}{4}$	$32\frac{3}{4}$	$7\frac{1}{2}$	$27\frac{1}{2}$	$37\frac{1}{2}$	$3\frac{1}{2}$	2, 3, 3	$23\frac{1}{2}$	$33\frac{1}{2}$
100	$1\frac{1}{2}$, 2, $2\frac{1}{2}$	22x32	$24\frac{3}{4}$	$34\frac{3}{4}$	$7\frac{1}{2}$	$29\frac{1}{2}$	$39\frac{1}{2}$	$3\frac{1}{2}$	2, 3, 3	$25\frac{1}{2}$	$35\frac{1}{2}$
125	$1\frac{1}{2}$, 2	22x36	$24\frac{3}{4}$	$38\frac{3}{4}$	$7\frac{1}{2}$	$29\frac{1}{2}$	$43\frac{1}{2}$	$3\frac{1}{2}$	2, 3	$25\frac{1}{2}$	$39\frac{1}{2}$

HOSE UNIT WITH TWO ANGLE VALVES (PLATE C-920)



For This Unit Specify

Elkhart cabinet, plate C-920.

Elkhart 1½-in. Angle Valve, plate No. 20 or plate No. 20-U.

Elkhart 2½-in. Angle Valve, plate No. 25 or plate No. 25-U with cap and chain.

Elkhart plate No. 45 or plate No. 41 hose rack as required by architect's specifications, Style N.

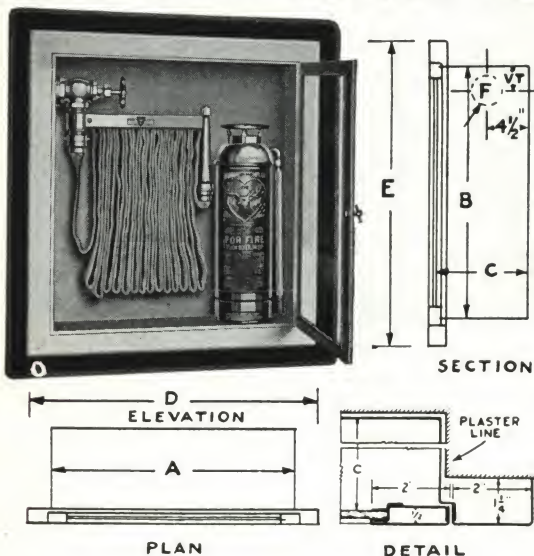
The specified length of 1½-in. Underwriter labeled linen hose.

Elkhart 1½-in. expansion ring couplings.

Elkhart plain brass nozzle 1½ in. x 12 in. x ½ in.

Hose capacity, ft.	Hose and valve size, in.	Glass, in.	Cabinet dimensions shown in diagram, in.					Valve center, in.			Valve opening, in.		Leave rough opening, in.	
			A	B	C	D	E	VT	H	VB	F	I	Width	Height
50	1½, 2½	18x28	20¾	30¾	8½	25½	35½	3	22¾	5	2	3	21½	31½
75	1½, 2½	20x30	22¾	32¾	8½	27½	37½	3	24¾	5	2	3	23½	33½
100	1½, 2½	22x36	24¾	38¾	8½	29½	43½	3	30¾	5	2	3	25½	39½

HOSE UNIT WITH ONE ANGLE VALVE AND 2½-GAL. FIRE EXTINGUISHER (PLATE C-915)



For This Unit Specify

Elkhart cabinet C-915.

Elkhart angle valve, plate No. 20 or plate 20-U of the size required.

Elkhart Style N hose rack, plate No. 45 or plate 41 as required by the specifications.

The specified length of the Underwriters' labeled linen hose of the size required.

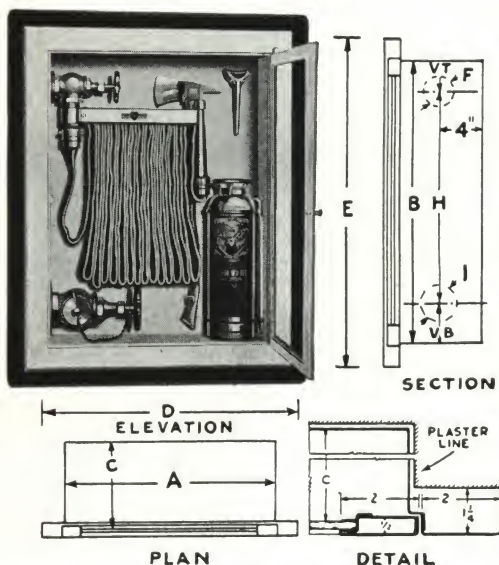
Elkhart expansion ring couplings and 12-in. nozzle.

Elkhart 2½-gal. extinguisher.

For complete description of Elkhart steel hose cabinets see preceding page.

Hose capacity, ft.	Hose and valve size, in.	Glass, in.	Cabinet dimensions shown in diagram, in.					Valve opening (F), in.	Leave rough opening, in.	
			A	B	C	D	E		Width	Height
50	1½, 1½	30x32	32¾	34¾	8½	37½	39½	6½	2	33½
75	2, 2½							5	3	35½
100	2, 2½							3½		

HOSE UNIT, CHICAGO STANDARD, WITH TWO ANGLE VALVES AND EQUIPMENT (PLATE C-901)



For This Unit Specify

Elkhart cabinet, plate C-901.

Elkhart 1½-in. approved angle valve, plate 20-U for 150 or 250 lb. pressure as required.

Note: If necessary to reduce pressure use 1x1½-in. Underwriters' valve instead of straight 1½-in.

Elkhart 2½-in. approved angle valve, plate 25-U, for 150 or 250 lb. pressure with local fire department thread, and with bronze cap and chain.

Elkhart semi-automatic Underwriters' approved hose rack, plate 41, Style N with 1½-in. nipple.

The specified length of 1½-in. Underwriters' labeled linen hose with Elkhart expansion ring couplings.

Elkhart 1½x12x½-in. plain nozzle with lugs.

Elkhart 2½-gal. Underwriters' approved fire extinguisher complete with charge.

Fireman's pick head axe with Underwriters' bracket No. 3.

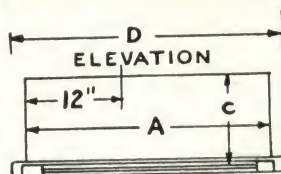
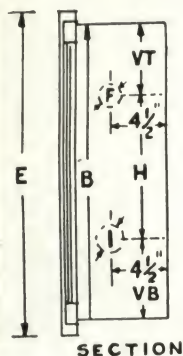
Elkhart taber spanner with Underwriters' bracket No. 4.

For complete description of Elkhart steel hose cabinets see preceding page.

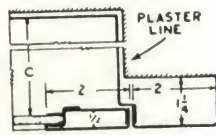
(For Same Unit with One Valve C-916)

Hose capacity, ft.	Hose and valve size, in.	Glass, in.	Cabinet dimensions shown in diagram, in.					Valve center, in.		Valve opening, in.	Leave rough opening, in.	
			A	B	C	D	E	VT	H		Width	Height
50	1½	28x36	30¾	38¾	8½	35½	43½	3	30¾	5	2	3
75	1½, 2½										31½	39½
100	2½											

HOSE UNIT, WITH TWO GATE VALVES AND EQUIPMENT (PLATE C-900)



PLAN



DETAIL

For This Unit Specify

- Elkhart cabinet C-900.
- Elkhart 2½-in. gate valve, standard weight or extra heavy with cap and chain.
- Elkhart 2½-in. extended type escutcheon, plate 588.
- Elkhart 1½-in. gate valve, standard weight or extra heavy with ¼-in. drip cock.
- Elkhart 1½-in. combination wall bracket and escutcheon, plate 500, which fits back of valve and supports the rack.
- Elkhart Underwriters' approved semi-automatic hose rack, plate 41.
- Enough 1½-in. Underwriters' labeled linen hose to reach every part of the space served, coupled with Elkhart expansion ring couplings, in sections not over 50 ft. long.
- Elkhart 1½x12x½-in. plain nozzle with lugs.
- Fireman's pick head axe with bracket, No. 3.
- 2½-in. taber spanner with bracket, No. 4.
- Elkhart 2½-gal. Underwriters' approved fire extinguisher.

Hose capacity, ft.	Hose and valve size, in.	Glass, in.	Cabinet dimensions shown in diagram, in.					Valve center, in.			Valve opening, in.		Leave rough opening, in.	
			A	B	C	D	E	VT	H	VB	F	I	Width	Height
50	1½	28x36	30¾	38¾	8½	35½	43½	8	19¾	11	2	3	31½	39½
100	2½													

SIAMESE CONNECTIONS; FIRE EXTINGUISHERS

Siamese with Sill Cock (Plate 165) (Patented)

This siamese is flush with the wall and takes the minimum of space on a crowded sidewalk. The body is built into the wall during construction. The wall plate is attached when desired by simply screwing in the bronze inlet nipples to which the independent clapper valves are attached.

This feature of construction is very important, as it eliminates a serious drawback to the use of this type of siamese. Should any trouble develop, the clapper valves can be easily removed for repairs. Where the clappers are permanently attached to body of siamese they are inaccessible as the body can not easily be removed after it is once built in.



Plate 165

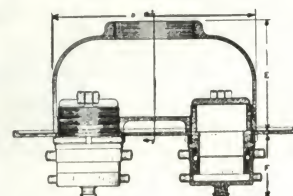
DIMENSIONS, IN., PLATE 165
SIAMESE (4x2½x2½ in.)

A	B	C	D	E	F	*G	H
16	15	7½	12	6¼	4¼	9½	5½

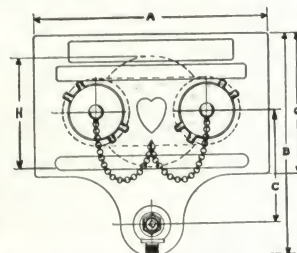
Plate 165 (6x2½x2½ in.)

16	15	7½	12	6¼	4¼	9½	7½
----	----	----	----	----	----	----	----

*Height of body in wall.



Both can be furnished with pipe coming in from bottom, instead of back of body. Blue prints on request.



Same Design without Sill Cock (Plate 166)

Height 9½ in. Other dimensions same as plate No. 165 given in table.

Wall Hydrant Plate 163 and Valve Control Plate 164—Are of same design.

Emergency Tool Cabinet

Has solid metal door, with cylinder lock, red enameled with 3-in. white letters, fully equipped, size 18x40x4 in. For mounting on wall in pump room. Required by ordinance in New York, N. Y. A practical necessity in any large building, for storing spare standpipe fittings and tools.

Roof Manifolds

For 6 and 8-in. standpipe roof outlets, provided with three 2½-in. hose valves with male threads.

Combination Wall Plate Siamese with Sill Cock (Plate 155)

Made of highly polished bronze. Fitted with two 2½-in. fire department inlets and 4 or 6-in. outlet. Has double clapper valves, plugs and chains, also one ¾ or 1-in. outlet at bottom for sprinkling hose. Complete with hose cap, chain and key.



Plate 155

DIMENSIONS	
Greatest length.....	19 in.
Greatest width.....	12½ in.
Stands out from wall.....	10½ in.
Center of pipe opening to center of sill cock—	
With 4-in. pipe.....	9½ in.
With 6-in. pipe.....	10 in.

Wall Plate Siamese (Plate 156)

Same siamese as plate 155 without the sill cock.

DIMENSIONS	
Greatest height.....	11¼ in.
Greatest width.....	12½ in.
Stands out from wall.....	10½ in.

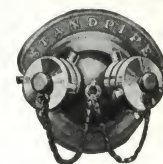


Plate 156

Fire Extinguishers

To protect property, and also to get lowest possible insurance rates, install Elkhart 2½-gal. fire extinguishers. Made of copper, highly polished and lacquered. Instantly discharged by simply turning upside down. Elkhart fire extinguishers are approved by the Underwriters' Laboratories, Inc., Chicago, Ill., and the Factory Mutual Fire Insurance Companies, Boston, Mass.



Style A Soda and Acid Style F Foam Type

Fire Extinguisher Cabinet

Same construction as hose cabinets. Inside dimensions 9x27x48 in. deep.



Plate 950

GRINNELL COMPANY, INC.

MANUFACTURERS AND CONTRACTORS

Automatic Sprinkler Systems

EXECUTIVE OFFICES
PROVIDENCE, R. I.

OFFICES, PLANTS AND BRANCHES

ALBANY, N. Y.
ATLANTA, GA. (Plant and Foundry)
AUBURN, R. I. (Plant and Foundry)
BALTIMORE, MD.
BOSTON, MASS.
BUFFALO, N. Y.
CHARLOTTE, N. C. (Branch)
CHICAGO, ILL. (Branch)
CINCINNATI, OHIO
CLEVELAND, OHIO (Branch)
COLUMBIA, PA. (Plant)

DALLAS, TEX.
DETROIT, MICH.
HARTFORD, CONN.
INDIANAPOLIS, IND.
KANSAS CITY, MO.
KEARNY, N. J. (Branch)
MILWAUKEE, WIS.
MINNEAPOLIS, MINN. (Branch)
NEWARK, N. J. Serviced from Kearny Branch

NEW ORLEANS, LA.
NEW YORK, N. Y. (Serviced from Kearny Branch)
PHILADELPHIA, PA. (Branch)
PITTSBURGH, PA.
PLYMOUTH, FLA.
PROVIDENCE, R. I. (Plant and Foundry)
ROCHESTER, N. Y.
ST. LOUIS, MO. (Branch)
ST. PAUL, MINN.
WARREN, OHIO (Plant and Foundry)

GRINNELL COMPANY OF THE PACIFIC

LOS ANGELES, CAL. (Branch)

SAN FRANCISCO, CAL. (Branch)

OAKLAND, CAL. (Branch)

SEATTLE, WASH. (Branch)

GRINNELL COMPANY OF CANADA, LTD.

MONTREAL, QUE. (Branch)

TORONTO, ONT. (Plant and Foundry)

VANCOUVER, B. C. (Branch)

WINNIPEG, MAN.

OSHAWA, ONT. (Foundry)

Products

GRINNELL AUTOMATIC SPRINKLER SYSTEMS and other FIRE PROTECTION APPARATUS and DEVICES.

For Heating and Power Piping Installations, Pipe Fittings, Hangers and Accessories, Thermoliers (Unit Heaters), Thermoflex Heating Specialties, see Manufacturers' Index.

Grinnell Sprinkler Systems

Grinnell has been a leader in automatic sprinkler protection for nearly fifty years. Over 30,000,000 Grinnell Sprinklers have been installed and are safeguarding property valued at more than 10 billion dollars. The average loss per fire in Grinnell protected buildings in over 26,000 recorded fires is less than \$300, an estimated saving of over 90% as compared to the average fire loss in similar properties without sprinklers.

Types of Systems

- (1) **Wet-Pipe System**—With water in the pipes under pressure.
- (2) **Dry-Pipe System**—With air in the pipes under pressure.
- (3) **Deluge System**—With air in pipes under atmospheric pressure and using "open" sprinkler heads.
- (4) **Preaction System**—Similar to 3, but using closed heads.
- (5) **Simplex System**—Using a pressure tank, with air in pipes and the same air pressure in tank and system.
- (6) **Outside Open Head Systems (Water Curtains)**—For protection against exposure fires.

Features Common to All Grinnell Automatic Sprinkler Systems

A sprinkler equipment is attached to or concealed in the ceiling. When fire breaks out, the temperature at the ceiling rapidly increases and causes the fusible strut of the solder type sprinkler head to melt, or the bulb of the quartz bulb sprinkler head to burst. This allows the water to emerge from the sprinkler head in a heavy spray onto the fire.

Grinnell Automatic Sprinkler heads are of two general types—Solder Type and Quartz Bulb Type—and when installed are located a few inches below ceiling and spaced from 8 to 12 ft. apart, depending on fire hazard conditions. The piping on which sprinklers

are located is fed by upright riser pipes controlled by shut-off valves. Water supply of adequate volume and pressure is obtained from various sources, such as city water mains, elevated gravity tanks, pressure tanks, reservoir, or pumps.

The sprinkler heads are designed to operate automatically at temperatures of 135 degrees or more according to conditions and the water is distributed over the area protected by each sprinkler.

An automatic alarm is sounded when a sprinkler head goes into operation.

Wet-Pipe System

Pipes are full of water under pressure. When sprinkler operates, water is at once discharged on the fire. Buildings having wet-pipe systems must be heated throughout in cold weather to prevent water in pipes from freezing.

Dry-Pipe System

These systems are used in buildings or portions of buildings where a wet-pipe system could not be used because of danger of freezing. A Grinnell Dry-Pipe Valve is used, holding back the water, with air in pipes under pressure. When sprinkler head operates, the air pressure drops and water automatically enters system and is discharged from the sprinkler head. The Grinnell Dry-Pipe Valve is equipped with a Grinnell Accelerator which causes the dry-pipe valve to trip and admit water to the system almost instantaneously, thereby reducing the delay in water reaching the sprinkler head to a minimum. The air pressure is maintained by an air compressor that can be arranged to operate automatically if desired.

Deluge System

Open heads are used and the water supply is controlled by a Deluge Valve which in turn is operated by a thermostatic system of heat actuated devices located on ceiling. The heat actuated devices are very sensitive to heat from fire and almost immediately after fire starts, the Deluge Valve trips and water is at once discharged from all the open heads in area or room, thus "deluging" the fire. This system can be used to advantage where the fire hazard is severe and quick action necessary, such as inflammable liquid spraying, manufacture or use of extra hazardous liquids or compounds, airplane hangars, etc.

Preaction System

In this type of dry-pipe system, a thermostatically controlled Deluge Valve is used as for Deluge Systems. Regular automatic sprinkler heads are used and there is no water in the pipes. No air pressure is maintained as with the ordinary dry-pipe systems. The sensitive heat actuating devices on the ceiling cause the Deluge Valve to trip and admit water to the piping system before the automatic sprinkler head operates. An alarm is given when the Deluge Valve trips and there may be sufficient time to extinguish fire by other means before the sprinkler operates. This system is especially adaptable to properties with unusually valuable contents, where the danger of any damage by water must be avoided, such as museums, art galleries, printing establishments, cold storage plants, etc. It is also designed for use in asylums, prisons, hospitals, or similar properties where inmates may intentionally injure the piping system.

Simplex Dry - Pipe System

This is a simplified type of system having a pressure tank for a water supply. There is no dry-pipe valve and the same air pressure is automatically maintained in the tank and system. It is especially intended for use in properties where the fire hazard is not severe and where city water is not available. This would include hotels, clubs, institutions, large dwellings, and similar properties. It is less expensive to install and easy to maintain. The tank can be located in the basement and this is the only part of the system that needs to be heated.

Outside Open Head Systems (Water Curtains)

Special types of Grinnell "Open" Sprinklers are used and located outside of building, over each window, at eaves, or on roof, as a protection against outside exposure fire. They are connected to a system of piping with adequate water supply, such as city water or pumps. The water is normally shut off and is turned on when needed. These systems are of great value in preventing an outside fire from entering the building.

Grinnell Quartz Bulb Sprinkler

This sprinkler was first brought out about eight years ago and it has many advantages over the ordinary solder type sprinkler. An entirely new principle is used, solder is discarded, and in its place a quartz bulb partially filled with a special colored liquid is used. It can be manufactured to operate at any desired temperature and the ordinary or "low" test sprinkler operates

at 135° as compared to the 160° solder type. The Grinnell Quartz Bulb Sprinkler is more sensitive or quicker to operate than the solder type and it is to be preferred where prompt operation is necessary because of severe fire hazard or danger of fire spreading quickly. This new type is not subject to failure from corrosion as is the solder type. The bulb itself is non-corrosive and the rest of the sprinkler can be lead coated or otherwise protected. Chemical and other plants where severe corrosive conditions exist can now have sprinkler protection because of the Grinnell Quartz Bulb Sprinkler Head. It also is not affected by "loading" or "gumming" from dust, varnish fumes, paint, etc.

Grinnell Quartz Bulb Sprinkler Heads are specified in many cases because of their unusually attractive appearance.

Several hundred thousand of Grinnell Quartz Bulb Sprinkler Heads have been installed and experience has shown that not only are they preferable for general use, but are especially desirable where quick action is necessary or where the sprinklers are subject to corrosive influences, loading, or gumming.

Installation

Grinnell Automatic Sprinkler Systems are factory-assembled to blue prints, fittings being made-on as far as possible by machinery. The result is that the equipment is delivered ready for quick and botherless installation by our highly trained erecting crews. This reduces interference with usual plant operation to a minimum.

Designs and Estimates

Inquiries addressed to the executive offices of GRINNELL COMPANY, INC., or to any of the offices will immediately receive the attention of the engineering staff, who will promptly furnish expert advice with designs or estimates as required, without cost or obligation.

Sprinkler Supervisory Service

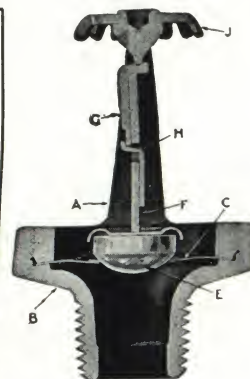
A safeguard of the dependability and efficiency of an Automatic Sprinkler System is provided by the A.D.T. Central Station System of Sprinkler Supervisory Service.

Day and night this service automatically and continuously supervises all the vital parts of the Sprinkler System. It eliminates human carelessness by an electric equipment which automatically transmits signals to a central station, indicating any trouble that might make the system inoperative. This A.D.T. Central Station System of Sprinkler Supervisory Service is described in detail in another section of SWEET'S CATALOGUE. See Manufacturers' Index.



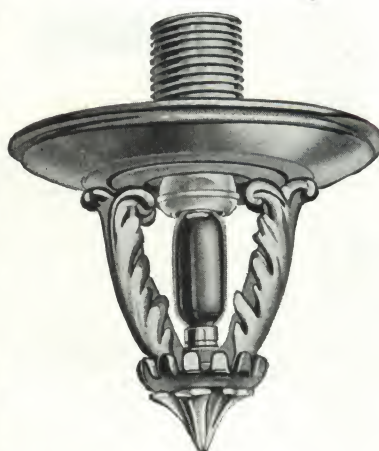
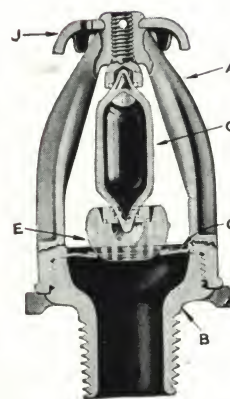
- A—Yoke
- B—Body
- C—Diaphragm
- E—Glass disc
- F—Main strut piece
- G—Hook on strut
- H—Key on strut
- J—Deflector

Solder Type Sprinkler Head



- A—Yoke
- B—Body
- C—Diaphragm
- E—Glass disc
- G—Quartz bulb
- J—Deflector

Quartz Bulb Sprinkler Head



Florida Type Head

An ornamental form of the Grinnell Quartz Bulb Sprinkler, to harmonize with interior decorative schemes

THE JIFFY FIRE HOSE RACK CO.

Manufacturers of Complete Interior Fire Extinguishing Equipment

133 West 52nd Street
NEW YORK, N. Y.

Products

HOSE RACKS, HOSE CABINETS, SIAMESE CONNECTIONS, FIRE HOSE VALVES, CHEMICAL FIRE EXTINGUISHERS.

Also Nozzles, Underwriters' Unlined Linen Hose, Couplings, Axes, Pails and Accessories.



TRADE-MARK

"Jiffy" fire hose racks are neat and attractive in appearance and can be had in small compact sizes for country residences and private homes.

They are so simple in operation that a maid or child can handle them. Non-corrosive, will not rust.

Materials

"Jiffy" appliances are made in malleable iron (bronzed) or of brass, and in any style finish as required.

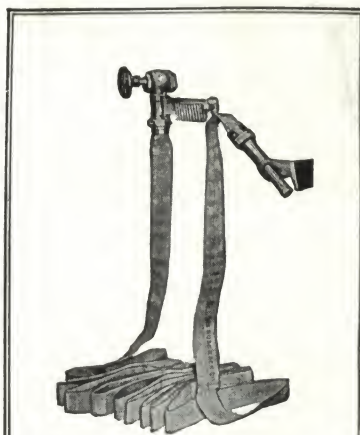
Hose Racks

Principle of Operation—The comb of the "Jiffy" fire hose rack holds the hose in position ready at all times for instant release. A pull upon the nozzle releases the arm holding the comb, letting the hose fall to the floor.

Advantages of "Jiffy" Fire Hose Racks—Always ready for immediate use. Automatic in operation; pull the nozzle and turn on the water.

No loose parts to become lost or broken. No metal rings or links to be dragged over furniture or caught on trim.

So constructed as to permit a free circulation of air around the hose, keeping it dry and in reliable condition.



Hose rack attached to extension piece showing 50 ft. of 2 in. hose released from height of 6 ft. by layman. Note orderly layout of hose.

Standpipe and Hose Equipment Specifications

Standpipe—Where shown on plans, furnish and erect standpipe with necessary check valves, shut-off valves and Siamese connections, properly connected to meet requirements of Fire Prevention Bureau and governing departments.

Hose Equipment—Where shown on plans, furnish and install "Jiffy" nickel-plated brass angle hose valve, nickelplated milled wheel, "Jiffy" Type ("A," "B" or "C") improved hose rack with ... ft. (1½, 2, 2½-in.) St. Regis brand underwriters' labeled linen hose, nickelplated brass couplings and nozzles.

Note: Racks furnished in malleable iron aluminum or gold bronzed, enameled in color or nickelplated; also in brass polished or nickelplated.

DIMENSIONS OF "JIFFY" FIRE HOSE RACKS

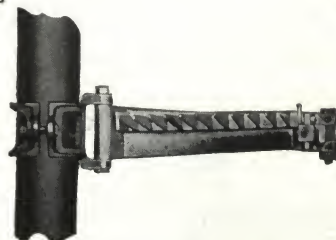
Diam. of hose, in.	Length of rack, in.		
	25 or 50 ft. of hose	75 ft. of hose	100 ft. of hose
¾	18	21	26
1	18	21	26
1½	18	21	26
2	18	21	26
2½	18	21	26

Measurements from center of pipe to end of nozzle holder.

Measurements allow hose to hang down 26 in. If limited for wall space, a 50-ft. rack can be used for 75 or 100 ft. of hose by hanging hose on racks in longer loops.



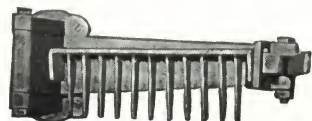
Comb ready to receive hose.



Comb ready to receive hose.



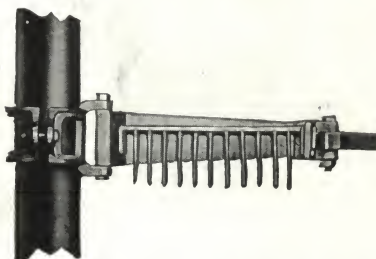
Comb ready to receive hose.



Comb down after releasing hose.

TYPE-"A"

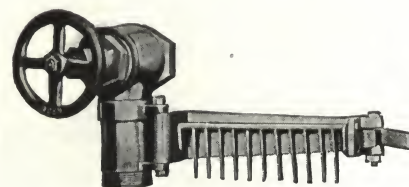
ATTACHED TO WALL.



Comb down after releasing hose.

TYPE-"B"

ATTACHED TO STAND PIPE.

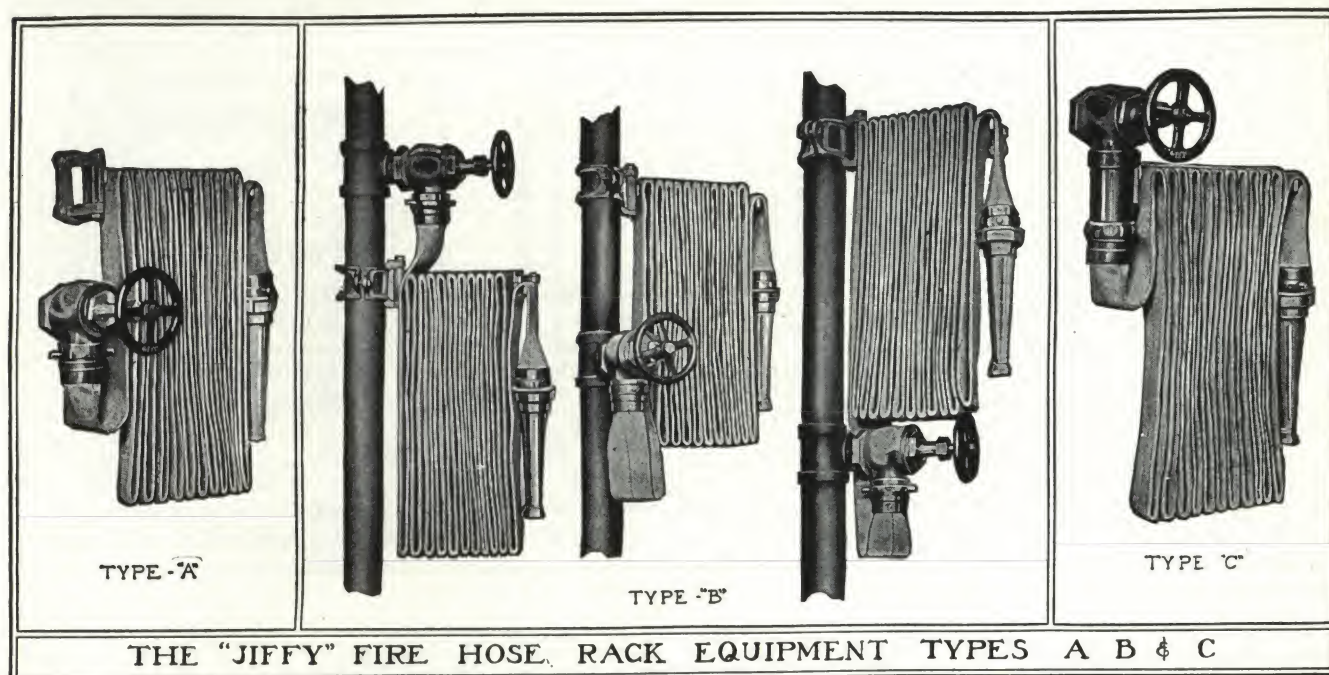


Comb down after releasing hose.

TYPE-"C"

ATTACHED TO EXTENSION PIECE.

"JIFFY" FIRE HOSE RACKS
TYPES A - B & C



Specifications for "Jiffy" Fire Hose Rack Equipments

Note: The following blanket specification covers our entire equipment. The sizes of the various units should be selected to fit the requirements of the Local Fire Department and Fire Prevention Bureau.

Specification—Furnish (and install) where shown on the drawings, a [2½] [2] [1½] [1¼]-in. [nickelplated polished brass] [nickelplated brass] [rough brass] [angle] [gate] hose valve with [nickelplated brass] [nickelplated iron] [iron painted or enameled any color] wheel.

Furnish (and attach) a "Jiffy" Type [A] [B] [C] [nickelplated brass] [nickelplated] [baked enameled—any color] [aluminum painted malleable iron] hose rack with [50] [75] [100] ft. [2½] [2] [1½] [1¼]-in. St. Regis Brand Underwriters' Labeled Unlined linen hose.

Furnish (and attach) a [2½x15] [2x11] [1½x10] [1¼x10]-in. [nickelplated brass] [aluminum painted iron] hose nozzle and nickelplated brass [couplings] [reducing couplings].

Note: The above mentioned gate valves can be furnished with ¼-in. drip cocks.

Where Separate Valve Outlets are Required by Local Fire Departments

Note: In addition to the specification above, following is a blanket specification covering a separate valve installation for Local Fire Department.

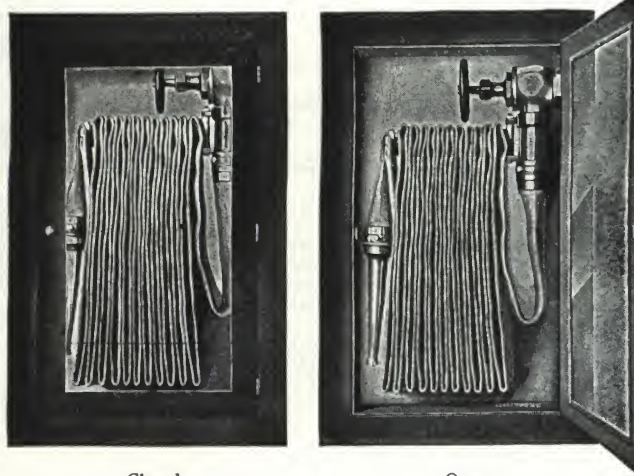
Specification—Furnish (and install) where shown on the drawings a 2½-in. nickelplated polished brass [angle] [gate] hose valve with nickelplated brass milled wheel and nickelplated brass cap and chain, having Local Fire Department thread.

Hose Cabinets

The "Jiffy" hose cabinet has been designed to fit a need for a cabinet to accommodate the "Jiffy" rack and equipment.

The "Jiffy" hose cabinets are made in iron or in other metal, either painted, enameled any color or plated as desired.

They are constructed of No. 16 gage metal, with No. 12 gage metal trim and door. The door is provided with polished plate glass panel. The hardware can be of concealed or exposed type as desired, and can be furnished to match adjacent hardware.



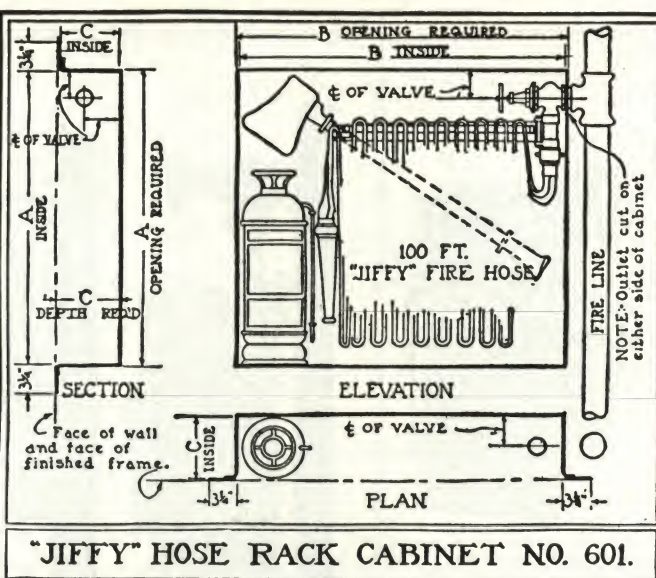
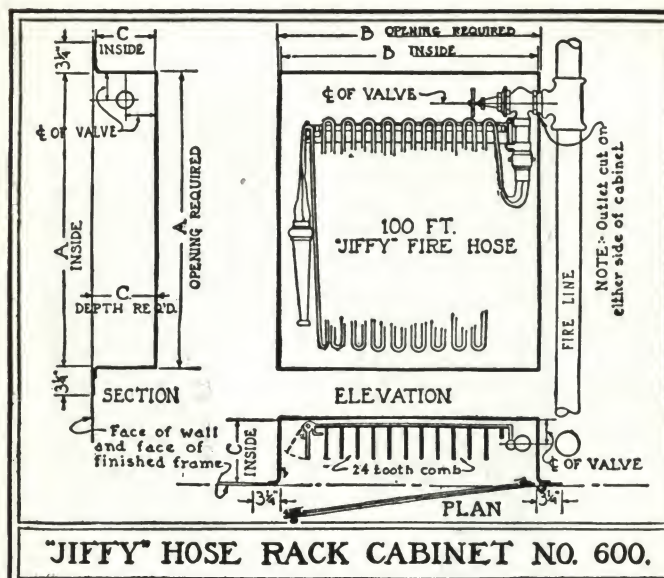
Closed Open
HOSE RACK INSTALLED IN CABINET

The equipments are arranged so that the roughing-in for the valves extends through the side of the cabinet.

The accompanying illustrations show the typical "Jiffy" cabinet closed and open. Note the neatness, the compactness and the accessibility of the equipment.

"Jiffy" cabinets can also be furnished to include a fire extinguisher, an axe and other accessories that may be required by Local Fire Departments and Fire Prevention Bureau.

Note: For details, specifications and dimensions, see following pages.



Specifications for "Jiffy" Fire Hose Cabinet

Plate No. 600—Furnish (and install) where shown on the drawings, a "Jiffy" Fire Hose Cabinet, No. 600, constructed of No. 16 gage steel, with No. 12 gage steel trim and door having polished plate glass panel, concealed hinges, concealed catch and pull handle. Finished at factory with a priming coat of white paint.

Furnish (and install) a 2½-in. nickelplated polished brass angle hose valve with nickelplated brass milled wheel.

Furnish (and attach) a "Jiffy" Type C nickelplated polished brass hose rack with 50 ft. 2½-in. St. Regis Brand Underwriters' Labeled Unlined linen hose.

Furnish (and attach) a 2½x15-in. nickelplated polished brass hose nozzle and nickelplated polished brass couplings.

Plate No. 601—Furnish (and install) where shown on the drawings, a "Jiffy" Fire Hose Cabinet, No. 601, constructed of No. 16 gage steel, with No. 12 gage steel trim and door having polished plate glass panel, concealed hinges, concealed catch and pull handle. Finished at factory with a priming coat of white paint.

Furnish (and install) a "Jiffy" Chemical Fire Extinguisher, No. 710, complete with charge, and Fire Axe with necessary brackets securely mounted.

Note: For balance of equipment shown on Plate No. 601 use the last three paragraphs of specification for Plate No. 600.

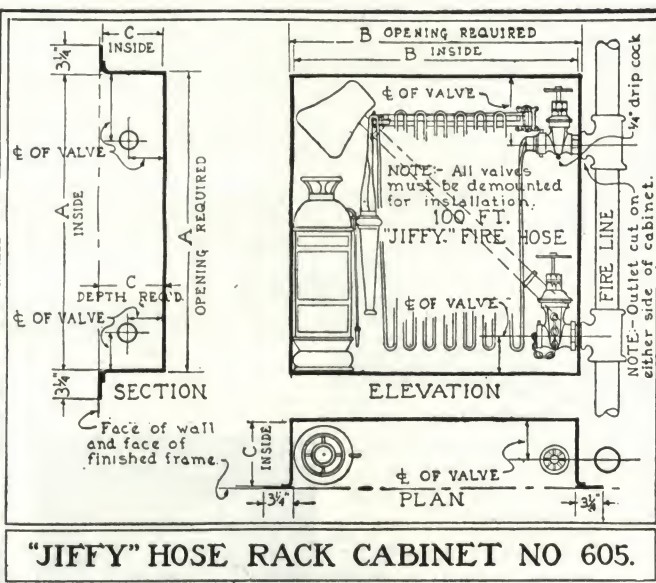
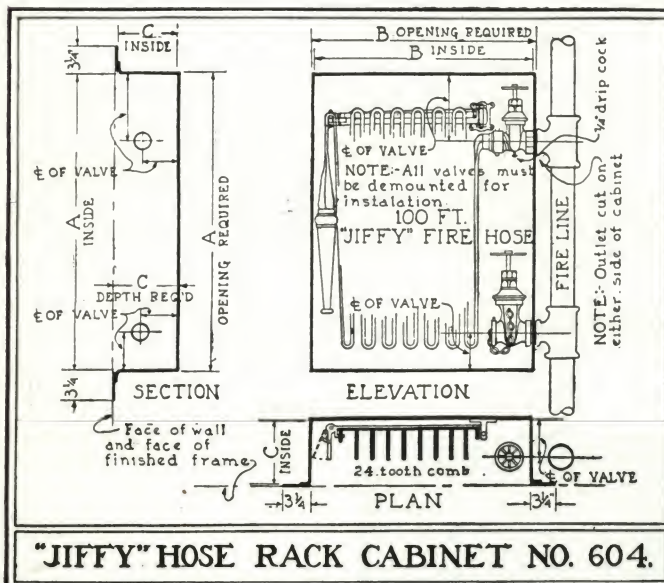


Plate No. 604—Furnish (and install) where shown on the drawings, a "Jiffy" Fire Hose Cabinet, No. 604, constructed of No. 16 gage steel, with No. 12 gage steel trim and door having polished plate glass panel, concealed hinges, concealed catch and pull handle. Finished at factory with a priming coat of white paint.

Furnish (and install) a 2½-in. nickelplated polished brass gate valve, nickelplated brass milled wheel, nickelplated brass cap and chain, having Local Fire Department thread.

Furnish (and install) a 1½-in. nickelplated polished brass gate valve, nickelplated brass milled wheel with ¼-in. drip cock.

Furnish (and attach) a "Jiffy" Type A nickelplated polished brass hose rack with 50 ft. 1½-in. St. Regis Brand Underwriters' Labeled Unlined linen hose.

Furnish (and attach) a 1½x10-in. nickelplated polished brass hose nozzle and nickelplated polished brass couplings.

Plate No. 605—Furnish (and install) where shown on the drawings, a "Jiffy" Fire Hose Cabinet, No. 605, constructed of No. 16 gage steel, with No. 12 gage steel trim and door having polished plate glass panel, concealed hinges, concealed catch and pull handle. Finished at factory with a priming coat of white paint.

Furnish (and install) a "Jiffy" Chemical Fire Extinguisher, No. 710, complete with charge, and Fire Axe with necessary brackets securely mounted.

Note: For balance of equipment shown on Plate No. 605 use the last four paragraphs of specification for Plate No. 604.

DIMENSIONS FOR CABINETS NO. 600 & NO. 606											
LENGTH OF HOSE	SIZE	A		B		C		CENTRE OF VALVE FM. BACK	CENTRE OF VALVE FM. TOP		
		INSIDE	OPENING REQ'D.	INSIDE	OPENING REQ'D.	INSIDE	DEPTH REQ'D.				
25 FEET	1 1/2 or 2	22"	22 3/4"	20 1/2"	21 1/4"	5 1/2"	6 1/4"	FOR 1 1/2 - 2 3/4"	2 3/4"		
50 "	"	35"	35 3/4"	20 1/2"	21 1/4"	5 1/2"	6 1/4"	" 2 - 3"	3"		
75 "	"	35"	35 3/4"	26"	26 3/4"	5 1/2"	6 1/4"	" 2 1/2 - 3 1/2"	3 1/2"		
100 "	"	35"	35 3/4"	31"	31 3/4"	5 1/2"	6 1/4"				
25 "	2 1/2"	25 1/2"	26 1/4"	20 1/2"	21 1/4"	7"	7 1/4"				
50 "	"	35 1/2"	36 1/4"	20 1/2"	21 1/4"	7"	7 1/4"				
75 "	"	35 1/2"	36 1/4"	26"	26 3/4"	7"	7 1/4"				
100 "	"	35 1/2"	36 1/4"	31"	31 3/4"	7"	7 1/4"				

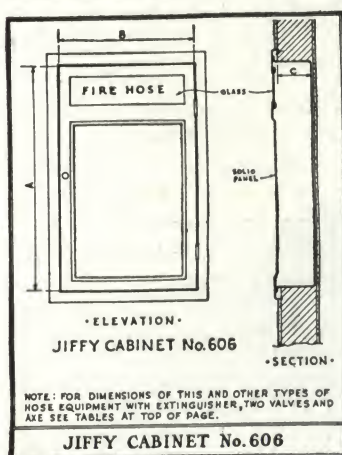
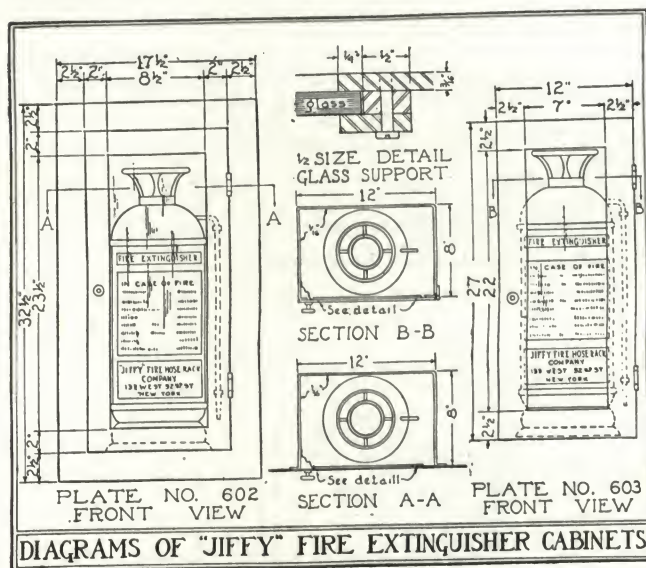
DIMENSIONS FOR CABINET NO. 604.											
LENGTH OF HOSE	SIZE	A		B		C		TOP VALVE CENTRE OF VALVE FM. TOP	BOTTOM VALVE CENTRE OF VALVE FM. BOTTOM	BOTH VALVES CENTRE OF VALVE FM. BACK	BOTH VALVES CENTRE OF VALVE FM. TOP
		INSIDE	OPENING REQ'D.	INSIDE	OPENING REQ'D.	INSIDE	DEPTH REQ'D.				
25 FEET	1 1/2 or 2	30"	30 3/4"	16"	16 3/4"	8 1/2"	9 1/4"	8"	4 1/2"	4 1/2"	
50 "	"	36"	36 3/4"	16"	16 3/4"	"	"	"	"	"	
75 "	"	36"	36 3/4"	21"	21 3/4"	"	"	"	"	"	
100 "	"	36"	36 3/4"	26"	26 3/4"	"	"	"	"	"	
25 "	2 1/2"	30"	30 3/4"	16"	16 3/4"	8 1/2"	9 1/4"	8"	4 1/2"	4 1/2"	
50 "	"	36"	36 3/4"	16"	16 3/4"	"	"	"	"	"	
75 "	"	36"	36 3/4"	21"	21 3/4"	"	"	"	"	"	
100 "	"	36"	36 3/4"	26"	26 3/4"	"	"	"	"	"	

DIMENSIONS FOR CABINET NO. 605.											
LENGTH OF HOSE	SIZE	A		B		C		TOP VALVE CENTRE OF VALVE FM. TOP	BOTTOM VALVE CENTRE OF VALVE FM. BOTTOM	BOTH VALVES CENTRE OF VALVE FM. BACK	BOTH VALVES CENTRE OF VALVE FM. TOP
		INSIDE	OPENING REQ'D.	INSIDE	OPENING REQ'D.	INSIDE	DEPTH REQ'D.				
25 FEET	1 1/2 or 2	30"	30 3/4"	24"	24 3/4"	8 1/2"	9 1/4"	8"	4 1/2"	4 1/2"	
50 "	"	36"	36 3/4"	"	"	"	"	"	"	"	
75 "	"	36"	36 3/4"	29"	29 3/4"	"	"	"	"	"	
100 "	"	36"	36 3/4"	34"	34 3/4"	"	"	"	"	"	
25 "	2 1/2"	30"	30 3/4"	24"	24 3/4"	8 1/2"	9 1/4"	8"	4 1/2"	4 1/2"	
50 "	"	36"	36 3/4"	"	"	"	"	"	"	"	
75 "	"	36"	36 3/4"	29"	29 3/4"	"	"	"	"	"	
100 "	"	36"	36 3/4"	34"	34 3/4"	"	"	"	"	"	

Specifications for "Jiffy" Fire Extinguisher Cabinets

Plate No. 602—Furnish (and install) where shown on the drawings, a "Jiffy" Recessed Plate, No. 602, Fire Extinguisher Cabinet, constructed of No. 16 gage steel with No. 12 gage steel trim and door having a polished plate glass panel, concealed hinges, concealed catch and pull handle. Finished at factory with a priming coat of white paint.

Furnish (and install) a "Jiffy" Chemical Fire Extinguisher, No. 710, complete with charge.



Jiffy Cabinet No. 606

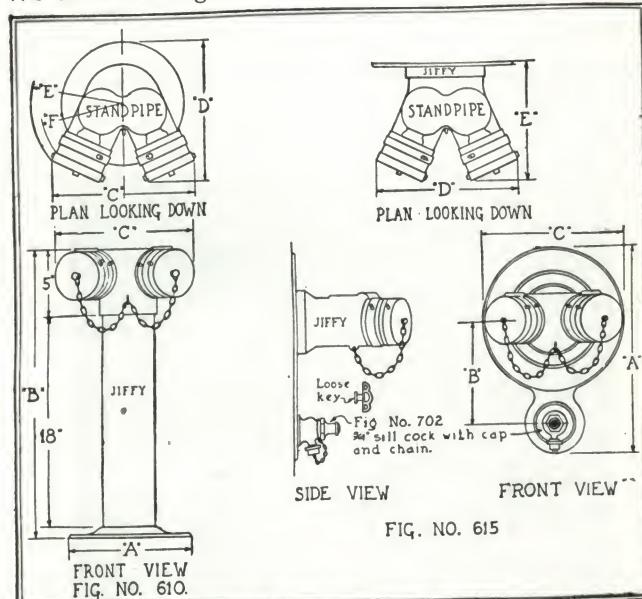
Made in two panels of one-piece sheet steel. The trim has a return bend which allows the plaster to be brought against it. It conceals your fire equipment and at the same time adds distinction to the surroundings. There is a small glass panel on which the words "Fire Hose" in red letters should be placed.

For details, specifications and dimensions refer to cabinets 600-601-604 and 605.

bucket tanks, spanner wrenches, play pipes, nozzles, etc., always carried in stock.

Siamese Connections

As Siamese connections are placed on the exterior of buildings, they should be ornamental and attractive. We offer our Figs. 610 and 615 for your consideration.



DIMENSIONS FOR FIG. NO. 610						
SIZE IN INCHES	4 x 2 1/2 x 2 1/2	4 x 3 x 3	5 x 3 x 3	6 x 2 1/2 x 2 1/2	6 x 3 x 3	
DIMENSION "A" INCHES	10 1/2	10 1/2	11 1/2	11 1/2	11 1/2	
"B" INCHES	24	24	24	24	24	
"C" INCHES	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	
"D" INCHES	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	
"E" INCHES	8	8	8	8	8	
"F" INCHES	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	

DIMENSIONS FOR FIG. NO. 615						
SIZE IN INCHES	4 x 2 1/2 x 2 1/2	4 x 3 x 3	5 x 3 x 3	6 x 2 1/2 x 2 1/2	6 x 3 x 3	
DIMENSION "A" INCHES	16 1/4	16 1/4	17 1/4	17 1/4	17 1/4	
"B" INCHES	9 1/4	9 1/4	9 1/4	9 1/4	9 1/4	
"C" INCHES	9 1/4	9 1/4	11 1/4	11 1/4	11 1/4	
"D" INCHES	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	
"E" INCHES	10	10	10	10	10	

DIAGRAMS OF "JIFFY" SIAMESE CONNECTIONS

Specifications for "Jiffy" Siamese Connections

Plate No. 610—Furnish where shown on the drawings, a "Jiffy" Polished Brass 90° Siamese Connection with polished brass caps and chains; also covering tube (18 in long) and flange. Made to fit [2 1/2] [3] [4] [5] [6] [8]-in. iron pipe.

Plate No. 615—Furnish where shown on the drawings, a "Jiffy" Polished Brass Siamese Connection with polished brass caps and chains; 3/4-in. sill cock with cap and chain, also polished brass combination flange. Made to fit [2 1/2] [3] [4] [5] [6] [8]-in. iron pipe.

Other "Jiffy" Specialties

Fire extinguishers, fire axes, fire hooks, fire pails,

JOHN SIMMONS CO.

Fire Extinguishing Equipment

102-110 Centre Street, NEW YORK, N. Y.

Products

FIRE EXTINGUISHING EQUIPMENT, for the protection of hotels, office buildings, apartments, theatres, factories and mills, including Hose Cabinets, Hose Racks, Siam-ese Connections and Fire Extinguishers of all types.

Also Hose, Hose Couplings, Valves, Nozzles, Span-ners, Axes, Crowbars, Fire Hooks, Fire Pails, Sprinkler Heads and Hydrants.



Organization and Service

The JOHN SIMMONS Co. have specialized in the Fire Fighting Equipment field for the past 50 years and are thoroughly versed in the specifications of the National Board of Fire Underwriters as well as requirements of local fire department and fire prevention bureaus.

A competent Engineering Department will co-operate with architects planning and selecting apparatus.

Simmons Hose Cabinets

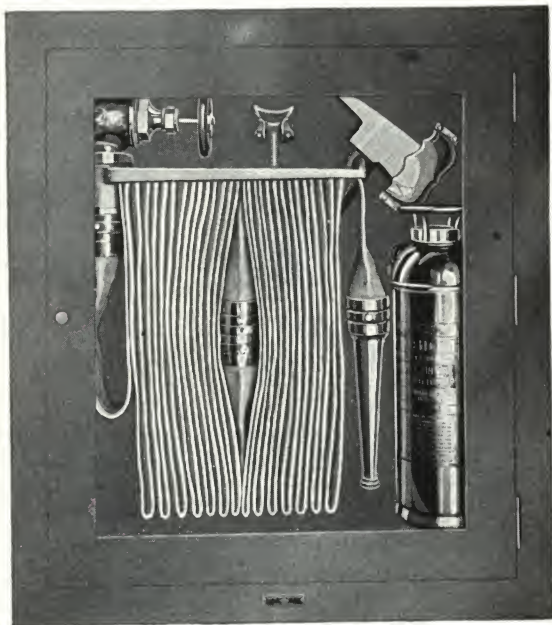
Simmons Hose Cabinets are neat, compact, strong and rigid in construction and made of sheet steel with plate glass door, brass hardware and automatic door catches. Can also be made in wood or with brass door and frame and finished to match any trim. Cabinets are finished with factory prime coat paint or any desired finish can be furnished at slight additional cost.

No. 127 Hose Cabinet—With Extinguisher and Axe

This cabinet is largely specified by architects and engineers for apartment houses, office buildings, theatres and schools. Made from sheet steel with D.D.A. glass door, brass hardware and automatic door catch. It is furnished complete with Josico hose rack, 2½-gal. fire extinguisher, pick-head fire axe and spanner.

No. 126 Hose Cabinet—Without Extinguisher and Axe

This cabinet is similar to our No. 127 less the fire extinguisher, axe and spanner. Furnished with Josico hose rack.



No. 127 Hose Cabinet

Specifications

No. 127 Hose Cabinet—Furnish (and install) as designated on plans:

A Simmons Sheet Steel No. 127 Hose and Extinguisher Cabinet constructed of No. 16 gauge sheet steel with No. 12 gauge steel trim and door having [D.D.A. glass panel] [¼-in. polished plate glass panel] lettered FIRE HOSE; concealed hinges; concealed catch and pull handle. Cabinet to be finished with [four coats baked enamel] [factory prime coat paint—finish to be applied by others].

Equipment—Furnish (and install) one 2½-gal. [nickelplated] [polished copper] [chromium plated] Josico No. 168 [Soda-Acid] [Foam Type] Fire Ex-

tinguisher complete with charge, and one [pick] [flat] head Fire Axe with necessary brackets securely mounted.

Note: For remainder of equipment see specifications of equipment in Hose Cabinet No. 126.

No. 126 Hose Cabinet—Furnish (and install) as designated on plans:

A Simmons Sheet Steel No. 126 Hose Cabinet constructed of No. 16 gauge sheet steel with No. 12 gauge steel trim and door having [D.D.A. glass panel] [¼-in. polished plate glass panel] lettered FIRE HOSE; concealed hinges; concealed catch and pull handle. Cabinet to be finished with [four coats baked enamel] [factory prime coat paint—finish to be applied by others].

Equipment—Furnish (and install):

One [2½] [2] [1½] [1¼] in. [nickelplated] [chromium plated] [polished body] [rough body] Simmons brass angle hose valve with [brass] [red iron] wheel.

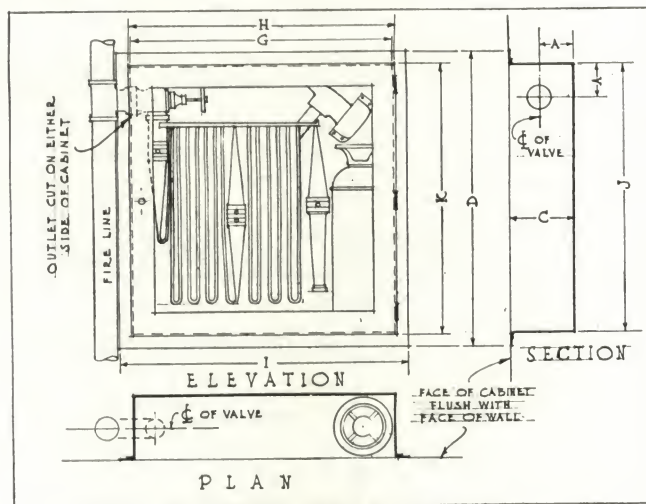
One Josico No. 130 [aluminum finish on iron] [enameled iron] [nickelplated iron] [chromium plated iron] [polished brass] [nickelplated brass] hose rack with rack nipple.

One [50] [75] [100] ft. length [2½] [2] [1½] [1¼] in. Underwriters' [Green] [Yellow] labeled, unlined, linen fire hose.

One [2½x15] [2½x12] [2x11] [1½x10] [1¼x10] in. [brass] [iron] hose nozzle.

Note: Finish on coupling and nozzle to be (polished brass) (match finish on the [rack] [valve]).

One Galvanized Tabor hose spanner.



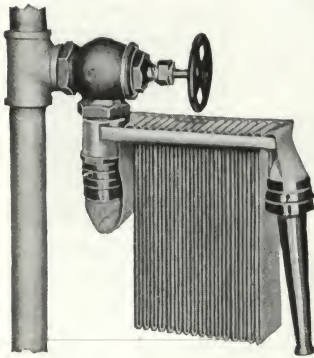
Detail of No. 127 Hose Cabinet

DIMENSIONS OF SIMMONS HOSE CABINETS

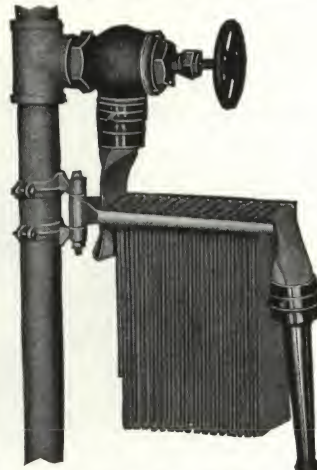
Hose capacity, ft.	Hose and valve, size, in.	Glass, in.	Cabinet dimensions shown in diagram, in.								Valve opening, in.	Leave rough opening, in.	
			A	C	D	G	H	I	J	K		Width	Height
No. 127 Hose Cabinet—With Extinguisher and Axe													
50	1½, 2, 2½	22½x24½	4½	8½	31½	30	30½	32½	28	28½	2, 3, 3	30¾	28¾
75	1½, 2, 2½	31½x24½	4½	8½	40½	30	30½	33½	37	37½	2, 3, 3	30¾	37¾
100	1½, 2, 2½	28½x24½	4½	8½	37½	33	33½	36½	34	34½	2, 3, 3	33¾	34¾
No. 126 Hose Cabinet—Without Extinguisher and Axe													
50	1½, 2, 2½	22½x14½	4	8	31½	20	20½	23½	28	28½	2, 3, 3	20¾	28¾
75	1½, 2, 2½	31½x14½	4	8	40½	20	20½	23½	37	37½	2, 3, 3	20¾	37¾
100	1½, 2, 2½	28½x17½	4	8	37½	23	23½	26½	34	34½	2, 3, 3	23¾	34¾

Josico Swinging Hose Racks

No. 130 Nipple Attachment Type—Chief among the features of this hose rack are neat appearance, durability and simplicity of operation. It is very compact and requires less wall space than the average hose holding device on the market. They are accurately and strongly constructed of either cast gray iron, heavily galvanized, or brass.



No. 130 Josico Nipple Attachment Type



No. 131 Josico Pipe Clamp Support Type

No. 131 Pipe Clamp Type—This rack is of the same construction and includes the same features as our No. 130 above but is equipped with pipe clamp attachment. Clamp can be furnished to fit any size pipe from 1¼ up to 4 in. Larger size clamp can be furnished at additional charge. This rack is also equipped with plates for hanging on wall.

Specifications for Hose Racks

No. 130 Nipple Attachment Type—Furnish (and install) as designated on plans:

One [2½] [2] [1½] [1¼] in. [nickelplated] [chromium plated] [polished body] [rough body] Simmons brass angle hose valve with [brass] [red iron] wheel.

One Josico No. 130 [aluminum finish on iron] [enameled iron] [nickelplated iron] [chromium plated iron] [polished brass] [nickelplated brass] hose rack with rack nipple.

One [50] [75] [100] ft. length [2½] [2] [1½] [1¼] in. Underwriters' [Green] [Yellow] labeled, unlined, linen fire hose. One [2½x15] [2½x12] [2x11] [1½x10] [1¼x10] in. [brass] [iron] hose nozzle.

Note: Finish on coupling and nozzle to be (polished brass) (match finish on the [rack] [valve]).

One Galvanized Tabor hose spanner.

No. 131 Pipe Clamp Type—Same as for No. 130 rack, except:

One Josico No. 131 [aluminum finish on iron] [enameled iron] [nickelplated iron] [chromium plated iron] [polished brass] [nickelplated brass] hose rack with [wall plate] [pipe clamp].

Note: Specify size of pipe that clamps are to fit.

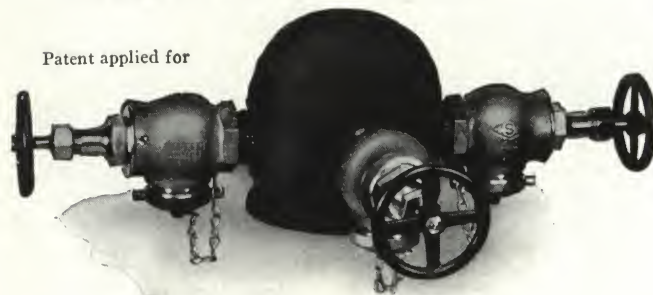
Fire Department Hose Outlet Manifold

This manifold is designed for use on the top of the standpipe riser on the roof or on any setback for ease and efficiency in fighting roof fires or fires in adjoining buildings.

It is equipped with three outlets having approved type hose valves attached thereto.

The outlets are spaced 90° apart for achieving the maximum efficiency in laying a line of hose in any direction with a minimum of sharp bends in the hose.

It is made for 6 or 8-in. riser systems.

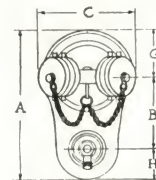
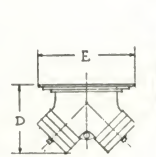


No. 165 Simmons Roof Manifold

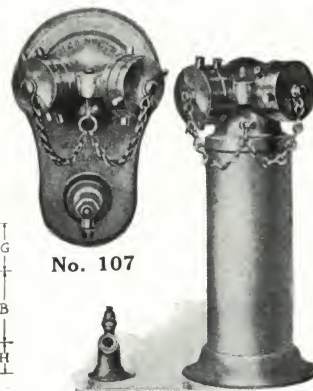
Siamese Connections

No. 107 Wall Type—Accurately and neatly made of brass, rough or polished. Used for standpipe and sprinkler work. Plates can be made with different lettering. Approved by National Board of Fire Underwriters and New York Fire Department.

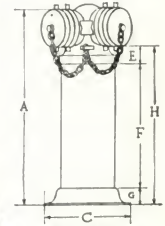
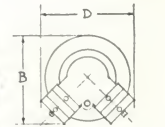
No. 106 Sidewalk Type—Used for standpipe coming through sidewalk. Made with double checks, complete with plugs and chain. Neatly made of brass with either rough body, painted with finished trimmings, finished all over, bronzed to match sample or any other finish required. Guaranteed tested to 300 lb. Approved by the New York Fire Department.



No. 107 Detail



No. 106



No. 106 Detail

Specifications for Siamese Connections

No. 107 Wall Type—Furnish (and install) as designated on plans:

A Simmons No. 107 wall type polished brass Siamese connection with [polished brass] [galvanized iron] plugs and chains.

A Simmons Siamese sill cock and polished brass combination Siamese and sill cock name plate, made to fit [4] [5] [6] [8] in. iron pipe.

Note: Specify if sill cock is not required.

No. 106 Standpipe Type—Furnish (and install) as designated on plans:

A Simmons No. 106 sidewalk 90° type polished brass Siamese connection with [polished brass] [galvanized iron] plug and chain; also covering tube [specify length] and polished brass name plate, made to fit [4] [5] [6] [8] in. iron pipe.

Note: Specify whether sill cock is required or not.

DIMENSIONS OF SIAMESE CONNECTIONS IN INCHES

Size of Siamese	Plate No.	A	B	C	D	E	F	G	H
4x2½x2½	106	23	9⅝	9¾	8⅝	1	18	5⅝	19⅝
	107	16⅝	9⅝	8¾	7⅝	9¾	.....	4⅞	2⅞
4x3x3	106	23½	6¾	9¾	11	1	18	5⅝	19⅝
	107	16⅝	9⅝	10⅝	8¾	9¾	.....	4⅞	2⅞
5x3x3	106	23½	12½	11¾	10⅝	7⅝	18	5⅝	19½
	107	17⅝	9⅝	10¾	9	11¾	.....	5⅞	2⅞
6x2½x2½	106	23⅝	10⅞	11¾	9⅞	1½	18	5⅝	20½
	107	17⅝	9⅝	8⅞	7½	11¾	.....	5⅞	2⅞
6x3x3	106	24	12¼	11¾	10¾	1⅝	18	5⅝	19¾
	107	17⅝	9⅝	11¾	10	11¾	.....	5⅞	2⅞

No. 168 Josico Fire Extinguisher (Soda and Acid Type)

This 2½-gal. open bottle style owes its widespread popularity to the special attention and supervision given its construction. Body consists of heavy jacketed copper cylinder, specially riveted. All parts carefully finished. Guaranteed tested 350-lb. pressure.

It is thoroughly in accordance with specifications of Underwriters' Laboratories, Inc., besides having the approval of leading fire authorities throughout the country.

For ordinary occupancy one Josico No. 168 Fire Extinguisher is required for every 2500 sq. ft. of floor area. Installation must be such that one extinguisher is available within 35 ft.



WIRT & KNOX MFG. CO.

Manufacturers of Fire Hose Racks and Cabinets
2355-2366 Sedgley Avenue, PHILADELPHIA, PA.

Products

WIRT'S "ROYAL" HOSE RACK; DeLuxe and PLATE AA STEEL HOSE CABINETS; HOSE CARTS, HOSE REELS.

Also a most complete line of Fire Fighting Equipment for all types of buildings, including Extinguisher Cabinets, Siamese, Valves, Couplings, Nozzles, Hose House Equipment, all kinds of Fire Hose and special Fire Fighting Apparatus.

Experience—Dependability

Wirt's Fire Fighting Apparatus has been considered the standard of efficiency and dependability by responsible authorities for fifty years, pioneering the field in which it now leads.

It is made only of the highest grade enduring materials; malleable iron, steel and brass. Gray iron is never used in Wirt's Fire Apparatus. While adhering to this policy for so long we have constantly improved our apparatus to fill the modern requirements of the architect, engineer and owner.

The thousands of Wirt's Fire Hose installations throughout the world on both land and sea bear mute testimony to their durability and efficiency. Therefore, we offer here only the best obtainable and invite an actual comparison of our products with others to determine their superiority.

Wirt's Steel Hose Cabinets (Type AA)



Plate AA. Wirt's Steel Cabinet

The cabinets are neat in design, harmonizing with any style of architecture. The trim and door are made of No. 12 gauge steel and box portion of No. 18 gauge. There are no joints on face of door or trim and there is no rattle when door is opened and closed. The door has a flange or lap which laps over the box part of the cabinet, thus forming a great protection from dust and moisture.

Diagram of Plate AA Steel Cabinets

No.	Length of hose, ft.	Size linen hose, in.	Inside dimensions of cabinet, in.			Recess, in.		
			Width	Height	Depth	Width	Height	Depth
7S	50	1 1/4, 1 1/2, 2 or 2 1/2	21	27 1/2	7 1/2	22 1/4	29	7 3/4
8S	75		21	35 1/2	7 1/2	22 1/4	37	7 3/4
9S	100		28	33	7 1/2	29 1/4	34 1/2	7 3/4
*7RX	50 (With 75 extin-)		29	27 1/2	8	30 1/4	29	8 1/4
*8RX	75		29	35 1/2	8	30 1/4	37	8 1/4
*9RX	100	guisher	36	33	8	37 1/2	34 1/2	8 1/4
Special residence size for Royal rack only	25 linen hose	1	12 1/4	16 1/2	4 1/4	13 1/4	17 1/2	4 1/2

*These cabinets are made to take a 2 1/2-gal. soda and acid fire extinguisher in addition to the hose, making a very complete outfit.

Note: If so specified, Nos. 7S, 8S and 9S cabinets can be made 5 1/2 in. in depth where 1 1/2-in. valve is used, and 6 in. in depth where 2-in. valve is used, otherwise regulation depth of 7 1/2 in. will be furnished.

Wirt's Royal Hose Rack as Used in De Luxe Cabinets and Plate AA Cabinets

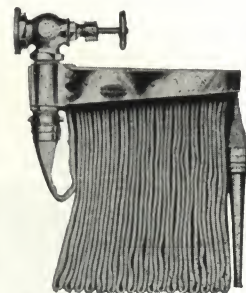


Plate A. Royal Rack

The Royal Rack is a covered top rack and was the first on the market. This feature, originated by us, has been copied by most all other makers of hose racks—the advantages of the covered top are well known.

Attached Pins—Pins are permanently attached. They do not fall to the floor when the hose is removed but remain hanging ready for the hose to be replaced.

Semiautomatic—It is operated by first opening the valve and then running off the hose, making it easy for one man to put the hose into play without assistance.

Foolproof—If the valve is maliciously opened the water is held back, thus preventing the flooding of the building.

Preserves Hose—The covered top prevents dust from accumulating on the hose and rotting the linen fibres.

Sizes and Weights—Measurements and weights given below are those of the Royal Rack for 75 ft. of 1 1/2-in. hose with 2 1/2-in. nipple which is featured in specifications given in our folder C. Other sizes of the Royal Rack are equally comparable.

A—3 3/8 In.—Wider than others, always malleable iron or brass—greater width or depth here prevents dipping of rack.

B—1 1/2 In.—Wider or deeper than other—better appearance, better protection.

C—17 1/8 In.—Over-all length usually greater, assures freedom of pins for rapid movement.

D—16 Gauge—This is double cold rolled steel or brass—heavier than others and better quality.

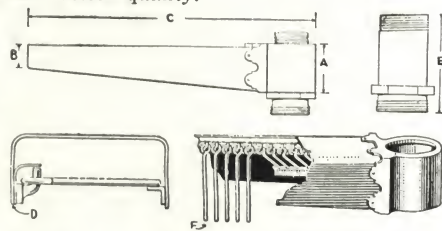
E—5 1/2 In.—

Rack nipple is longer and heavier than others.

Weights: iron 3 1/2 lb., brass 4 lb. 6 oz.

F—4 1/2 In.—

Long—Pins are 1/8-in. diameter and heavier than others. Note particularly mechanical design of pin, free working and compact.



Wirt's Siamese or Steamer Connections

No large building with an inside standpipe system is complete without a steamer connection. It is connected with the standpipe so that the fire engines can pump into the system in case of fire.

All our steamer connections are made of brass, highly polished, and present a handsome appearance. The Plate S1 is particularly attractive and will add to the outside appearance of any building.

All Siamese are equipped with Clapper valves, with either single or double Clapper as ordered, and with caps and chains.



Plate S1
Pavement Type



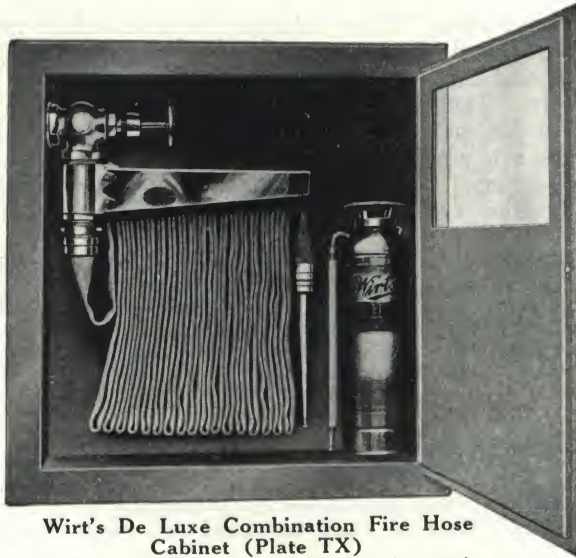
Plate S2
Wall Type



Plate S3
With Sill Cock

Wirt's De Luxe Cabinet

In the design and construction of the De Luxe Fire Hose Cabinet we have taken into consideration the most important factor—safeguarding the fire hose equipment—assuring its perfect manipulation during an emergency. Although made in several different types, including full plate glass door and two-



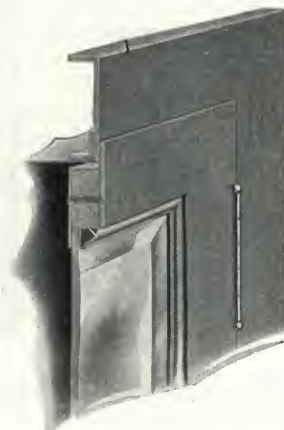
Wirt's De Luxe Combination Fire Hose Cabinet (Plate TX)

Showing Wirt's Royal Rack with fire hose and extinguisher

panel steel door, the one recommended is our Plate T with two-panel door, the lower panel of steel and upper panel of polished beveled plate glass with the lap door. (See sectional view.)

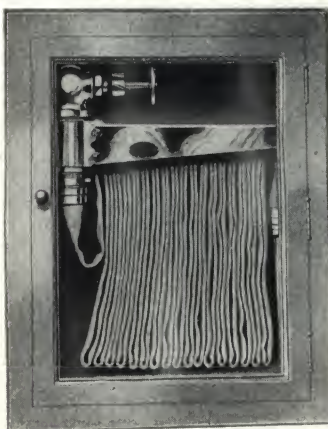
Although the De Luxe Cabinet can be furnished with the flush type door we strongly recommend the lap door as the advantages are very pronounced.

All De Luxe cabinets are constructed with trim and door front cut from one solid piece of No. 12 gauge sheet steel, no corner seams, welds or brazing. The doors are built up to $\frac{3}{4}$ in. thick with heavy steel covered wood, similar to kalamein but with heavy wrought steel No. 12 gauge front, No. 16 gauge back, not lightweight so-called furniture steel—so there is no rattle when door is opened and closed. Door in addition to fitting into the cabinet, has a flange or lap which laps over the box part of



Sectional View Showing Sturdy Construction of Wirt's De Luxe Cabinet

Very light gauge or furniture steel not used in Wirt's cabinets



Wirt's De Luxe Fire Hose Cabinet (Plate G)



Wirt's De Luxe Fire Hose Cabinet (Plate T)

the cabinet, thus forming a double protection from dust and moisture. This door will not sag because of its construction and three heavy ball head hinges. Trim has $\frac{3}{4}$ -in. return bend.

Width of door trim $2\frac{1}{2}$ in., width of box trim $2\frac{1}{2}$ in., door lap $\frac{1}{2}$ in. over trim.

Box portion of cabinet formed of No. 18 gauge steel, except larger sizes which are No. 16 gauge. Door hinged on heavy ball head brass hinges and equipped with brass pull knob and bullet catch. Plate glass held in place by $\frac{1}{2}$ in. hollow steel moulding.

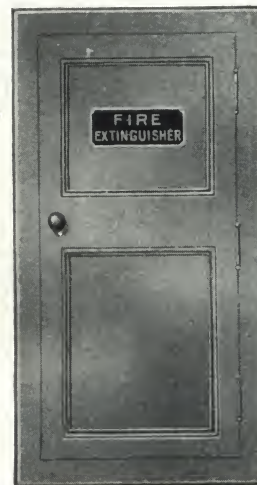
Door hinging: all hinges on right-hand side as illustrated, unless otherwise ordered. As door swings clear of opening the standard hinging can be used under almost all conditions.

Inlet holes are scorified on both sides of cabinet, either side can be used. The standard placing of holes is C/L 4 in. down from the top (inside) and 4 in. from back.

Clearance between door and trim $\frac{1}{2}$ in. when door is open. If trim is set on face of plaster $\frac{1}{2}$ -in. clearance obtained is enough for most marble wainscoting. Trims can be narrowed if ordered special.



Wirt's De Luxe Fire Hose Cabinet (Plate M)



De Luxe Style, Type F Extinguisher Cabinet



De Luxe Style, Type E Extinguisher Cabinet

The various styles of doors as furnished on Wirt's De Luxe Cabinets afford a hose cabinet that would meet the requirements of any local fire prevention law covering this item.

Estimates and Information

Complete details, specifications, estimates, blue prints, catalogues will gladly be furnished on application.

See copy of our Folder "C" in your files. A1A-29c2.

DIMENSIONS

No.	Length of hose, ft.	Size linen hose, in.	Inside dimensions of cabinet, in.			Recess, in.		
			Width	Height	Depth	Width	Height	Depth
7T	50		21	27 $\frac{1}{2}$	8	22 $\frac{1}{2}$	29	7 $\frac{7}{8}$
8T	75		21	35 $\frac{1}{2}$	8	22 $\frac{1}{2}$	37	7 $\frac{7}{8}$
9T	100		28	33	8	29 $\frac{1}{2}$	34 $\frac{1}{2}$	7 $\frac{7}{8}$
*7TX	50 (With	1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 2 or 2 $\frac{1}{2}$	29	27 $\frac{1}{2}$	8 $\frac{1}{2}$	30 $\frac{1}{2}$	29	8 $\frac{3}{8}$
*8TX	75 extin-		29	35 $\frac{1}{2}$	8 $\frac{1}{2}$	30 $\frac{1}{2}$	37	8 $\frac{3}{8}$
*9TX	100 guish-		36	33	8 $\frac{1}{2}$	37 $\frac{1}{2}$	34 $\frac{1}{2}$	8 $\frac{3}{8}$
Type E or F Extinguisher Cabinet			12	27	8 $\frac{1}{2}$	13 $\frac{1}{2}$	28 $\frac{1}{2}$	8 $\frac{3}{8}$

*These cabinets are made to take a 2 $\frac{1}{2}$ -gal. soda and acid fire extinguisher in addition to the hose, making a very complete outfit.

Note: If so specified numbers 7T, 8T and 9T cabinets can be made 6 in. in depth where 1 $\frac{1}{2}$ -in. valve is used and 6 $\frac{1}{2}$ in. in depth where 2-in. valve is used, otherwise regulation depth of 8 in. will be furnished.

De Luxe Cabinet should be placed in wall before the finishing coat of plaster is applied and plaster worked up to edge of the cabinet, allowing about $\frac{3}{8}$ in. to extend beyond the finished plaster line.

THE PHISTER MANUFACTURING COMPANY

Manufacturers of Fire Fighting Equipment

901-903 Broadway, CINCINNATI, OHIO

Products

FIRE HOSE CABINET EQUIPMENT for all types of buildings.

Advantages

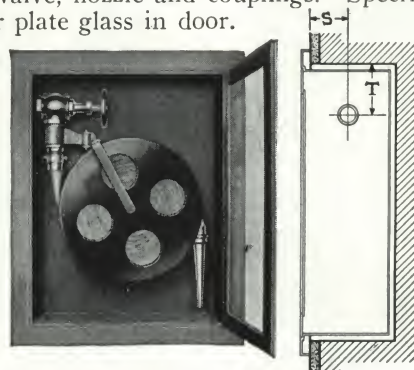
Phister Fire Hose Reels are a distinct improvement in the method of storing and protecting fire hose when not in use. Being wound on a reel in an uninked continuous coil, the hose does not deteriorate appreciably over the years and is instantly available for use when needed. The reel operates on a double swivel joint and therefore hose can easily be pulled off in any direction.

Cabinet Information

Phister Hose Cabinets are made to accommodate every possible combination and arrangement of hose

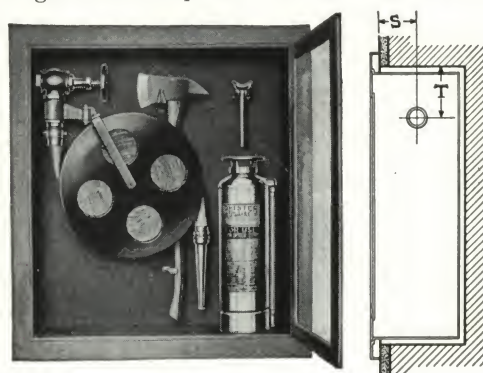
PHISTER COMBINATION HOSE REEL AND CABINET UNIT—MODEL "A"

For This Unit Specify—Phister Combination Hose Reel and Cabinet Model "A." State size and weight of valve—(Standard for pressure up to 150 lb. and Extra Heavy for pressure up to 250 lb.). Give length and diameter of hose, and state whether First Grade Underwriters' Labeled Long Fibre Linen Hose, or Flax Tow Underwriters' Labeled Linen Hose. State finish of valve, nozzle and couplings. Specify whether DS-A., or plate glass in door.



PHISTER COMBINATION HOSE REEL AND CABINET UNIT—MODEL "B"

For This Unit Specify—Phister Combination Hose Reel and Cabinet Model "B." State size and weight of valve—(Standard for pressure up to 150 lb. and Extra Heavy for pressure up to 250 lb.). Give length and diameter of hose, and state whether First Grade Underwriters' Labeled Long Fibre Linen Hose, or Flax Tow Underwriters' Labeled Linen Hose. State whether axe and spanner are required. State whether fire extinguisher is required. State finish of valve, nozzle



and valve sizes. These cabinets are substantially made of heavy steel, the face or trim being cut from a single sheet, and there are no unsightly welded joints at the corners. The doors are also cut from one piece of steel which makes them unusually stiff and strong. The hinges are amply heavy to carry the doors without any sagging. This insures fitting properly in place. A friction catch which is simple and positive is used.

Finish of Cabinets—Unless otherwise specified cabinets will be finished in flat white prime coat and with DS-A glass in the doors. Special finishes can be furnished if required, at small extra cost, but on account of the likelihood of damage in shipping and handling and also the difficulty in many cases to secure a satisfactory match, we recommend the flat white prime coat, so that the interior decorator may finish them properly to fit in with the surroundings.

Note: Standard finish of cabinet is flat white (see cabinet information). Duo panel doors can be furnished in this model if desired. Hose rack can be furnished instead of reel if desired.

This cabinet permits of combinations of valve and hose sizes as listed in table. It is frequently desirable to provide a valve for fire department use and at the same time have a hose small enough to be used by occupants of the building; this can be easily accomplished in this unit by specifying a 2½-in. valve with local fire department thread, and the desired size and length of small hose with reducing coupling.

DIMENSIONS OF MODEL "A"

Hose lgth., ft.	Hose size, in.	Valve size, in.	Cabinet size outside, in.					Wall opening, in.			Pipe location wall opening, in.	
			Width	Height	Depth in wall	Over trim		Width	Height	Depth	S	T
						Width	Height					
50	1¼ or 1½	1¼ or 1½	21	25	7½	24¼	28¼	22	26	7¾	3¾	4¾
50	1¼, 1½, 2 or 2½	2 or 2½	24	25	7½	27¼	28¼	25	26	7¾	3¾	4¾
75	1¼ or 1½	1¼ or 1½										
75	1¼ or 1½	2 or 2½	26	28	7½	29¼	31¼	27	29	7¾	3¾	4¾
100	1¼ or 1½	1¼ or 1½										
75	2 or 2½	2 or 2½	27	31	7½	30¾	34¾	28	32	7¾	3¾	4¾
100	1¼ or 1½	2 or 2½										
100	2 or 2½	2 or 2½	30	31	7½	33¾	34¾	31	32	7¾	3¾	4¾

and couplings. Specify whether DS-A., or plate glass in door.

Note: Standard finish of cabinet is flat white (see cabinet information). Duo panel doors can be furnished in this model if desired. Hose rack can be furnished instead of reel if desired.

This cabinet permits of combinations of valve and hose sizes as listed in table. It is frequently desirable to provide a valve for fire department use and at the same time have a hose small enough to be used by occupants of the building. This can be easily accomplished in this unit by specifying a 2½-in. valve with local fire department thread, and the desired size and length of small hose with reducing coupling.

DIMENSIONS OF MODEL "B"

Hose lgth., ft.	Hose size, in.	Valve size, in.	Cabinet size outside, in.					Wall opening, in.			Pipe location wall opg., in.	
			Width	Height	Depth in wall	Over trim		Width	Height	Depth	S	T
						Width	Height					
50	1¼ or 1½	1¼ or 1½	30	27	8	33¾	30¾	31	28	8¼	3¾	4¾
50	1¼, 1½, 2 or 2½	2 or 2½	33	27	8	36¾	30¾	34	28	8¼	3¾	4¾
75	1¼ or 1½	1¼ or 1½										
75	1¼ or 1½	2 or 2½	35	28	8	38¾	31¾	36	29	8¼	3¾	4¾
100	1¼ or 1½	1¼ or 1½										
75	2 or 2½	2 or 2½	36	31	8	39¾	34¾	37	32	8¼	3¾	4¾
100	1¼ or 1½	2 or 2½	39	31	8	42¾	34¾	40	32	8¼	3¾	4¾
100	2 or 2½	2 or 2½										

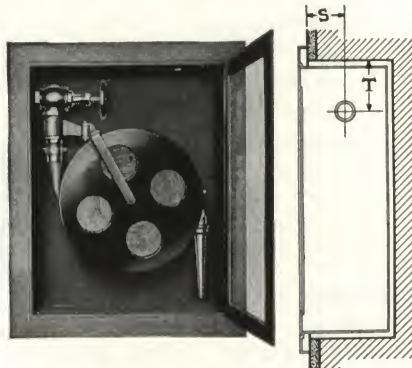
PHISTER COMBINATION HOSE REEL AND CABINET UNIT—MODEL "C"

For This Unit Specify—Phister Combination Hose Reel and Cabinet Model "C." State size of valve (not larger than standard weight $1\frac{1}{2}$ in.). Give length and diameter of hose, and state whether First Grade Underwriters' Labeled Long Fibre Linen Hose, or Flax

Tow Underwriters' Labeled Linen Hose. State finish of valve, nozzle and couplings. Specify whether DS-A, or plate glass in door.

Note: Standard finish of cabinet is flat white (see cabinet information). Duo panel doors can be furnished in this model if desired. Hose rack can be furnished instead of reel if desired.

Special Note: This model is especially designed for use in shallow walls and is very popular in residences. (See table for valve sizes and hose lengths.) You will note from the table that the wall opening has a depth of only $4\frac{1}{2}$ in.

**DIMENSIONS OF MODEL "C"**

Hose lgth., ft.	Hose size, in.	Valve size, in.	Cabinet size outside, in.						Wall opening, in.			Pipe location wall opg., in.	
			Cabinet size outside, in.			Over trim			Width	Height	Depth	S	T
			Width	Height	Depth	Width	Height	Depth					
35	$\frac{3}{4}$	$\frac{3}{4}$	13	16 $\frac{3}{4}$	4	15 $\frac{3}{4}$	19 $\frac{1}{2}$	4	14	17 $\frac{3}{4}$	4	1 $\frac{3}{4}$	3
50	1	1	18	20	4	20 $\frac{3}{4}$	22 $\frac{3}{4}$	4	19	21	4	1 $\frac{3}{4}$	3
50	$1\frac{1}{4}$ or $1\frac{1}{2}$	$1\frac{1}{4}$ or $1\frac{1}{2}$	21	25	4 $\frac{1}{2}$	24 $\frac{1}{2}$	28 $\frac{1}{2}$	4 $\frac{1}{2}$	22	26	4 $\frac{1}{2}$	2	3 $\frac{1}{2}$
75	$1\frac{1}{4}$ or $1\frac{1}{2}$	$1\frac{1}{4}$ or $1\frac{1}{2}$	24	25	4 $\frac{1}{2}$	27 $\frac{1}{2}$	28 $\frac{1}{2}$	4 $\frac{1}{2}$	25	26	4 $\frac{1}{2}$	2	3 $\frac{1}{2}$
100	$1\frac{1}{4}$ or $1\frac{1}{2}$	$1\frac{1}{4}$ or $1\frac{1}{2}$	26	28	4 $\frac{1}{2}$	29 $\frac{1}{4}$	31 $\frac{1}{4}$	4 $\frac{1}{2}$	27	29	4 $\frac{1}{2}$	2	3 $\frac{1}{2}$

PHISTER COMBINATION HOSE REEL AND CABINET UNIT—MODEL "D"

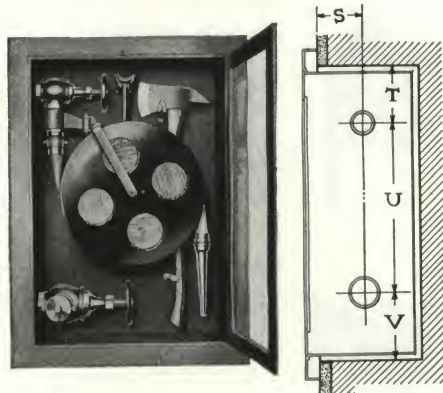
For This Unit Specify—Phister Combination Hose Reel and Cabinet Model "D." State size and weight valves (Standard for pressure up to 150 lb., and

Extra Heavy for pressure up to 250 lb.). Specify threads for $2\frac{1}{2}$ -in. valve by name of the city where it is to be used. Give length and diameter of hose, and state whether First Grade Underwriters' Labeled Long Fibre Linen Hose, or Flax Tow Underwriters' Labeled Linen Hose. State finish of valve, nozzle and couplings. Specify whether DS-A, or plate glass in door. State whether axe and spanner are required.

Note: Standard finish of cabinet is flat white (see cabinet information). Duo panel doors can be furnished in this model if desired. Hose rack can be furnished instead of reel if desired.

DIMENSIONS OF MODEL "D"

Hose lgth., ft.	Hose size, in.	Valve size, in.	Cabinet size outside, in.						Wall opg., in.			Pipe location in wall opg., in.			
			Cabinet size outside, in.			Overtrim			Width	Height	Depth	S	T	U	V
			Width	Height	Depth	Width	Height	Depth							
50	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	24	36	8 $\frac{1}{2}$	27 $\frac{3}{4}$	39 $\frac{3}{4}$	25	37	9	4 $\frac{1}{4}$	4	27 $\frac{1}{2}$	5 $\frac{1}{2}$	
75	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	26	38	8 $\frac{1}{2}$	29 $\frac{3}{4}$	41 $\frac{3}{4}$	27	39	9	4 $\frac{1}{4}$	4	29 $\frac{1}{2}$	5 $\frac{1}{2}$	
100	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	26	38	8 $\frac{1}{2}$	29 $\frac{3}{4}$	41 $\frac{3}{4}$	27	39	9	4 $\frac{1}{4}$	4	29 $\frac{1}{2}$	5 $\frac{1}{2}$	

**PHISTER COMBINATION HOSE REEL AND CABINET UNIT—MODEL "E"**
(CHICAGO STANDARD)

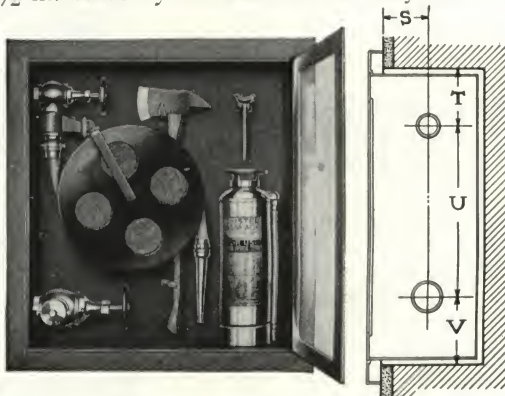
For This Unit Specify—Phister Combination Hose Reel and Cabinet Model "E." State size and weight valves (Standard for pressure up to 150 lb. and Extra Heavy for pressure up to 250 lb.). Specify threads for $2\frac{1}{2}$ -in. valve by the name of the city where it is to

be used. Give length and diameter of hose, and state whether First Grade Underwriters' Labeled Long Fibre Linen Hose, or Flax Tow Underwriters' Labeled Linen Hose. Specify whether axe and spanner are required. Specify whether Phister, Underwriters' approved, $2\frac{1}{2}$ -gal. Fire Extinguisher is desired. State finish of valve, nozzle and couplings. Specify whether DS-A, or plate glass in door.

Note: Standard finish of cabinet is flat white (see cabinet information). Duo panel doors can be furnished in this model if desired. Hose rack can be furnished instead of reel if desired.

DIMENSIONS OF MODEL "E"

Hose lgth., ft.	Hose size, in.	Valve size, in.	Cabinet size outside, in.						Wall opg., in.			Pipe location in wall opg., in.			
			Cabinet size outside, in.			Overtrim			Width	Height	Depth	S	T	U	V
			Width	Height	Depth	Width	Height	Depth							
50	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	33	36	8 $\frac{1}{2}$	36 $\frac{3}{4}$	39 $\frac{3}{4}$	34	37	9	4 $\frac{1}{4}$	4	27 $\frac{1}{2}$	5 $\frac{1}{2}$	
75	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	35	38	8 $\frac{1}{2}$	38 $\frac{3}{4}$	41 $\frac{3}{4}$	36	39	9	4 $\frac{1}{4}$	4	29 $\frac{1}{2}$	5 $\frac{1}{2}$	
100	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	$1\frac{1}{4}$, $1\frac{1}{2}$, or 2	35	38	8 $\frac{1}{2}$	38 $\frac{3}{4}$	41 $\frac{3}{4}$	36	39	9	4 $\frac{1}{4}$	4	29 $\frac{1}{2}$	5 $\frac{1}{2}$	

**HOSE UNIT REQUIREMENTS**

For Buildings Less than Five Stories High—The usual recommendation is a $1\frac{1}{2}$ -in. valve with proper length of $1\frac{1}{2}$ -in. hose attached.

For Buildings Five Stories or Higher—The

usual recommendation is to provide a $2\frac{1}{2}$ -in. valve for use of the local fire department, and a $1\frac{1}{2}$ -in. hose for use of the occupants of the building, this hose to be attached to the $2\frac{1}{2}$ -in. valve by a reducing coupling.

SIAMESE CONNECTIONS, FIRE EXTINGUISHERS, FIRE EXTINGUISHER CABINETS

Flush Type Siamese

Plate No. 166-P shown here is built into the wall and the wall plate is attached by simply screwing in the bronze inlet nipples to which the independent clapper valves are attached. This feature permits the clapper valves to be easily removed for repairs if any trouble should develop. This siamese can be furnished with pipe coming in from bottom instead of back if desired. Blue prints on request.

Dimensions of Plate No. 166-P—Height 9½ in. Other dimension same as Plate No. 165-P shown below.



Plate 166-P

Flush Type Siamese with Sill Cock



Plate 165-P

Plate No. 165-P shown here is exactly the same in construction as Plate No. 166-P shown above with the exception of the sill cock.

DIMENSIONS, IN., PLATE 165-P SIAMESE (4x2½x2½ In.)

A	B	C	D	E	F	*G	H
16	15	7½	12	6¼	4¼	9½	5½

Plate 165-P (6x2½x2½ In.)

A	B	C	D	E	F	*G	H
16	15	7½	12	6½	4¼	9½	7½

*Height of body in wall.

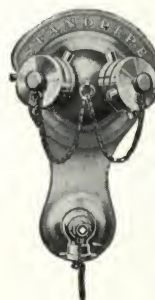
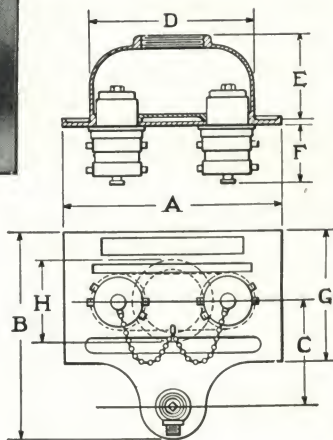


Plate 155-P

Combination Wall Plate Siamese with Sill Cock

Plate No. 155-P, shown here is made of highly polished bronze and is fitted with two 2½-in. fire department inlets and one 4 or 6-in. outlet. Has double clapper valves, plugs and chains, also ¾-in. or 1-in. outlet at bottom for sprinkling hose. Complete with hose cap, chain and key.

Greatest length 19 in.
Greatest width 12½ in.
Extends from wall 10½ in.
Center of pipe opening to center of sill cock
With 4-in. pipe... 9½ in.
With 6-in. pipe... 10 in.



156-P

Wall Plate Siamese

Plate No. 156-P. Same as Plate 155-P shown above, except without sill cock.

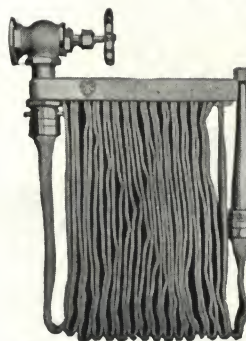
Greatest height 11½ in.
Greatest width 12½ in.
Extends from wall 10½ in.



Phister Model S. P.

This type of construction can be furnished when cabinets are not required.

For This Specify—Phister Model S. P. State size and weight of valve. State length, diameter and grade of hose. State finish of valve, nozzle and couplings.



Phister Model 45-P

These hose racks are made of one piece of heavy furniture steel which, in addition to making a very strong support for the pins, also reinforces the entire rack.

These racks can be furnished in any Phister Cabinet Unit instead of the reel if desired.



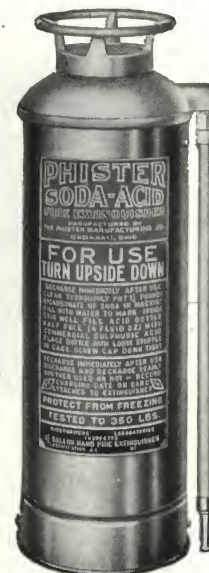
Phister Extinguisher Cabinets

These cabinets are recessed type, made of heavy steel with glass door and finished edges. They will accommodate a 2½-gal. soda-acid or foam fire extinguisher. Standard finish is flat white prime coat. Wall opening 11 in. wide, 28 in. high, 8⅜ in. deep. Specify by name.

Phister Fire Extinguishers

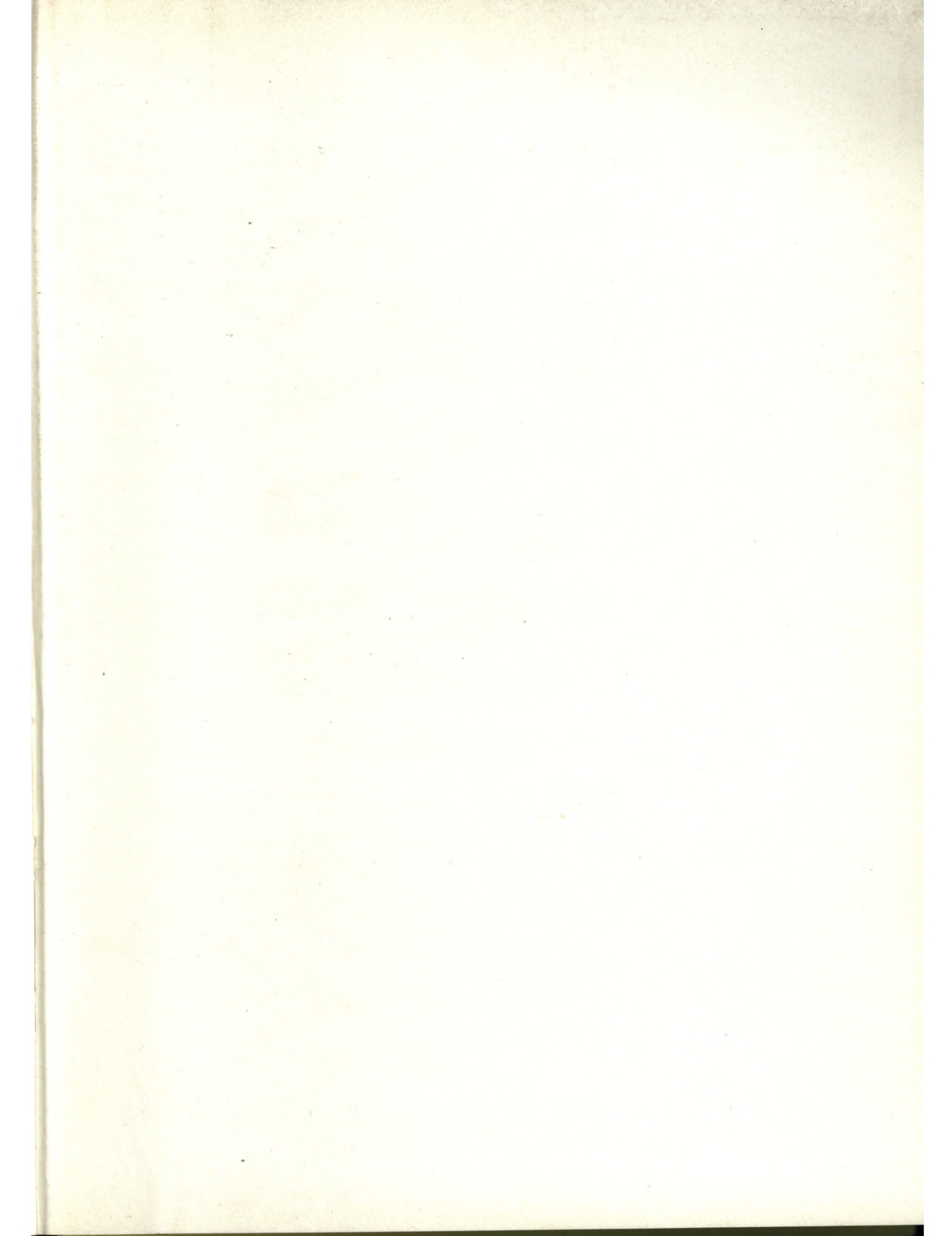
We manufacture a complete line of high grade chemical fire extinguishers.

Frequently city ordinances call for the installation of 2½-gal. soda-acid extinguishers which may be used in hose cabinets, or hung by brackets on the wall. For ordinary buildings, such as hotels, office buildings and the like, one extinguisher for every 2500 ft. of floor space is required.















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